Before the
Federal Communications Commission
Washington, D.C. 20554

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

Order

Adopted: July 12, 2002 **Released: July 12, 2002**

By the Chief, Office of Engineering and Technology:

Background

1. By this action, we are clarifying Part 15 of our regulations with regard to the parties that are eligible to operate ultra-wideband (UWB) imaging systems, specifically ground penetrating radar (GPR) and wall imaging systems. We also are establishing a waiver procedure that will permit the registration and continued operation of existing GPRs and wall imaging systems. In addition, we are denying the Motion for Interim Stay of Enforcement filed by the Ground Penetrating Radar Industry Coalition ("GPRIC"). Through these actions, we will accommodate existing products while ensuring that the authorized radio services are protected from harmful interference and that all new equipment complies with the appropriate standards. These actions will also ensure that the safety and other public benefits provided by GPRs and wall imaging systems are not halted or eliminated.

2. On February 12, 2002, the Commission adopted a *First Report and Order* ("*Order*") in the above entitled proceeding.[1] This Order amended Part 15 of our rules to permit the marketing and operation of products incorporating UWB technology. Several categories of UWB devices were permitted under the regulations including imaging systems, vehicular radars and indoor and outdoor communication systems. Imaging systems consist of GPRs, wall imaging systems, through-wall imaging systems, surveillance systems, and medical imaging systems.

3. GPRs are radar devices that are designed to obtain the images of buried objects or to determine the physical properties within the ground. Wall imaging systems are functionally identical to GPRs except that they are used to detect these features within walls or ceilings.[2] GPRs and wall imaging systems have been used for many years to perform critical safety services. Common applications include inspections of highways, bridges and runways, and determining the location of gas pipelines. Other applications include uses in forensic and archaeological studies. It appears that several commercial operations have become dependent on the use of these UWB devices to perform their functions.

4. Because of their wide operating bandwidths, UWB devices operate in frequency bands that are allocated both to U.S. Government and to non-government operations. Operation of Government radio stations is regulated by the National Telecommunications and Information Administration (NTIA), while operation of stations by private industry, by state and local governments and by the public is

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1 *See First Report and Order* in ET Docket No. 98-153, 17 FCC Rcd. 7435 (2002) ("*Order*").

2 *See* the definitions in 47 C.F.R. § 15.503(f) and (h).

regulated by the FCC. The standards and operating requirements that we recently adopted for imaging systems were based in large measure on standards that NTIA found to be necessary to protect against interference to vital federal government operations.[3]

Equipment Registration

5. While the Commission's rules did not contain specific provisions permitting UWB devices, we note that GPRs and wall imaging systems have been in use for several years.[4] Regulations to permit the marketing and operation of UWB devices now have been adopted and become effective on July 15, 2002. The new regulations permit the operation of GPRs and wall imaging systems only below 960 MHz and between 3.1 and 10.6 GHz. However, we recognize that many applications for GPRs and wall imaging systems could require operation in the frequency band between 960 MHz and 3100 MHz.[5] Indeed, GPRs and wall imaging systems have been operating in the 1000-2000 MHz band for many years, and we are unaware of a single report of harmful interference.

6. Because of the absence of reported harmful interference and the public safety benefits resulting from the use of GPRs and wall imaging systems, we believe that provisions should be made to permit the continued operation of existing products. We see no benefits in requiring halting the operation of GPRs and wall imaging systems that already are in the hands of the public and may have been used for several years without causing harmful interference. Accordingly, we are providing a blanket waiver of the Part 15 regulations, with the exception of 47 C.F.R. §§ 15.5(a)-(c), 15.11, 15.29, 15.521(a) and 15.525, for existing GPRs and wall imaging systems. This waiver applies only to those entities that are eligible to operate GPRs and wall imaging systems, as described later in this order under the discussion on "Operating Restrictions," and that have registered their equipment with us, following the procedures shown below. To be included under this blanket waiver, the eligible operators of a GPR or wall imaging system must register their equipment with us by no later than the close of business on October 15, 2002. This waiver does not apply to the manufacture, importation or marketing of GPRs or wall imaging systems nor does it apply to equipment that is sold on or after July 15, 2002.

