

Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554

In the Matter of )  
 )  
Amendment of Sections 90.20(d)(34) and 90.265 ) PS Docket No. 13-229  
Of the Commission's Rules to Facilitate the use of )  
Vehicular Repeater Units )

**COMMENTS**

Capitol Electronics, Inc., having operations in the state of Indiana, Michigan, Kentucky, Ohio, West Virginia, and Pennsylvania, pursuant to the Commission's Public Notice of September 16, 2013 <sup>1</sup>, hereby respectfully submits its comment in the above-referenced proceeding.

**I. BACKGROUND**

Capitol Electronics, Inc. is a Manufacturer's Representative organization that assists communications dealers and users in designing Vehicle Repeater Systems (VRS) in the Public Safety market. We have worked with police, fire, and EMS organizations in this regard since 1987. The lack of usable frequency spectrum with adequate frequency separation from commonly used VHF police and fire operating channels is a substantial obstacle to providing this valuable service to small and large public safety agencies who need improved radio coverage. VRS systems enable personnel to leave their vehicles to aid accident victims, enter heavily constructed hospitals, school buildings, and pursue fleeing criminals over open terrain while maintaining adequate portable radio contact with dispatch centers. As example, Kentucky State Police utilize

---

<sup>1</sup> See Order and Notice of Proposed Rulemaking, Amendment of Sections 90.20(d)(34) and 90.265 ) Of the Commission's Rules to Facilitate the use of Vehicular Repeater Units , PS Docket No. 13-229

1200 vehicle repeaters to maintain officer contact in rugged terrain throughout the state when officers must exit their vehicles in the normal course of duty. Radio systems frequently lack adequate portable radio coverage inside buildings and in difficult terrain conditions.

Numerous agencies desire to deploy VRS units across our 6 state region, but lack of usable portable “talk-back” frequencies in many geographic areas inhibits this valuable service from being deployed due to the lack of usable frequencies in many localities. Despite this obstacle, CEI has been involved in hundreds of system deployments in 2013. Many recent deployments were driven by reduced radio coverage public safety agencies experienced due to mandated narrow banding of their VHF systems.

## **II. COMMENTS**

SVR units are licensed pursuant to Section 90.20(d)(34) and 90.265 of the Commission’s Rules and CEI feels that expanding the VHF spectrum for vehicle repeaters is critical to a wide variety of public safety users which directly benefits the health and safety of the general public.

Most of the heavily used public safety and business spectrum falls in the 150-160Mhz band; however 2-5 MHz of frequency separation is required to prevent interference between the mobile radio frequencies and the portable radio “talk-back” frequency. Due to frequency congestion in this band (150-160Mhz) it is difficult to obtain a suitable simplex frequency with adequate separation (2-5MHz) for use in the portable radio unit. Customers greatly prefer the use of “in-band” portable frequencies so they do not have to purchase and carry 2 portables when

exiting their vehicles. Utilizing VHF “in-band” portable frequencies allows them to communicate with neighboring agencies that predominately operate in the same VHF (150-160MHz) band should a mutual aid situation develop while away from their vehicles-a situation that is very important to the public safety community.

As a wireless communications representative group, our personnel are frequently task with engineering VRS solutions due to the need for this service among a wide variety of users that have become dependent on portable communications. Frequency separation between the mobile radio and portable radio is required to prevent “near field” harmonic interference from reducing the “talk-back” range of the portable. This is a low power “on-site” vehicle condition and is not related to distant high power fixed station installations. Thus, the High Queue Cavity filters employed are the best solution to reduce the mobile radio’s high levels of transmitter phase noise and protect the local receiver of the Vehicular Repeater, thereby facilitating adequate “talk-back” range for the “in-band” portable radio.

### **III. CONCLUSION**

Capitol Electronics, Inc. strongly supports the comments by Pyramid Communications regarding the expansion of spectrum available for public safety agencies above 160 MHz. Most fixed systems observe “monitor before transmitting” proto-call, and we see no practical interference issues to fixed base systems.

We have seen strong interest in this valuable service among numerous agencies for many years, and believe new spectrum would benefit many users and communities across our 6 state region.

Respectfully submitted,  
Capitol Electronics, Inc.

By: Timothy Barner  
*Timothy Barner*

874 Reda Rd.  
Indianapolis, In. 46227  
Date:December 26, 2013

Phone:317-691-7791  
[tbarner@capitolelectronics.com](mailto:tbarner@capitolelectronics.com)  
[www.CapitolElectroniocs.com](http://www.CapitolElectroniocs.com)