

**COMMERCIAL FM FREQUENCY ALLOCATION  
STUDY AUTHORIZATION FORM  
AT**

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In the United States, the lower fifth of the FM band is reserved for use by educational stations only. Stations are authorized on a non-interference basis taking into account the calculated coverage area of each station.

The coverage area of a station is defined as the area where its signal is 1.0 mV/m (millivolts per meter) or stronger, at 50 percent or more of the potential receivers.

At the boundary of the coverage area of one station, no other station on the same channel may deliver more than 0.1 mV/m. A station one channel up or down the dial may not deliver more than 0.5 mV/m at this boundary. Two channels up or down, the limit is 10 mV/m, while for three channels up or down, the limit is 100 mV/m. These interfering signals must be computed on a 10 percent basis, that is, presence at only 10 percent of potential receivers constitutes interference.

These standards are based on studies of the ability of FM radios to reject undesired signals which are close to the frequency of the desired signal. The standards prohibit not only interference which a proposed new station would cause to existing station, but also any interference which a new station would receive.

The signal strength contours of a station are calculated using a specific procedure set forth in FCC Rules, taking into account the terrain surrounding the antenna of each station being studied.

The standards outlined above are the basis mechanism for regulation of the domestic educational FM band. However, there are other requirements which must be met.

Interference between educational and commercial stations is controlled by the requirements of specific mileage separations between such stations. These requirements vary as a function of the number of channels of frequency channels, which are immediately adjacent to the commercial band.

All stations, educational and commercial, are also required to observe an additional set of mileage restrictions with respect to stations 53 or 54 channels apart in frequency. Most FM radios are vulnerable to "I-F inter modulation" interference with the receiver. When strong signals, 53 or 54 channels apart, are present, the radio receives both stations. Because very strong signals are required to cause this effect, the mileages involved vary from as little as 5 miles to 30 miles when both stations involved are high-power.

Within 200 miles of the Canadian border, U.S. allocations must be submitted for Canadian objections prior to final action by the FCC. In general, this is not a problem because Canadian existing stations are protected in the same way as domestic stations. Commercial FM broadcast frequencies are governed by a table of assignments, established by the Federal Communications Commission to provide for an equitable and efficient distribution of channels. We have reviewed the table of assignments to see if any channels have been allocated to your area which are not presently being used. Our review showed that no channel is available. However, by performing a computerized Frequency Allocation Study, we can determine if a presently unassigned channel could be assigned to your community.

Commercial FM allocations are based on certain minimum mileage separations which must be maintained between stations on neighboring frequencies.

Using the geographic coordinates of your site, the computer will determine the exact distance to the nearest station or assignment on each frequency. All of the stations and assignments listed in the FCC files will be considered by the program in the preparation of the study.

Where no channel is directly open, as often happens in searches in populated areas, we carefully inspect the study results to determine whether there are channels on which you might operate either:

(1) by using a different transmitter site (these studies begin by a printout of all involved stations and an analysis to determine in what, if any, direction we may move your site to escape the preclusion), or, if you specify;

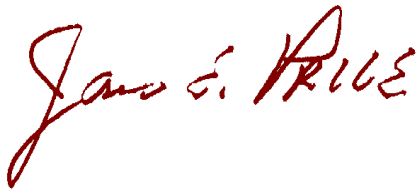
(2) by performing additional searches in an attempt to provide alternate channels for the stations which block your use of the desired channel.

An engineering analysis of the results and our recommendation will accompany the study. The study will require approximately four (4) weeks from receipt of your authorization. To authorize a Frequency Allocation Study of \_\_\_\_\_, \_\_\_ sign this form and return it to us with your check for \$495.00.

(Name)  
(Address)  
(Address)  
(City, St, Zip)

By: \_\_\_\_\_ Date: \_\_\_\_\_

Sterling Communications, Inc.



By: \_\_\_\_\_  
James E. Price  
Technical Consultant