- The operator shall follow the coordination procedures specified in 47 C.F.R. § 15.525. Coordination of each individual usage is not required. Instead, the coordination information shall describe the general areas in which the equipment is to be operated. This could consist of the count(y)(ies) of operation or even the state(s) of operation. We expect NTIA to notify the operator, through us, of any critical locations within these areas, as described in 47 C.F.R. § 15.525(e). Subsequent changes in operational areas will require the filing of a new transmission location following the procedures in 47 C.F.R. § 15.525 but will not affect the waiver status of the equipment described in the prior submission.

- In lieu of an FCC ID number, the users of GPRs and wall imaging systems purchased before July 15, 2002, shall provide us with a description of their equipment when filing for coordination. That description shall include, as a minimum, all identifying nomenclature on the product, such as the brand name and model, along with the frequency at which the GPR or wall imaging system operates. To the extent they are available, the operator shall provide emission characteristics described in 47 C.F.R. Part

[3] We also expressed concern that these standards, which are scheduled to become effective on July 15, 2002, may be overprotective and could unnecessarily constrain the development of UWB technology. *See Order* at para. 1.

[4] For example, such systems have been authorized under our experimental rules under Part 5 or by waiver.

[5] *See Notice of Proposed Rule Making* in ET Docket No. 98-153, 15 FCC Rcd. 12086 (2000), at para. 25.

15 Subpart F, as based on the measurement procedures described in the *Order*.[6] We are not requiring equipment operators to have these emission characteristics measured. However, these emission characteristics may be used to calculate safety zones in the coordination process and, if not available, may result in increased safety zone areas.

- The operator shall supply the purchase date of the GPR or wall imaging system. An approximate date is acceptable if an exact date is not available. The GPR or wall imaging system must have been purchased by the operator prior to July 15, 2002, the effective date of the new UWB regulations, in order to qualify under this registration and waiver provision.

7. The operators of UWB devices are reminded of the provisions of 47 C.F.R. § 15.5. Should harmful interference be caused to any other radio device[7], that interference must be corrected even if correction requires the cessation of operation. If any GPRs or wall imaging systems become a source of harmful interference, we may find it necessary to take additional steps, up to and including revocation of the above described waiver provisions.

8. It is a well-established principle that the Commission will waive its rules only if it determines, after careful consideration of all pertinent factors, that such a grant would serve the public interest without undermining the policy which the rule in question is intended to serve. *See WAIT Radio v. FCC*, 418 F.2d 1153, (D.C. Cir. 1969). In discussing the treatment of requests for waivers of established rules, the court in *WAIT Radio* emphasized that the agency's discretion in applying general rules is intimately linked to the existence of "a safety valve procedure" to permit consideration of an application for exemption based on special circumstances. *Id.* Indeed, the court considered a rule most likely to be undercut if it does not take into account "consideration of hardship, equity, or more effective implementation of overall policy..." *Id.* at 1159. It is clear that several public safety benefits result from the continued operation of existing GPRs and wall imaging systems currently in use. It is equally clear that existing devices may not comply with the UWB regulations that were adopted in the Order. Further, we are not aware of any reports of harmful interference resulting from the long-term use of GPRs and wall imaging systems in the past. Accordingly, we believe that permitting the continued operation of these devices is precisely the type of special circumstance for which the "safety valve procedure" cited by the courts should be applied.

