If the EPA received such comments, then EPA will publish a document withdrawing the final rule and informing the public that the rule will not take effect. All public comments received will then be addressed in a subsequent final rule based on the proposed rule. The EPA will not institute a second comment period. Any parties interested in commenting should do so at this time. If no such comments are received, the public is advised that this rule will be effective on September 29, 1998, and no further action will be taken on the proposed rule.

IV. Administrative Requirements

A. Executive Order 12866

The Office of Management and Budget (OMB) has exempted this regulatory action from E.O. 12866 review.

The final rule is not subject to E.O. 13045, entitled ''Protection of Children from Environmental Health Risks and Safety Risks,'' because it is not an ''economically significant'' action under E.O. 12866.

B. Regulatory Flexibility Act

Under the Regulatory Flexibility Act, 5 U.S.C. 600 *et seq.*, EPA must prepare a regulatory flexibility analysis assessing the impact of any proposed or final rule on small entities. 5 U.S.C. 603 and 604. Alternatively, EPA may certify that the rule will not have a significant impact on a substantial number of small entities. Small entities include small businesses, small not-for-profit enterprises, and government entities with jurisdiction over populations of less than 50,000.

SIP approvals under section 110 and subchapter I, part D of the Clean Air Act do not create any new requirements but simply approve requirements that the State is already imposing. Therefore, because the Federal SIP approval does not impose any new requirements, the Administrator certifies that it does not have a significant impact on any small entities affected. Moreover, due to the nature of the Federal-State relationship under the CAA, preparation of a flexibility analysis would constitute Federal inquiry into the economic reasonableness of State action. The Clean Air Act forbids EPA to base its actions concerning SIPs on such grounds. *Union Electric Co.* v. *U.S. EPA,* 427 U.S. 246, 255–66 (1976); 42 U.S.C. 7410(a)(2).

C. Unfunded Mandates

Under section 202 of the Unfunded Mandates Reform Act of 1995 (''Unfunded Mandates Act''), signed into law on March 22, 1995, EPA must prepare a budgetary impact statement to accompany any proposed or final rule that includes a Federal mandate that may result in estimated costs to State, local, or tribal governments in the aggregate; or to private sector, of $100 million or more. Under section 205, EPA must select the most cost-effective and least burdensome alternative that achieves the objectives of the rule and is consistent with statutory requirements. Section 203 requires EPA to establish a plan for informing and advising any small governments that may be significantly or uniquely impacted by the rule.

EPA has determined that the approval action promulgated does not include a Federal mandate that may result in estimated costs of $100 million or more to either State, local, or tribal governments in the aggregate, or to the private sector. This Federal action approves pre-existing requirements under State or local law, and imposes no new Federal requirements. Accordingly, no additional costs to State, local, or tribal governments, or to the private sector, result from this action.

D. Submission to Congress and the General Accounting Office

The Congressional Review Act, 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. This rule is not a ''major'' rule as defined by 5 U.S.C. 804(2).

E. Petitions for Judicial Review

Under section 307(b)(1) of the Clean Air Act, petitions for judicial review of this action must be filed in the United States Court of Appeals for the appropriate circuit by September 29, 1998. Filing a petition for reconsideration by the Administrator of this final rule does not affect the finality of this rule for the purposes of judicial review nor does it extend the time within which a petition for judicial review may be filed, and shall not postpone the effectiveness of such rule or action. This action may not be challenged later in proceedings to enforce its requirements (see section 307(b)(2)).

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Hydrocarbons, Incorporation by reference, Intergovernmental relations, Nitrogen dioxide, Ozone, Reporting and recordkeeping requirements, Volatile organic compound.

Note: Incorporation by reference of the State Implementation Plan for the State of California was approved by the director of the Federal Register on July 1, 1982.

Dated: July 8, 1998.

Felicia Marcus,

Regional Administrator, Region IX.

Part 52, Chapter I, Title 40 of the Code of Federal Regulations is amended as follows:

PART 52—[AMENDED]

1. The authority citation for Part 52 continues to read as follows:

Authority: 42 U.S.C. 7401 *et seq.*

Subpart F—California

2. Section 52.220 is amended by adding paragraph (c)(194)(i)(G) to read as follows:

§ 52.220 Identification of plan.

* * * * *

(c) * * *

(194) * * *

(i) * * *

(G) Mendocino County Air Quality Management District.

(*1*) Rule 130 (p6), (t2), and (t3) adopted April 6, 1993.

* * * * *

[FR Doc. 98–20508 Filed 7–30–98; 8:45 am]

BILLING CODE 6560–50–P

FEDERAL COMMUNICATIONS COMMISSION

47 CFR Part 15

[ET Docket No. 96–102, FCC 98–121]

Unlicensed NII Devices in the 5 GHz Frequency Range

AGENCY: Federal Communications Commission.

