Upstream wavelength plans for 50G and 100G

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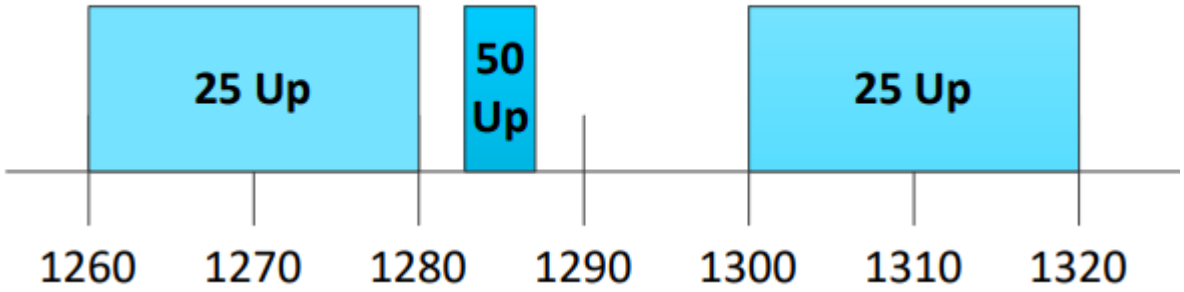
Introduction

- Upstream wavelength plans for three scenarios are proposed
  - 50G EPON via 2x25G
  - 50G EPON via 1x50G
  - 100G EPON via 2x25G + 1x50G or 2x50G

2x25G EPON upstream

- The "Peacemaker" wavelength plan was proposed in kramer_3ca_3_0917.pdf (upstream shown):

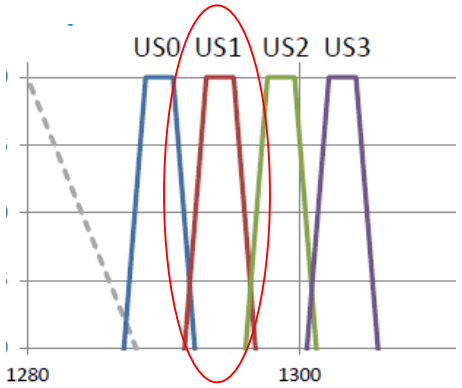


- Observation:
  - 2x25G symmetrical EPON co-existence with 10G EPON is not supported
- However it is possible for 2x25G symmetrical EPON to WDM co-exist with 10G EPON

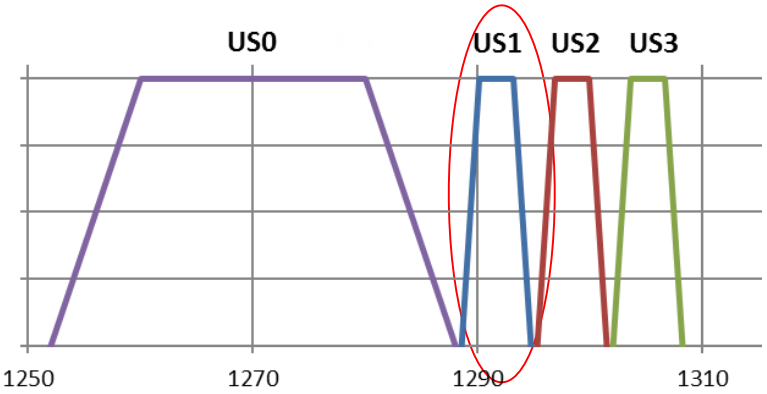
US1 for 2x25G EPON

- It was always the intention that US1 (the 2nd US channel in 2x25G EPON) would be around **1290 nm**:

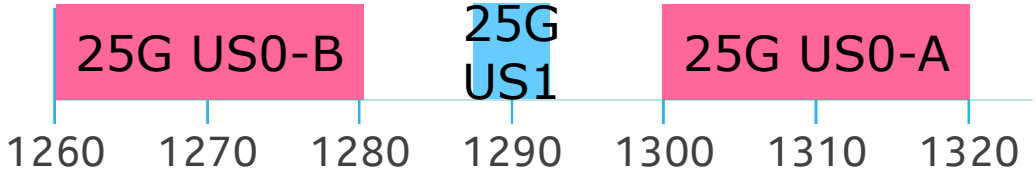
Plan A (now defunct)



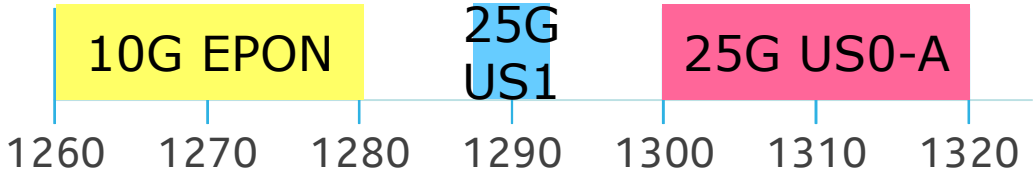
Plan B (now defunct)



