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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

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October 17, 1995

VIA HAND DELIVERY

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W. - Room 222
Washington, D.C. 20554

Re: RM-_____

Dear Mr. Caton:

On behalf of the Radio Defending Airwave Rights (RADAR), we are filing an original and seven (7) copies of its Petition for Rulemaking in the above-referenced matter.

If there are any questions, please communicate with the undersigned.

Respectfully submitted,

FLETCHER, HEALD & HILDRETH, P.L.C.

Leonard Robert Raish

Leonard Robert Raish
Counsel for Radio Defending Airwave
Rights

LRR:cej

Enclosures

cc: Mr. Bruce Franca, Deputy Chief (OET) (w/enc.)(VIA HAND DELIVERY)
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OCT 17 1995
FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

BEFORE THE

Federal Communications Commission

WASHINGTON, D.C. 20554

In the Matter of)
)
Amendment of Subparts B and F of) RM- _____
the Commission's Rules to permit)
the transmission of safety alert)
signals on frequencies used for Non-)
Government radar operations)

To: The Commission

PETITION FOR RULEMAKING

The Radio Association Defending Airwave Rights (RADAR), by its attorneys, hereby, petitions the Federal Communications Commission, pursuant to Section 1.401 of its Rules to amend Part 90 Subparts B and F, of title 47 of the Code of Federal Regulations, to permit the use and operation of a Radar Traffic Safety Warning System. The system is based on a new invention now being patented that would utilize a specific frequency in the Radiolocation Service band at 24 GHz already made available under § 90.103 of the Commission's Rules to determine distance, direction, speed, or position by means of radiolocation devices for purposes other than navigation.¹

Basically, the Radar Traffic Safety Warning system would take advantage of the millions of radar detectors already in the hands of the American public and, in effect, utilize them for traffic safety purposes. The invention provides for police speed detection radar equipments to be

¹See Appendix B for Press Release announcing the new highway safety warning system patent has been applied for.

augmented with a signal that can be detected by a customized receiver integrated with a conventional radar detector. The objective is to enhance safety of the American public utilizing the nation's streets and highways.

Petitioner respectfully submits that adoption of the proposals in this petition would indeed enhance highway safety by providing an additional, and, in Petitioner's view, an effective, means for communicating safety information to motorists. In support of its petition, RADAR submits the following:

I. BACKGROUND

Motorists on the Nation's streets and highways face many safety hazards: traffic congestion, unsafe roads, road construction and repairs, icing, floods, road closing, railroad crossing, to name only a few. Heretofore, systems to alert drivers to adjust speed to the posted limit or to levels lower than the posted limit, for example, to accommodate upcoming road hazards or construction, have generally been limited to the use of signs. Such signs must be physically placed in advance of the hazard or construction site by law enforcement personnel or highway road crews. If not properly placed or lighted, such signs can be missed by drivers, further adding to the hazard. Since law enforcement or road personnel cannot continuously monitor all segments of a road, signs cannot be used to warn drivers of transient conditions such as smoke, fog, wind, intense precipitation and other weather conditions. Further, since signs must be physically placed into position by appropriate personnel, even when road personnel are aware of a hazardous condition, typically there is insufficient time for placement of such signs to alert drivers to take precautions. Some highways employ radio broadcasts to alert drivers to upcoming hazards. These radio broadcast systems face problems similar to those encountered in

sign based systems. The time required to prepare a broadcast and the inability to monitor all road segments simultaneously makes radio broadcasts warning systems of limited value. Further, these systems require the driver to tune the radio receiver to a designated AM or FM band frequency, not already assigned to another broadcaster. Many drivers do not use the radio or tune to the designated frequency channel. Those drivers who do tune to the designated frequency channel are distracted from observing traffic conditions, thereby increasing the risk of accidents.

In addition, in the conventional systems described above, it is not practical to use signs or radio broadcast messages to alert drivers of an approaching emergency vehicle. Thus, a more reliable system to alert drivers of such hazards and conditions without distracting the driver is desirable to improve safety.

