Contents

1 Scope

This document presents recommended practices regarding the TV 3.0 Emergency Warning System, defined in [1], (extended and adapted version of the ATSC 3.0 System Discovery and Signaling, defined in [3]). In addition, AEAT specific configurations for the Brazilian scenario are presented in Annex A (AEA).

2 References

The following documents are cited in the text in such a way that their contents, in whole or in part, constitute requirements for this document. For dated references, only the editions cited apply. For undated references, the most recent editions of that document (including amendments) apply.

ABNT NBR 25607, *TV 3.0 – Emergency Warning System*

ABNT NBR 25607, *TV 3.0 – Receivers*

Recommendation ITU-T X.1303 bis, Common alerting protocol (CAP 1.2)

ATSC A/331:2025-10, Signaling, Delivery, Synchronization, and Error Protection

3 Terms and Definitions

For the purposes of this Document, the terms and definitions described at ABNT NBR 25607 should be used.

4 Abbreviations

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

AEA	Advanced Emergency informAtion
AEAT	Advanced Emergency informAtion Table
ATSC	Advanced Television Systems Committee
CAP	Common Alert Protocol
COBRADE	Brazilian Disaster Classification and Coding
DTV	Digital TeleVision
OTA	Over the Air
OTT	Over the Top
URL	Uniform Resource Locator

5 Emergency Alert Monitoring

It is recommended that receivers defined in ABNT NBR 25609 [2] follow the guidelines for monitoring emergency alerts, in accordance with Table 1.

Table 1 - Recommendations for monitoring emergency alerts.

Condition	**Number of available tuners**	**Monitoring OTA transmission**	**Monitoring OTT transmission**
Receiver on standby	0	Not applicable	Perform monitoring via OTT from any of the Bootstrap Applications that provide a monitoring URL, at the manufacturer's discretion.
Receiver on standby	1 or more	With any of the available tuners, tune to the physical channel with the strongest signal among those that have DTV service that broadcasts emergency alerts. Monitor the Wake-up Field of the Bootstrap Signal [REFA331].	Not applicable
Receiver **turned on** and outside the context of DTV service.	0	Not applicable	Perform monitoring via OTT from any of the Bootstrap Applications that provide a monitoring URL, at the manufacturer's discretion.
Receiver **turned on** and outside the context of	1 or more	With any of the available tuners, tune to the physical channel with	Not applicable

DTV service.		the strongest signal among those that carry DTV service, which broadcasts emergency alerts. Monitor alerts on this service.	
Receiver **turned on** and in the context of a DTV service, that indicates it is an OTA emergency alert transmitter.	0	Monitor alerts on the current service via OTA.	Not applicable
Receiver **turned on** and in the context of a DTV service, that does not indicate it is an OTA emergency alert transmitter.	0	Not applicable	Perform monitoring via OTT from any of the Bootstrap Applications that provide a monitoring URL, at the manufacturer's discretion.
Receiver **turned on** and in the context of a DTV service, that indicates it was an OTA emergency alert transmitter.	1 or more	Monitor alerts on the current service via OTA.	Not applicable
Receiver **turned on and** in the context of a DTV service, that does not indicate it is an OTA emergency alert transmitter.	1 or more	With any of the available tuners, tune to the physical channel with the strongest signal among those that carry DTV service, which broadcasts emergency alerts. Monitor the alerts on this service.	Not applicable

6 Conversion CAP (Common Alert Protocol) to AEA

The equivalence conversion table between CAP and AEA is presented in Table 2. The specifications following the table provide the semantics of the fields.

Table 2 - Equivalence table between CAP and AEA

CAP fields	**AEA fields**
Message ID (cap.alert.identifier.identifier)	AEAT.AEA@aeaId
Sender ID (cap.alert.sender.identifier)	AEAT.AEA@sender
Source (cap.alert.source.identifier)	AEAT.AEA@issuer

Effective Time (cap.alertInfo.effective.time) **(priority 1)**[1]	AEAT.AEA.Header@effective
Onset Time (cap.alertInfo.onset.time) **(priority 2)**	
Sent Date (cap.alert.sent.time) **(priority 3)**	
Expiration Time (cap.alertInfo.expires.time)	AEAT.AEA.Header@expires
Message Status (cap.alert.status.code) (Actual, Exercise, System, Test, Draft)	No equivalence
Message Type (cap.alert.msgType.code)	AEAT.AEA@aeaType
Scope (cap.alert.scope.code)	AEAT.AEA@audience
Restriction (cap.alert.restriction.text) **(concat)**[2]	AEAT.AEA@subAudience
Addresses (cap.alert.addresses.group) **(concat)**	
Audience (cap.alertInfo.audience.text) **(concat)**	
Handling Code (cap.alert.code.code)	No equivalence
Note (cap.alert.note.text)	No equivalence
Reference IDs (cap.alert.references.group)	AEAT.AEA@refAEAId
Incident IDs (cap.alert.incidents.group)	No equivalence
Event Category (cap.alertInfo.category.code)	AEAT.AEA@category
Language (cap.alertInfo.language.code)	AEAT.AEA.AEAText@lang
	AEAT.AEA.Header.EventDesc@lang

[1] Fields with priority indicated must apply equivalence using the lowest priority. When the field with the lowest priority is not present in the CAP, the next priority field must be used.
[2] Fields with the “concat” label, when presented, shall be concatenated following the order presented in this table, to create the equivalence.

