



# TheEC: Radio for Churches during Coronavirus

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In the pandemic, many churches are turning to radio to broadcast a sermon to parishoners in their cars in the parking lot. It's a clever idea, but difficult to do legally.

by Aaron Read



The Talking House TH5 AM transmitter

The coronavirus pandemic and the necessity for "social distancing" has forced all kinds of changes onto peoples' daily lives. Going to church is no exception: dozens, or hundreds, of people all crammed into one room for an hour or two? Sometimes many of them elderly, and thus in a high-risk group? Uh-uh, no way! Church services are out for the next several weeks, at least.

But going to church every week, in addition to the obvious religious underpinning, is an important part of social life for many, many people. A touchstone that can bring great comfort in what is, quite frankly, a scary time for all of us.

So where does that leave us?

Well if the listservs and Facebook groups and whatnot that I frequent are any indication, a lot of churches are looking to install FM transmitters so they can hold a virtual sermon/service to cars in their parking lots. That way people still get at least some sense of shared community, but they can stay isolated in their cars and thus practice the necessary "social distancing".

The problem is that it's very, very difficult to broadcast on FM legally without an FCC license. So what to do? That's what this article will attempt to advise!

Why can't I broadcast on FM to my parking lot?

Technically you can, it's just expensive and difficult to do it legally. Normally broadcasting in the United States is covered by Part 73 of the Code of Federal Regulations. (usually referred to as "47 CFR Part 73") That's for licensed AM & FM, as well as for TV and LPFM. All of these are great ways to cover a whole lot more than a parking lot but not so good for just the parking lot, and just for an hour or two each week. Not to mention there's often no room for a new station on the dial to begin with, and even if there were, there's a whole process for creating a new allocation and then the FCC has to hold an auction for the right to build a station that meets that allocation (Congress mandates the auction method of assigning commercial licenses).

Non-commercial stations (88.1 to 91.9FM) are somewhat different, but nevertheless the FCC only accepts new applications during a "filing window" and the last one was in 2007. So basically, you're out of luck trying to acquire a new FM license to broadcast to your churchgoers during Coronavirus.

What about unlicensed? Well there are rules for that, too. They're governed by "47 CFR Part 15" and they're very, very restrictive. The official rule is that your broadcast cannot exceed 250 microvolts/meter measured at three meters (about 10ft) from the radiating antenna. This is a tiny amount of power. It's not directly translatable to wattage, but think one-tenth of a watt. You sometimes see FM transmitters for your car, so you can listen to your smartphone through the car's build-in radio (these were more common before bluetooth swept the industry) and if you've ever used one, you know how severely short-range they are. Sometimes they have trouble being receivable at only 10 or 15ft between the transmitter and your car's antenna.

## But I see lots of FM transmitters on eBay that say they'll work?

And they're **all** lying. Or more precisely, they might be legal in other countries, but **none** of them are legal in the United States. And the sellers are under no obligation to even mention that fact, much less protect you from yourself. [Caveat Emptor!](#)

Also, quite a few of them are cheap pieces of garbage that will broadcast a lot of noise on many other frequencies besides the one you want...including on frequencies that the local airport's air traffic controllers use for planes landing and taking off. That's a good way to get a lot of unwanted attention from the FBI. **Don't buy these transmitters!**

## Is there any way to broadcast legally on FM?

Yes, but it's expensive and difficult. In the 1980's and 90's, before webcasts were possible, some "college radio" stations installed "radiating-cable" FM (aka "leaky cable" FM) systems in their dorms to "broadcast" to the student body. Typically it's an FM modulator, a 1 watt amplifier, and about 200 to 400ft of "leaky cable". Usually [Andrew Nf2D](#) (I think that specific make/model of cable is discontinued in favor of Commscope's RADIAX) that would allow signal to "leak" out evenly along the length of the cable.

The Part 15 rules still mandate very short range, so often these "leaky cable" systems were receivable only 50ft from the cable. Often you'd see the cable run up an elevator shaft or something like that, and that's how they'd cover the building.

You can do something similar for a church parking lot, but depending on the size and configuration of the lot, it might be a lot of cable and lot of work to hang it all in a way that provides good coverage *and* is positioned so cars won't drive over it (and crush it). Plus it's expensive: the modulator and amp will cost a few thousand dollars, and the "leaky cable" tends to cost around \$10 to \$15 *per foot* and that adds up quick when you'll need at least 100ft, probably more like 300ft.

## This radio stuff seems too complicated, what else is there?

While not quite the same experience, you can always host a webcast that everyone listens to (or watches) on their smartphones. It won't be as well-synchronized as an AM/FM broadcast, though. So it might be a little weird to have 100+ cars, all parked in the same lot, all trying to watch the same webcast, but all slightly out of sync from each other. The same is true for hosting a Zoom or Google Meet teleconference.

That many smartphones might overwhelm the nearest cellphone tower's capacity, too. You could try to provide wifi to everyone but most wifi access points (WAP's) are meant to handle maybe a dozen devices at most. To cover 50 to 100 cars would mean a dozen WAP's at least, strategically positioned around the parking lot. And even then, it could easily overload your church's cablemodem or FiOS or whatever you use for internet. Ideally if you're going to use a webcast/teleconference for a church sermon, better to have people at home while they join in.

