Wavelength Issues in the Downstream Direction

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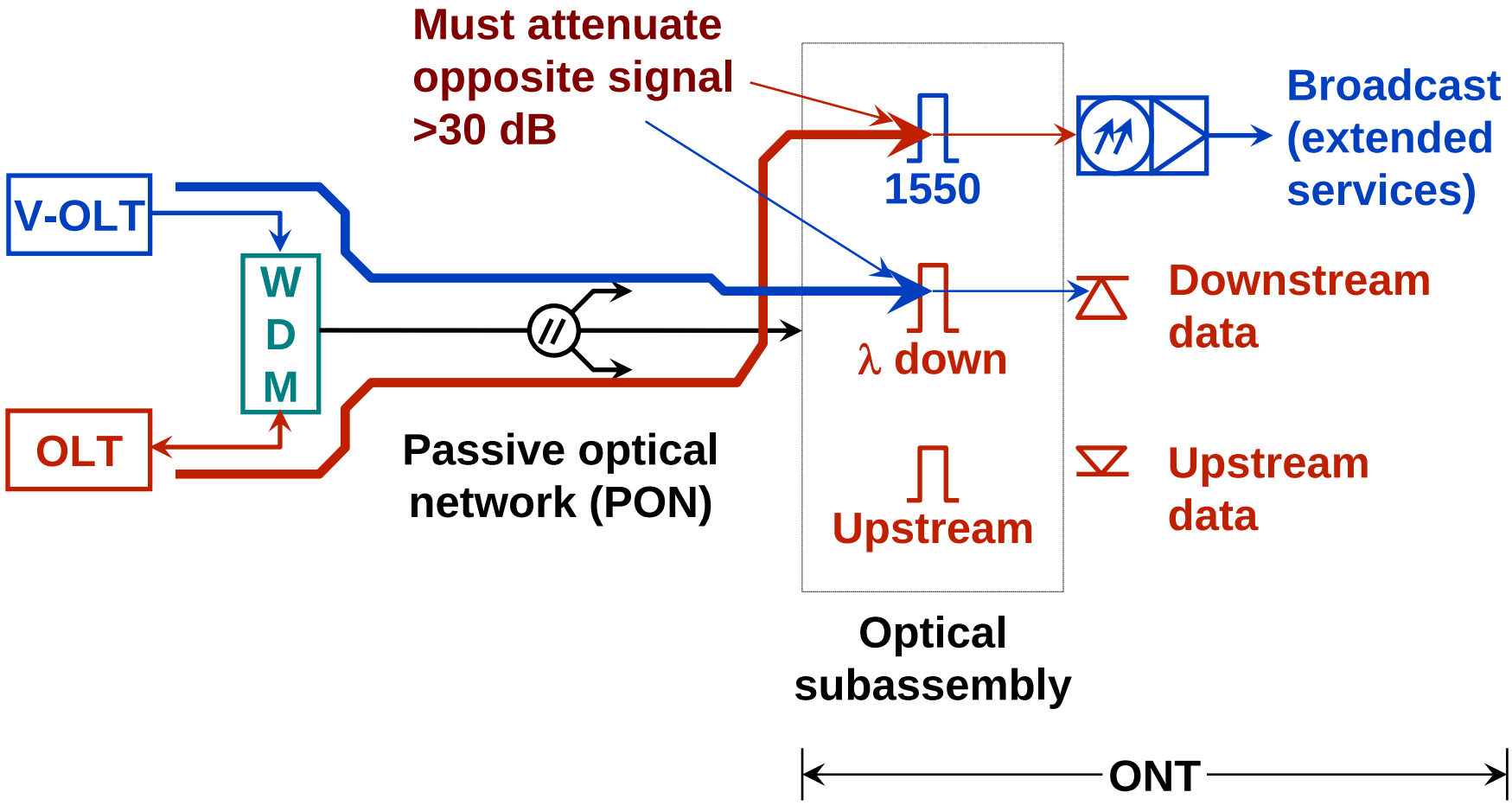
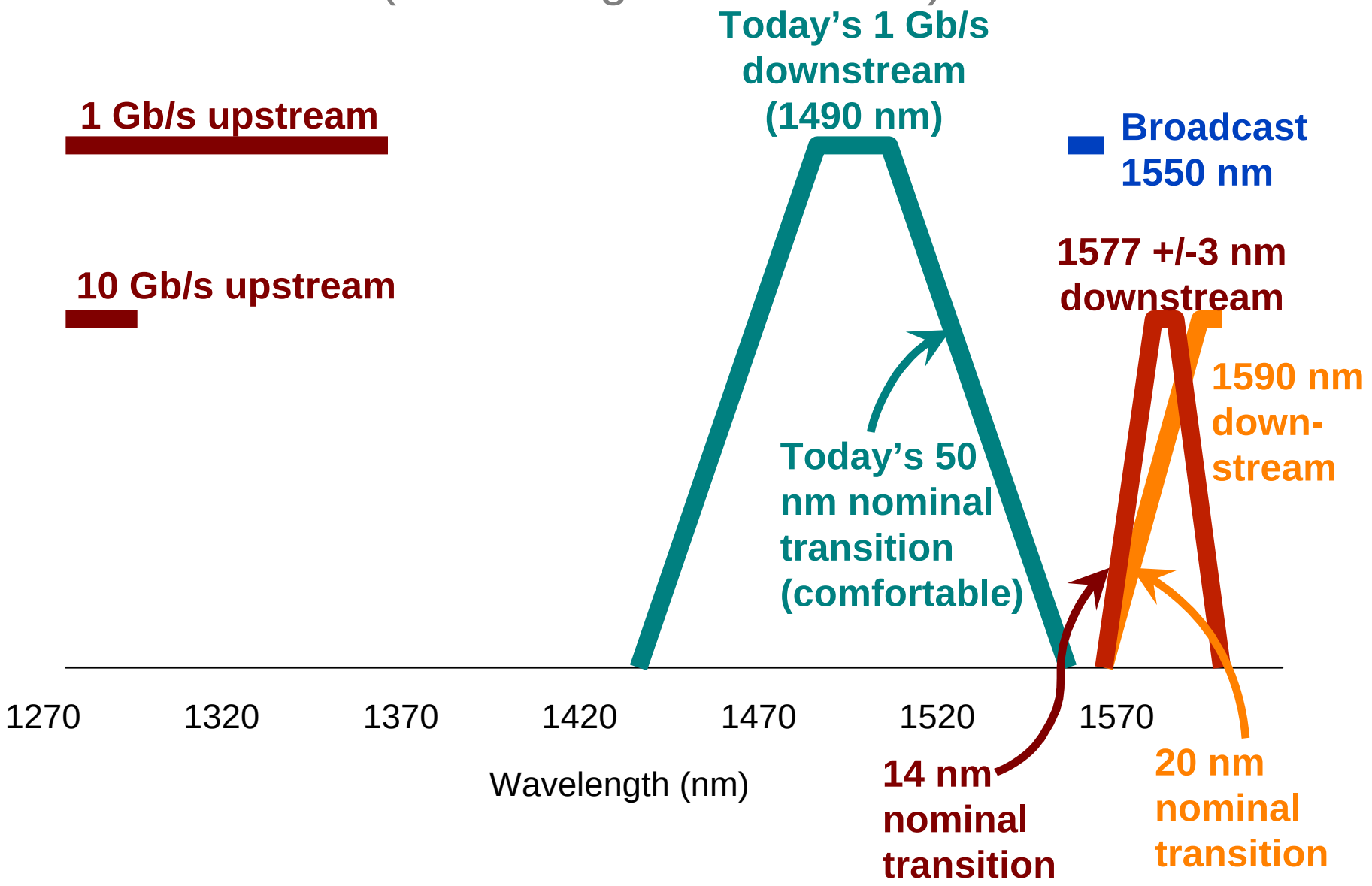