ACTION: Final rule.

SUMMARY: By this *Memorandum Opinion and Order* (''*MO&O*''), the Commission amends the rules to permit fixed, point-to-point Unlicensed National Information Infrastructure (''U–NII'') devices in the 5.725–5.825 GHz band to operate with one watt maximum transmitter output power and

Geotab Exhibit 1031
Geotab v. Fractus

directional antennas of up to 23 dBi gain. Additionally, the *MO&O* amends the Commission's rules to specify transmit power limits in the form of a logarithmic equation as a function of channel bandwidth for all U–NII devices in all U–NII bands. It also clarifies the rules regarding unwanted emissions and specifies these limits in terms of absolute radiated power levels. Further, this action clarifies and addresses other issues raised in the petitions for reconsideration regarding the operation of, and regulations governing, U–NII devices. The actions taken herein will add to the flexibility and capability of U–NII operations without causing an increase in harmful interference to incumbent operations sharing the same spectrum.

EFFECTIVE DATE: August 31, 1998.

FOR FURTHER INFORMATION CONTACT: Tom Derenge, Office of Engineering and Technology, (202) 418–2451.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's *MO&O,* ET Docket 96–102, FCC 98–121, adopted June 17, 1998, and released June 24, 1998. The full text of this Commission decision is available for inspection and copying during normal business hours in the FCC Reference Center (Room 239), 1919 M Street, N.W., Washington, D.C., and also may be purchased from the Commission's duplication contractor, International Transcription Service, (202) 857–3800, 1231 20th Street, N.W. Washington, D.C. 20036.

Summary of the Memorandum Opinion and Order

1. On January 9, 1997, the Commission adopted a *Report and Order* (''*R&O*'') in ET Docket No. 96–102, 62 FR 04649, January 31, 1997, which amended part 15 of its rules to make available 300 megahertz of spectrum at 5.15–5.35 GHz and 5.725–5.825 GHz for use by a new category of unlicensed equipment, called U–NII devices. These devices are intended to provide high speed wireless digital communications on an unlicensed basis. The *R&O* stated that U–NII devices will support the creation of new wireless local area networks (''LANs'') and will facilitate wireless access to the National Information Infrastructure (''NII''). In order to permit flexibility in the design and operation of these devices, the *R&O* adopted those technical rules found to be minimally necessary to prevent interference to other services and to ensure that the spectrum is used efficiently. Additionally, the rules set forth in the *R&O* were intended to foster the development of a broad range of new devices and service offerings that will stimulate economic development and the growth of new industries.

2. In response to the *R&O,* on March 3, 1997, Apple Computer, Inc. (''Apple''), Hewlett Packard Company (''H–P'') and the Wireless Information Networks Forum (''WINForum'') filed petitions requesting reconsideration of certain aspects of the *R&O* and further clarification of certain rules adopted in that proceeding. The *MO&O* adopts in part the reconsideration requests of Apple and WINForum, denies the reconsideration request of H–P and dismisses a later filed petition for rulemaking by Clarity Wireless Incorporated. Specifically, the *MO&O* adopts WINForum's proposal of expressing the transmit power for U–NII devices as a logarithmic equation dependent on bandwidth. This action will not increase the maximum power permitted by U–NII devices, but would merely scale permissible maximum power to the bandwidth used by the U–NII device. Further, the *MO&O* denies requests to ease power and antenna limits for U–NII devices at this time except for point-to-point links in the 5.725–5.825 GHz band, which will be permitted to operate with up to 1 watt transmitter output power and 23 dBi gain antennas. Non point-to-point U–NII devices in the 5.725–5.825 GHz band must meet the original power limits of 1 watt transmitter output power with up to 6 dBi gain antennas. The item, however, pledges that the Commission will work with industry, consumers, government agencies, and other interested parties to closely monitor whether these limits can be eased in the future.

3. With respect to power spectral density, the Commission acknowledges that there are variations in a signal's power across its emission bandwidth, but concludes that the public interest would not be served by amending its rules to allow a 3–dB tolerance in meeting U–NII power spectral density (''PSD'') requirements in any one megahertz segment, even if the total PSD requirement across the signal's bandwidth is met. Instead, for compliance with the PSD requirement, the rules are amended to permit integration of the power over the PSD measurement bandwidth (the lesser of 1 megahertz or the 26 dB bandwidth) such that the variations in envelope power will be averaged out. The *MO&O* states that this measurement procedure is sufficient to accommodate the digital modulation techniques anticipated for U–NII devices and that integrating the power over the measurement bandwidth would not cause additional interference problems with other services due to the averaging effect of the power from multiple devices.

