

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

In the Matter of)	
)	
TECHNOLOGICAL ADVISORY COUNCIL)	ET Docket No. 17-215
TECHNICAL INQUIRY INTO)	
REFORMING TECHNICAL REGULATIONS)	
)	

**To: The TAC Removing Regulations Working Group and
The Chief, Office of Engineering and Technology**
Via: ECFS Electronic Filing

COMMENTS OF KINGFISHER COMPANY, INC

Kingfisher Company, Inc, a manufacturer of radio alarms for use by public emergency agencies, is based in Lowell, Massachusetts. It has been producing various forms of these alarms for over 50 years that largely conform to operation in the 72-76 MHz frequency band, as codified by 47 CFR 90.241(a)¹:

§ 90.241 Radio call box operations.

(a) The frequencies in the 72–76 MHz band listed in § 90.257(a)(1) may be assigned in the Public Safety Pool for operation of radio call boxes to be used by the public to request fire, police, ambulance, road service, and other emergency assistance, subject to the following conditions and limitations:

- (1) Maximum transmitter power will be either 2.5 watts plate input to the final stage or 1 watt output.
- (2) Antenna gain shall not exceed zero dBd (referred to a half-wave dipole) in any horizontal direction.
- (3) Only vertical polarization of antennas shall be permitted.
- (4) The antenna and its supporting structure must not exceed 6.1 m (20 feet) in height above the ground.
- (5) Only A1D, A2D, F1D, F2D, G1D, or G2D emission shall be authorized.
- (6) The transmitter frequency tolerance shall be 0.005 percent.
- (7) Except for test purposes, each transmission must be limited to a maximum of two seconds and shall not be automatically repeated more than two times at spaced intervals within the following 30 seconds. Thereafter, the authorized cycle may not be reactivated for one minute.
- (8) All transmitters installed after December 10, 1970, shall be furnished with an automatic means to deactivate the transmitter in the event the carrier remains on for a period in excess of three minutes. The automatic cutoff system must be designed so the transmitter can be only manually reactivated.
- (9) Frequency selection must be made with regard to reception of television stations on channels 4 (66–72 MHz) and 5 (76–82 MHz) and should maintain the greatest possible frequency separation from either or both of these channels, if they are assigned in the area.

[43 FR 54791, Nov. 22, 1978; 44 FR 32219, June 5, 1979; 49 FR 48712, Dec. 14, 1984; 50 FR 39680, Sept. 30, 1985; 50 FR 40976, Oct. 8, 1985; 54 FR 38681, Sept. 20, 1989; 54 FR 45891, Oct. 31, 1989; 58 FR 44957, Aug. 25, 1993; 62 FR 18927, Apr. 17, 1997; 63 FR 36610, July 7, 1998; 63 FR 68965, Dec. 14, 1998; 72 FR 35195, June 27, 2007]

This section of the rules specifies the operation of radio callboxes. Although the intent of these rules has changed from roadside callboxes, which are rarely found today, this technology is still widely used for fire alarm reporting.

¹ Code of Federal Regulations, Title 47, Volume 5, Part 90, October 2016.

The rules specify many limitations on the operation of callboxes in the 72-76 MHz band that appear to have been put in place because of the potential for interference to television receivers on channels 4 (66-72 MHz) and 5 (76-82 MHz). These include power limitations (1 watt output as specified in 90.241(a)(1)), antenna limitations (0 dBd antenna gain in 90.241(a)(2) and 20 foot maximum antenna height in 90.241(a)(4)), and transmission limitations (60 sec minimum dead time between transmissions from a single callbox in 90.241(a)(7)).

Why These Rules Are No Longer Necessary

Two trends have made these rules unnecessary and actually inhibit the operation of fire alarm callboxes. One is the introduction of digital television, which has moved many transmitters to UHF frequencies. Relatively few television stations today transmit on either channel 4 or 5².

The second trend is the rise of the noise floor at VHF frequencies³, which makes it difficult to communicate with the low power limitations that have been placed on fire alarm callboxes in the 72-76 MHz frequency band. These signals are important for the protection of life and safety but the rise of the noise floor has made their reception problematic in many cases.

In currently operating radio fire alarm systems, signal levels from distant transmitters can be as low as -120 dBm. In one case, we have measured the background noise level at -65 dBm and it is not unusual to see broadband noise levels higher than -90 dBm in the 72-76 MHz band. To overcome such noise, more powerful transmissions are necessary, with higher powered transmitters, gain antennas or a combination of the two.

² A review was made of the FCC Post Incentive Auction Television Transition Data Files webpage (http://data.fcc.gov/download/incentive-auctions/Transition_Files/), updated on April 13, 2017. Following the proposed spectrum repack in 2019, from a total of 2074 television stations in the United States, 8 will transmit on Channel 4 and 23 will transmit on Channel 5.

³ See the summary report of the FCC TAC Technical Inquiry ET Docket No. 16-191, <https://transition.fcc.gov/bureaus/oet/tac/tacdocs/meeting12716/TAC-presentations-12-7-16.pdf>, Slides 150-163.

Alternatives to These Regulations

We believe that this situation could be corrected by eventually eliminating 90.241(a) from the FCC regulations. Radio callbox transmitters that use higher powered signals would have to conform to technical standards that apply to other transmitters in Part 90. For example, instead of the current requirement of meeting Emission Mask B in the 72-76 MHz frequency band (90.210), the assignment of Emission Mask could be made based on power out, such as requiring Emission Mask D for 5 watt output power. The lower spurious emission limit (-20 dBm as opposed to -13 dBm in this example) would better limit interference to adjacent bands despite higher power levels. The existing regulations could be phased out over time to allow updating of legacy transmitters but the ability to immediately use stronger signals would alleviate problems that are currently being experienced by many fire departments.

Other limitations in 90.241(a) prevent radio callboxes from being used to their full potential. The ability to use modern forms of modulation may be another effective strategy for dealing with high ambient noise levels, as opposed to the listed forms of modulation in 90.241(a)(5). Finally, the timing limitations for transmissions from a radio callbox [90.241(a)(7)] are not always compatible with the requirements of fire alarms. Timing of signals would most effectively be controlled by the designers of radio fire alarm systems. For example, stating that “the authorized cycle may not be reactivated for one minute” can prove problematic when a fire alarm occurs immediately after a different message was sent. As time is of the essence during a fire, any additional delay can be disastrous.

As a manufacturer of radio fire alarm devices that protect lives and property in hundreds of thousands of buildings across the United States, we feel that the above proposed changes should be implemented as soon as feasible to help increase the safety and security of many Americans.