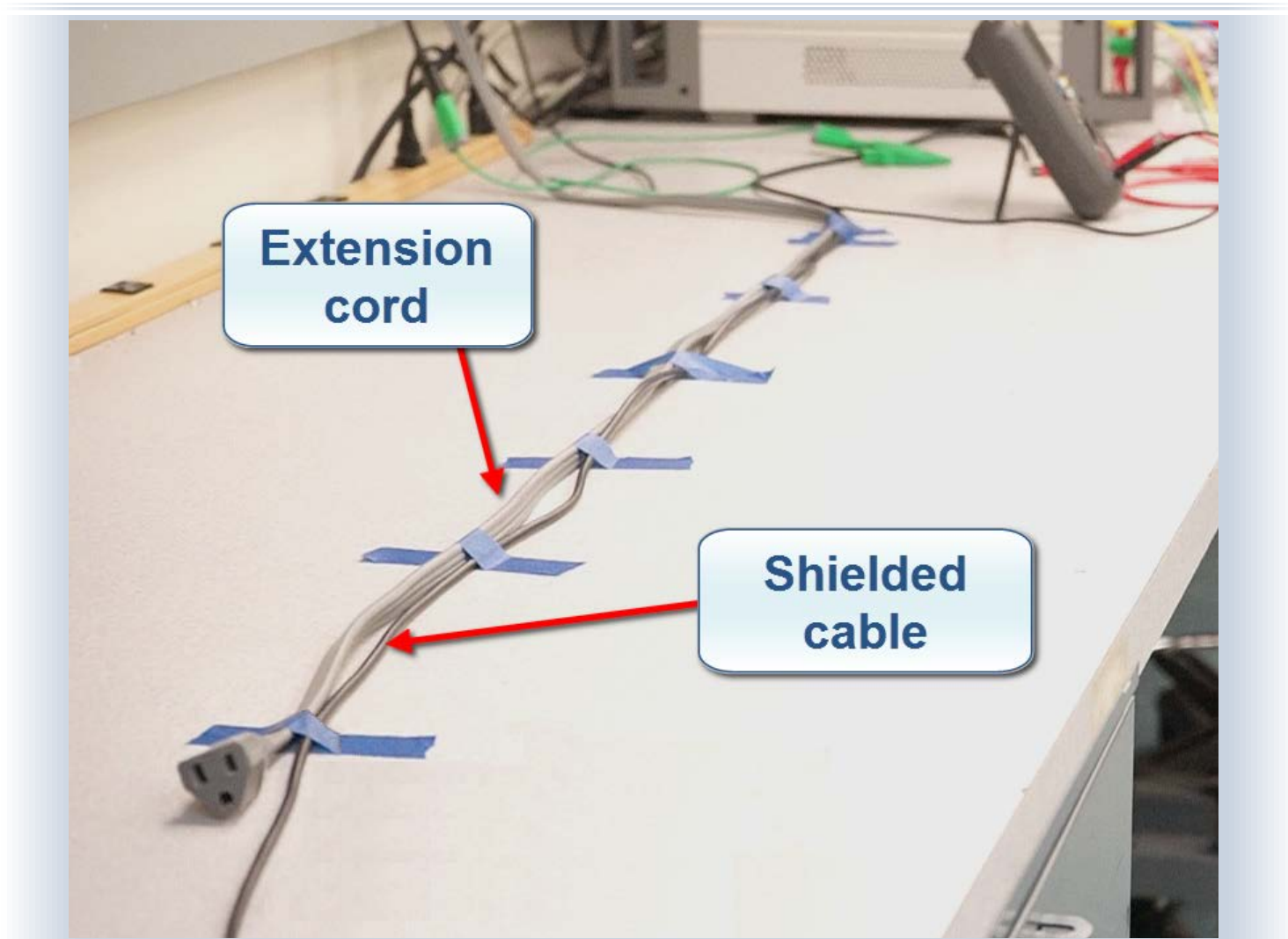


Reducing Noise Voltage in Shielded Cable

In this short article, we demonstrate the importance of properly grounding the shielding in a cable. This helps minimize the presence of stray noise voltage being generated in the cable due to the proximity of live electrical lines.

For our demonstration, we have placed a length of shielded cable adjacent to an extension cord plugged into a common electrical outlet.



We have connected one end of the cable conductor to the Model 5217. For our first measurement, we will leave the cable shielding ungrounded:



As you can see, the noise voltage being generated within the cable is over 6V, a voltage that could potentially corrupt data sent through the cable.

Now we'll connect the cable shielding to ground:



Notice that the noise voltage has dropped to around 100mV, nearly two orders of magnitude lower than our previous reading. In other words, grounding the shielding has reduced noise voltage within the cable by around 98%!

Note that only one end of the shielding should be grounded. The addition of one or more other grounding points could result in a ground loop that could compromise the efficacy of the ground.