

The General Electric Company

September 11, 2000

Ms. Magalie Roman Salas
Secretary
Federal Communications Commission
445 12th St., S.W.
Washington, DC 20554

Re: Ultra-wideband
ET Docket 98-153

Dear Ms. Salas:

The General Electric Company urges the FCC to move forward to adopt regulations to implement ultra-wideband radio. As a leader in the lighting, transportation, medical, home appliance, aircraft engine, plastics, broadcasting, power systems and industrial systems businesses, GE sees numerous applications for this innovative technology. As GE and other companies become more dependent on the flow of timely information to and from its products, there is a tremendous need for low-cost, device connectivity. GE's Medical and Industrial Systems groups know first hand the difficulties of wireless communication in hospital and factory environments where traditional wireless communication is both difficult and a potential safety threat. GE feels that ultra-wideband radio could provide a high capacity, low-power, and safe avenue to link existing information infrastructures in these environments.

Reliable indoor communication is one of the largest unsolved problems in the wireless industry. Conventional narrow-band RF technology is especially susceptible to multi-path problems, and while spread spectrum technology attempts to improve the performance, the solutions fall short of performance goals. The limitations of existing RF technology and the lack of available RF bandwidth have created a fragmented RF industry, with multiple wireless infrastructures.

Ultra-wideband technology offers a unique solution because it communicates by sending pulses of RF energy instead of sine waves. These pulses enable precise ranging, operate in multi-path environments, and more easily penetrate indoor obstructions. The average RF transmit power of these pulses is below the noise floor, allowing a single wireless network to perform tracking and data communication while coexisting with legacy RF systems.

Ultra-wideband radio will provide the technology keystones that enable a major paradigm shift in U.S industry by providing a revolutionary, integrated wireless communications and tracking system for the industrial, medical and other commercial sectors that uses a single infrastructure to achieve a multi-function capability. Strategically, this technology

will enable a new information-based vision for a host of applications. Ultra-wideband radio could offer the nation a cost-effective means to track, locate and communicate with both people and tangible assets more effectively than current technology can accomplish.

This improvement in connectivity could open the power of the Internet to enable a whole new class of products and services. Its economic benefit will be higher productivity, jobs, better products and equipment, safer work and play environments – all with the additional dividend of improving the Nation’s ever-diminishing spectrum asset. The early economic benefit from adopting a broader use of ultra-wideband radio is derived both from the sale of wireless information devices as well as from the improved productivity of U.S. industry. We estimate the nation could easily see a \$50B impact over a 10-year period based on productivity improvements in just healthcare and manufacturing. The Public Return from ultra-wideband radio will be seen in the creation of new industries, improved worker productivity, lower inventories, better public safety systems, and better use of the Nation’s Information Infrastructure.

The General Electric Company urges the FCC to move swiftly to embrace a broader use of ultra-wideband radio. GE is poised to integrate the technology in its medical and industrial systems. We feel there is “window-of-opportunity” that may be missed if this technology is not allowed to be tested in the market place. Worst yet, we feel there are foreign technologies, that are technically inferior, that may be promoted if ultra-wideband radio is not allowed to develop.

We recognize that there are competing technologies and potential safety issues in the wideband telecommunications industry. We ask the FCC to carefully examine the safety issues and move forward with an expanded license to implement the technology as quickly as possible. Technically GE feels ultra-wideband radio merits include:

- Negligible interference with medical & industrial systems
- Multi-functional applications, reducing infrastructure costs
- Potential for high speed, Broad band (20+ mbps) communications
- Efficient use of spectrum

In summary, GE is highly supportive of the FCC moving quickly to allow the expanded implementation of ultra-wideband radio. Our businesses need the solutions the technology offers. We feel it best that the market determine the usefulness of the technology, which we see as a potential “game changer” for our company, and the productivity of the nation. We will be happy to entertain further questions about our support.

Sincerely,

Harold W. Tomlinson
Manager, Healthcare Systems Projects
GE Corporate Research and Development

