

5G Update

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Verizon 5G Fixed Wireless Activity

2105 – Lab Work

Early testing of basic features and capabilities

2016 – Field Technical Trials

Structured and systematic testing

2017 – Pre-Commercial Pilots

Multivendor environment

Full system testing (5GTF RAN + Core)

2018 – Limited Commercial Launch

Key Learnings and Challenges @ 28 GHz

Capacity

Multi Gbps throughputs

Latency in low milliseconds

MU-MIMO

Coverage

Beam management is crucial

Sensitivity to environment

Variability in foliage and building penetration losses can cause large deviations

Rich scattering multipath in indoor environment can be beneficial

Deployment

Complex RF planning and modeling; highly cluster dependent

Inverse relationship between reach and household penetration/coverage

End user devices may require outdoor antenna installation in some cases

Non-Technical Deployment Considerations



Key Expectations of 5G

Peak Data
Rate¹
(1-20 Gbps)

Latency
(1-10 ms)

Connection
Density
(10k – 1m
devices/km²)

Battery Life²
(10 years)

Additional 5G enhancements:

- Network density
- Area traffic capacity
- Network reliability/availability
- Position accuracy
- Security
- Energy efficiency

¹Peak data rate is spectrum dependent

²For low power IoT devices in ~ 1 GHz band

Thank you.