



# NEWS

Federal Communications Commission  
445 12<sup>th</sup> Street, S.W.  
Washington, D. C. 20554

News media Information 202 / 418-0500  
TTY 202 / 418-2555  
Fax-On-Demand 202 / 418-2830  
Internet: <http://www.fcc.gov>  
<ftp.fcc.gov>

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FOR IMMEDIATE RELEASE  
February 14, 2002

NEWS MEDIA CONTACT:  
David Fiske at (202) 418-0513

## NEW PUBLIC SAFETY APPLICATIONS AND BROADBAND INTERNET ACCESS AMONG USES ENVISIONED BY FCC AUTHORIZATION OF ULTRA-WIDEBAND TECHNOLOGY

Washington, D.C. – The Federal Communication Commission (FCC) adopted today a *First Report and Order* that permits the marketing and operation of certain types of new products incorporating ultra-wideband (“UWB”) technology. UWB technology holds great promise for a vast array of new applications that have the potential to provide significant benefits for public safety, businesses and consumers in a variety of applications such as radar imaging of objects buried under the ground or behind walls and short-range, high-speed data transmissions.

UWB devices operate by employing very narrow or short duration pulses that result in very large or wideband transmission bandwidths. With appropriate technical standards, UWB devices can operate using spectrum occupied by existing radio services without causing interference, thereby permitting scarce spectrum resources to be used more efficiently. This First Report and Order (“Order”) includes standards designed to ensure that existing and planned radio services, particularly safety services, are adequately protected. The FCC will act vigorously to enforce the rules and act quickly on any reports of interference.

The standards adopted today represent a cautious first step with UWB technology. These standards are based in large measure on standards that the National Telecommunications and Information Administration (“NTIA”) believes are necessary to protect against interference to vital federal government operations. Since there is no production UWB equipment available and there is little operational experience with the impact of UWB on other radio services, the Commission chose in this First Report and Order to err on the side of conservatism in setting emission limits when there were unresolved interference issues. The Commission intends within the next six to twelve months to review the standards for UWB devices and issue a further notice of proposed rule making to explore more flexible standards and address the operation of additional types of UWB operations and technology.

The Order establishes different technical standards and operating restrictions for three types of UWB devices based on their potential to cause interference. These three types of UWB devices are: 1) imaging systems including Ground Penetrating Radars (GPRs), wall, through-wall, medical imaging, and surveillance devices, 2) vehicular radar systems, and 3) communications and measurement systems.

- **Imaging Systems:** Provides for the operation of GPRs and other imaging devices under Part 15 of the Commission’s rules subject to certain frequency and power limitations. The operators of imaging devices must be eligible for licensing under Part 90 of our rules, except that medical imaging devices may be operated by a licensed health care practitioner. At the request of NTIA, the FCC will notify or coordinate with NTIA prior to the operation of all imaging systems. Imaging systems include:

- **Ground Penetrating Radar Systems:** GPRs must be operated below 960 MHz or in the frequency band 3.1-10.6 GHz. GPRs operate only when in contact with or within close proximity of, the ground for the purpose of detecting or obtaining the images of buried objects. The energy from the GPR is intentionally directed down into the ground for this purpose. Operation is restricted to law enforcement, fire and rescue organizations, to scientific research institutions, to commercial mining companies, and to construction companies.
- **Wall Imaging Systems:** Wall-imaging systems must be operated below 960 MHz or in the frequency band 3.1-10.6 GHz. Wall-imaging systems are designed to detect the location of objects contained within a “wall,” such as a concrete structure, the side of a bridge, or the wall of a mine. Operation is restricted to law enforcement, fire and rescue organizations, to scientific research institutions, to commercial mining companies, and to construction companies.
- **Through-wall Imaging Systems:** These systems must be operated below 960 MHz or in the frequency band 1.99-10.6 GHz. Through-wall imaging systems detect the location or movement of persons or objects that are located on the other side of a structure such as a wall. Operation is limited to law enforcement, fire and rescue organizations.
- **Medical Systems:** These devices must be operated in the frequency band 3.1-10.6 GHz. A medical imaging system may be used for a variety of health applications to “see” inside the body of a person or animal. Operation must be at the direction of, or under the supervision of, a licensed health care practitioner.
- **Surveillance Systems:** Although technically these devices are not imaging systems, for regulatory purposes they will be treated in the same way as through-wall imaging and will be permitted to operate in the frequency band 1.99-10.6 GHz. Surveillance systems operate as “security fences” by establishing a stationary RF perimeter field and detecting the intrusion of persons or objects in that field. Operation is limited to law enforcement, fire and rescue organizations, to public utilities and to industrial entities.
- **Vehicular Radar Systems:** Provides for the operation of vehicular radar systems in the 24 GHz band using directional antennas on terrestrial transportation vehicles provided the center frequency of the emission and the frequency at which the highest radiated emission occurs are greater than 24.075 GHz. These devices are able to detect the location and movement of objects near a vehicle, enabling features such as near collision avoidance, improved airbag activation, and suspension systems that better respond to road conditions.
- **Communications and Measurement Systems:** Provides for use of a wide variety of other UWB devices, such as high-speed home and business networking devices as well as storage tank measurement devices under Part 15 of the Commission’s rules subject to certain frequency and power limitations. The devices must operate in the frequency band 3.1-10.6 GHz. The equipment must be designed to ensure that operation can only occur indoors or it must consist of hand-held devices that may be employed for such activities as peer-to-peer operation.

Action by the Commission February 14, 2002, by First Report and Order (FCC 02-48). Chairman Powell, Commissioners Abernathy, Copps and Martin, with Commissioners Abernathy, Copps and Martin issuing separate statements.

Staff Contacts for First Report and Order:

Julius Knapp, Telephone: (202) 418-2468, E-mail: [JKNAPP@fcc.gov](mailto:JKNAPP@fcc.gov) or

John Reed, Telephone: (202) 418-2455, E-mail: [JREED@fcc.gov](mailto:JREED@fcc.gov)