



The Broadcast
Standards
Association



ATSC Recommended Practice: A/327:2025-07 Amendment No. 1, “TDM of ATSC with Other Broadcasting Systems”

Doc. A/327:2025-07 Amend. No. 1
9 March 2026

ATSC, the Broadcast Standards Association, is an international, non-profit organization developing voluntary standards and recommended practices for broadcast television and multimedia data distribution. ATSC member organizations represent the broadcast, professional equipment, motion picture, consumer electronics, computer, cable, satellite, and semiconductor industries. ATSC also develops implementation strategies and supports educational activities on ATSC standards. ATSC was formed in 1983 by the member organizations of the Joint Committee on Inter-society Coordination (JCIC): the Consumer Technology Association (CTA), the Institute of Electrical and Electronics Engineers (IEEE), the National Association of Broadcasters (NAB), the Internet & Television Association (NCTA), and the Society of Motion Picture and Television Engineers (SMPTE). For more information visit www.atsc.org.

© Copyright 2026 ATSC. All rights reserved.

Note: The user's attention is called to the possibility that compliance with this standard may require use of an invention covered by patent rights. By publication of this standard, no position is taken with respect to the validity of this claim or of any patent rights in connection therewith. One or more patent holders have, however, filed a statement regarding the terms on which such patent holder(s) may be willing to grant a license under these rights to individuals or entities desiring to obtain such a license. Details may be obtained from the ATSC Secretary and the patent holder.

Implementers with feedback, comments, or potential bug reports relating to this document may contact ATSC at <https://www.atsc.org/feedback/>.

Revision History

Version	Date
Amendment approved	9 March 2026
Corrected two editorial items: 1) reference to the new Section 4.2.23, and 2) Table C.1.6 caption	19 March 2026

ATSC Recommended Practice: A/327:2025-07 Amendment No. 1 “TDM of ATSC with Other Broadcasting Systems”

1. OVERVIEW

1.1 Definition

An Amendment is generated to document an enhancement, an addition or a deletion of functionality to previously agreed technical provisions in an existing ATSC document. Amendments shall be published as attachments to the original ATSC document. Distribution by ATSC of existing documents shall include any approved Amendments.

1.2 Scope

This amendment is in response to NPP-069. It describes various profiles of the physical layer, as it relates to time-domain sharing of resources between ATSC and other systems (e.g., LTE-based 5G Broadcast).

1.3 Rationale for Changes

ATSC A/322 and A/321 enable many possible PHY configurations that can natively support time-division multiplexing (TDM-ing) between ATSC and other technologies (such as LTE-based 5G Broadcast) in the same spectrum. Among these, it is beneficial to the industry to define a manageable number of configurations to be supported by packagers and receivers.

The example physical layer configuration initially provided in this amendment (in Annex C) is for the simplest setting of 1 ATSC PLP TDM-ed with other broadcasting technologies. Further configurations—including those comprising multiple PLPs—may be added in future amendments and revisions.

1.4 Compatibility Considerations

No compatibility issues are expected for receivers conforming to ATSC specifications (A/321, A/322).

2. LIST OF CHANGES

Change instructions are given below in *italics*. Unless otherwise noted, inserted text, tables, and drawings are shown in **blue**; deletions of existing text are shown in **red**. The text “[ref]” indicates that a cross reference to a cited referenced document should be inserted. **Yellow highlighted references** indicate the document editor should insert the appropriate internal document references.

2.1 Change Instructions

Add a new section: Section 4.2.23 as follows:

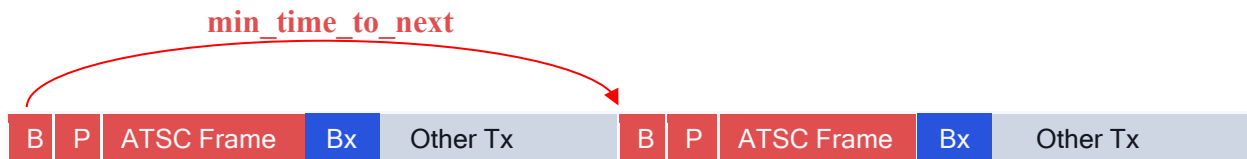
4.2.23 Discontinuous Transmission of ATSC and TDM with Other Technologies

ATSC 3.0 implements basic mechanisms for coexistence / forward compatibility, wherein by facilitating discontinuous ATSC 3.0 transmissions (such as, where successive ATSC 3.0 physical layer frames are separated in time), transmissions from other technologies (e.g., LTE-based 5G Broadcast) can be Time-Division Multiplexed in the same spectrum.

