Fiber optic cabling tables

Fiber optic table issues

- Example Table 158-17 (tables in 159 & 160 have similar issues)
- Problems:
  - We don't use 1550 nm
  - We use 10/20 & 40 km reach for each wavelength
  - Dispersion may be + or -

Table 158–17—Fiber optic cabling (channel)

Description	Type B1.1, B1.3 SMF			Unit
Nominal wavelength	1310a	1550		nm
Operating distance (max)	10 km	30 km	40 km	
Channel insertion loss (max) b,c,d	6	11.0e		dB
Channel insertion loss (min)	0	5		dB
Dispersion (max)		546	728	ps/nm
DGD_maxf	10	19		ps
Optical return loss		21		dB

aChannel insertion loss at 1310 nm includes cable, connectors, and splices.

bThese channel insertion loss numbers are based on the nominal wavelength.

cOperating distances used to calculate channel insertion loss are those listed in this table.

dMaximum attenuation given in Table 158–18.

eChannel insertion loss at 1550 nm includes cable, connectors and splices.

fDifferential Group Delay (DGD) is the time difference between the fractions of a pulse that are transmitted in the two principal states of polarization of an optical signal. DGD_max is the maximum

Fiber optic table fixes

- Fixes for 158/159
  - Use selected wavelengths
  - Add row for distance
  - Add row for min/max dispersion
- For CI 160 may need a different solution (more wavelengths have been proposed)
  - Separate table per wavelength?
  - Separate table per reach?
- Can fill in data once optical budget is established

Table 158–17—Fiber optic cabling (channel) characteristics

Description	Type B1.1, B1.3 SMF						Unit
Nominal wavelength	1270			1330			nm
Operating distance	10	20	40	10	20	40	km
Channel insertion loss (max) [a,b,c,d]							dB
Channel insertion loss (min)							dB
Dispersion (max)							ps/nm
Dispersion (min)							ps/nm
DGD_max[e]							ps
Optical return loss							dB

[a] Channel insertion loss values include cable, connectors, and splices.

[b] Channel insertion loss numbers are based on the nominal wavelength.

[c] Operating distance shown is used to calculate channel insertion loss.

[d] Maximum attenuation given in Table 158–18.

[e] DGD max is the maximum differential group delay that the system must tolerate.

Proposal

- Use format shown on slide 2 for Clause 158 & 159
- If 50GBASE-BRx uses only 2 wavelength ranges use format shown on slide 2
  If 50GBASE-BRx uses >2 wavelength ranges adopt format shown on slide 2 but create 3 tables, one for each distance