10G EPON Downstream 1590nm is the right choice

Supporters

- Martin Carroll, Verizon
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- Akihiro Otaka, NTT
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The controversy: 1555 or 1590?

- The proponents of 1555 nm have only one argument in favour:
  - 1555nm components are available today
    - Are they really?
- The proponents of 1590nm have several
  - Co-existence with video overlay
  - Joint band with 1577nm PR30 downstream
  - 1590nm parts will become available in time

Co-existence with video overlay

- Video overlay is a very important system
  - Verizon and NTT have millions of lines deployed with video
  - Other carriers may want to deploy lines with video overlay
- Can we afford to ignore this fact?
- Video overlay standardization
  - J.186 being modernized to reflect active deployment
  - G.984.5 (just approved) includes video overlay
  - Would ITU do this work if video overlay was not important?
- Video is here now, in the field, and it will stay
  - 1590nm supports video overlay …
  - 1555nm blocks it!

Joint band with 1577nm PR30

- PR30 wavelength allocation is approved: 1577±3nm
- Common optics is possible if PR10/20 DS channel is adjacent
  - Common filter devices
  - Common ROSAs
  - Higher volumes, lower cost
- 1590±10nm band adjacent to the 1577±3nm band
- The 1555±10nm band is not adjacent,
  - cannot support common optics
  - high volume production advantages are lost!

Availability

- Many experts state unanimously that there are no issues with 1590nm components
- Follow the 802.3ah policy
  - “If we specify it, they will come”
  - The same debate (1490 vs. 1555) was made back in 2001
  - In the end, 1490nm was chosen, and was very successful
- Can a reasonable argument really be made that 1590nm part availability will delay deployment?
  - 10G deployment (en masse) is at least 2~3 years away
  - This is plenty of time for optics industry to get ready
- Interim trials can use any wavelength at will…
  - small trials must not drive our decision !!!

Conclusion

- The downstream band for PR10 and PR20 should span from 1580 to 1600nm
- Best combination of technical reasons
  - Maximum co-existence to all the other systems
    - Video overlay and the PR30 band
  - No down-side in any realistic timeframe
- Wide support from network operators, here and now