Supplement for comments #18,19,20,21,28,29,30

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Minimum channel insertion loss for PX40

- Minimum channel insertion loss (MCIL) is defined as Maximum Average launch power minus Maximum Average receive power, these parameters architecture is based on the link mode, which is showed in

  http://www.ieee802.org/3/bk/tools/8023bk_1207_linkmodel_v1.1.xls

- In P802.3bk D.1.1：
  - The MCIL for PX40 US = 7 – (-8) = 15 dB
  - The MCIL for PX40 DS = 7 – (-8) = 15 dB

| Description	PX40 US	PX40 DS	Unit
Maximum Average launch power	7	7	dBm
Maximum Average receive power	-8	-8	dBm
Minimum Channel insertion loss	15	15	dB

Minimum channel insertion loss for PX40

- **Table 60-1 in P802.3bk D1.1 ,**
  - **It defined the MCIL for PX40 is 18dB.**
- **But the actual MCIL for PX40 Upstream is 7 – (-8) = 15 dB, it doesn't match number in Table 60-1.**
- **The same problem in MCIL for PX40 Downstream is 7 – (-8) = 15 dB.**

Table 60–1—PMD types specified in this clause

Description	1000BASE-PX10-U	1000BASE-PX10-D	1000BASE-PX20-U	1000BASE-PX20-D	1000BASE-PX30-U	1000BASE-PX30-D	1000BASE-PX40-U	1000BASE-PX40-D	Unit
Maximum channel insertion loss	20	19.5	24	23.5	29		33		dB
Minimum channel insertion loss	5		10		15		18		dB

Minimum channel insertion loss for PRX40

10/1GBASE-PRX40-D4

UPSTREAM

DOWNSTREAM

MCIL = 15 dB
?

