

Unlicensed National Information Infrastructure (U-NII) Bands

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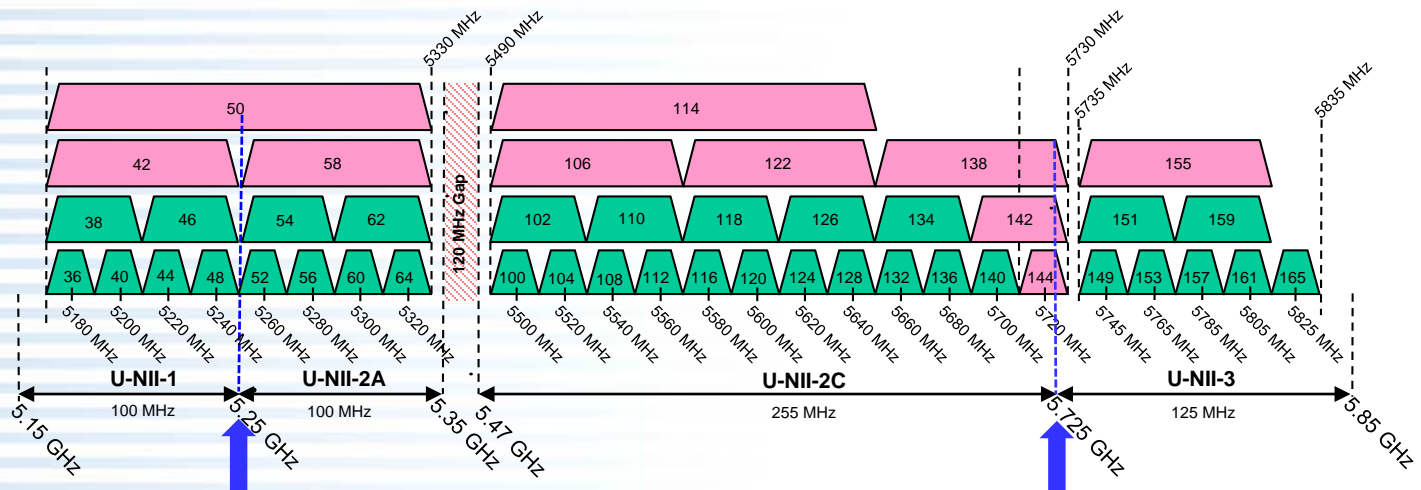
Straddle channels

- The following channels are considered straddle channels, i.e. operate in more than one U-NII band:
 - Channel 50 (160MHz channel)
 - Channel 138 (80 MHz channel)
 - Channel 142 (40 MHz channel)
 - Channel 144 (20 MHz channel)



Straddle channels cont...

802.11ac channels





Straddle channels cont...

● Channel 50:

- 160 MHz channel.
- Operates in both U-NII-1 & U-NII-2A
- In-band emission limits, i.e. power, PSD etc., in each band maybe different depending on device type and use case (indoor vs outdoor). All requirements of individual band need to be satisfied.
 - If power & PSD are uniform and the emissions comply with the lower limit between the bands a single measurement suffices (KDB 789033, Sec III).
- OOBs have to be investigated outside of the 5150-5350 MHz band.