In theory you can use a series of Bluetooth speakers, but these are really range-limited. Bluetooth only works over about 30ft or so. You might be able to use a bunch of synchronized speakers but the parking lot would have to be pretty small for that to work, and you'd need so many speakers that at \$40 or \$60 each, it starts getting more cost-effective to do almost anything else.

## You can always take it down to the basics!

Just as long as your neighbors don't mind, you can always just get a bunch of P.A. speakers and blast your parking lot! :-) If you're going to do that, though, I encourage you to use traffic cones to ensure *every other* parking spot can be used. That's because, by definition, the car windows will have to be rolled down for people to hear, and you therefore need to ensure at least six feet between each car to maintain social distancing.

## Well drat, is there ANY way I can broadcast legally but unlicensed?

Yes! Use AM instead of FM. The Part 15 rules for AM are still restrictive, but much less so than for FM. Better still, there's an industry that serves almost this exact need: it's called *Talking House*. That's even the [name of a company](#) that makes transmitters for this purpose! Lots of open houses have (or used to have) these little Part 15 AM transmitters that would play a loop of information about the house so people could hear it in their car.

The actual Talking House transmitters, as sold (and [quite reasonably for about \\$130ea](#), although stock may be thin due to heavy demand - you can often find 'em on eBay, too) don't reach very far. But a good engineer can help you add a more efficient "earth ground" to the transmitter, and that can extend the range to about 1000 to 2500ft. Plenty enough to cover your church's parking lot.

You don't have to use the actual brand-name Talking House transmitters; there's others out there. But if you want to ensure you're legal, that's the best place to start.

Best of all, the frequencies that work best for Talking House transmitters are in the "expanded band" of AM: 1610 to 1700 kHz. There tend to be very few other licensed AM stations in these frequencies, so it can be easy to find a nice quiet freq to use.

## I was really hoping to use FM, though. Any other ideas?

Yes! You can **lease** an hour or two of airtime each week on a local FM station. Right now a lot of smaller stations, and stations that rely on certain formats hurt badly by coronavirus (like sports stations) are hurting badly for revenue as many contracts of their advertising contracts are being cancelled. Odds are pretty good at least one of them would just *love* to have a little steady revenue every Sunday.

Note that you can probably strike a deal for a modest leasing rate, but you should **not** expect to get airtime for free. God may provide, but the electric utility does not accept that for payment - and running a radio transmitter routinely costs a few thousand dollars per month. These stations need to bring in *some* revenue or they're not going to be able to stay on the air!

On that note: Maybe you could join forces with a few other local churches to all approach the same station and buy a block of four or five hours, and you each take an hour for your sermons. It'll make you a more attractive leasee to the station.

There's a zillion ways to get sound from your pulpit back to a radio station: Zoom, Google Hangouts, and Skype (the audio part only on all of those, of course) all come immediately to mind. If the station is willing, there's lot of professional devices (like a [Comrex ACCESS-NX](#), among others) that are more expensive but work even better for that sort of thing - the station may have one you can use.

Not sure how to reach the station in question? Go to your car in the church parking lot and scan the dial; write down a list of frequencies that sound like they come in strongly at your location. Then use [FMfool.com](#) or [Radio-Locator.com](#) to match call letters to the frequencies. Once you know the call letters, a simple google search ought to reveal contact information, but if not, you can use the FCC's Online Public Inspection File to get contact info: [publicfiles.fcc.gov](#)

Remember: you're looking for a station that's going to want to make a few bucks, but not be greedy. What does that mean? It means **you want to avoid stations that are:**

- **Licensed as non-commercial (non-comm).** FCC rules are very limiting about how non-comms can lease airtime, so they usually won't do it. Also, you cannot ask for donations for your church as part of your sermon when you're on a non-comm station; they can only fundraise on-air for themselves. (the law is complicated here, so I'm oversimplifying a bit, but that's the gist)
- **Religious programming.** They've already got their lineup, they're probably not going to be interested in adding your content. Also, most are licensed as non-comm.
- **Big, popular, high-rated stations.** They have their format and their revenue model, and probably aren't going to want to disrupt it.
- **News stations.** Similar to the above point, mixing news and religion is usually anathema to the news audience. It's not impossible to make it work, but there's usually better options.

**What do you want to look for?** The local, independent operator who owns one or two stations and has been in town for 30+ years. The guy who's at all the local chamber of commerce events, and knows everyone in town.

Or maybe a cluster of stations (even if owned by a big entity like iHeart, Cumulus or Entercom) that has one or two "smaller" stations. Stations that might lack much in the way of local DJ's. Stations that exist mostly so the company can air national programming and claim they have "clearance" in that market along with 50 over markets.

Or maybe a small station that's normally a sports format; those folks are *really* hurting financially with pretty much all sports, world-wide, grinding to a total halt. So they might be open to something that brings in even a modest amount of revenue.

I can't emphasize enough: this is a *very* quick overview of a very nuanced topic. What works for one person may work much better or much worse for someone else. A competent broadcast radio engineer is a godsend here (pun intended).