The Commission over the years has been responsive to proposals aimed at improving highway safety through the use of radio communications. For example, it has established the Traveller's Information Service as a vehicle for communicating with motorists and for passing on to them travel-related information and information on traffic and road conditions. Radio call boxes on frequencies in the 72-76 MHz band are available to motorists for requesting police, fire, ambulance and other assistance in emergencies. Rules providing for licensing automatic vehicle monitoring (AVM) have been in Part 90 of the Commission's Rules for many years. Those rules were updated recently when the Commission adopted a comprehensive program in its decision in PR Docket 93-16² for authorizing advanced AVM systems as part of its long-

²Amendment of Part 90 of the Commission's Rules for Automatic Vehicle Monitoring Systems, Report and Order, released February 6, 1995, 77 RR2d 84 (1995).

range program to help the development of the Intelligent Transportation System (ITS). And, of course, broadcast stations provide very valuable services to the motoring public by their frequent traffic reports. Adoption of the proposal herein would add yet another method for communicating with motorists by taking advantage of the fact that a large number of equipment capable of receiving radar signals are in the hands of the motoring public. There are millions of radar detectors in use, and, while there may be differing views concerning the legitimacy of the purpose for which that equipment is now used, the fact remains that they exist and could be used as an effective vehicle for communicating with motorists.

II. GENERAL

RADAR is a nonprofit association headquartered in Tipp City, Ohio and Englewood, Florida, which represents manufacturers, distributors and users of radar and laser detectors. In a special project, RADAR and its members are seeking to decrease fatalities and increase traffic safety by developing the Radar Traffic Safety Warning System. RADAR, BEL-Tronics Limited, Uniden America Corporation, Whistler Corporation, SANYO TECNICA, and other manufacturers are working with Georgia Tech Research Institute to develop the radar traffic safety system which will have the capability of issuing warnings directly to motorists, through their radar detectors, and notify them of immediate traffic hazards. A patent for the Radar Traffic Safety Warning System is pending. (See Appendix B)

III. CONCEPT AND PROPOSAL

As RADAR and its membership envision the proposed program, state and local governmental authorities would install specifically designed transmitters operating on a frequency slightly offset from 24.125 GHz used by police radars. These transmitters would be

located near highway construction areas, bridges under repair, flooded areas, railroad crossing and other potentially hazardous areas. Such transmitters would also be installed in emergency vehicles (e.g., ambulances, fire trucks, police). Those stations would transmit both a relatively lower power radar signal, i.e., unmodulated continuous wave (NON) emissions as well as a modulated FM digital signal, for reception by radar detectors. While current radar detectors will simply alert the motorist that a radar signal has been received, future detectors will be capable of receiving and interpreting a variety of signals which would identify the nature of the hazard that may lay ahead. Reception of the signal would alert a motorist of a hazard and to reduce speed. Safety would be enhanced and a possible accident avoided.

As stated earlier above, the frequencies on which the police and other Non-Government radars operate are allocated in the Radiolocation Radio Service under Subpart F of Part 90 of the Commission's Rules. Frequencies allocated in that Service, however, may be used only for transmissions, the purpose of which is to determine distance, direction, speed or position by means of radiolocation devices. Section 90.101, 47 CFR § 90.101. They may not be used for communication purposes. Therefore, Petitioner proposes that Footnote (22) in Section 90.103(c) be amended by adding language to it which would permit the use of the frequency 24.100 GHz for the transmission of radar signals (NON emissions) and a short modulated FM signal³ for the purpose of providing communications ancillary to the radar to alert motorists of ambulances, fire trucks, highway repairs, railroad crossings, school buses, and other hazards to driving.

³These communications would be ancillary to the radar operations. The communication function would be included in the same equipment as the radar and enhance the purposes of the radar operation. There is precedent for the concept of ancillary communications in § 24.3 of the Commission's Rules wherein it is provided that fixed services are permissible on PCS frequencies only if ancillary to mobile operations.

Sections 90.19(g)(6), 90.21(e)(4), 90.23(e)(3) and 90.25(e)(3) which govern, respectively, the Local Government, Police, Fire, Forestry-Conservation and Highway Maintenance Radio Services, would also be amended to provide that those transmitters may be operated under their land mobile licenses without special authorization, and that they may be operated unattended. Others who may want to operate such systems would obtain separate licenses. All such transmissions would be ancillary to radar speed measurement operations and would not cause interference to Government radiolocation service operations.

IV. FUNCTIONING OF THE SYSTEM

Objectives of the Radar Traffic Safety Warning System are to be accomplished in a system which encodes a signal at a rate sufficiently fast to allow a warning message to be repeated often, but at a rate low enough so that the modulation side bands do not spread excessively far from the radar transmission (which could result in the triggering of the signal rejection logic in the current generation of radar detectors).