MCIL = 18 dB

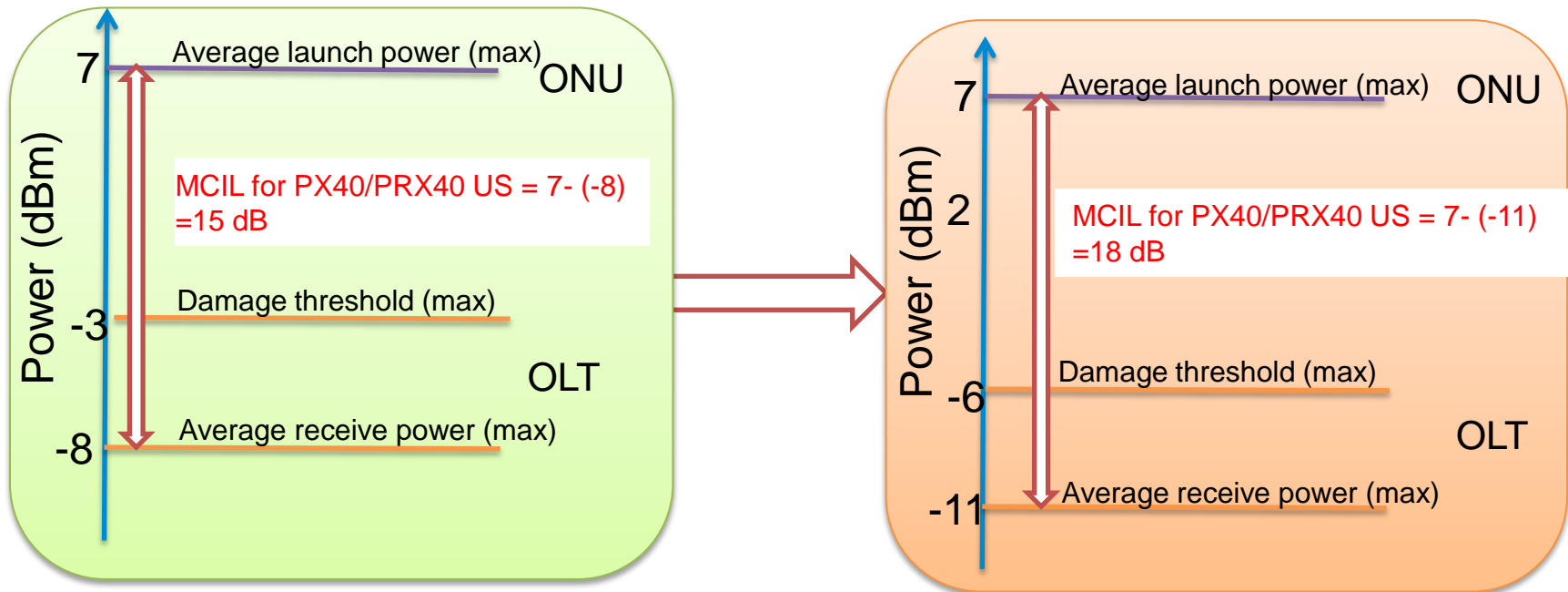10/1GBASE-PRX40-U4
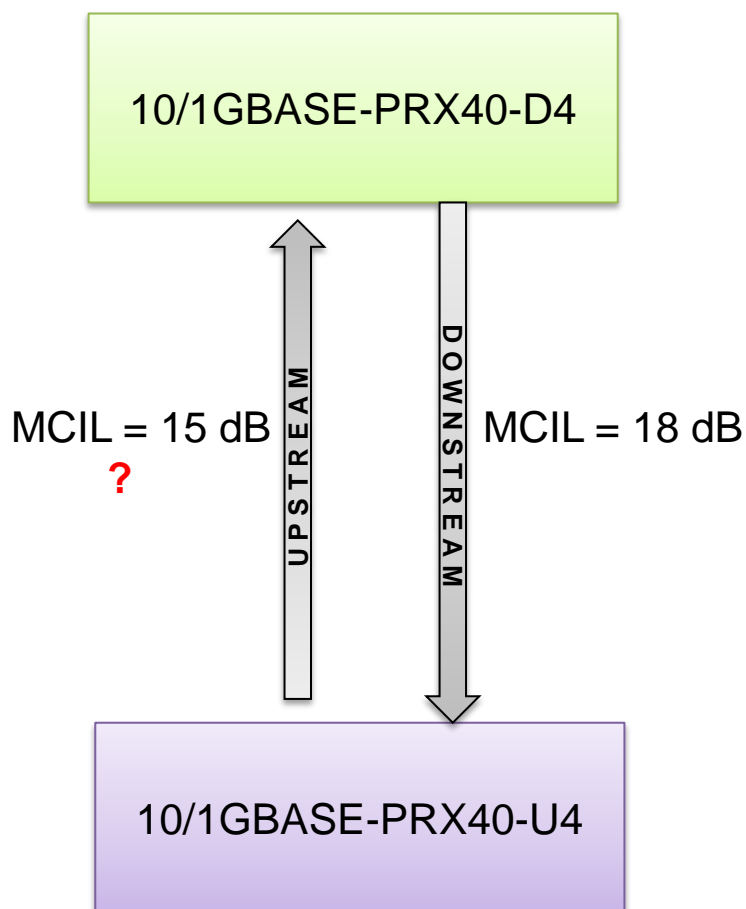
- Table 75-1 in P802.3bk D1.1,
  - Which is defined the minimum channel insertion loss for PRX40 as 18dB.

- In P802.3bk, the upstream of PRX40 is defined the same as the upstream PX40,
  - Which is showed in Table 75-7 and Table 75-9

- But the MCIL for PX40 Upstream is 7 – (-8) = 15 dB, it is the same as PRX40 upstream , it will not match the Table 75-1 requirement.

The proposal new parameters for PX40/PRX40 US

- Average launch power (max) of 1000BASE-PX40-U is 7 dBm (in Table 60-8d).
- If changed average receive power (max) of 1000BASE-PX40-D from -8 to -11 dBm.
- Then the MCIL for PX40 /PRX40 US = 7- (-11) = 18 dB.
- And, the damage threshold (max) of 1000BASE-PX40-D should be reduced from -3 to -6 dBm

Left diagram (green):
Power (dBm)
7 — Average launch power (max) ONU
MCIL for PX40/PRX40 US = 7- (-8) =15 dB
-3 — Damage threshold (max)
OLT
-8 — Average receive power (max)

Right diagram (orange):
Power (dBm)
7 — Average launch power (max) ONU
2
MCIL for PX40/PRX40 US = 7- (-11) =18 dB
-6 — Damage threshold (max)
OLT
-11 — Average receive power (max)

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The new parameters solutions for PX40 DS

- **Solution 1** :
  - Increase the OLT power, reduce the ONU average receive power and damage threshold

Power (dBm)

7 — Average launch power (max)   OLT

MCIL for PX40 DS = 7- (-8)
=15 dB

-3 — Damage threshold (max)

ONU

-8 — Aerage receive power (max)

Solution 1

Or

Solution 2

Power (dBm)

9 — Average launch power (max)   OLT

MCIL for PX40 DS = 9- (-9)
= 18 dB

Damage threshold (max)

