



Federal Communications Commission 4.9 GHz Band Workshop

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Chair Spectrum Committee
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NPSTC is a federation of organizations whose mission is to improve public safety communications and interoperability through collaborative leadership.

NPSTC 4.9 GHz Survey



- NPSTC recently conducted a survey to better understand how the 4.9 GHz band is being used
- The Key Questions asked:
 - Is your agency currently using 4.9 GHz spectrum?
 - If you are using the 4.9 GHz spectrum indicate the primary use of the spectrum
 - What 4.9 GHz spectrum uses have you found successful
 - What 4.9 GHz spectrum uses have you found unsuccessful
 - Which 4.9 GHz uses would you consider using in the future
 - Have you used this band for incident management

Using the Spectrum



2 * Is your agency currently using 4.9 GHz spectrum? If no, please explain.

Answer	0%	100%	Number of Responses	Response Ratio
Yes			55	37.9%
No, but we have a license			6	4.1%
No, we don't have license			11	7.5%
Don't know			6	4.1%
Other (View all)			8	5.5%
No Responses			59	40.6%
Totals			145	100%

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Primary Use



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If you are using, or have used in the past, 4.9 GHz spectrum, please indicate the primary use for the spectrum.

Answer	0%	100%	Number of Responses	Response Ratio
Point to Point IP communications between ground based stations			<u>38</u>	26.2%
Point to Point IP communications between ground and airborne units			0	0.0%
Point to Multi-Point (i.e. wi-fi hotspot)			<u>8</u>	5.5%
Point to Point video connections			<u>6</u>	4.1%
Not applicable or don't know			<u>16</u>	11.0%
Other (View all)			<u>3</u>	2.0%
No Responses			74	51.0%
Totals			145	100%

56 %

12 %

9%
23 %

Successful Uses



- Utilization of the spectrum has been successful in both point to point and point to multipoint applications. The primary concern is users who are not licensed, especially in point to point operations.
- Access to in-building video cameras, Mesh networking for public safety broadband
- We have been successful in the use of 4.9GHz providing wireless applications supporting both surveillance video and backhaul applications. It has been deployed in both PTP (point to point) and PTMP (point to multi-point) scenarios.
- Currently only using to link radio sites as a microwave link.

Unsuccessful Uses



- Point to multi-point is not a realistic configuration due to the number of sites required for deployment and the lack of coordination for the frequencies and the susceptibility for interference.
- Interference in high traffic areas.
- As the number of users congregate in one area, (i.e. working fire) bandwidth decreases significantly to where streaming video is no longer viable. Streaming video while moving is choppy and pauses a lot.
- Use for data systems outside of an urban environment. Seems to work OK in the city but not in rural areas with vegetation or rolling hills.
- All implementations have been successful.

Future Use



6 * Which 4.9 GHz uses would you consider moving forward? Why?

Answer	0%	100%	Number of Responses	Response Ratio
Point-to-point ground-based broadband IP			47	69.1%
Point-to-point video			37	54.4%
Point-to-multipoint (i.e., wi-fi hotspot)			37	54.4%
Point-to-point airborne IP data			15	22.0%
Point-to-point airborne video			19	27.9%
Other (View all)			4	5.8%
Totals			68	100%

Incident Management



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Have you used 4.9 GHz spectrum for incident management communications at the scene? (e.g., sharing video or maps or data with personnel at the incident scene) If yes, please indicate how 4.9 GHz systems did or did not meet your needs.

Answer	0%	100%	Number of Responses	Response Ratio
Yes			11	7.5%
No			56	38.6%
No Responses			77	53.1%
Totals			145	100%

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Some Personal Recommendations



- Change the rules to better coordinate the uses in a given area. Recognize that this band is used for P-P and P-MP in the same area and will require procedures that accommodate both uses. Use the RPC's expertise in the coordination by requiring licensees to follow the plans for each region.
- The future build out of the public safety BB network will require a large number of backhaul links. Change the rules so P-P use is more spectrum efficient. Set a maximum ERP and a higher minimum antenna gain to reduce the beam width of the P-P links. Allow higher ERP for rural areas for longer path lengths.