4. The Commission denies Apple's request to modify the U–NII PSD requirements to permit the spread of the maximum power across a smaller bandwidth and maintains the PSD limits adopted within the R&O. Specifically, U–NII devices shall limit their PSD as follows: (a) in the 5.15–5.25 GHz band, the transmitter peak PSD will be limited to 2.5 mW (4 dBm) in any one megahertz band for an antenna gain of up to 6 dBi; (b) in the 5.25–5.35 GHz band, the transmitter peak PSD will be limited to 12.5 mW (11 dBm) in any one megahertz band for an antenna gain of up to 6 dBi; and (c) in the 5.725–5.825 GHz band, the transmitter peak PSD will be limited to 50 mW (17 dBm) in any one megahertz band for an antenna gain of up to 6 dBi (23 dBi for fixed, point-to-point systems).

5. In response to WINForum requested clarification of the limits on unwanted UNII emissions, the Commission amends its rules so that U–NII emission limits will now be expressed in absolute terms based on the maximum permitted in-band power limits rather than in terms relative to actual in-band operating power. The Commission concludes that expression of U–NII out-of-band and spurious emission limits as absolute radiated power levels would afford manufacturers maximum flexibility in designing U–NII devices that would comply with the emission requirements. Therefore, the *MO&O* revises sections 15.407(b)(1–3) to express U–NII out-of-band and spurious emission limits in terms of the effective isotropically radiated power per megahertz (''EIRP/MHz'') equivalents for U–NII transmitters operating at maximum permitted power with a 6 dBi gain antenna. Additionally, the *MO&O* revises section 15.407(b)(3) to clarify that all emissions within 10 megahertz of the edge of the 5.725–5.825 GHz band shall not exceed an EIRP of -17 dBm/MHz, and all emissions farther than 10 megahertz from the edge of the 5.725–5.825 GHz band shall not exceed an EIRP of -27 dBm/MHz. Because the U–NII emission limits are expressed in terms of EIRP/MHz based on maximum permitted power with a 6 dBi gain antenna, out-of-band and spurious emissions are limited to a maximum level regardless of antenna gain.

6. Additionally, the *MO&O* clarifies the rules specifying U–NII emission limits in the restricted bands of section 15.205, but rejects WINForum's contention that the U–NII emission limits of section 15.407(b)(1–3) should

take precedence over the restricted band emission limits. As reflected in section 15.407(b)(6) adopted by the *R&O,* all U–NII emissions must meet section 15.205 requirements for emissions into the restricted bands, in order to protect sensitive radio operations and safety-of-life radio operations. Further, the Commission revises sections 15.407(b)(1–2) to clarify that they apply to emissions that emanate from U–NII devices operating in the 5.15–5.25 GHz and 5.25–5.35 GHz bands and that fall outside of the restricted bands. Specifically, for devices operating in these bands, U–NII emissions outside these bands shall not exceed an EIRP of -27 dBm/MHz. The *MO&O* also clarifies section 15.407(b)(5) to state that the emission requirements of section 15.209 apply to only those U–NII emissions that are below 1 GHz.

7. The Commission also modifies its rules regarding the definition of U–NII technical parameters and performance of compliance measurements to better accommodate advanced digital modulation techniques. The *MO&O* recognizes that digital modulation techniques often display symbol-to-symbol envelope variations and short duration peaks that do not cause increased interference to other operations. It also notes that defining power in terms of the average of all symbols in a particular modulation technique and establishing a proper time interval to measure transmission pulses would help account for the peak-to-average variations in measuring digital signals. Additionally, in order to get an accurate measurement for digital networking devices, the *MO&O* finds that measurements should be made over bursts that are transmitted at the maximum power control level and that any power averaging must not include time intervals during which the transmitter is off or transmitting at a reduced power level. Accordingly, the *MO&O* amends its U–NII technical definitions and measurement procedures to address the above concerns raised by WINForum.

8. Additionally, the *MO&O* imposes a maximum 13 dB ratio limitation between the peak excursion of the modulation envelope (measured using a peak hold function) and the peak transmit power (measured as specified above) across the lesser of any 1 MHz bandwidth or the emission bandwidth. These U–NII measurements must be made using the procedures specified in the Commission's rules and in document ANSI C63.17–1998 over an interval of continuous transmission during which the output power is at a maximum. The Commission concludes that this approach will enable the development of new U–NII digital modulation techniques that will not have an undesirably high potential for causing interference to other devices and services.

