

# 1 Conformance Class

## 2 IEC/IEEE 60802

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### 6 **Abstract**

7 This document describes an example Conformance Class based on “60802-Steindl-  
8 ExampleSelections-0119-v02.pdf” as a starting point for feature alignment.

9 The parameters and values given in this document are presenting the ongoing  
10 discussions. Currently there is no agreement which attributes, parameters and values are  
11 mandatory within the profile.

12

13 Parameters are moved to “60802-Steindl-et-al-ExampleSelectionTables-1119-v17.pdf”.

14 **Log**

V0.1	Initial version
V0.5	Update with Example Selections “Y” and “Z”
V0.6	Update after discussion in IEC/IEEE 60802
V0.7	Update after discussion in IEC/IEEE 60802
V1.0	Initial public version for IEC/IEEE 60802
V1.2	Version created during Edinburgh meeting
V1.3	Version created in preparation for Hawaii meeting
V1.4	Version created during Hawaii meeting
V1.5	Version created after Hawaii meeting
V1.6	Update after discussion in IEC/IEEE 60802
V1.7	Tables moved to Excel for easier handling

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69 **Figures**

70 **Es konnten keine Einträge für ein Abbildungsverzeichnis gefunden werden.**

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75 **Tables**

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99 **2 Terms and Definitions**

100 **2.1 Definitions**

Conformance Class

A selection of IEC and IEEE features and quantities which allows to solve the required use cases.

101 **2.2 IEEE802 terms**

Priority regeneration

See IEEE 802.1Q-2018 clause 6.9.4 Regenerating priority

Ingress rate limiting

See IEEE 802.1Q-2018 clause 8.6.5 Flow classification and metering



## 102 3 TSN in Industrial Automation

### 103 3.1 General

104 Supporting a Conformance Classes shall allow interoperability for Bridges and End-Station  
105 as defined in the scope of IEC/IEEE 60802.

106 The document contains chapters for full-blown and constraint devices.

107

108 *Editor's note:*

109 *Please make all changes with "track changes on"*

110

### 111 3.2 Conformance Class

#### 112 3.2.1 Standard selection

##### 113 3.2.1.1 General

114 A Conformance Class selects out of the following standards

115 IEEE802.3-2018 - IEEE Standard for Ethernet

116 IEEE802.1Q-2018 - Bridges and Bridged Networks

117 IEEE802.1AB-2016 - Station and Media Access Control Connectivity Discovery

118 IEEE802.1AS-2020 - Timing and Synchronization for Time-Sensitive Applications

119 IEEE802.1CB-2017 - Frame Replication and Elimination for Reliability

120

##### 121 3.2.1.2 Terms

###### 122 **Supported:**

123 This feature is used in any class of device

###### 124 **Support, but optional:**

125 This feature is intended to be used in some class of device.

126 For silicon vendors, these topics may be "supported", too.

###### 127 **Not used:**

128 The used and thus the support of this feature is not intended.

###### 129 **Ω / TBD:**

130 Not provided until agreed release date for this version.

###### 131 **—:**

132 No quantities, because the assigned feature is not supported.

###### 133 **???:**

134 The responsible editor is not able to fill this cell without a discussion with the other  
135 contributors.

136

### 137 **3.3 Full-blown devices**

#### 138 **3.3.1 Common**

##### 139 **3.3.1.1 IEEE 802.3**

140 See "60802-Steindl-et-al-ExampleSelectionTables-1119-v17.pdf"

141 2019-11-12:

