



## Attack of the Clones

**Recognize this?** This is a discreet insulation displacement connector (IDC) manufactured by 3M. Or is it? It could be a clone manufactured in Asia. Knock-off connectors started showing up in the telephone industry many years ago. I'm sure that 3M is just one of many victims of knock-offs, and not just from Asia but anywhere in the world where they can make products for less and market them effectively. While some knock-offs are good quality, many aren't.

Poor quality knock-off connections have an adverse affect on all copper wire circuits from POTS to The Triple Play.

### A History Lesson

The first copper splices in the telephone industry were rolled sleeves used to splice open wire circuits. When multi-paired cables were introduced, cable pairs in splices were twisted. Series resistance occurred at those splices, affecting service. The twisted splices were then soldered to obtain a 0 ohm connection across the splice.

As the cost of splicing increased, soldering became too expensive and the unsoldered twist was used for many years. It was costly to the industry because of the series resistance causing static complaints on POTS circuits. Repair costs increased and customer frustration increased.

To mitigate the problem, the Bell System introduced the first mechanical connector which was the "B" wire connector. It performed much better, but still had series resistance problems. AT&T put out a letter in 1972 to the field prohibiting the use of "B" wire connectors because of PIC insulation. The insulation memory could cause the connector to begin releasing over time and temp cycling.

In 1958 3M introduced the first insulation displacement connector which gave a 99% 0 ohm connection. It became the industry standard, and other connector vendors made their version of a 0 ohm mechanical connection. Other companies replicated 3M's technique.

3M decreased the splicing time and expense with the invention of the insulation displacement connector modular splice where 25 cable pairs could be spliced at one time. Again, other companies copied 3M. Most vendor splicing connectors do quite well for POTS circuits, but when copper pairs are used for their maximum bandwidth the price of poker goes up.

The real beauty of the IDC connection is that it is time proven to be as effective on the high speed networks of today, including VDSL as it was on the POTS networks when introduced more than 50 years ago. At least that is what I thought.

### Coming Up Against the Clones: A Real World Example

As you know I spend a lot of time out in the field with Telcos and with field technicians shooting trouble, and over the past 38 years most calls I get have questions about the copper infrastructure technical issues and test set issues.

Recently I was called to help a cable maintenance technician from an independent Telco in the southeast U.S. who identified a longitudinal balance problem on multiple pairs feeding from a central office to



multiple customers. There were very few POTS customer complaints, but the Triple Play trouble complaints were through the roof.

Troubleshooting in the field narrowed down the problem to both the feeder and distribution splices at the cross-connect box. Further testing proved the problem in the splice connectors themselves. There was absolutely no doubt that we were getting high resistance opens in the connectors themselves.

Our first thought was to ask ourselves what the vendors may have done in the name of COST SAVINGS to cheapen up their product to the point where it almost works like it used to work? I called the vendor, armed and ready to fire away. With my first question the person on the other end of the phone asked, "Can you see our logo clearly in the cap of the connectors you found?"

And guess what: I couldn't! The vendor's next statement was: "Welcome to the attack of the clones." While this example is about one vendor -- 3M -- but I'm sure it affects others.

### The Solution

First of all, I know through experience that the discreet insulation displacement connectors (Scotch locks) manufactured by 3M are 0 ohm connections and will effectively pass bandwidth up through VDSL and beyond. You can trust the Scotch Lock connection.

Let me give you some info on ways to determine if you are looking at a clone or looking at the real thing. And in some cases it isn't easy. Look for the supplier logo and make sure it's the right supplier logo. If you are in any doubt about the quality and maybe even the origin of discreet connectors in your network, call your local vendor's representative sales contact. These folks are trained to help you, and they love helping solve a problem that wasn't created by their product in the first place!

### Signing off

Where are your biggest headaches? In your equipment? Using your equipment? Getting support from your vendor? Let me know and we'll seek answers together. Go to [www.mccartyinc.com](http://www.mccartyinc.com) and click on "join forum" on the right side of the homepage. We're here to help! Or call 503.538.1229 (office), 831.818.3930 (cell), or email [dmccarty@mccartyinc.com](mailto:dmccarty@mccartyinc.com). And let me know what you think at my blog: [www.ospmag.com/columnists/mccarty/talkback](http://www.ospmag.com/columnists/mccarty/talkback).