9. Regarding the measurement of unwanted emissions, the Commission reaffirms its finding in the *R&O* that these measurements should be performed with a minimum resolution bandwidth of one megahertz. This is consistent with section 15.35(b) of the Commission's rules and reduces the influence of different filter responses and ensures repeatability of measurements. Nevertheless, the U–NII rules permit a lower resolution bandwidth for measurements near the band edge, when necessary, provided the measured energy is integrated to show the total power over one megahertz. Therefore, the *MO&O* concludes that adoption of WINForum's proposed definitions for ''average symbol envelope power,'' ''pulse,'' ''transmit power,'' ''peak transmit power,'' ''power spectral density,'' and ''peak power spectral density'' combined with the use of measurement techniques specified in the Commission's rules and in ANSI C63.17–1998 are appropriate and will permit accurate measurement of U–NII technical parameters.

10. The *MO&O* clarifies that the intent of this proceeding was to facilitate the development of digital equipment using digital modulation techniques capable of achieving network communications on wide bandwidth channels at high data rates. Therefore, the *MO&O* adds to the rules a definition for digital modulation, but states that it is not necessary to prescribe which digital modulation techniques would be permitted because this may restrict the implementation of newly developed digital modulation techniques.

11. Finally, the Commission clarifies that U–NII devices that meet the operational requirements for the 5.15–5.25 GHz band are permitted to operate across the entire 5.15–5.35 GHz band. The Commission notes that nothing in its current rules prevents devices that meet the requirements of multiple bands from operating in the different U–NII bands as long as the device complies with the operating requirements of the band it is transmitting in.

Final Regulatory Flexibility Analysis

12. As required by the Regulatory Flexibility Act (''RFA''),[1] an Initial Regulatory Flexibility Analysis (''IRFA'') was incorporated in the Notice of Proposed Rulemaking (''NPRM'') in this proceeding.[2] The Commission sought written public comments on the proposals in the NPRM including on the IRFA. Further, the Commission adopted a Final Regulatory Flexibility Analysis (''FRFA'') in the Report and Order (''R&O'') in this proceeding.[3] The Commission's Supplemental Final Regulatory Flexibility Analysis (''SFRFA'') in this Memorandum Opinion and Order (''MO&O'') conforms to the RFA, as amended by the Contract With America Advancement Act of 1996 (''CWAAA''), Pub. L. 104–121, 110 Stat. 847 (1996).[4]

13. *Need for and Objectives of the Rule: By this action, the Commission affirms its decision to provide 300 megahertz o*f spectrum for a new category of unlicensed equipment called ''Unlicensed National Information Infrastructure'' (''U–NII'') devices. These devices are needed to provide high speed wireless digital communications on an unlicensed basis. This action is intended to provide clarification of the rules governing the use of these devices adopted in the *R&O.* Additionally, at the request of petitioners we are relaxing certain technical requirements to enable these devices to achieve more reliable communications. We believe the rules set forth herein will foster the development of a broad range of new devices and services that will stimulate economic development and the growth of new industries. Finally, this action will promote the ability of U.S. manufacturers to compete globally by enabling them to develop unlicensed digital communications products for the world market.

14. *Summary of Significant Issues Raised by the Public Comments in Response to the IRFA:* As noted in the previous FRFA, we received five comments that directly addressed the IRFA in this proceeding. The concerns raised by these comments were addressed in the FRFA. No new comments or reconsiderations were filed relating directly to the IRFA or FRFA in this proceeding.

15. *Description and Estimate of the Number of Small Entities to Which the Rules Will Apply:* The RFA generally defines the term ''small business'' as having the same meaning as the term ''small business concern'' under the Small Business Act, 15 U.S.C. 632. Based on that statutory provision, we

[1] See 5 U.S.C. 603.

[2] See NPRM, ET Docket No. 96–102, 11 FCC Rcd 7205 (1996), 61 FR 24749, May 16, 1996.

[3] See Report and Order, ET Docket 96–102, 12 FCC Rcd 1576 (1997).

[4] See Subtitle II of the CWAAA is ''The Small Business Regulatory Enforcement Fairness Act of 1996'' (''SBREFA''), codified at 5 U.S.C. 603.

will consider a small business concern one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (''SBA''). The RFA SBREFA provisions also apply to nonprofit organizations and to governmental organizations. Since the Regulatory Flexibility Act amendments were not in effect until the record in this proceeding was closed, the Commission was unable to request information regarding the number of small businesses that might use this service and is unable at this time to determine the number of small businesses that would be affected by this action. The rules adopted in this *MO&O* will apply to any entities manufacturing U–NII devices to operate in the 5 GHz range which could include computer manufacturers and unlicensed RF equipment manufacturers. Although the rules do not directly affect entities that purchase this equipment, comments contend that several million entities, including consumers, schools, libraries, and small businesses, could benefit from the use of these devices.