142 Restricting the supported data rates in the profile seems not to be needed.

#### 143 **3.3.2 Bridge**

##### 144 **3.3.2.1 IEEE 802.1Q**

145 See "60802-Steindl-et-al-ExampleSelectionTables-1119-v17.pdf"

##### 146 **3.3.2.2 IEEE 802.1AB**

147 See "60802-Steindl-et-al-ExampleSelectionTables-1119-v17.pdf"

##### 148 **3.3.2.3 IEEE 802.1AS**

149 See "60802-Steindl-et-al-ExampleSelectionTables-1119-v17.pdf"

##### 150 **3.3.2.4 IEEE 802.1CB**

151 See "60802-Steindl-et-al-ExampleSelectionTables-1119-v17.pdf"

##### 152 **3.3.2.5 IEC standards**

153 See "60802-Steindl-et-al-ExampleSelectionTables-1119-v17.pdf"

#### 154 **3.3.3 End-station**

##### 155 **3.3.3.1 General**

156 See "60802-Steindl-et-al-ExampleSelectionTables-1119-v17.pdf"

### 157 **3.4 Constraint devices**

#### 158 **3.4.1 Common**

##### 159 **3.4.1.1 IEEE 802.3**

160 See "60802-Steindl-et-al-ExampleSelectionTables-1119-v17.pdf"

161 2019-11-12:

162 Restricting the supported data rates in the profile seems not to be needed.

#### 163 **3.4.2 Bridge**

##### 164 **3.4.2.1 IEEE 802.1Q**

165 See "60802-Steindl-et-al-ExampleSelectionTables-1119-v17.pdf"

##### 166 **3.4.2.2 IEEE 802.1AB**

167 See "60802-Steindl-et-al-ExampleSelectionTables-1119-v17.pdf"

##### 168 **3.4.2.3 IEEE 802.1AS**

169 See "60802-Steindl-et-al-ExampleSelectionTables-1119-v17.pdf"

170 **3.4.2.4 IEEE 802.1CB**  
171 See "60802-Steindl-et-al-ExampleSelectionTables-1119-v17.pdf"

172 **3.4.2.5 IEC standards**  
173 See "60802-Steindl-et-al-ExampleSelectionTables-1119-v17.pdf"

### 174 **3.4.3 End-station**

175 **3.4.3.1 General**  
176 See "60802-Steindl-et-al-ExampleSelectionTables-1119-v17.pdf"

177

## 178 **4 "Constraint" devices**

### 179 **4.1 General**

180 The understanding of the term "constraint" needs to be aligned between the different  
181 contributors.

182 The following chapters show the understanding of the contributors.

183

### 184 **4.2 Question**

185 Following questions are of interest for the discussion:

186

- 187 1. What is your understanding of constraint bridge or end-station?
- 188 2. Shall a vendor independent mix between "full-blown" and "constraint" devices in one  
189 TSN Domain be supported?
- 190 3. Shall a vendor independent mix between "full-blown" devices in one TSN Domain  
191 be supported?
- 192 4. Shall a vendor independent mix between "constraint" devices in one TSN Domain  
193 be supported?
- 194 5. Shall a vendor independent mix between "full-blown" and vendor dependent  
195 "constraint" devices in one TSN Domain be supported?
- 196 6. Is it enough to support a vendor dependent mix of "constraint" devices in one TSN  
197 Domain?
- 198 7. Does the usage of end-stations follow the same model?

199

200

### 201 **4.3 Feedback from contributors**

#### 202 **4.3.1 AB**

203 "Constraint" means an end station or a bridge which presents limitations, in terms of:

- 204 • Hardware
- 205 • Ports count (i.e. less than three external ports): exception for "constraint bridges", not  
206 applicable for "constraint end stations": I would propose to avoid considering this topic as  
207 relevant for the "constraint" bridges discussion, even if it intuitively belongs here. I believe  
208 this is related to the chosen topology, see again the example system.
- 209 • Ports data rate (i.e. power dissipation constraints, due to form factor size)

- 210 • Power supply (i.e. redundant or not)
  - 211 • Timestamping capabilities
  - 212 • Ingress and egress queue size
  - 213 • ...
  - 214 • Software
  - 215 • QoS functions (i.e. traffic shapers, cut-through capabilities, frame preemption, ingress
  - 216 policing, presence of more than one TSN configuration mechanism)
  - 217 • Clock synchronization functions
- 218 Network Access capabilities
- 219 • Media redundancy functions
  - 220 • ...
- 221 We should be able to mix in a TSN domain, both constrained and fully capable end stations
- 222 Mixing constrained and fully capable bridges in a system is dependent on the topology and less on
- 223 the TSN domains demarcation, see my example system
- 224 **4.3.2 Others**
- 225 TBD
- 226

227  
228 Literature and related Contributions

229 Literature:

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