

**U.S. Fixed Wireless
Deployment Cost
Estimate: *Finding
the niches***

Market Study
1Q 2018





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Abstract

Fixed wireless is one of several options for providing broadband Internet access to the home and small business. The fixed wireless access market has heated up over the last 18 months. There are two reasons for this:

- Rapid progress on 5G standards defined as 3GPP Release 15 (Rel-15) and the subsequent releases which will deliver additional 5G features and functions.
- Need for spectrum which is driven both by ever-increasing mobile data demand but also the capabilities of 5G which will eventually deliver mobile networks capable of 1 Gbps throughput and millisecond latencies.

There are two broad spectrum categories that will likely see the first “5G” fixed wireless broadband implementations:

- Mid-band: the spectrum bands between 2.3 GHz and approximately 6 GHz
- mmWave: examples of the millimeter wave bands include: 24 GHz, 28 GHz, 29 GHz, 31 GHz, 39 GHz, 60 GHz and 70 GHz.

The cost model presented in this report essentially builds on several assumptions regarding feasibility and costs to estimate how much it might cost to deploy mid-band-based and mmWave-based services, using a Massive MIMO antenna system, to households and/or businesses.

Key questions addressed:

- What is millimeter wave?
- How will mid-band spectrum be used?
- What are the likely cell radius for the various frequencies?
- Why is millimeter wave important? How is it being used? How can it be used?
- How are Massive MIMO and mmWave related?
- What are the pros and cons to deploying mmWave? What are the challenges?
- How much might it cost to deploy mid-band-based and mmWave-based services?
- How do the costs vary for different deployment scenarios?
- How do costs vary for various household adoption rates and population densities?

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- How do costs vary between 3GPP-compliant and non-3GPP compliant technologies?

Who should read this report?

- Mobile operators
- Microwave spectrum holders and operators
- Fixed wireless solution vendors
- Financial analysts and investors.

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