16. The rules adopted in this *MO&O* will apply to entities engaged in the manufacturing of U–NII devices. The Commission has not developed a definition of small entities applicable to unlicensed device manufacturers. Therefore, the applicable definition of small entity is the definition under the SBA rules applicable to manufacturers of ''Radio and Television Broadcasting and Communications Equipment'' and ''Computer Manufacturers.'' According to the SBA's regulations, an RF manufacturer must have 750 or fewer employees in order to qualify as a small business.[5] Census Bureau data indicates that there are 858 companies in the United States that manufacture radio and television broadcasting and communications equipment, and that 778 of these firms have fewer than 750 employees and would be classified as small entities.[6] Further, according to SBA regulations, a computer manufacturer must have 1,000 or fewer employees in order to qualify as a small entity.[7] Census Bureau data indicates that there are 716 firms that manufacture electronic computers and of those, 659 have fewer than 500 employees and qualify as small entities.[8] The remaining 57 firms have 500 or more employees; however, we are unable to determine how many of those have fewer than 1,000 employees and therefore also qualify as small entities under the SBA definition. The Census Bureau categories are very broad and specific figures are not available on the number of these firms that will manufacture U–NII devices; however, we acknowledge the likelihood that many of them will be small businesses.

17. *Description of Projected Reporting, Recordkeeping and Other Compliance Requirements:* As noted in the FRFA in this proceeding, the rules adopted in the R&O, as well as the subsequent *MO&O,* will require U–NII manufacturers to comply with the Commission's equipment certification requirements set forth in section 15.210(b), prior to marketing, and the radio frequency hazard requirements set forth in sections 1.1307(b), 1.1310, 2.1091, and 2.1093 of the rules. All equipment will be deemed to operate in an 'uncontrolled' environment. Any application for equipment certification for these devices must contain a statement confirming compliance with these requirements. Technical information showing the basis for this statement must be submitted to the Commission upon request. The equipment certification requirement is necessary to ensure compliance with the Commission's rules and promote electromagnetic compatibility. Further, compliance with the radio frequency hazard requirements is necessary to protect the health of individuals using the equipment. These requirements are typically required for all unlicensed equipment. No further reporting or recordkeeping requirements will be imposed. Therefore, the only compliance costs likely to be incurred are costs necessary to ensure that prototype devices comply with our equipment certification requirements and radio frequency hazard requirements.

18. Skills of an application examiner, radio technician or engineer will be needed to meet the requirements. If a device is not categorically excluded, the manufacturer of the device must make a determination of whether the device will comply with the RF radiation limits. This study can be done by calculation or measurement, depending upon the situation. In many cases the studies can be done by a radio technician or engineer. Certification applications are usually done by application examiners.

19. *Significant Alternatives and Steps Taken by Agency To Minimize Significant Economic Impact on a Substantial Number of Small Entities Consistent With Stated Objectives:* As noted in the FRFA, the Commission considered several significant alternatives based on comments received in response to the *NPRM*. These alternatives are discussed in the FRFA to the *R&O*. The Commission also considered alternatives to the rules adopted in the *R&O* which were in response to three Petitions for Reconsideration filed to the *R&O* and the subsequent comments. For example, the *R&O* specified the permitted transmitter output power in one megahertz increments up to a maximum permitted transmitter output power in a 20 megahertz channel. However, this would permit narrowband devices with channel widths less than one megahertz to transmit with the same power as those devices with one megahertz channel bandwidths. Therefore, the *MO&O* specifies the permitted transmitter output power as a logarithmic equation dependent on the channel's bandwidth, but it does not increase the total maximum permitted transmitter output power. In addition, the *MO&O* denied requests to permit U–NII devices in the 5.15–5.25 GHz and 5.25–5.35 GHz band to operate at higher powers and/or with increased antenna gain because such action might increase the potential for interference problems. These actions will not have a significant impact on small entities.

20. Further, the *MO&O* clarifies the unwanted emission requirements for U–NII devices. Specifically, unwanted emissions will now be specified as an absolute radiated power level from the antenna instead of requiring that U–NII devices suppress unwanted emission by a specific number of dBs below their operating power. The *MO&O* denies requests for relaxation of unwanted emission requirements because such action might create unacceptable interference problems. This action does not change the amount of emission suppression required for U–NII devices, but permits device manufacturers additional flexibility in meeting our requirements.

21. Additionally, in response to a request filed by Apple Computer, Inc., the *MO&O* modifies the U–NII rules to permit fixed, point-to-point U–NII devices in the 5.725–5.825 GHz band to operate with one watt maximum transmitter output power and directional antennas of up to 23 dBi gain. This action would facilitate the

[5] See 13 CFR 121.201, Standard Industrial Classification (SIC) Code 3663.

[6] See U.S. Department of Commerce, 1992 Census of Transportation, Communications and Utilities (issued May 1995), SIC category 3663.

