The purpose of this R&D effort is to conduct RF propagation measurements that have very wide bandwidth, over very long links. Wideband measurements have been made in the past, specifically to support Ultra Wideband (UWB) systems, with bandwidth ranging up to 1.3 GHz, but with very low power, covering only short distances. With the ever growing demand for wider bandwidth commercial and government applications, there is a requirement to develop proper RF propagation channel models to provide the system engineers and signal processing algorithm developers with bounds for channel coherence time and bandwidths. The goal is to measure >10 km links, with frequencies between 11GHz and 13.5GHz. Spectral densities of such links will exceed the 15.209 UWB EIRP requirements of -41dBm/MHz, prompting the need for an experimental license.