Wavelength Establishing View

(Wavelength is to Scale)

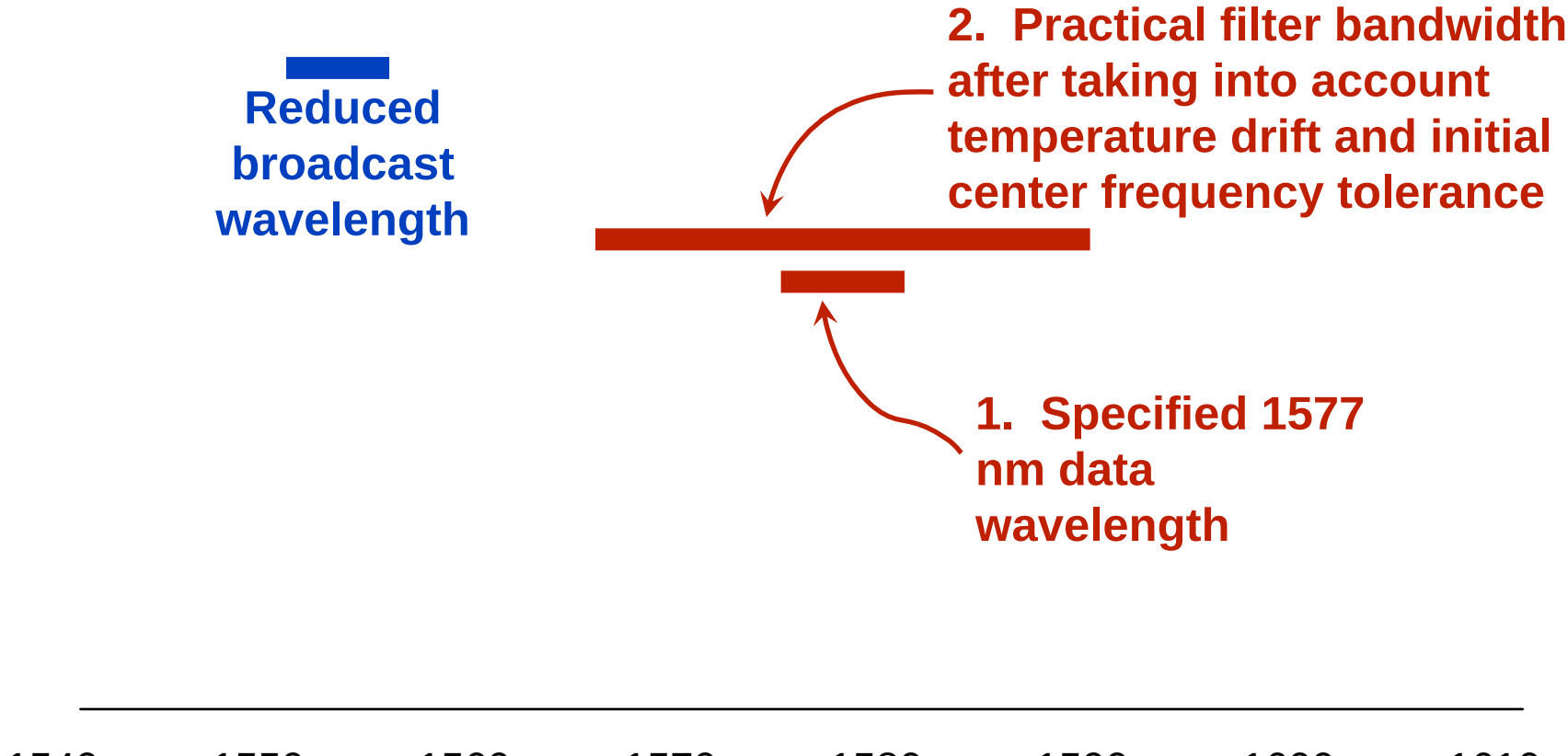


But Wait! It Gets Worse

Those messy, practical details

- When we take tolerances and temperature drift into account, the situation gets worse
  - So we will make certain concessions to the real world
    - Broadcast (extended services) band
      - Was 1550 - 1560 nm (existing transmitters)
      - Make it 1550 - 1555 nm
    - 1577 nm data down
      - Was and is 1577 +/-3 nm
    - 1590 nm data down (currently not in standard)
      - Was 1590 +/-10 nm
      - Make it 1590 +/-3 nm
        - Makes OLT somewhat more expensive, but maybe not prohibitively so. Makes ONT easier
- We shall make these assumptions and look at the implication for using broadcast with downstream data. We will not look at upstream data transmission at this time.