Operating Restrictions

9. The regulations contain restrictions on the parties that are eligible to operate imaging systems.[8] Under the new regulations, GPRs and wall imaging systems may be used only by law enforcement, fire and emergency rescue organizations, by scientific research institutes, by commercial mining companies, and by construction companies. Since the adoption of the *Order*, we have received several inquiries from the operators of GPRs and wall imaging systems noting that these devices often are not operated by the users listed in the regulations but are operated under contract by personnel specifically trained in the operation of these devices. We do not believe that the recent adoption of the UWB rules should disrupt the critical safety services that can be performed effectively only through the use of GPRs

[6] If measured data of the emission characteristics are documented, a copy of the report would be helpful. As more data are collected on the radiated emission levels from GPRs and wall imaging systems, the requirement for coordination with Federal radio systems could be reduced.

[7] Harmful interference consists of interference to a radiocommunications service. *See* 47 C.F.R. § 15.3(m). Part 15 devices are not part of a "service." Thus, interference caused to a Part 15 device by another Part 15 device does not constitute harmful interference.

[8] *See* 47 C.F.R. §§ 15.509(b), 15.511(b), and 15.513(b).

and wall imaging systems. We viewed these operating restrictions in the broadest of terms. For example, we believe that the limitation on the use of GPRs and wall imaging systems by construction companies encompasses the inspection of buildings, roadways, bridges and runways even if the inspection finds no damage to the structure and construction does not actually result from the inspection; the intended purpose of the operation of the UWB device is to determine if construction is required. We also believe that the GPRs and wall imaging systems may be operated for one of the purposes described in the regulations but need not be operated directly by one of the described parties. For example, a GPR may be operated by a private company investigating forensic evidence for a local police department.

10. At this time, we are not providing similar interpretations to the operating restrictions for UWB imaging systems other than GPRs and wall imaging systems. We are not aware of any existing UWB surveillance systems or through-wall imaging systems for which the new rules would have an adverse impact. We also believe that the operation of surveillance systems and through-wall imaging systems should be limited until more experience has been obtained regarding these devices. Further, it does not appear that any hardship would result from the existing operating restrictions for medical imaging systems.

Motion for Interim Stay of Enforcement

11. On June 17, 2002, the GPRIC[9] filed a Motion for Interim Stay of Enforcement of rules that affect GPR and wall imaging devices. These rules include 47 C.F.R. § 15.509(a) (requiring all GPR bandwidth to be below 960 MHz); § 15.509(b)(1) (limiting GPR operation to law enforcement, fire and emergency rescue organizations, scientific research institutes, commercial mining companies, and construction companies); § 15.509(d) (setting emission limits for GPR devices below the Part 15 general limits); and § 15.525 (requiring prior coordination of GPR operations with NTIA). GPRIC, which has filed a Petition for Reconsideration in this proceeding, requests that the Commission not enforce its new rules pending whatever action it takes on reconsideration.[10] During the requested stay of enforcement period, GPRIC asks that the Commission allow GPR devices to operate under the Part 15 general emission limits,[11] that parties eligible to operate GPR devices include all entities eligible for licensing under Part 90 of the Commission's rules, and that prior coordination only within a reasonable radius of identified specific sensitive installations be required.

12. GPRIC believes that its request satisfies the four factors that the Commission relies on for granting a stay: the petitioner's likelihood of prevailing on the merits; irreparable harm to the petitioner in the absence of a stay; whether substantial harm would occur to other parties if a stay is granted; and wherein lies the public interest.[12] GPRIC claims that it is likely to prevail on the merits of its petition for reconsideration; that irreparable harm will occur to GPR operators and manufacturers, many of whom are small businesses, absent a stay of enforcement of the challenged rules; that no harm will occur to other parties as there are no claims of interference from GPRs; and that enforcement of the challenged rules will not serve the public interest because they would severely impair GPR operations used for public safety.

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[9] The GPRIC consists of Geophysical Survey Systems, Inc., Mala Geoscience, Inc., and Sensors & Software, Inc. These parties manufacture GPRs and, according to the petition, account for over 95 percent of the GPRs sold in the U.S.

[10] The GPRIC requests for reconsideration will be addressed in a separate order dealing with several petitions for reconsideration and their associated comments.

