APPENDIX D

Fiber and Connector Losses in Raman Link Configuration

This appendix provides important guidelines to be followed when configuring a Raman link regardless of whether you are configuring the Raman link using the Raman installation wizard or the CiscoTransport Planner (CTP) XML file. Ensuring the desired gain and gain flatness is critical to the success of the configuration.

The Raman installation wizard automatically addresses any deviation in connector and fiber splice loss values by displaying warning messages appropriately, provided they are within the limits detailed in Table D-1 on page D-2. However, configuration of the Raman link using the CTP XML file is based on the algorithms within CTP. Any deviation in the connector and fiber splice losses values leads to unpredictable behavior of the entire system, in terms of Raman tilt and optical signal-to-noise ratio (OSNR). For these reasons, configuring the Raman link using the Raman installation wizard is preferred than configuring using the CTP XML file.

Table D-1 on page D-2 contains the following fields:

- Conditions—Limit for connector losses were measured under the following conditions:
  - No splice losses—Ideal conditions.
  - Splice 0.1 dB every 2 km or 0.2 dB splice every 4 km—The maximum acceptable values that can be considered when configuring Raman link.
  - Splice 0.1 dB every 4 km—The limit for connector losses values shows a realistic situation.
- Fiber type—The various fiber types used are:
  - Single Mode Fiber (SMF)
  - Enhanced large effective area fiber (ELEAF)
  - TrueWave RS (TW-RS)
- Target Gain—Expected Raman gain.
- Minimum Span [dB]—For the Raman link configuration to be successful, the span loss should be equal or greater than the value shown in Table D-1 on page D-2.
- Limit for Connector Losses—Connector losses values that must not exceed for configuration to be successful.

Note Table D-1 on page D-2 shows values that were estimated under ideal test conditions and may differ depending on the actual fiber type used, distance, etc.

Table D-1 Limit for Connector Losses

Conditions	Fiber Type	Minimum Span Loss [dB]		Target Gain [dB]		Limit for Connector Losses [dB]
		OPT-RAMP-C	OPT-RAMP-CE	Min	Max	
No splice loss	SMF	21	15	7	8.5	1.6
	ELEAF	21	15	7	10	1.3
	TW-RS	24	18	9	13.5	1.1
Splice 0.1 dB every 2 km or 0.2 dB splice every 4 km	SMF	21	15	7	8.5	0.7
	ELEAF	21	15	7	10	0.5
	TW-RS	24	18	9	13.5	0.2
Splice 0.1 dB every 4 km	SMF	21	15	7	8.5	1.2
	ELEAF	21	15	7	10	0.9
	TW-RS	24	18	9	13.5	0.6