



Mr. James M. Gleason
Chief Executive Officer
Vast Broadband
912 S Main Street, Suite 106
Sikeston, Missouri 63801

Mr. Gleason,

Thank you for explaining the concerns of the South Dakota Public Utilities Commission (PUC) regarding broadband wireless technologies and the delivery of high speed internet services. I understand there are concerns related to performance in non-line-of-sight conditions (NLOS), and a general disbelief that a carrier-grade service can be provided at download/upload speeds of 25Mbps x 3Mbps. I would like to address these concerns, and explain why LTE is the right technology for providing broadband services in rural America.

With regard to fixed wireless performance in NLOS conditions, the PUC is right to be skeptical. The vast majority of technologies on the market do not work in areas with even a small amount of foliage. Both WiFi and proprietary technologies provide high-capacity services in areas with pure line-of-sight (LOS), but are typically unable to connect customers in NLOS scenarios. This is due to both the low-cost components used to build these products, and the fact that WiFi and proprietary protocols are not robust enough to work in these conditions. Telrad's solution is based on the LTE standard, which leverages features including Hybrid ARQ (HARQ) and an advanced scheduler to allow for delivery of data in challenging RF environments. Furthermore, Telrad has purpose-built the RF components in our products to deliver greater receiver sensitivities, enhanced interference mitigation, and 4TX x 4RX capability. The result is a solution that performs in challenging NLOS conditions, and is not affected by weather conditions.

Unlike WiFi based products, LTE was designed to provide carrier-grade services in outdoor environments. By leveraging 20MHz channels, service providers routinely offer services to their customers with download speeds of 10, 20, 25, and even 30Mbps in some cases. Upload speeds typically range from 1-3Mbps. The level of service that may be consistently provided is dependent on oversubscription ratios and installation best-practices. With proper network design, radio network planning, and quality customer premise installations, service providers can deliver services to their customers that are guaranteed by an SLA.

All fixed broadband wireless technologies are not created equal. WiFi and proprietary solutions are not good options for delivery of broadband in challenging NLOS environments. Telrad's LTE solution will enable you to offer a variety of service packages for your customers, including 25Mbps x 3Mbps, even in rural areas of your network. I am confident that the network you are building will satisfy the performance requirements of the PUC.

Sincerely,

A handwritten signature in black ink, appearing to read "Chris Daniels", with a long, sweeping underline that extends across the width of the signature.

Chris Daniels
Vice President and General Manager, Americas
Telrad