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### **Spectral Characteristics of Auroral Region Scintillation Using 100 Hz Sampling**

With advances in Global Positioning System (GPS) receiver hardware, increased sampling rates have become available, allowing for more robust spectral analysis in the field of ionospheric scintillation research. However, with previous work having access to GPS observables sampled at 50 Hz in the Canadian auroral region, the higher frequency results have been dismissed, typically denoted as noise with the assumption that no scintillation characteristics can be obtained therein.

The introduction of the Septentrio PolaRxS Pro GPS receiver, which can sample at a maximum rate of 100 Hz, allows for a robust analysis of these higher frequencies. Spectral characteristics of both signal intensity and carrier phase on the L1 carrier, obtained within the Canadian auroral region, are presented in this paper. These spectra are shown to deviate from the expected power law behavior in the higher frequency region. This region is shown to be free of observable scintillation characteristics in the signal intensity spectra, and is likely a contamination due to white noise, confirming the results of previous work. The carrier phase spectrum, on the other hand, displays characteristics less likely to be noise. The expected power law behavior is observed in these spectra, with a shallowing of the slope seen in the higher frequencies.