The proposed system basically consists of a transmitter which transmits radar signal a safety message. The transmitter includes a signal generator and a controller. The signal generator is responsive to data from the controller to produce two states used to communicate the safety warning message. The first state is the transmission of a CW marker carrier. The CW marker carrier is transmitted on the designated radar frequency at various times to provide a homodyne radar function to the safety warning transmitter logic so that the radar detector logic can locate and identify the safety warning signal and center the marker signal in the center of the band pass of the detector's last intermediate frequency (IF). The second state is the transmission of a bit stream employing FM digital emission containing the safety warning message. A logic

level '1' is transmitted by the signal carrier shifting from a frequency 2.5 MHz below the frequency of the CW marker frequency to a frequency 2.5 MHz above the CW marker frequency. A logic level '0' is transmitted by the signal carrier shifting from a frequency 2.5 MHz above the frequency of the CW marker to a frequency 2.5 MHz below the frequency of the CW marker frequency. The CW marker is not transmitted during the transmission of the digital bit stream. The typical transmission rate is one bit every 0.5 milliseconds or a data rate of 2 KHz. The frequency of the CW marker is offset by 25 MHz from the radar center frequency of 24.125 GHz so as to function at 24.100 GHz. It would still be detected by existing radar detectors. The safety message from the transmitter is decoded for display in a radar detector designed for that purpose or triggers an alarm in a conventional radar detector.

V. PUBLIC INTEREST CONSIDERATIONS

In 1993, over 600 persons were killed in automobile accidents near construction or road maintenance zones.⁴ Moreover, nearly one hundred persons were killed in accidents involving emergency vehicles rushing to the scene of emergencies. More than 4,000 accidents involving motor vehicles occurred at railroad crossing. Many of those accidents could be prevented by alerting the motorists of the hazard in time and cause them to reduce speed. Current methods for alerting motorists of driving hazards, particularly of road construction and maintenance operations, are not fully effective. Signs are often difficult to see in time, particularly during inclement weather conditions. Sound systems in automobiles and noise-tight seals make it very difficult for drivers to hear the sirens of oncoming emergency

⁴See Traffic Safety Facts 1993, U.S. National Highway Traffic Safety Administration, October 1994.

vehicles. This has led to louder sirens and to brighter flashing lights and sharper neon colors. Louder siren and brighter lights, however, have not been very successful. Traffic information transmitted over Travellers Information Stations and in broadcast traffic reports often lack immediacy. The alerting system proposed here would overcome many of these shortcomings and would increase the likelihood for communicating with the motorist near hazardous areas. Importantly, the proposed motorist alerting systems would take advantage of existing equipment in the hands of the public and would thus require very little investment for their implementation.

One of the principal goals of the Communications Act is to promote safety of life and property through the use of wire and radio communications.⁵ The proposal here would enhance safety on the highways and would thus advance an important statutory objective. It would be consistent with the Commission's goals set out in its recent AVM decision as well as with the long range objectives of the planned Intelligent Transportation System. Highway safety would be enhanced at minimal costs in terms of equipment and frequency resources. Therefore, the public interest would be served by the grant of the above-captioned petition.

⁵Section 1 Communications Act of 1934, as amended, 47 U.S.C. § 151. The provision concerning promotion of safety of life and property was added in 1937 by Public Law 97, 75th Congress, 50 Stat. 189.

Accordingly, the Commission is requested to grant the petition and to issue a notice of proposed rulemaking proposing to adopt the rule amendments set out in the attached Appendix.

Respectfully submitted

RADIO ASSOCIATION DEFENDING
AIRWAVE RIGHTS (RADAR, INC.)

By: 
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Dated: October 17, 1995

cej/lrr/lrr#4/radar.plead

APPENDIX A

Part 90 of Title 47 of the Code of Federal Regulations is proposed to be amended, as follows:

1. Sections 90.17(e)(4), 90.19(g)(6), 90.21(e)(4), 90.23(e)(3), and 90.25(e)(3) are amended by adding the following language at the end thereof.

Such a licensee may also operate, subject to all of the foregoing conditions and on a secondary basis, radio units at fixed locations and in emergency vehicles to transmit on the frequency 24.125 MHz unmodulated continuous wave (NON) signals as well as modulated FM digital signals on 24.100 MHz for the purpose of alerting motorists of hazardous driving conditions. Such units may be operated in the unattended mode.

