



Global Optoelectronics

HiPPI Optical Link Budget Proposal

(Breaking the Laser Safety Log Jam)

HiPPI - 6400 Optical Working Group

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- CDRH 1040.1 document applies in U.S.
 - Class 1 or Class 3b only (no Class 3a for 850nm)
 - Accessible Emission Limits for Class 1 operation (12 fiber array):
 - » - 6 dBm per fiber for NA of 0.2
- IEC 825-1 document applies for rest of world
 - Class 3a is applicable for 850nm
 - Accessible Emission Limits for Class 3a operation (12 fiber array):
 - » - 3 dBm per fiber for NA of 0.2
- Requirements for Class 3a operation:
 - Labeling at Tx port and all connector interfaces.
 - Location in “restricted” environment. I.E. not accessible to general public. Examples include commercial & industrial premises.
 - If environment is unrestricted, use of tool required to remove connector from Tx port.



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- **Transmitter**
 - **Launch power:** -6 to -12 dBm
- **Receiver**
 - **Sensitivity:** -18 dBm (BER = 10^{-12})
- **Link Budget**
 - **Connectors:** 2 dB (2 connector pairs max.)
 - **Cable:** 2 dB
 - **Power penalties:** 2 dB
 - **Total link budget:** 6 dB
- **Summary - This proposal provides:**
 - **Class 1 product for the US market per CDRH 1040.1**
 - **Class 3a product for the rest of the world per IEC 825 -1**