

PUBLIC NOTICE

FM INTERFERENCE TO TV RECEPTION

(Adopted: August 30, 1967; Released: September 1, 1967)

BY THE COMMISSION: COMMISSIONER WADSWORTH ABSENT.

The Commission is encountering an increasing number of cases of interference to television reception which develop when new FM permittees begin operation or existing licensees increase their effective radiated power by a substantial amount.

The following are four of the most common situations in which FM interference to TV reception occurs:

- (a) VHF-TV stations with transmitters located 20 miles or more from the city.
- (b) Another FM or a VHF-TV transmitter is located within two miles of an FM transmitter and either/or both transmitters are located in areas where substantial numbers of people reside.
- (c) TV Channel #6 is viewed on a regular basis within the service area of the FM station.
- (d) The FM transmitter is located in a residential area and a considerable number of TV viewers reside within one-half mile of the FM transmitter.

The interference occurs for one of the following reasons:

- (1) A TV receiver, in the presence of a strong FM signal, may develop, within itself, a second harmonic of that signal. If this receiver developed second harmonic falls within a TV channel which is in use, the TV signal strength may be insufficient to overcome the presence of the receiver developed second harmonic signal.
- (2) Compliance with the Commission's Rules on spurious emissions, which include second harmonics, may be insufficient to avoid interference to TV signals where the radiated second harmonic of the FM station falls within a TV channel that is being received in the area. In such cases the radiated second harmonic of the FM station should be at least 40 to 45 db below the level of the desired TV signal.
- (3) A TV receiver, intercepting strong signals from two FM transmitters or an FM and a TV transmitter, may combine the signals of the two transmitters to produce a third frequency. This third frequency may fall within a TV channel which is viewed in the area.
- (4) Some TV receivers may be incapable of rejecting a strong FM signal while tuned to Channel #6 if the FM station frequency is near the low end of the FM band.
- (5) A TV receiver within the "blanket" area of an FM station

may be "overloaded" so that it is susceptible to various forms of interference.

The Commission is advising all FM permittees and prospective permittees that if an examination of the TV viewing habits within the service area of the FM station and location of other FM and TV transmitters within the vicinity reveals the possibility of interference to TV reception, an FM permittee should proceed as follows:

- (1) Conduct equipment tests when other stations which may be involved are in operation, especially during daytime hours.
- (2) Make special interference tests with two or more different types of TV receivers (including color) with these receivers located within the transmitter building and also at selected locations throughout the city.
- (3) If interference is indicated, determine the various types of FM traps and filters which, when installed at the TV receiver, will cure the problem.
- (4) Communicate with as many TV retailers, wholesalers and servicemen as possible and demonstrate to them the steps necessary to alleviate the interference.
- (5) When filing the license application and request for program test authority, advise the Commission of the nature of interference which may result when operation begins and the steps which have been taken to anticipate complaints.