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

In the Matter of

Amendment of Section 73.316(a) of the Commission's Rules — RM-7566

ORDER

Adopted: June 11, 1993; Released: June 21, 1993

By the Commission:

1. On November 20, 1989 a Petition for Rulemaking was filed with the Commission by Ozark Broadcasting Corporation, licensee of station WOAB-FM, Ozark, Alabama. Ozark requested in their filing that the Commission amend Part 73 of its rules to permit commercial FM stations to operate with vertical polarization only. The Ozark petition was assigned RM-7566 and put out for comment on January 14, 1991. No comments were received.

2. Rule Section 73.316(a) states: "It shall be standard to employ horizontal polarization; however, circular or elliptical polarization may be employed if desired. Clockwise or counterclockwise rotation may be used. The supplemental vertically polarized effective radiated power required for circular or elliptical polarization shall in no event exceed the effective radiated power authorized." The effect of this rule is to require all commercial FM stations to utilize either horizontal polarization, or a combination of horizontal and vertical polarization, for their signals.[1] It does not permit the use of vertical polarization alone.

3. Ozark contends in its petition that most FM receiving antennas are vertically polarized and therefore it is not necessary for stations to waste power by broadcasting both horizontally and vertically polarized signals. The proposed change would allow stations "to operate at lower transmitter power, consuming less energy, and still provide essentially the same coverage." Ozark did not submit any studies or data to support this assertion.

4. As a general matter vertically polarized signals (in the FM band) do not propagate as far as horizontally polarized signals. Further, the vertical signals are more prone to reflection and scatter and, consequently, multipath interference. The reason for transmitting a vertically polarized signal as well as a horizontally polarized signal is to attempt to improve reception in cities by using that reflective property of the vertical component to fill in "shadows" created by commercial buildings. The vertical signal supplements the horizontal signal; it does not merely duplicate it.

5. An antenna mounted on the metal body of an automobile will receive signals transmitted with any polarization to some degree. The value of mounting the antenna vertically is that it tends to be non-directional in the horizontal plane and therefore works well with signals received from any direction. An antenna mounted horizontally, such as the type built into windshields, is directional and does not respond well to signals received from either end of the antenna. Antennas attached to home or portable receivers are adjustable and can take any orientation; therefore they can be made to work with any polarization.

6. Horizontally polarized signals propagate farther than vertically polarized signals beyond the horizon. Also, while both types are reflected by buildings, hills and other objects and give rise to multipath problems, the effect is more pronounced in the vertical signals. Ozark has not submitted any evidence to demonstrate how vertical receiving antennas offer any benefits which might outweigh these differences and render the horizontal signal superfluous. Accordingly, we do not believe that any useful purpose would be served by further consideration of this matter.

7. Therefore, IT IS ORDERED, That, pursuant to Sections 4 and 303 of the Communications Act of 1934, as amended, RM-7566 IS DISMISSED.

FEDERAL COMMUNICATIONS COMMISSION

Donna R. Searcy
Secretary

[1] Noncommercial educational stations are permitted to utilize vertical-only polarization in accordance with Rule Section 73.525(b)(3) in order to afford interference protection to TV Channel 6.