[7] See 13 CFR 121.201, (SIC) Code 3571.

[8] See U.S. Small Business Administration 1995 Economic Census Industry and Enterprise Report, Table 3, SIC Code 3571, (Bureau of the Census data adapted by the Office of Advocacy of the U.S. Small Business Administration).

development of community networks. The item denies Apple's request for unlimited gain antennas because of comments from the National Telecommunications and Information Administration which argue that such high gain antennas would be more susceptible to interference from Government operations. This action will not have a significant impact on small entities.

22. At the request of WINForum, the *MO&O* modifies the equipment authorization measurement procedures and definitions for U–NII power in accordance with the new American National Standards Institute (''ANSI'') document, C63.17, which defines parameters and measurement procedures for unlicensed Personal Communications Service (''U–PCS'') devices and accounts for the characteristics of the digital modulation techniques used by these devices. The Commission believes that the increasing use of advanced digital modulation techniques does warrant some reconsideration of the definition of technical parameters and the performance of compliance measurements to ensure that equipment meets necessary technical standards. The Commission also denies a request that it permit a 3–dB tolerance in meeting power requirements because its peak power spectral density (''PSD'') limits are designed to be applicable regardless of variations caused by various signal types. However, to determine compliance with the peak PSD requirements, the MO&O will permit the averaging of power variations through the integration of the power variations over the required minimum PSD measurement bandwidth (the lesser of 1 megahertz or the signal's 26 dB bandwidth). These actions will not have a significant impact on small entities.

23. Finally, the item clarifies that U–NII devices must use digital modulation techniques and amends the rules on emission limits to permit a single device to operate across both the 5.15–5.25 GHz and 5.25–5.35 GHz bands as long as the technical requirements for each band are met. This added flexibility will assist manufacturers in designing equipment that more readily meets the consumer's demand and will not have a significant impact on small entities.

24. *Report to Congress:* The Commission shall send a copy of this Supplemental Final Regulatory Flexibility Analysis, along with this Report and Order, in a report to Congress pursuant to the Small Business Regulatory Enforcement Fairness Act of 1996, 5 U.S.C. 801 (a)(1)(A).

List of Subjects in 47 CFR Part 15

Communications equipment, Radio.

Federal Communications Commission.

Magalie Roman Salas,

Secretary.

Rule Changes

For the reasons discussed in the preamble part 15 of title 47 of the Code of Federal Regulations, is amended as follows:

PART 15—RADIO FREQUENCY DEVICES

1. The authority citation for Part 15 continues to read as follows:

Authority: 47 U.S.C. 154, 302, 303, 304, 307 and 544A.

2. Section 15.17 is amended by revising paragraph (a) to read as follows:

§ 15.17 Susceptiblity to interference.

(a) Parties responsible for equipment compliance are advised to consider the proximity and the high power of non-Government licensed radio stations, such as broadcast, amateur, land mobile, and non-geostationary mobile satellite feeder link earth stations, and of U.S. Government radio stations, which could include high-powered radar systems, when choosing operating frequencies during the design of their equipment so as to reduce the susceptibility for receiving harmful interference. Information on non-Government use of the spectrum can be obtained by consulting the Table of Frequency Allocations in § 2.106 of this chapter.

* * * * *

3. Sections 15.401, 15.403, 15.405 and 15.407, in Subpart E are revised to read as follows:

§ 15.401 Scope.

This subpart sets out the regulations for unlicensed National Information Infrastructure (U–NII) devices operating in the 5.15–5.35 GHz and 5.725–5.825 GHz bands.

§ 15.403 Definitions.

(a) *Average symbol envelope power.* The average symbol envelope power is the average, taken over all symbols in the signaling alphabet, of the envelope power for each symbol.

(b) *Digital modulation.* The process by which the characteristics of a carrier wave are varied among a set of predetermined discrete values in accordance with a digital modulating function as specified in document ANSI C63.17–1998.

(c) *Emission bandwidth.* For purposes of this subpart the emission bandwidth shall be determined by measuring the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, that are 26 dB down relative to the maximum level of the modulated carrier. Determination of the emissions bandwidth is based on the use of measurement instrumentation employing a peak detector function with an instrument resolutions bandwidth approximately equal to 1.0 percent of the emission bandwidth of the device under measurement.

(d) *Peak power spectral density.* The peak power spectral density is the maximum power spectral density, within the specified measurement bandwidth, within the U–NII device operating band.

(e) *Peak transmit power.* The maximum transmit power as measured over an interval of time of at most 30/B or the transmission pulse duration of the device, whichever is less, under all conditions of modulation.

(f) *Power spectral density.* The power spectral density is the total energy output per unit bandwidth from a pulse or sequence of pulses for which the transmit power is at its peak or maximum level, divided by the total duration of the pulses. This total time does not include the time between pulses during which the transmit power is off or below its maximum level.