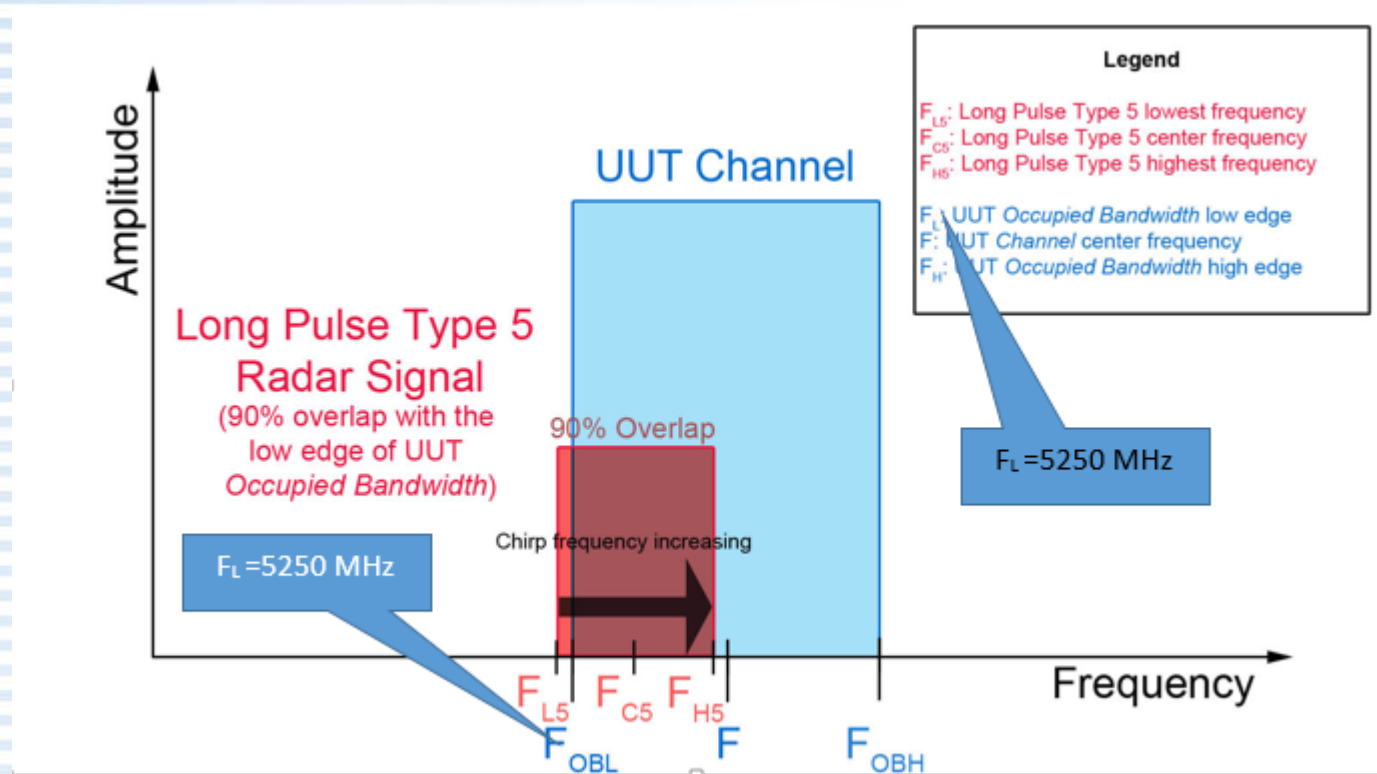


Straddle channels cont...

- DFS and TPC is required.
 - ❖ For detection bandwidth test, radar needs to be detected from 5250 MHz to 99% bandwidth point at the upper end.
 - ❖ For bin 5 long pulse radar testing at the lower half of the UUT spectrum (subset case 2 in KDB 905462), FL = 5250 MHz & F = 5290 MHz (see next slide).
 - ❖ If device supports channels 50 & 114 160MHz channels both need to be tested for DFS.



Straddle channels cont...





Straddle channels cont...

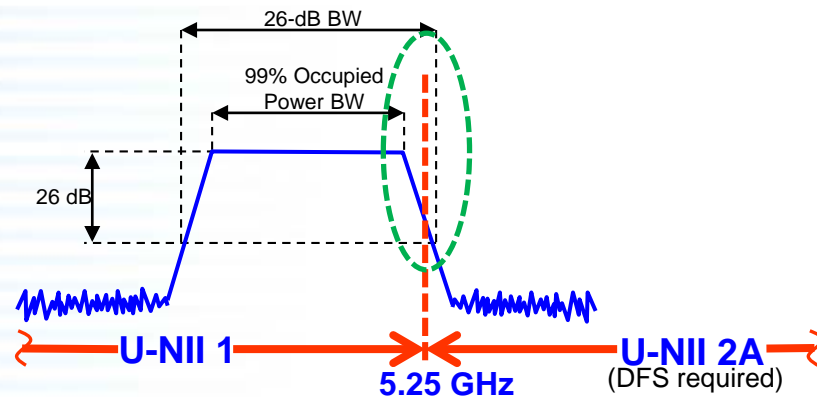
● Channel 138/142/144:

- These straddle channels are considered to be operating in both U-NII-2C and U-NII-3.
- The band edges are 5470 MHz & 5850 MHz.
- The worst-case OOB limits, i.e. -27 dBm/MHz, applies at the band edges (be mindful of restricted band between 5350-5460 MHz).
 - Side note – Provisions in 15.407(b)(4)(ii) expired March 2nd, 2017 for antenna gains greater than 10 dBi. However, devices can be sold till March 2nd, 2018.
- In-band emission limits, i.e. power, PSD etc., in each band need to be satisfied.
 - If power & PSD are uniform and the emissions comply with the lower limit between the bands a single measurement suffices (KDB 789033, sec. III).



