

FHH Telecom Law
July 2006

**Less is More: FCC OKs
Smaller Point-to-Point
Microwave Antennas**

*By Mitchell Lazarus
lazarus@fhhlaw.com
703-812-0440*

The FCC has granted a blanket waiver permitting FiberTower Corporation to use two-foot antennas in the 10.7-11.7 GHz microwave band, subject to modified frequency coordination rules.

FCC rules require a point-to-point microwave transmitter antenna to concentrate its outgoing radio waves into a tight beam toward the receiver. The rules of physics require a large antenna dish, relative to the radio wavelength, to produce that tight beam. At 11 GHz, where the wavelength is just over one inch, the FCC requirements demand an antenna about four feet in diameter. But a four-foot dish is large, heavy, expensive, and unsightly.

FiberTower, which uses microwave radio for backhaul services (such as delivery of telephone signals to cellular towers), asked the FCC for permission to use two-foot antennas instead, arguing that they are one-third the cost, one-quarter the weight, and much less conspicuous. Many towers and rooftops that cannot take the weight of a four-foot dish can easily accommodate a two-foot. Some areas have zoning rules that prohibit four-foot antennas, but allow the two-foot equivalent.

Two-foot antennas have a disadvantage, however. They emit radio energy in a wider beam, thus potentially threatening interference to 11 GHz microwave users nearby, and to satellite earth stations that share the band. FiberTower proposed to avoid this problem by turning down the power, if necessary, so the interference would be no worse than from a four-foot dish. Similarly, two-foot antennas are more susceptible to incoming interference from certain directions, but FiberTower agreed not to object to interference unless a four-foot user could also object. The FCC adopted this approach.

The only challenge came from satellite licensees, which feared the waiver would encourage greater point-to-point use of the band, and thus make coordination more difficult for earth stations. The FCC brushed aside this concern.

FiberTower also has on file a Petition for Rulemaking to implement the same change in the FCC rules. After more than two years, the FCC has yet to act on it.