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General Comment

This comment addresses item "A. Broadband Technology," questions 1 and 2.

In federally sponsored research, it seems that many resources are being devoted to frequencies above 1 GHz, while important frequency bands under 100 MHz remain underutilized. To unlock this untapped potential, NSF and other federal agencies must devote dedicated resources to VHF broadband research. This is all the more important in light of the billions of devices anticipated in the Internet of Things, putting increasing demands on limited spectrum.

As outlined in the The National Broadband Plan (NBP) and the Final Report of the NSF Workshop on EARS (Enhancing Access to the Radio Spectrum) several years ago, innovative use of frequency spectrum powers a 1 trillion dollar wireless-industry growth engine in supporting new applications and technologies. Despite the great progress that has been made in utilization of higher frequency bands, fundamental limitations remain in VHF bands below 100 MHz, especially the low VHF bands in channels 2 through 6 (54-72 MHz, 76-88 MHz).

Clearly, a dedicated federally-funded research thrust is needed to address significant technical hurdles at VHF, such as antenna size constraints and the fundamental

physics of the Wheeler-Chu bandwidth limit. Recent research inroads in VHF technology now give hope that some of these hurdles might be overcome, but dedicated federal resources are desperately needed to bring this to fruition.