DIY

Worthwhile projects you can build on your own

Indoor 2-meter Delta Loop Antenna

Many hams live in apartments, townhouses, and other limited-space dwellings, and find it difficult to build some of the gigantic structures we've promoted in this column. But if you have a window in which you don't mind hanging an antenna, one solution for your needs might be a delta loop. And for 2 meters, this gem should fit within most window frames.

Like usual, let's start with a parts list:

√ Three dogbone insulators

√ Three 24″ bungee cords

√ 83″ of stranded 14 AWG insulated wire

√ 14″ of RG-59/U coaxial cable

√ One BNC male crimp-on connector for RG-59

√ One BNC female-to-SO-239 adapter

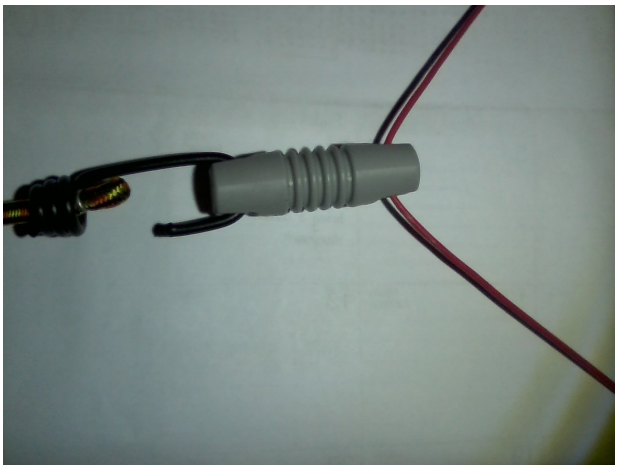
√ One 15″ zip-tie (this is way too long, but the thickness of a 15″ zip-tie is what you're after)

BNC-SO adapter

Thread the 14 AWG stranded wire through one hole each of two dogbone insulators. These are the non-feed corners, or the corners ***not*** near where the coax feeds into the antenna. Thread one end of the wire through one hole of the third dogbone, the feed-corner, then tie it back around itself to provide a strain-relief. Repeat with the other end of the wire through the other hole of the same third dogbone. Strip both ends of the wire about ¼″.

Strip and crimp the BNC male connector to one end of the RG-59/U coax, then strip and separate the other end of the coax. Solder the coax center conductor to one of the bare wire ends, and the coax shield conductor to the other. This piece of RG-59/U acts as a quarter-wave transformer, matching to a 50-ohm feedline. Zip-tie the coax to the third dogbone for a strain-relief.

Hook one bungee cord through the unused hole of each of the non-feed corner dogbone insulators. Hook the third bungee cord around the middle of the feed-corner dogbone. Connect the BNC-SO adapter to the BNC male connector. Your "apartment" antenna is now complete.



Non-feed corner assembly

When you install your delta loop, be sure that the feed corner is adjacent to the triangle leg that's parallel with the ground, which will make the antenna vertically oriented. In most cases, this will be natural, since most windows have a center connecting rod for drapery, and you can use that rod to connect your top apex bungee.

Just connect your radio to 50-ohm coax, and connect the PL-259 end of the coax to your antenna SO-239 connector, and start calling out your call sign! More photos on the next page.

DIY, continued

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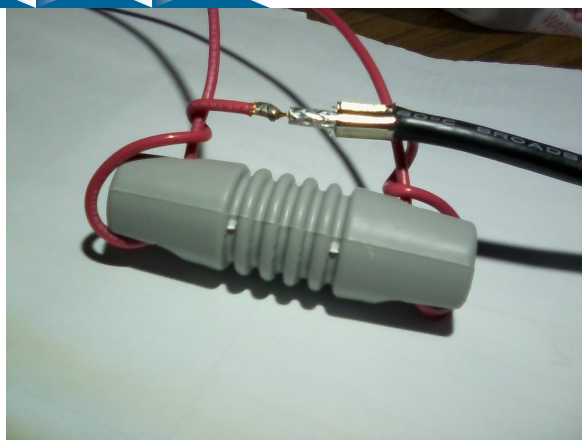

Feed corner connection detail

As you can see, one of the things I did was crimp the coax shield to the wire, because in my case the shield was made of a non-solderable alloy. After connecting both, I wrapped the zip-tie around the coax and the dogbone insulator to hold them all in place.

