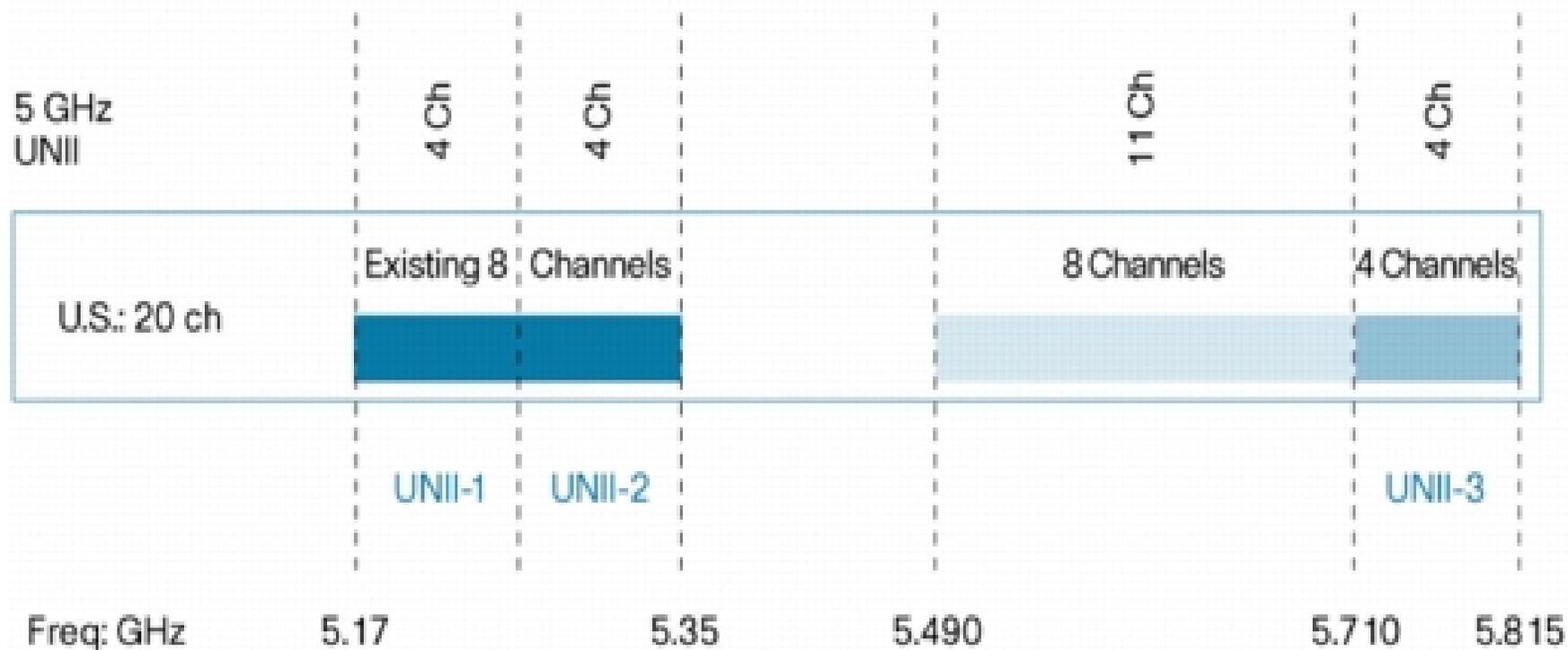


4.9 GHz: Current Use, 5 GHz Compatibility and Future Commercial Off the Shelf (COTS) Solutions

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Use of the 5 GHz UNII bands (several hundred MHz), on a secondary basis, can be leveraged by public safety users in addition to primary public safety allocations in 4940-4990 MHz and, for example, ITS based Dedicated Short Range Communications (DSRC) from 5850-5925 MHz. 4.9 GHz users access can utilize COTS 802.11a emission masks, also eligible for use throughout the UNII band.

4.9 GHz background

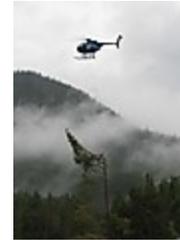
- Public safety fought very hard against competing interests to ensure that 4.9 GHz had the ability to leverage 5 GHz hardware.
- First public safety spectrum allocated with the intention to leverage commercial technologies, allowing public Safety to leverage the COTS market and technology investments from the neighboring UNII bands.
- 4.9 GHz equipment can be compatible with emissions used throughout the 5 GHz UNII band (802.11a).

4.9 GHz solutions used today by public safety

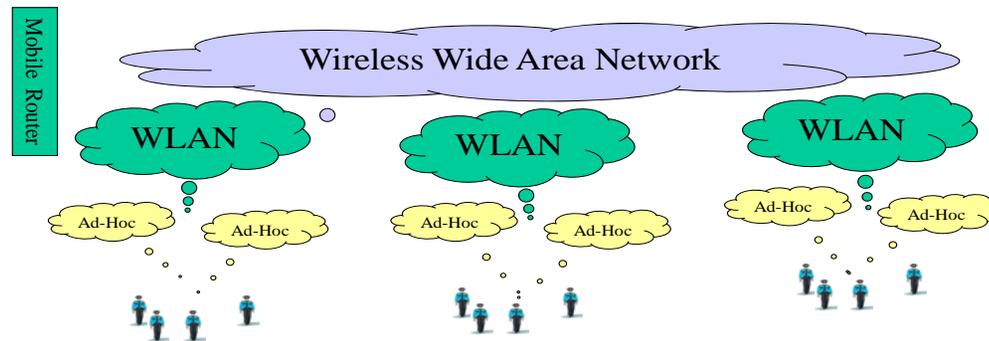
- Current Use Examples
 - Backhaul to replace telephone circuits in communities to meet voice needs (voted audio), on a secondary basis.
 - Utilizing 802.16e/802.11a based point to multi-point applications to deliver public safety broadband applications such as fixed/mobile video surveillance, hot spot access, deployable tactical video, etc.
 - Tactical and Fixed WLAN
 - Air to Ground video

5 GHz Compatibility

- Spectrum between 5.2 and 5.8 GHz subject to power rules that tie transmit power to bandwidth, with optimum bandwidth @ 20 MHz.
 - Low Power 5.2 GHz
 - Medium Power 5.4 GHz
 - Higher Power 5.6 GHz
- 4.9 GHz emissions today can utilize two (2) emission masks: DSRC-A and DSRC-C masks, also with transmit power to bandwidth ratios and maximum channel aggregation to 20 MHz.



4.9 GHz WLAN



Expectations

- For future use and to *compliment* to other, more effective public safety mobile broadband solutions
- In appropriate applications, 4.9 GHz technologies *can* provide public safety with functionality they've determined as priorities in their applications, including:
 - Reliability
 - Security
 - Quality of Service
 - Application-Based Priority Level Assignments, etc.

Expectations, Cont.

- 4.9 GHz not practical for mobile, long term or high use traffic (“surfing” not optimum)
- *Event driven* applications seem to be a more appropriate use.
 - File transfer between user and vehicles on-scene before being sent on larger area network
 - Data Feeds from scene to infrastructure (permanent or temporary), as available.

Challenges

- Public safety should address the considerable path loss at 4.9 GHz by identifying and focusing on public safety applications it best serves and avoiding those it cannot:
 - Vehicular Area Networks
 - Personal Area Networks
 - On-Scene applications

Questions

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