- In July we selected a two-option wavelength plan for US0. However that does not need to change the plan for US1:



- If US1 is around 1290 nm, then 2x25G EPON will WDM co-exist with 10G EPON:



Summary of co-existence, 2x25G

Co-existence for generations of symmetrical EPON

	GPON reduced	10G EPON	25G EPON
50G EPON (2x25G)		✓	✓

802.3ca objective (expansive interpretation)

1x50G wavelength plan, upstream

Summary of harstead_3ca_2_0917, upstream:

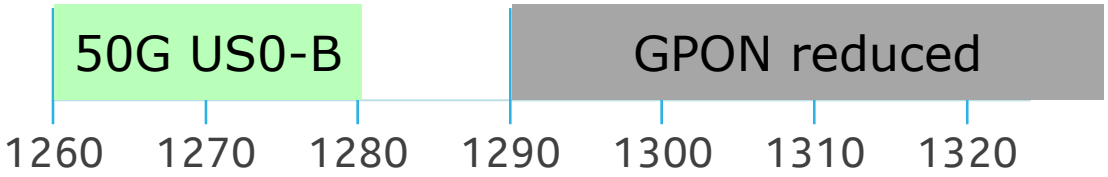
- If 25G option A is deployed, 1x50G option B will WDM co-exist with it

- If 25G option B is deployed, 1x50G option A will WDM co-exist with it

- 1x50G option A supports WDM co-existence with 10G EPON

BTW, 1x50G co-existence with GPON

50G US0-B will WDM co-exist with GPON reduced:



Summary of co-existence, 1x50G

Co-existence for generations of symmetrical EPON

	GPON reduced	10G EPON	25G EPON
50G EPON (1x50G)	✓ <XOR>	✓	✓

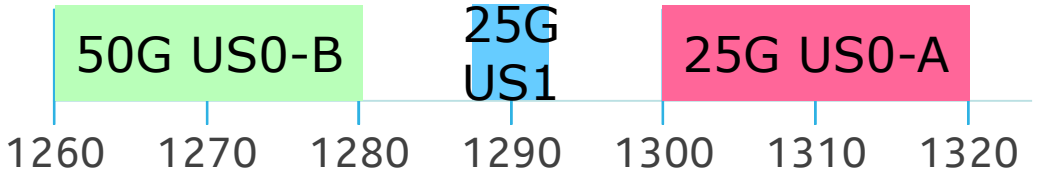
802.3ca objective (expansive interpretation)

2x25G + 1x50G EPON upstream

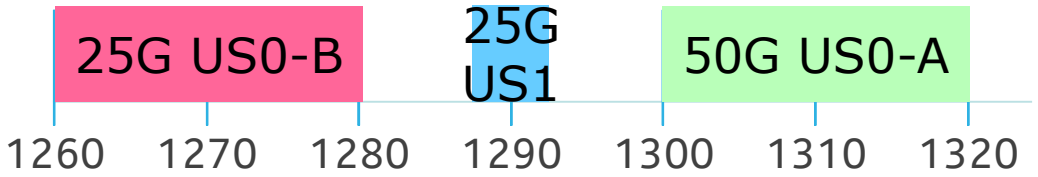
We can replace former 4x25G plans to get to 100G with fewer wavelengths

- If 50G EPON = 2x25G, require 3 wavelengths

If start with 25G US0-A:



If start with 25G US0-B:



- If 50G EPON = 1x50G, require 2 wavelengths (likely to be more cost effective than 3)

Summary of co-existence, 100G

Co-existence for generations of symmetrical EPON

	GPON reduced	10G EPON	25G EPON	50G EPON (2x25G)	50G EPON (1x50G)
100G EPON (2x25G+1x50G)		✗	✓	✓	✓
100G EPON (2x50G)		✗	✓	✓	✓

802.3ca objective (expansive interpretation)

Summary

- Upstream wavelength plans are proposed for
  - 50G EPON via 2x25G
  - 50G EPON via 1x50G
  - 100G EPON via 2x25G + 1x50G or 2x50G
- Summary of WDM co-existence with GPON and 10G EPON

	GPON reduced	10G EPON
50G EPON (2x25G)		✓
50G EPON (1x50G)	✓	✓
100G EPON (2x25G+1x50G)		✘
100G EPON (2x50G)		✘

- The Task Force must decide which will remain in scope