ONU

Average receive power (max)

-9

Power (dBm)

7 — Average launch power (max)   OLT

MCIL for PX40 DS = 7- (-11)
= 18 dB

-6 — Damage threshold (max)

ONU
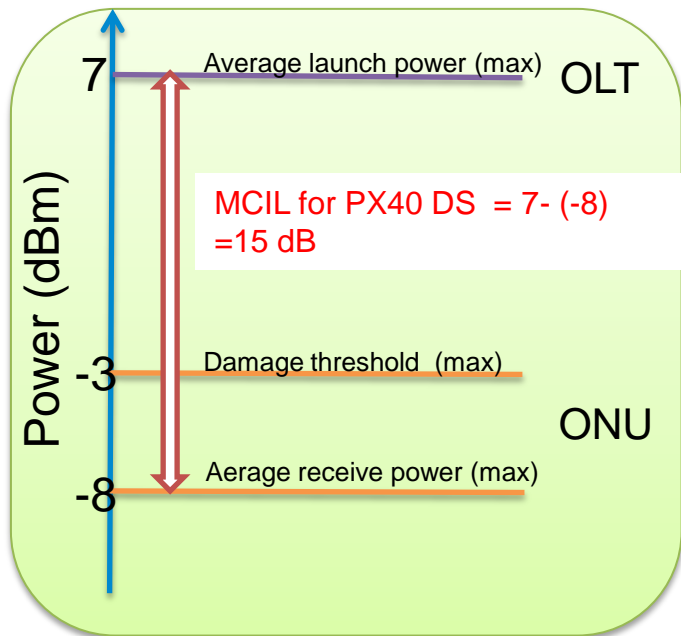
-11 — Average receive power (max)
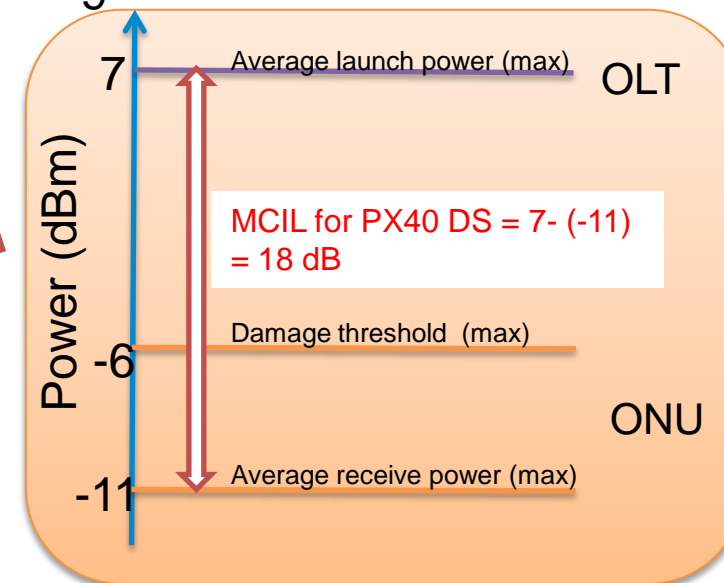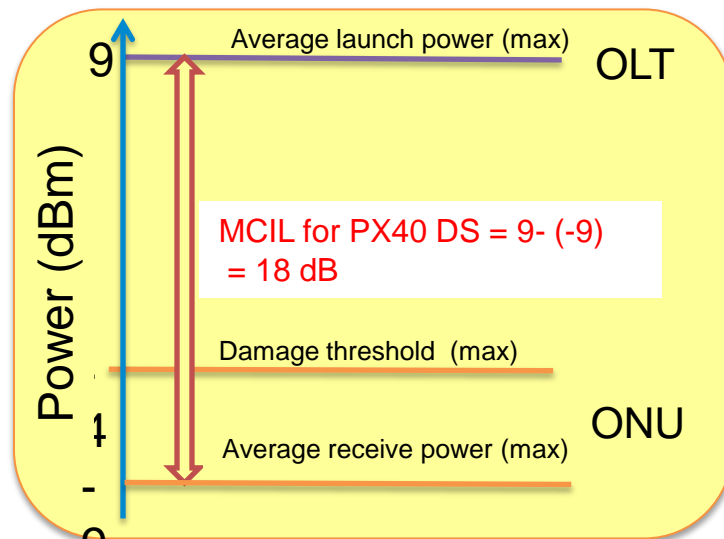
- **Solution 2** :
- Reduce the ONU average receive power and damage threshold

Thank you

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