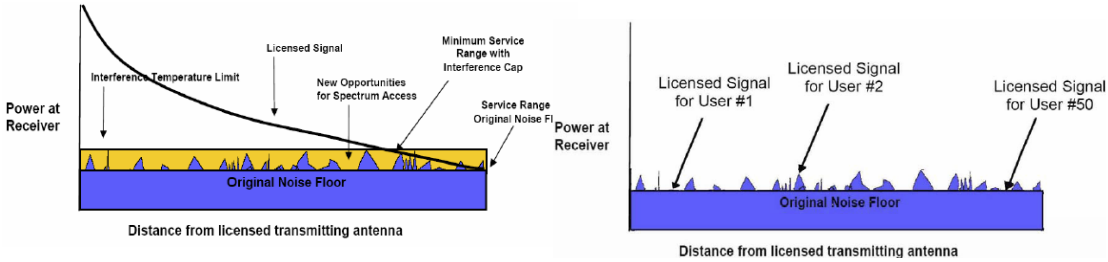
- The underlay model of the SPTF does not reflect modern CMRS technology.



SPTF Model CMRS Practice

- A cognitive radio faces a challenging task in trying to determine the relative mix of noise-like CDMA signals versus interference. Building a cognitive radio that can do this at reasonable cost appears difficult.

- No party made a compelling case for cognitive radio underlays (non-voluntary secondary operation) in licensed spectrum
  - There was little quantitative analysis or balancing of costs and risks versus benefits.
    - Benefits: What could such underlays provide that the 5 GHz NII band does not already provide?
    - The costs and risks depend on the service being underlaid. They vary from inconvenience to safety-of-life. Would we want to see data links using cognitive radio operating on 156.8 MHz (VHF Ship-to-Shore Ch. 16)?

- Cognitive radio underlays on CMRS spectrum would impose costs on consumers and would create unnecessary risks.
  - Cognitive radio operations would increase the risk of harmful interference to CMRS service.
  - The underlay user's lack of any right against a primary licensee creates a strong disincentive to make fixed investment in cognitive-radio-based systems in these bands.
    - Secondary markets provide better incentives.
    - However, one must be concerned that the presence of a cognitive radio alternative may impair secondary markets.

- CMRS systems already contain the key elements of cognitive radio.
  - Cognitive radio techniques may be useful in supporting secondary markets.
  - If rule changes are needed in the CMRS world they are changes to secondary market rules, not rules permitting cognitive radio underlays. There should not be regulatory uncertainty regarding the proper role of secondary markets.

- Cognitive radio could be a useful tool to support higher power operations under Part 15 in the ISM bands using systems that can take into account (1) their location and (2) geographic permissions granted by FCC in Part 15.
  - Geographic permissions could specify regions where higher power was permitted.
    - Typically these would be rural areas but should exclude radio quiet zones and other regions requiring protection
    - Location information should come from embedded GPS receivers or the reception of specific over-the-air signals known to be available only in specific locations.