Assume we try to use 1577 nm with broadcast



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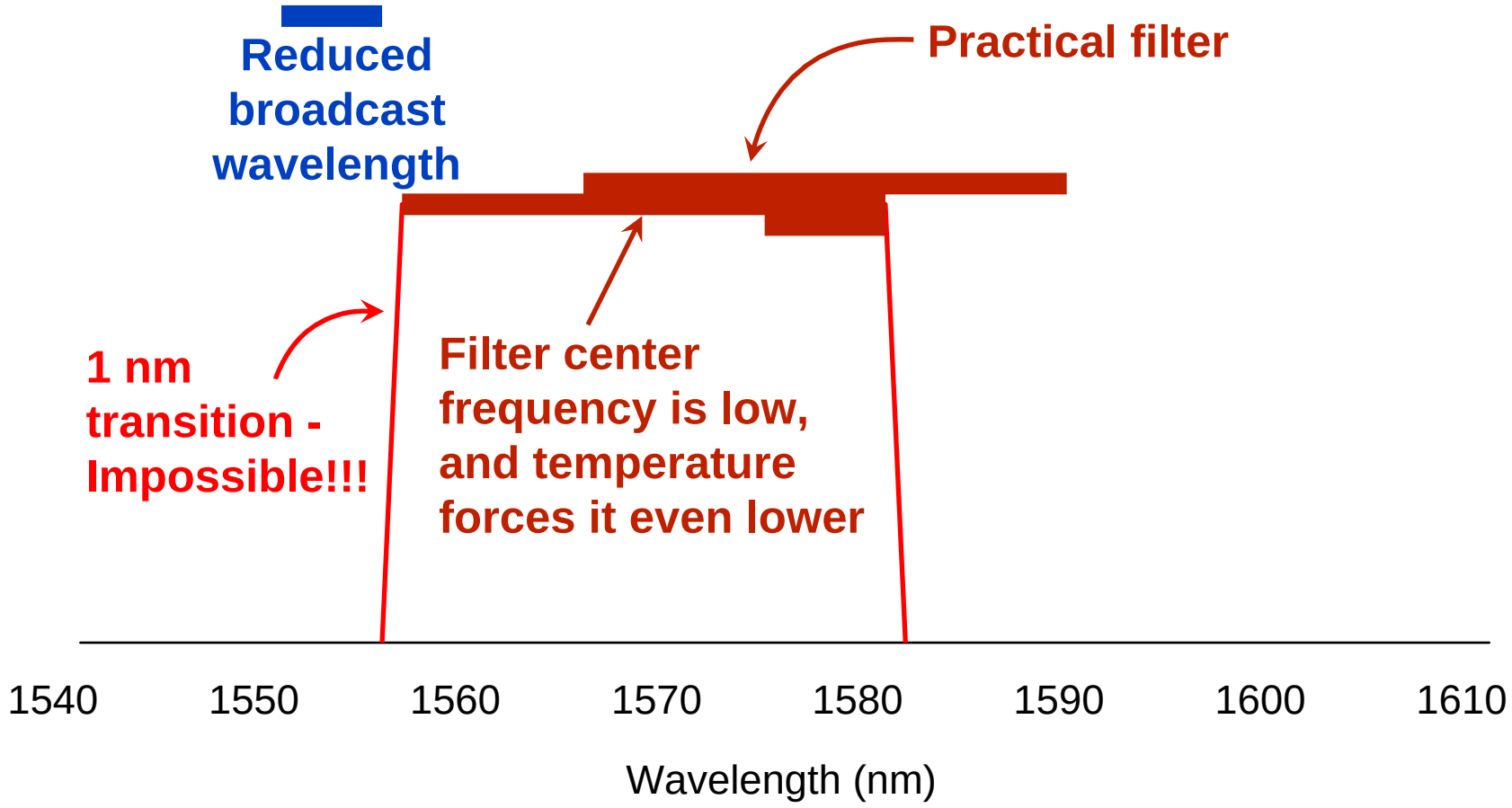
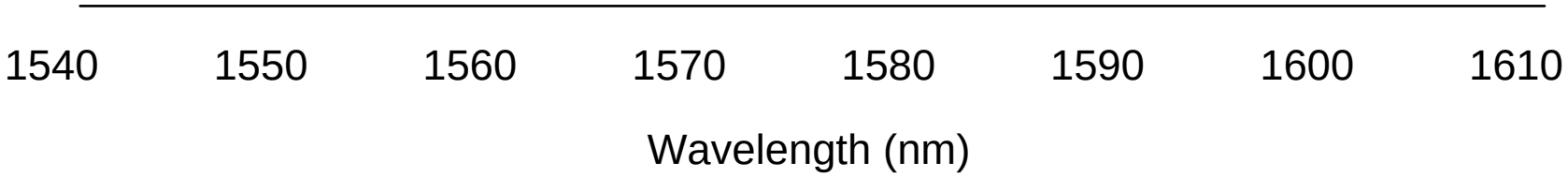


