1000BASEX Extended Temperature Optics

Extended Temperature Optics

- Issues
- Proposed Requirements
- Summary

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Background

- **For FTTx applications, the demarcation point may be physically located outside the premises**
  - e.g FTTC, FTTH, FTTB etc. using PON, Single SMF or Duplex SMF
- **Outside conditions could vary significantly**
  - Sunny Arizona summer vs. Cold Minnesota Winter
- **Depending on the particular application and customer the demarcation point could be restricted in both physical location and physical size making the CPE highly susceptible to the extreme environment and limiting airflow**
  - For instance a small box on the side of a house or a small module on a pole

Issues with Limiting the operating temperature

- **We have the option of specifying that the CPE be operated within a protected environment or we specify a wider operating range to accommodate the extreme temperature.**
  - Limiting the operating temperature will require some sort of climate control like A/C or limit the CPE to be located inside the customer premises
- **Requiring climate control for the CPE will limit the ability to deploy optical EFM solutions as it will add cost to the overall system**
  - e.g. in a hot and humid climate this will require an A/C system=> additional cost
- **Requiring climate control for the CPE will limit the ability to deploy optical EFM solutions as it may reduce the overall reliability of the system**
  -reliability will be limited to that of the A/C system
- **Specifying that the CPE be operated within the customer premise will also limit the ability to deploy optical EFM solutions as it will limit the ability of the provider to service the equipment**
  - provider will need to schedule appointments to service equipment
- **Solution: Specify an extended range of operation for the CPE**
  - key component is the optics

Summary: Requirement on Optics

- The optics temperature range will be very critical
- Currently most enterprise optics are specified to work in a 0 - 70C case temperature Range
- We will need to define a new acceptable range to look at
  - some suggestions are a case temperature of -20 to 85C / -40 to 85C
- The benefit to specifying the range is that this will become a design target rather than a screening process which will drive costs down for extended temperature optics
- Commonality in the industry
- We will need to consider this when defining the optical budgets for these port types
- Need proposals and technical work on temperature range vs. cost increment