

5.9 Power Saving

Power conservation and reduction of the carbon footprint of access networks is globally recognized as one of the technical targets for the optical access networks. The objectives of the power-saving mechanisms are to reduce ecological impact, reduce operating cost, and extend battery backup time (if supported by the given product), while minimizing any degradation of network performance to maintain the configured SLA.

It is expected that NG-EPON supports power-saving mechanism available today for 1G-EPON and 10G-EPON systems, defined in [1904.1], providing decreased power consumption for ONUs while maintaining the configured SLA. The power-saving mechanism should be fully configurable on per ONU or OLT port basis, providing the operator with full control of the sleep period, detection threshold for ONU inactivity, etc. The NG-EPON OLT should support a mix of ONUs with enabled power-saving mechanism and with disabled power-saving mechanism on the same OLT port. The NG-EPON OLT should support different configuration parameters for the power-saving mechanism for different groups of ONUs on the same OLT port.

At the same time, it is also expected that NG-EPON OLT implement more advanced power-saving mechanisms, disabling inactive OLT ports, inactive wavelengths on OLT ports, whole line cards (when inactive), etc. OLT power saving mechanism become increasingly important for high-density optical access platforms to avoid substantial increase in drawn power, but also in cooling / ventilation necessary to keep the OLT within its operating conditions.

9 References

- [1904.1] IEEE 1904.1-2013, IEEE Standard for Service Interoperability in Ethernet Passive Optical Networks (SIEPON), June 2013