

Which coaxial cable to use

A feed line performs a vital role in an amateur station, if the antenna is not directly attached to the radio. Generally, amateurs have used two basic types of feed lines: parallel conductor, such as ladder line, window line, and twinlead; and coaxial conductor, better known as coaxial cable, or simply, *coax*.

Even among coaxial cable, several models are available, and choosing the right model for your needs can be a confusing chore, especially if you're trying to save on costs.

Cut to the chase

Here's a very abbreviated guide that might make it a bit easier for you to select the right coax for your station:

Band	Length	Coax
VHF/UHF	< 50 ft	RG-8X
VHF/UHF	> 50 ft	LMR-400
HF	< 100 ft	RG-8X
HF	> 100 ft	LMR-400

There are coax models other than just these two listed in the box, but the two are possibly the best bang for your buck. You can use RG8/U or RG-213 instead of LMR-400, for example, but they exhibit higher *loss*, meaning less of your signal will reach your antenna using them, yet LMR-400 tends to be more expensive. RG-58 exhibits high loss, but can be used instead of RG-8X for lengths under 20 feet. LMR-240 exhibits lower loss than RG-8X, and is a good substitute, especially outdoors, yet tends to be more expensive.

LMR-400 is a very stiff cable, because of its solid core, which is also responsible for its low loss. But you can also purchase the "UltraFlex" version of

LMR-400, which maintains its low loss, but can bend around corners a bit easier.

Beware of used or old coax

Many have discovered that acquiring used coaxial cable is like free money in the bank. Furthermore, those who purchase unused coax that's been sitting on its original spool for many years can save them a lot of cash. Still, there are things to watch for, when getting hold of coax after it's been out of the manufacturing plant for very long.

One of the most important issues affecting coax performance is water intrusion. And one of the most common ways for water to get into your coax is by cracks in the jacket. Be sure that your used coax doesn't have any cracks from stress (bending and stretching) or UV (ultraviolet) exposure. Be sure that your old, unused coax doesn't have age cracks from sudden, cold bending, after sitting for many years. Then again, it might be difficult to tell whether your old coax has jacket cracks, even after a visual inspection.

Also, the connectors should appear free from corrosion and water scale. If there's been some water intrusion through the connector, often the jacket near the connector will appear swollen, or the connector crimp might feel loose around the jacket.

If you don't have a ready way to test old or used coax, such as with a VNA or coax tester, it's best to stick with a new purchase, unless you're certain it's free from defects. Also, these test instruments can't tell you whether your coax has cracks, only whether it's currently in working order. Only after it's rained repeatedly for several weeks, that you'll start noticing your SWR increasing, or that people might begin complaining of a garbled transmission, or other problems.

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