

# Rebuttal to Proposals to Shift 802.3dj TX/RX OMA Requirements

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# Recommendation: Comments 72 & 73

Based on the review of the [welch\\_3dj\\_adhoc\\_01](#) contribution from the 04/21/26 ad hoc and the subsequent straw poll:

- Recommend rejection of comments 72 & 73 which proposed changes to Tx OMA<sub>outer</sub> and Rx Sensitivity (OMA<sub>outer</sub>)

Straw Poll Result: April 21, 2026 Ad Hoc  
**Straw Poll #1**

I support a reduction in Tx OMA<sub>outer</sub> and Rx Sensitivity (OMA<sub>outer</sub>) specs per [he\\_m\\_3dj\\_adhoc\\_01a\\_260421](#)

Y: 11, N: 26, A: 18

# Materials for Q&A

If Needed

# Risk of Changing OMA: Interop

- Very late in project to make a change to such a critical specification.
  - Over two years since publication of D1.0 specification.
- Considerable product already built, tested, and deployed
- **Any “new” product would need to interoperate with those already in the field**
  - Reductions in TP2 OMA spec unlikely to be accepted by the broad market
  - If adopted customers likely to reference earlier 802.3 drafts (3.0 or earlier) to maintain TP2 power levels.

# Risk of Changing OMA: Margin

- Customer specifications usually require generous BER margin to receiver sensitivity, to protect against FEC bin extension in large scale deployments.
  - Margin is also required for over temperature, process and aging
- Industry generally aligned to two decades of margin at/near sensitivity limit, with an operating BER requirement of  $\leq 2e-6$  (across the operating OMA power range).
  - **OMA (dBm) margin is not a reliable indicator of BER margin.**

# Risk of Changing OMA: Implementation

- Various implementations of 802.3dj compliant optical receivers exist in the market:
  - Fully Retimed Optics (Modules): FRO
  - Linear Receiver Optics (Modules): LRO (aka, TRO, RTLRL)
  - Co-Packaged Optics: CPO
- Data presented thus far (to task force) almost exclusively FRO
  - Some LRO simulation data in `he_m_3dj_adhoc_01b_260421`
- **LRO and CPO solutions have more receiver impairments than FRO: Additional loss between TIA and SERDES.**

# Summary

- Specification changes to OMA this late in the project should only be considered if something is found to be broken.
  - “Optimization” changes should be rejected due to the interop risk they create.
  - Burden of proof for any changes should be **VERY** high: Considerable test data across multiple module types, from multiple vendors, in multiple hosts
- Suggested benefit of changes has not been reported/quantified.
- Data presented so far shows little/no margin to the end user requirements
  - Degradation to transceiver yield likely if receiver specification requirement made more stringent.
  - Receivers also need margin to allow for interoperability across temperature, process and aging.
- **Proposed TP2 changes liked to be ignored by end users.**