

Before the  
**FEDERAL COMMUNICATIONS COMMISSION**  
Washington, D.C. 20554

In the Matter of	)	
	)	
Revision of Part 15 of the Commission's Rules	)	ET Docket No. 98-153
Regarding Ultra-Wideband Transmission	)	
Systems	)	

**COMMENTS OF FANTASMA NETWORKS, INC.**

Fantasma Networks, Inc. ("Fantasma") hereby comments on the above-captioned Notice of Proposed Rulemaking ("NPRM") regarding the adoption of rules to permit ultra-wideband ("UWB") transmission systems.

**DISCUSSION**

Fantasma has developed and intends to bring to market innovative UWB communications products for wireless networking in homes, libraries, schools and similar short-range, information-intensive network environments. In order for Fantasma to do so, the Commission must authorize UWB operation above approximately 2 GHz, as it has proposed to do in the NPRM. Accordingly, Fantasma vigorously supports the Commission's intention to "pave the way for new types of products incorporating UWB technology."

UWB represents the next generation of unlicensed short-range wireless technology. UWB technologies can transmit large quantities of data using extremely low-power, short duration signals that are dispersed over a wide range of frequencies. UWB technologies, therefore, represent an extremely efficient use of scarce spectrum resources. Indeed, UWB pulses appear to traditional communications receivers as little more than background radio noise. See NPRM ¶ 1. Thus, without placing additional demands on spectrum, UWB

technologies can increase the supply of communications services available to the public.

There is an urgent need for short-range broadband networks that can be fulfilled only by UWB systems. As the Commission has recognized, the Internet, which has a voracious appetite for bandwidth, is the fastest growing communications technology the world has ever known. As a result, the so-called “digital divide” is being replaced by the “bandwidth barrier.” The issue no longer is simply whether or not a user has a computer; the question now is whether they have a connection capable of supporting Internet and communications services at an acceptable level. In fact, only a very small percentage of people nationwide have such a connection.

UWB is a once-in-generation chance to narrow the gap between the bandwidth “haves” and “have-nots.” UWB networks are capable of providing the last 50 to 100 feet or more of an integrated broadband wireless network for homes, schools, libraries, medical facilities, and elderly care facilities. Fantasma currently is developing UWB systems capable of supporting very high data throughput rates of 60 to 100 Mbps over these distances, and it expects to exceed these speeds in the future.

UWB technologies also are extremely spectrum efficient. Fantasma's “underlying technology™” requires such low overall transmission power and spectral power density that it can share spectrum with existing services virtually without detection. Indeed, because UWB is not susceptible to multipath fading, it is especially effective inside buildings. Fantasma’s technologies, which will be incorporated into entertainment, computing, and communications devices and appliances, will enable low-cost, easy-to-install, untethered broadband access for simultaneous video, audio, and Internet use throughout homes, schools, libraries, medical and elderly-care facilities, and businesses.

In the NPRM, the Commission seeks comment on a wide range of issues relating to the adoption of rules that would permit UWB transmissions under Part 15 of the Commission's rules. Fantasma is reserving comment at this time on a number of questions posed by the NPRM. Fantasma looks forward to supplementing the record in the future, and to working with the Commission to develop a sensible, fair, and technically sound regulatory framework for UWB transmissions.

In the meantime, a few points may be made. First, UWB communications systems do not require frequencies below 2 GHz. The majority of UWB wireless communications systems under development will involve ubiquitously deployed, low-power technologies operating above 2 GHz. Accordingly, Fantasma agrees that UWB technologies should be allowed to operate on an unlicensed basis under Part 15 of the Commission's rules.

Second, Fantasma agrees with the Commission's tentative conclusion in paragraph 27 that UWB technologies can operate above 2 GHz without causing harmful interference to other radio services.

Third, Fantasma agrees with the Commission's concerns relating to the operation of UWB systems on or near frequencies used for GPS services. Accordingly, Fantasma has designed its technologies to operate above 2 GHz with significant isolation from GPS frequencies.

Finally, Fantasma agrees that the Commission should not place restrictions on UWB technologies operating above 2 GHz. As the Commission recognizes in the NPRM, "UWB signals will quickly fall off below the background noise because of the high propagation losses at 2 GHz and above. Further, most radio services operating above 2 GHz use directional antennas that generally discriminate against reception of undesired signals." NPRM ¶ 27. Accordingly, whatever the Commission determines with respect to UWB

transmission below 2 GHz, it should move expeditiously to complete this rulemaking to permit UWB transmissions above 2 GHz.

### CONCLUSION

For the reasons stated herein, Fantasma supports the Commission's effort to accommodate UWB transmission systems under Part 15 of the Commission's rules, and it looks forward to supplementing the record in the future with additional comments regarding the issues raised in the NPRM.

Respectfully submitted,

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