Now try it with a downstream wavelength of 1590 nm

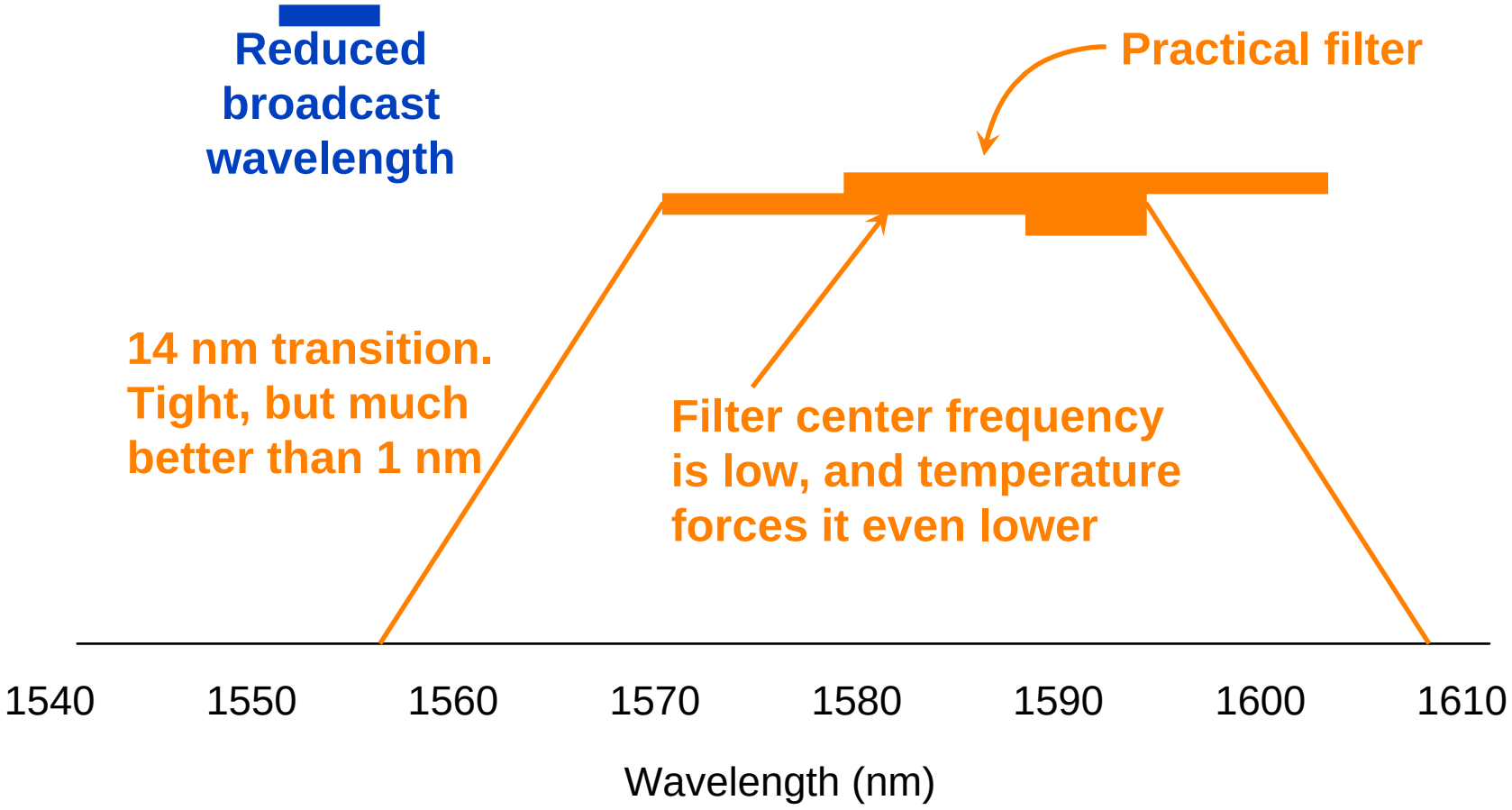
Reduced broadcast wavelength

2. Practical filter bandwidth after taking into account temperature drift and initial center frequency

1. Specified 1590 nm data wavelength (reduced bandwidth)



Now try it with a downstream wavelength of 1590 nm



Conclusion

- Use of the broadcast overlay with a 1577 nm data carrier is impossible
- Use of the broadcast overlay with a 1590 nm data carrier is difficult, but should be feasible
- We do not object to use of 1577 nm for PR(X)30
- We seek reinstatement of the 1590 nm wavelength in order to preserve use of the broadcast overlay, which we have agreed is still important