(g) *Pulse.* A pulse is a continuous transmission of a sequence of modulation symbols, during which the average symbol envelope power is constant.

(h) *Transmit power.* The total energy transmitted over a time interval of at most 30/B (where B is the 26 dB emission bandwidth of the signal in hertz) or the duration of the transmission pulse, whichever is less, divided by the interval duration.

(i) *U–NII devices.* Intentional radiators operating in the frequency bands 5.15–5.35 GHz and 5.725–5.825 GHz that use wideband digital modulation techniques and provide a wide array of high data rate mobile and fixed communications for individuals, businesses, and institutions.

§ 15.405 Cross reference.

(a) The provisions of subparts A, B, and C of this part apply to unlicensed U–NII devices, except where specific provisions are contained in subpart E. Manufacturers should note that this includes the provisions of §§ 15.203 and 15.205.

(b) The requirements of subpart E apply only to the radio transmitter contained in the U–NII device. Other aspects of the operation of a U–NII device may be subject to requirements

contained elsewhere in this chapter. In particular, a U–NII device that includes digital circuitry not directly associated with the radio transmitter also is subject to the requirements for unintentional radiators in subpart B.

§ 15.407 General technical requirements.

(a) *Power limits:*

(1) For the band 5.15–5.25 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10logB, where B is the 26-dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(2) For the band 5.25–5.35 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10logB, where B is the 26-dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725–5.825 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 1 W or 17 dBm + 10logB, where B is the 26-dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 17 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U–NII devices operating in this band may employ transmitting antennas with directional gain up to 23 dBi without any corresponding reduction in the transmitter peak output power or peak power spectral density. For fixed, point-to-point U–NII transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in peak transmitter power and peak power spectral density for each 1 dB of antenna gain in excess of 23 dBi would be required. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omni directional applications, and multiple collocated transmitters transmitting the same information. The operator of the U–NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

Note to paragraph (a)(3): The Commission strongly recommends that parties employing U–NII devices to provide critical communications services should determine if there are any nearby Government radar systems that could affect their operation.

(4) The peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage. The measurement results shall be properly adjusted for any instrument limitations, such as detector response times, limited resolution bandwidth capability when compared to the emission bandwidth, sensitivity, etc., so as to obtain a true peak measurement conforming to the definitions in this paragraph for the emission in question.

(5) The peak power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A resolution bandwidth less than the measurement bandwidth can be used, provided that the measured power is integrated to show total power over the measurement bandwidth. If the resolution bandwidth is approximately equal to the measurement bandwidth, and much less than the emission bandwidth of the equipment under test, the measured results shall be corrected to account for any difference between the resolution bandwidth of the test instrument and its actual noise bandwidth.

(6) The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified in this paragraph) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

(b) *Undesirable emission limits:* Except as shown in paragraph (b)(6) of this section, the peak emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz.

(2) For transmitters operating in the 5.25–5.35 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz. Devices operating in the 5.25–5.35 GHz band that generate emissions in the 5.15–5.25 GHz band must meet all applicable technical requirements for operation in the 5.15–5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of –27 dBm/MHz in the 5.15–5.25 GHz band.

(3) For transmitters operating in the 5.725–5.825 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of –17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of –27 dBm/MHz.

(4) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.

(5) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209. Further, any U–NII devices using an AC power line are required to comply also with the conducted limits set forth in § 15.207.

(6) The provisions of § 15.205 apply to intentional radiators operating under this section.

(7) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency block edges as the design of the equipment permits.

(c) The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signalling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization a description of how this requirement is met.

(d) Any U–NII device that operates in the 5.15–5.25 GHz band shall use a transmitting antenna that is an integral part of the device.

(e) Within the 5.15–5.25 GHz band, U–NII devices will be restricted to indoor operations to reduce any potential for harmful interference to co-channel MSS operations.

(f) U–NII devices are subject to the radio frequency radiation exposure requirements specified in § 1.1307(b), § 2.1091 and § 2.1093 of this chapter, as

appropriate. All equipment shall be considered to operate in a ''general population/uncontrolled'' environment. Applications for equipment authorization of devices operating under this section must contain a statement confirming compliance with these requirements for both fundamental emissions and unwanted emissions. Technical information showing the basis for this statement must be submitted to the Commission upon request.

(g) Manufacturers of U–NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

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DEPARTMENT OF TRANSPORTATION

Federal Highway Administration

49 CFR Part 376

[FHWA Docket No. FHWA–97–3050]

RIN 2125–AE26

Exemption of Commonly-Owned Motor Carriers From Equipment Identification and Receipt Requirements Applicable to Leased and Interchanged Vehicles

AGENCY: Federal Highway Administration (FHWA), DOT.

