

**Title:** CPRI TWG response to Liaison on the “Category A+” TAE Requirement  
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## 1 Response

CPRI cooperation appreciates receiving the liaison statement from IEEE 1914 Next Generation Fronthaul Interface (NGFI) Working Group. We have reviewed with interest your comments and suggestion. Please find below our feedback.

*As part of IEEE P1914.1 work at our September 2018 meeting, we discussed Time Alignment Error requirements at the radios in a fronthaul network. Considering recent industry progress in this area, we concluded that the “Category A+” requirement of 65 ns (Multiple-Input and Multiple-Output or transmit diversity radio access technologies) applies to co-located transmitter groups in the same Remote Unit and that the network is not involved in the synchronization of these transmitter groups. Therefore, we are planning to not cover this in IEEE P1914.1.*

CPRI TWG considers this conclusion not entirely accurate. While it is true that in most of cases, the “Category A+” requirement of 65 ns (Multiple-Input and Multiple-Output or transmit diversity radio access technologies) would apply to co-located transmitter groups in the same Remote Unit, co-located transmitter groups in different Remote units for MIMO or TX-diversity transmission may exist as a lower priority, yet possible deployment scenario. Nevertheless, CPRI TWG recognizes that there are issues in supporting this lower priority case given that:

- It requires a non-standard T-TSC (i.e. beyond Class A, B or even C – and perhaps D) with narrow-band filtering in the NE to achieve the 3GPP frequency accuracy at the air interface. With a standard ITU-T T-TSC, the RE end application clock in the radio unit would have to support very narrow-band filtering to eliminate noise from the NE and this would require a high-cost oscillator with high temperature stability to be able to achieve the required timing accuracy.
- It requires a non-standard interface (e.g. 1PPS but not necessarily only 1PPS) and so would only be supportable as part of a proprietary solution.

Therefore, inter-vendor interoperability would be very difficult to achieve.

*In the interest of alignment, we would recommend that this topic be revisited in the context of the collaboration between IEEE 802.1 and CPRI Cooperation as we believe the “Category A+” requirement should be removed from IEEE Std 802.1CM.*

CPRI Cooperation does not aim for inter-vendor interoperability in its own specifications and does not plan to provide additional details that would be required to achieve such interoperability in this lower priority case. Therefore, after revisiting the topic, and considering both the unavailability of the standard T-TSC that Category A+ would require and IEEE 802.1CM focus on standard-based interoperable solutions, CPRI TWG takes the opportunity of this liaison response to inform IEEE 802.1 that CPRI TWG no longer considers Category A+ as a requirement for IEEE 802.1CM. Additionally, CPRI is considering adding further clarifications to a future edition of the requirement document [1] concerning constraints associated with Category A+.

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## 2 References

- [1] [Requirements for the eCPRI Transport Network V1.2](http://www.cpri.info/), <http://www.cpri.info/>