As I had mentioned, the configuration shown is for a vertically polarized transmission. For horizontal polarization (used in weak-signal, for example) I would have turned the entire delta clockwise 60˚, so that the feed-corner is pointed downward.

Finally, you might have wondered why I didn't just crimp on an SO-239 connector to begin with, instead of going through the BNC-to-SO setup. Well, you could do that, but I already had the BNC crimp in my junk box, and I enjoy the quick-connect / disconnect that BNC offers, as long as I don't use it too often. Over-use tends to wear out the two little side pins.

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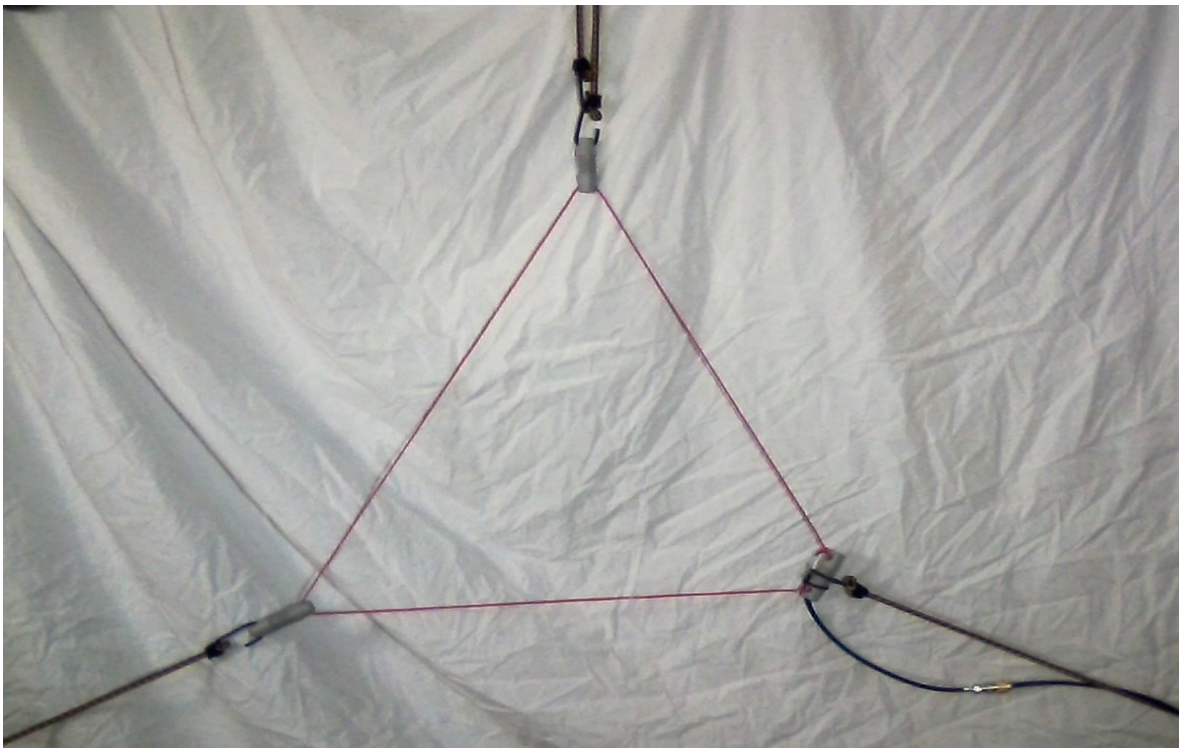

The finished product, showing the third bungee hooked around the dogbone