Event Type (cap.alertInfo.event.text)	AEAT.AEA.Header.EventDesc
Event Code (cap.alertInfo.eventCode.code.valueName)	AEAT.AEA.Header.EventCode@type
Event Code (cap.alertInfo.eventCode.code.value)	AEAT.AEA.Header.EventCode
Severity (cap.alertInfo.severity.code)	AEAT.AEA@priority
Urgency (cap.alertInfo.urgency.code)	No equivalence
Certainty (cap.alertInfo.certainty.code)	No equivalence
Headline (cap.alertInfo.headline.text) **(concat)**	AEAT.AEA.AEAText
Event Description (cap.alertInfo.description.text) **(concat)**	
Instructions (cap.alertInfo.instruction.text) **(concat)**	
No equivalence	AEAT.AEA.LiveMedia
Resource (cap.alertInfoResource.resource.group)	AEAT.AEA.Media
Language (cap.alertInfo.language.code)	AEAT.AEA.Media@lang
Description (cap.alertInfoResource.resourceDesc.text)	AEAT.AEA.Media@mediaDesc
No equivalence	AEAT.AEA.Media@mediaType
Mime Type (cap.alertInfoResource.mimeType.identifier)	AEAT.AEA.Media@contentType
URI (cap.alertInfoResource.uri.identifier)	AEAT.AEA.Media@url
File Size (cap.alertInfoResource.size.integer)	AEAT.AEA.Media@contentLength
No equivalence	AEAT.AEA.Media@mediaAssoc
No equivalence	AEAT.AEA.Media@alternateUrl

Dereferenced URI (cap.alertInfoResource.derefUri.data)	No equivalence
Digest (cap.alertInfoResource.digest.code)	No equivalence
Area (cap.alertInfoArea.area.group)	AEAT.AEA.Header.Location
Area Description (cap.alertInfoArea.areaDesc.text)	No equivalence
Area Polygon (cap.alertInfoArea.polygon.group)	AEAT.AEA.Header.Location and AEAT.AEA.Header.Location@type
Area Circle (cap.alertInfoArea.circle.group)	
Area Geocode (cap.alertInfoArea.geocode.code)	
Altitude (cap.alertInfoArea.altitude.quantity)	No equivalence
Ceiling (cap.alertInfoArea.ceiling.quantity)	No equivalence

The value of the CAP Language field (cap.alertInfo.language.code) must be set in two AEAT fields, AEAT.AEA.AEAText@lang and AEAT.AEA.Header.EventDesc@lang.

The CAP Severity field (cap.alertInfo.severity.code) shall have its values related to the possible AEAT priority values (AEAT.AEA@priority) according to the equivalence described in Table 3.

Table 3 - Equivalence between the values of the fields cap.alertInfo.severity.code and AEAT.AEA@priority

Cap.alertInfo.severity.code (string)	**AEAT.AEA@priority (interger)**
“Extreme”	4 (Maximum)
“Severe”	3 (High)
“Moderate”	2 (Moderate)
“Minor”	1 (Low)
“Unknown”	0 (Minor)

Each field Area Polygon (cap.alertInfoArea.polygon.group), Area Circle (cap.alertInfoArea.circle.group), Area Geocode (cap.alertInfoArea.geocode.code) shall be converted to a pair of fields of AEAT.AEA.Header.Location

and AEAT.AEA.Header.Location@type. Multiples AEAT.AEA.Header.Location and AEAT.AEA.Header.Location@type can be used.

Annex A

Advanced Emergency informAtion (AEA)

A.1 Alert message configuration and format

Several AEAT fields should be configured according to the descriptions found in Table A.1 when used at Brazil.

Table A.1 - Mapping of the fields and configurations.

Field	**Configuration**
EventCode	This string element shall identify the event type of the AEA message formatted as a string. Values may differ from nation to nation, and may be an alphanumeric code, or may be plain text. For **Brazil**, the values should be a code number formatted with 6 numbers, from the Brazilian Disaster Classification and Coding (COBRADE) [2]. E.g., a value of "1.2.2.0.0" would be used to denote flooding (*enxurradas*).
EventCode@type	This attribute shall be a national-assigned string value that shall designate the domain of the EventCode. Values of @type that are acronyms should be represented in all capital letters without periods. If @type="COBRADE", then the EventCode shall be defined as code number formated with 5 numbers, from the COBRADE [2].

Bibliography

[1] Brazilian Standard. TV 3.0 – Emergency Warning System. ABNT NBR 25607. First Edition, 01 December 2025.

[2] Brazilian Standard. TV 3.0 – Receivers. ABNT NBR 25609. First edition, 01 December 2025.

[3] ATSC Standard: System Discovery and Signaling. A/321:2025-07, 17 July 2025.

[4] Recommendation ITU-T X.1303 bis, Common alerting protocol (CAP 1.2)