As amended, Sections 90.17(e)(4), 90.19(g)(6), 90.21(e)(4), 90.23(e)(3), and 90.25(e)(3) would read:

§ 90.17 x x x x x

(e) x x x

(4) A licensee of a radio station in this service may operate radio units for the purpose of determining distance, direction, speed, or position by means of a radiolocation device on any frequency available for radiolocation purposes without specific authorization from the Commission, provided type accepted equipment or equipment authorized pursuant to § 90.203(b)(4) and (5) is used and all other rule requirements are satisfied. Such a license may include, subject to all of the foregoing conditions and on a secondary basis, radio units at fixed locations, and in emergency

vehicles to transmit on the frequency 24.100 MHz unmodulated continuous wave radio signals as well as modulated FM digital signals for the purpose of alerting motorists of hazardous driving conditions. Such units may be operated unattended for such purpose.

2. Section 90.103(c) amended by amending Paragraph (22) and by adding a new Paragraph to read as follows:

§ 90.103 x x x x x

(c) x x x

(22) For frequencies 24.55, 10.525, and 24.125 unmodulated continuous wave (NON) emission only shall be employed and a frequency stability of at least 0.2 percent shall be maintained. Such stations shall be exempt from the requirements of §§ 90.403(c) and (f) and 90.429. Additionally, the frequency 24.100 MHz may also be used for the transmission of unmodulated continuous wave (NON) signals and FM digital emissions for the ancillary purpose of communicating with motorists and alerting them of hazardous driving conditions. Such stations shall also maintain a frequency stability of at least 0.2 percent, shall be exempt from the requirements of §§ 90.403(c) and (f) and 90.429 and the deviation of the FM digital transmission must be kept within ± 5 MHz.



Radio Association Defending Airwave Rights, Inc.

PRESS RELEASE

For Immediate Release

Contact: Jason Richards (941) 473-1555

October 13, 1995

NEW HIGHWAY SAFETY DEVICE TO BE PATENTED

Safety Warning System™ To Warn Motorists of Highway Hazards

TIPP CITY, OH—A group of four high-tech consumer electronics manufacturers announced they have applied for a federal patent covering the technology underlying a unique new system designed to warn motorists as they approach hazards on the highways. Dubbed the Safety Warning System™, the new product will bring the high-tech benefits promised by tomorrow's "smart vehicles and highways" into the cars and trucks on the road today. The inexpensive device uses existing technology similar to that used everyday in motion detectors, automatic door openers and radar detectors to alert motorists about to encounter abnormal driving situations. The group of manufacturers includes B.E.L-Tronics Limited, SANYO TECNICA USA, INC., Uniden America Corporation and Whistler Corporation.

"This patent filing represents the culmination of our industry's two-year effort to develop and standardize this technology," said Janice Lee, president of RADAR (Radio Association Defending Airwave Rights, Inc.), a national nonprofit association representing the four companies. "With this action today, the Safety Warning System™ will soon be in the hands of motorists and highway safety officials," she said. The manufacturers and Lee's organization have been working on the device and its applications since 1993.

The Safety Warning System™ uses existing, pre-approved radio frequencies to transmit an audible tone followed by a text message which scrolls across a small screen on a portable, dashboard-mounted receiver. The messages can be sent from portable, self-contained, all-weather transmitters

R.A.D.A.R. is A Non Profit Corporation

4949 South 25A, Tipp City, Ohio 45371 • (513) 667-5472 FAX: (513) 667-3178

NEW HIGHWAY SAFETY DEVICE TO BE PATENTED

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October 13, 1995

Page Two

or from mobile units placed in emergency vehicles. The patent applied for by the manufacturers includes a set of 64 standardized messages, such as "WORK ZONE," "EMERGENCY VEHICLE APPROACHING," "ROCK SLIDE AREA AHEAD" and "TRAIN AT CROSSING." The specification, which was developed in conjunction with work being performed at the Georgia Tech Research Institute of Georgia Institute of Technology, also calls for the capability of customized messages to be added in the field. This will provide law enforcement and highway departments around the country with the flexibility to add or modify motorist warnings as necessary.

The new device brings to today's motorists the elusive, long-delayed benefits promised by Intelligent Vehicles and Highway Systems (IVHS), and its successor Intelligent Transportation Systems (ITS), without the burden of purchasing expensive add-on equipment or waiting for new cars with the systems built-in. The Safety Warning System™ receivers are designed to be priced in the \$250 range. To obtain the benefits of the device, a motorist need only purchase the receiver—transmitters will be strategically placed at high-risk areas by highway departments and law enforcement organizations.

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