[11] *See* 47 C.F.R. § 15.209.

[12] *See Washington Metropolitan Area Transit Commission v. Holiday Tours, Inc.*, 559 F.2d 843 (D.C. Cir. 1977); *Virginia Petroleum Jobbers Ass'n. v. FPC*, 259 F.2d 921 (D.C. Cir. 1958).

13. The U.S. GPS Industry Council ("USGPS") filed an Opposition to the GPRIC motion on June 24, 2002. USGPS argues that the Commission cannot grant the requested relief because a stay of the new rules' effectiveness would have untoward consequences for GPR operators by removing the very basis for lawful operation of these devices. It adds that GPRIC asks us to ignore our findings in this proceeding and to establish new interim requirements for GPR devices. USGPS is concerned that if a stay was granted, GPR users might operate without any restrictions and thus create a substantial potential for harmful interference to other users of the spectrum. In reply comments, GPRIC clarifies that it seeks merely a stay of the enforcement of the new rules and not of the rules themselves, thus allowing GPR devices to be certified and operated. GPRIC also argues that if GPR devices are required to meet the Part 15 general emission limits pending reconsideration, other users will not be subject to harmful interference.

14. We decline to stay enforcement of the rules as proposed by GPRIC. We conclude that GPRIC has not satisfied the four factors for granting a stay. Indeed, it is not clear that a stay of enforcement would provide the type of relief that GPRIC claims it seeks, *i.e.*, providing a regulatory regime to allow GPR devices to be certified and operated, while also providing relief to the many users of existing devices that have done so without causing harmful interference to others. A stay of enforcement of the recently adopted rules would essentially obviate the rules authorizing the subject devices. The rules were adopted to permit the deployment of ultra-wideband systems while ensuring that adequate methods for protecting against harmful interference to incumbents. We believe that a delay in enforcement of the new rules would unnecessarily delay achieving this objective and thus would not serve the public interest. However, recognizing that transition issues exist we are providing a mechanism to bring legacy equipment into compliance. We conclude that the public interest is best served by providing relief under waiver to users of existing GPR devices, under the terms discussed above. This will allow those users who already have made a substantial investment to continue to provide useful services to the public without unnecessary interruption. As noted above, if harmful interference is observed the Commission can take appropriate action including revocation of the waiver if deemed necessary.

15. With regard to new equipment, GPR and wall imaging manufacturers that do not agree with the standards adopted in the *Order* may petition for reconsideration of the new rules, petition for rule making to adopt new rules, or request waivers of our regulations. However, we will not permit manufacturers to continue to supply non-compliant equipment. Thus, we remind parties importing or marketing these devices of our commitment in the *Order* to expedite enforcement actions for any UWB products found to be in violation of the rules.[13] We also wish to reiterate that the new UWB rules become effective on July 15, 2002. While we will entertain requests from the UWB industry for waivers of our regulations, we can not guarantee that we can act on such requests before the rules become effective. However, given the important public safety benefits we intend to expedite the processing of certification applications for GPRs and wall imaging systems. While it is likely that our laboratory will want to evaluate samples of these devices, we do not intend to allow such testing to delay the certification process.

[13] *See Order* at para. 5.

Ordering Clause

16. IT IS ORDERED that the Motion for Interim Stay of Enforcement filed on June 15, 2002, by the Ground Penetrating Radar Industry Coalition, IS DENIED. IT IS FURTHER ORDERED that a waiver of the provisions of 47 C.F.R. Part 15 described in this order IS GRANTED for the operators of existing GPRs and wall imaging systems provided those operators are eligible to operate the equipment and comply with the registration requirements, as described in this order.

17. This order is issued pursuant to the delegated authority contained in 47 C.F.R. Sections 0.31 and 0.241.

18. For further information regarding this Order, contact John A. Reed, Office of Engineering and Technology, (202) 418-2455, jreed@fcc.gov.

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