In ATSC 3.0, the discontinuous transmission facilitating forward compatibility is enabled by a combination of parameter values in the bootstrap signal (B) and the preamble (P) corresponding to the ATSC 3.0 transmission. The preamble P indicates the length of the subsequent ATSC 3.0 physical layer frame. The bootstrap B (corresponding to the ATSC 3.0 transmission, with `bootstrap_major_version = 0` and `bootstrap_minor_version = 0`) signals the minimum time interval to the next bootstrap with the same major and minor versions, using the parameter “`min_time_to_next`”. Using appropriate values for the two version parameters, ATSC 3.0 physical layer frame transmissions and other technology frame transmissions can be alternated in time (via TDM, in the same spectrum).

Further, in keeping with the system discovery principles outlined in A/321, an additional bootstrap (Bx) is transmitted at the start of the non-ATSC 3.0 transmission that follows an ATSC 3.0 physical layer frame, where other technology transmissions (such as LTE-based 5G broadcast) are Time Division Multiplexed. Importantly, this bootstrap Bx has a `bootstrap_major_version` (and potentially, a `bootstrap_minor_version`) that is (are) *different from 0*, indicating that Bx corresponds to an entry point for the *other* (non-ATSC 3.0) transmission(s).

The above description is illustrated pictorially below.



A configuration facilitating this is described in Annex C Section C.1.7.

Modify Annex C as follows:

Annex C: ATSC 3.0 Physical Layer Configurations

C.1.7 Configuration: TDM of ATSC 3.0 with Other Broadcasting Systems: 1 PLP

This provides physical layer parameter choices for a single PLP configuration to facilitate Time-Division-Multiplexing between ATSC 3.0 frames and frames of other systems (e.g., LTE-based 5G Broadcast), for a single complete delivered product. The configuration is a modified version of the one in C.1.1, with the bootstrap parameter “`min_time_to_next`” (corresponding to the ATSC 3.0 transmission) being leveraged to create TDM time intervals between successive transmissions of ATSC 3.0 frames, wherein frames from other non-ATSC 3.0 transmissions can be scheduled within such time intervals.

Table C.1.6 Physical Layer Parameters for a Single PLP to Facilitate TDM of ATSC 3.0 with Other Broadcasting Technologies

ATSC 3.0 Physical Layer Frame Duration		245.185 ms (Including Bootstrap)
Bandwidth		6 MHz
Preamble Parameters	FFT Size	32K
	Guard Interval	GI6_1536
	Pilot Pattern	SP D _x =8
	Signaling Protection	L1-Basic / Detail Mode 1
	# of Preamble Symbols	1
	Reduced Carriers	None
Bootstrap Parameters (For ATSC 3.0 transmission, with bootstrap_major_version = 0 and bootstrap_minor_version = 0)		min_time_to_next 5300 ms
Payload OFDM Parameters	FFT Size	32K
	Guard Interval	GI6_1536
	Pilot Pattern	SP D _x =16, D _y =2
	Pilot Boosting	No Pilot Boosting
	# of Payload Symbols	47
	Time Interleaver	CTI (1024 depth)
	Frequency Interleaver	On
	First / Last SBS	On / On
Payload BICM Parameters	Outer Code	BCH
	Inner Code	9/15 LDPC (64800)
	Constellation	256QAM
PHY Data Rate		25.158 Mbps (per ATSC Physical Layer Frame)
Required SNR (AWGN)	Simulation	15.7 dB
	Lab. Test	16.5 dB
	Field Test	16.8 dB
Required SNR (RC20)	Simulation	16.1 dB
	Lab. Test	17.1 dB
	Field Test	18.1 dB
Required SNR (RL20)	Simulation	18.1 dB
	Lab. Test	19.3 dB
	Field Test	18.0 dB

Note: For discontinuous transmission of ATSC 3.0 frames as described above, depending on the time intervals between successive ATSC 3.0 frames, video quality may be influenced by the buffering capabilities of receivers.

– End of Document –