ACTION: Final rule.

SUMMARY: The FHWA is modifying its regulations under 49 CFR part 376 governing the lease and interchange of motor vehicle equipment by exempting commonly-owned and controlled motor carriers from the vehicle identification and exchange of receipt requirements of § 376.22 and the vehicle identification requirement of § 376.31. This action eliminates the need for carriers to obtain individual waivers from these requirements from the FHWA.

EFFECTIVE DATE: August 31, 1998.

FOR FURTHER INFORMATION CONTACT: Mr. John F. Grimm, Director, Office of Motor Carrier Information Analysis, (202) 366–4039, or Mr. Michael J. Falk, Motor Carrier Law Division, Office of the Chief Counsel, (202) 366–1384, Federal Highway Administration, Department of Transportation, 400 Seventh Street, SW., Washington, DC 20590. Office hours are from 8 a.m. to 4:30 p.m., e.t., Monday through Friday, except Federal holidays.

SUPPLEMENTARY INFORMATION:

Electronic Access

Internet users can access all comments received by the U.S. DOT Dockets, Room PL–401, by using the universal resource locator (URL): http://dms.dot.gov. It is available 24 hours each day, 365 days each year. Please follow the instructions online for more information and help.

An electronic copy of this document may be downloaded using a modem and suitable communications software from the **Federal Register** Electronic Bulletin Board Service at (202) 512–1661. Internet users may reach the **Federal Register**'s home page at: http://www.nara.gov/nara/fedreg and the Government Printing Office's database at: http://www.access.gpo.gov/su—docs.

Background

The FHWA's regulations at 49 CFR part 376 govern motor carrier transportation provided in nonowned equipment. Section 376.22 permits motor carriers of property who must register with the FHWA under 49 U.S.C. 13901 and § 13902 (authorized carriers) to trip lease nonowned equipment between themselves and private motor carriers under specified conditions. Section 376.22(a) requires that trip-leasing carriers comply with certain equipment identification and equipment receipt requirements contained in 49 CFR 376.11. Under these requirements, trip-leased vehicles must display the trade name and other pertinent information regarding the motor carrier operating the vehicle. Equipment receipts must be exchanged between the owner and authorized carrier when possession of the equipment is transferred.

Section 376.31 of the regulations imposes a similar vehicle identification requirement on authorized carriers which interchange equipment to continue a through movement, and also requires that either a copy of the interchange agreement or a detailed interchange statement be carried in each vehicle.

On December 30, 1997, the FHWA published a notice of proposed rulemaking (NPRM) and a request for comments in the **Federal Register** (62 FR 67821) on amending part 376 to exempt commonly-owned and controlled motor carriers from the vehicle identification and exchange of receipt requirements of § 376.22 and the vehicle identification and documentation requirements of § 376.31. Commonly-owned or controlled carriers have routinely been granted individual waivers from these requirements by the former Interstate Commerce Commission (ICC) and the FHWA on the ground that compliance is unnecessary and burdensome as long as the carriers remained under joint ownership and control.

The FHWA believes that the vehicle identification and exchange of receipt requirements serve little useful purpose when vehicles are being exchanged between commonly-controlled companies which are jointly operated with respect to safety program administration and equipment utilization. Vehicle ownership and assignment information can be readily made available from computerized dispatch records and operational logs, obviating the need for strict identification, placarding and receipt issuance requirements. Furthermore, elimination of these requirements would allow such carriers to operate more efficiently and economically by fostering improved equipment use and eliminating a significant and unproductive paperwork and placarding burden. This amendment would also allow the FHWA to conserve its own resources by eliminating the need to grant waivers on an individual basis.

Discussion of Public Comments

The public comment period for the NPRM closed on March 2, 1998. Comments were received from the California Highway Patrol (CHP); Landstar System, Inc., and its 10 motor carrier subsidiaries; and the National Solid Wastes Management Association (NSWMA). Landstar and the NSWMA support the proposed rule on the ground that it will eliminate burdensome administrative and paperwork requirements which no longer serve a useful purpose. The CHP, however, believes that exempting commonly-owned and controlled carriers from vehicle identification requirements will create problems for enforcement personnel issuing traffic citations and conducting routine vehicle inspections and accident investigations. According to the CHP, the carrier information displayed on the vehicle is used to identify the carrier for purposes of preparing inspection, citation and accident reports, which are incorporated into State and Federal motor carrier databases. In order to ensure the accuracy of this data, the CHP requests that the proposed rule be amended to require that each vehicle carry documentation identifying the operating carrier which would have to be presented to law enforcement personnel on request.

We agree with the CHP that it is important for enforcement personnel to be able to accurately identify the