

Indoor FM Antennas

My question concerns getting maximum possible gain from indoor, flexible, folded-dipole FM antennas (made of 300-ohm twin lead). Outdoor antennas are barred where I live.

My old FM tuner, though fine in sound quality, is unfortunately low in sensitivity compared to modern tuners. I get full limiting on most local stations. On some stations, however, I get decent limiting only after wearying experimentation with antenna placement. A few stations cannot be limited.

I find that sometimes a few inches in length makes a lot of difference in reception. Perhaps the size of my present antenna (58-in. long, lead-in about 5 feet) or its type is not ideal. I have seen indoor antennas which were about 10-in. longer. Is there an optimum length?

*I have also noticed a stub of 300-ohm line attached to the junction of the antenna midpoint and the lead-in on some antennas. I was not in a position to measure this antenna and stub or to examine how it was constructed. Perhaps this type could provide a little more gain (every little bit helps). If you think the stub-type antenna has advantages, could you kindly tell me what length (dipole and stub) to use in making it? Is the free end of the 300-ohm line stub joined (that is, the two wires at the free end) or are they left unconnected?
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A. The length of the folded dipole made from twin lead is not really critical. Any length between 47-in. and 54-in. will work well.

The stub arrangement will not improve the sensitivity of the antenna but it can sometimes be helpful when attempting to eliminate multi-path distortion or to eliminate interfering signals. This is done by tuning the stub to the interfering station's frequency. The length of the stub can be anything from 18-in. downward. No exact figures can be given for this length as it is a function of the kind of interference and of the room's loading of the antenna (which would shift the resonant frequency of both antenna and stub). Connect the stub to the junction of the lead-in and the dipole proper. The free end of the stub is shorted. You can use a single-edged razor blade to short the wires at different points along the length of the stub until you find one position which gives you better performance. (In many instances, however, the stub is of no help. Hence, such a location will not be found). Once you find the proper point, however, you can cut the excess lead and short the wires at this point. The stub is then complete.

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