

eCPRI Update for TSN

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Common Public Radio Interface: Requirements for the eCPRI Transport Network V1.2

1.1. Per flow requirements

1.1.1. Split E and splits I_D, I_{LD}, I_U

Table 1 is applicable for the functional decompositions splits E and I_D, I_{LD}, I_U as defined in **Error! Reference source not found.**

Table 1 Split E and splits I_D, I_{LD}, I_U requirements

| CoS Name | Example use | Maximum One-way Frame Delay Performance (see section Error! Reference source not found.) | Maximum One-way Frame Loss Ratio Performance (see section Error! Reference source not found.) |
|----------|--|--|---|
| High | User Plane (fast) | See Table 1.A | 10 ⁻⁷ |
| Medium | User Plane (slow), C&M Plane (fast) | 1 ms | 10 ⁻⁷ |
| Low | C&M Plane | 100 ms | 10 ⁻⁶ |

To enable usage of Transport Networks with different characteristics (different number of switching hops, different length of fiber links, ...), four different latency classes for CoS 'High' are defined in Table 1A. The maximum one-way frame delay requirement value includes fiber propagation delay and switching delay (see section **Error! Reference source not found.**).

A Transport Network supplier needs either to comply with per data-flow requirements or to state which latency classes for data flows the Network supports for a given average bandwidth usage.

Table 1A Split E and splits l_D, l_B, l_U Latency classes for CoS 'High'

| Latency Class | Maximum One-way Frame Delay Performance (see section Error! Reference source not found.) | Use case |
|---------------|---|---|
| High25 | 25 μ s | Ultra-low latency performance |
| High100 | 100 μ s | For full E-UTRA or NR performance |
| High200 | 200 μ s | For installations where the lengths of fiber links are in the 40 km range |
| High500 | 500 μ s | Large latency installations |

For latency classes High25 and High100, a transport network delay budget larger than the one specified (thus a smaller delay budget for the eREC/eRE) may degrade the mobile network performance.

Industry leaders releasing new functionality for the eCPRI Specification for 5G – eCPRI 2.0

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CPRI, the Industry Initiative for a Common Public Radio Interface and front-haul continues to evolve: CPRI cooperation has agreed to work for an updated specification eCPRI (2.0). The new specification will enhance the support for the 5G Front-haul by providing functionality to support CPRI (7.0) over Ethernet allowing for CPRI and eCPRI interworking.

Following the successful program to enhance the CPRI Specification to support novel Radio Access Technologies, increasing capacity demands as well as efficient front-haul, Ericsson, Huawei Technologies, NEC and Nokia will release the updated eCPRI specification in Q4, 2018, in addition to existing specifications, to encompass the developments for 5G.

The eCPRI V2.0 specification offers eCPRI – CPRI interworking features e.g.

- Extends eCPRI flexibility for fronthaul transport between eCPRI nodes and CPRI nodes
- Minimize bandwidth requirement by intelligent CPRI mapping
- Enables co-existence of new and legacy equipment in the same front-haul

In addition to the new eCPRI 2.0 specification, the work continues to further develop the existing CPRI specifications to keep it as a competitive option for all deployments with dedicated fiber connections in Fronthaul including 5G.