



# MANUFACTURER INPUT ON FREQUENCY RANGE

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# SUPPORTERS

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# BACKGROUND

- In an attempt to gather data to support a decision on the frequency range to use in this standard, reached out to coherent transceiver manufacturers that participate in the CableLabs spec effort for input
  - Note that the question was not asked in the context of a specific data rate (100 vs 200 vs 400 Gbps); as such, the results should be generally applicable for both @ 100 Ghz channel spacing
- Four manufacturers responded, herein referred to as Mfg A, B, C, and D
- This contribution summarizes their responses, and identifies possible paths forward based on that information

# QUESTIONS TO MANUFACTURERS

- Existing channel ranges we could leverage:
  - OIF: 191.4 to 196.1 THz, 48 channels
  - ITU: 191.5 to 196.2 THz, 48 channels
  - CableLabs: 191.3 to 196.2 THz, 50 channels
- Questions asked (based on that context)
  1. For the devices that your company produces (transceiver, EDFA, mux, etc.), what is the relative cost of a 40 channel device vs. a 48 channel device vs. a 50 channel device?
  2. For that same device (or devices), are there any specific channels within the CableLabs range that might cause issues and increase device cost? For example, is 191.3 or 191.4 THz a problem? How about 196.2 THz?
  3. Are there any other factors (particularly cost factors) related to channel ranges that we should be taking into account?

# MFG A RESPONSE

- “We have discussed this internally and our preference is to not standardize 196.2 THz. Our parts are tested to support the range from 191.15 to 196.1. There are some high-end applications that go beyond our standard range and all of them require special development and/or testing that increases costs.”

## MFG B RESPONSE

- “We would prefer the OIF channel plan – some existing C-band tunable lasers have trouble extending all the way to 196.2THz.”
- “There isn’t a meaningful difference between 40 vs. 48 vs. 50 channels.”

# MFG C RESPONSE

## 1. 40/48/50 channel relative cost

- Mux/Demux: if 40 channel is 100%, 48 channel is ~105-120%, 50 channel is ~125%
- Tunable laser: no difference

## 2. Channels that might cause issues

- None for mux/demux or tunable laser

## 3. Any other cost factors

- None

# MFG D RESPONSE

## 1. 40/48/50 channel relative cost

- Relative costs are the same

## 2. Channels that might cause issues

- “We propose 191.3 to 196.1 THz.”

- “We have been in discussions with two ITLA vendors that can support the CableLabs frequency range (191.3 to 196.2 THz, 50 channels) with no cost impact. However, another vendor cannot support this range and told us that their supported range is 191.3 to 196.1 THz, because their laser chip doesn’t cover the range at this moment. This vendor told us that a chip modification would be needed to support it.”



# SUMMARY AND CONCLUSIONS

- Perspectives on frequency range for transceiver depend on the ITLA (Integrable Tunable Laser Assembly) being used by a particular manufacturer
  - Some are able to cover the entire 50 channel range defined in the CableLabs specs
  - At least one is only able to cover 48 channels up to 196.1 THz
- There is a cost difference for the mux/demux, although this is network operator purchased equipment
- Since we've agreed that we're defining a permissible range and not a mandatory range, first preference still to adopt CableLabs 50 channel range
- However, if the preference is for lowest common denominator – in case of customers requiring full 802.3ct defined range – then this suggests we should adopt OIF range of 191.4 to 196.1 THz

The background is a solid teal color with a subtle gradient. In the four corners, there are decorative white line-art patterns resembling circuit traces or neural network connections. These patterns consist of straight lines of varying lengths and thicknesses, ending in small circles. The patterns are most prominent in the top-left and bottom-left corners, and less so in the top-right and bottom-right corners.

THANKS!