DFS

- If the 26 dB emission bandwidth of the transmitted signal extends into the U-NII-2A band, the device shall be considered to be operating in both the U-NII-1 and U-NII-2A bands, and will therefore require implementation of DFS and TPC in accordance with § 15.407(h).
 - As a practical matter we will also accept 99% bandwidth.

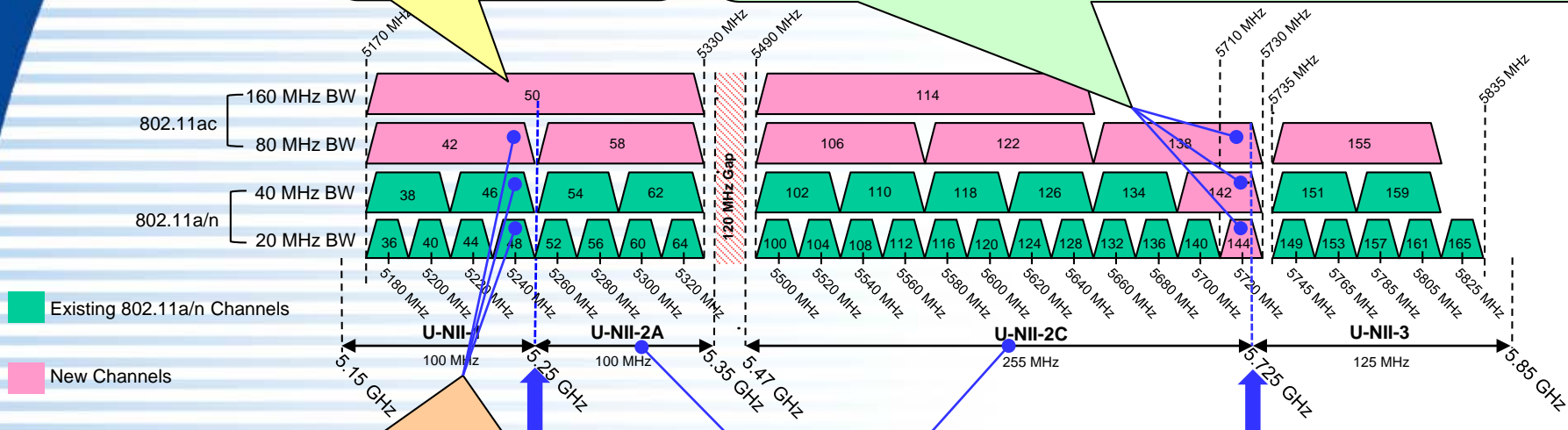




SUMMARY

For this channel, all requirements of the individual band must be satisfied

- ❑ considered to be operating in both U-NII-2C and U-NII-3 and the upper band edge is 5850 MHz. Worst-case OOB limits apply at band edges.
- ❑ Maximum conducted output power, PSD in each band is computed based on the portion of the emission bandwidth contained within that band (see KDB 644545).



Existing 802.11a/n Channels
New Channels

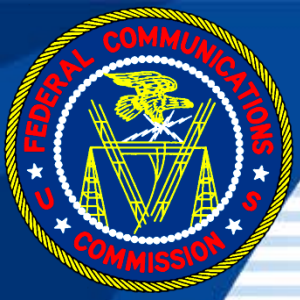
If the 26 dB bandwidth extends into the U-NII-2A band (Alternately, 99% bandwidth maybe used), device is considered to be operating in both the U-NII-1 and U-NII-2A bands.. As a result, implementation of DFS and TPC is required.

DFS and TPC required per §15.407(h)



KDB Updates

- KDB 789033 updates
 - Clarify straddle channels and OOBE requirements
 - Permit the use of 99% bandwidth for determining if signal extends into U-NII-2A band for purpose of DFS testing
 - Remove reference to alternate OOBE specified in 15.407(b)(4)(ii).
 - Clarify OOBE requirements under new rules



Questions and Answers

Thanks!