

introduction of UWB devices under its recently adopted rules. It also hopes that additional tests using commercially available UWB devices will have been completed within that time frame. Such tests currently are being contemplated by the National Aeronautics and Space Administration (NASA), the Department of Transportation (DOT), by the Department of Defense, and by commercial entities. As these steps occur, the Commission intends to continue its review of the UWB standards to determine where additional changes warrant consideration.

3. The petitions for reconsideration can be divided into three general categories: those from developers of UWB devices that seek to expand on the UWB standards to permit or facilitate a particular type of operation; those from organizations representing authorized radio services that seek additional attenuation of UWB emissions in the frequency bands used by their devices; and those seeking changes to the Part 15 rules for non-UWB operation. The UWB developers consist of Time Domain, Inc., American Gas Association and American Public Gas Association (AGA and AGPA), Ground Penetrating Radar Industry Coalition (GPRIC), GPR Service Providers Coalition (GPR Providers), and National Utilities Contractors Association (NUCA), Multispectral Solutions, Inc. (MSSI), Siemens VDO, and Kohler Co. The organizations representing authorized radio services consist of Cingular Wireless LLC, Qualcomm, Sprint Corp., Sirius Satellite Radio Inc. and XM Radio Inc., Satellite Industry Association (SIA), and Aeronautical Radio, Inc., and Air Transport Association of America (ARINC and ATA). In addition, MSSI requests that we amend our peak power limits on non-UWB part 15 devices.

4. The UWB rules require through-wall imaging systems to operate with their -10 dB bandwidth located below 960 MHz or between 1.99–10.6 GHz. Imaging systems may not be used in conjunction with tag identifiers used to locate personnel nor may imaging systems be used to transmit voice or data information. Communications systems are required to operate with their -10 dB bandwidth located between 3.1–10.6 GHz. Through-wall systems are required to attenuate emissions in the GPS band by 10 dB below the part 15 general emission limits, *i.e.*, to -51.3 dBm/MHz, in the 1610–1990 MHz band and by 12 dB below the part 15 general emission limits, *i.e.*, to -53.3 dBm/MHz, in the 960–1610 MHz band. Other UWB devices are subject to even greater attenuation of emissions in these bands.

5. In response to the petition from Time Domain, Inc., the Commission amended its rules to permit the operation of a through-wall imaging system with a center frequency above 1990 MHz at the Part 15 general emission limits. This equipment may be used only by law enforcement officers, emergency rescue personnel and firefighters operating under the authority of a local or state government. Further, the operators of these systems must be licensed by the Commission under Part 90 of its regulations. The grant of a Part 90 license for operation of a land mobile station will automatically convey authority to operate this through-wall imaging system. The license may be held by the organization under which the UWB operator is employed. The Commission also required that this equipment be operated only for law enforcement applications, the providing of emergency services, and necessary training operations. Because of the possibility that some training areas may be located near public access areas where receiving equipment may not be under the immediate control of the UWB device public safety operator, at the request of NTIA the Commission requested that during training exercises through-wall imaging systems operating above 1990 MHz be encompassed by a 50 meter perimeter within which public access is restricted. Finally, the Commission required that the UWB public safety communication system transmitter operate with its center frequency, as defined in 47 CFR 15.503(b), between 1990 MHz and 10.6 GHz. The frequency at which the highest radiated emission occurs must be located in the 1.99 GHz to 10.6 GHz band and must not exceed an average root-mean-square (RMS) EIRP of -41.3 dBm/MHz. In addition, broadband emissions between 960 MHz and 1610 MHz must not exceed an average (RMS) EIRP of -46.3 dBm/MHz, when measured using a resolution bandwidth of at least 1 MHz, and narrowband emissions in the GPS bands must be attenuated so that they do not exceed an RMS EIRP of -56.3 dBm, when measured using a resolution bandwidth of no less than 1 kHz. Emissions appearing below 960 MHz may not exceed the part 15 general emission limits and any emissions above 10.6 GHz may not exceed an RMS EIRP of -51.3 dBm/MHz. Coordination is not required prior to operation nor is there any requirement that these devices be equipped with a manual transmission switch.

6. Ground penetrating radars (GPRs) and wall imaging systems must be operated by law enforcement, fire and emergency rescue organizations, by scientific research institutes, by commercial mining companies or by construction companies. The operation of these devices is subject to the requirement that the operator coordinate the operational location with the Commission. A dead man switch is required to ensure that the UWB device ceases to operate within 10 seconds of being released by the operator. These products must operate with their -10 dB bandwidth below 960 MHz or between 3.1–10.6 GHz and may operate within those bands at the part 15 general emission limits. Emissions within the 960–3100 MHz band are required to be attenuated below the part 15 general emission limits by 10 to 24 dB, depending on the frequency.

7. In response to petitions from AGA and APGA, the GPRIC, the GPR Providers, and the NUCA, the Commission eliminated the requirement that GPRs and wall imaging systems operate with their -10 dB bandwidths below 960 MHz or above 3.1 GHz; clarified the limitations on who may operate ground penetrating radar (GPR) systems and wall imaging systems and for what purposes; eliminated the requirement for non-hand held GPRs to employ a dead man switch; and clarified the coordination requirements for imaging devices.

8. UWB consumer devices are required to operate with their -10 dB bandwidth in the 3.1–10.6 GHz band and are limited to indoor-only and hand held systems. These systems must comply with the UWB definition by operating with a minimum fractional bandwidth of 0.20 or with a minimum -10 dB bandwidth of 500 MHz. The Commission denied MSSI requests that any type of UWB device, *e.g.*, a vehicle radar system, be permitted to operate in the 3.1–10.6 GHz band provided it employs a low PRF; and that devices be prohibited from operating under the UWB regulations if they achieve their wide bandwidth due to high data rates, *i.e.*, where the bandwidth is modulation dependent. The Commission agreed with MSSI requests that the emission charts that accompanied the February 14, 2002, News Release announcing the adoption of the UWB regulations did not correctly reflect the emission limits below 960 MHz.

9. The UWB regulations permit the operation of vehicular radar systems in the 22–29 GHz band. In the R&O, the Commission specifically precluded the operation of swept frequency systems and frequency hopping systems under