PT Series: Redefining Durability in Precision Test Cables

June 4, 2024 by Anoison



When it comes to top-quality test cables, many people assume that higher cost means better quality. However, it's important to consider what percentage of the cost is for the actual quality and what percentage is for the brand name.

Anoison, a small manufacturer, has introduced the next generation of PT test cables and aims to change the perception that top-quality test cables are always expensive.

The most crucial aspect of a test cable is its durability. What components contribute to making a test cable rugged? Is it the top-level connector, high-quality raw cable, robust armoring module design, or professional assembly skills? Anoison understands the key details of producing ruggedized test cables at a more reasonable cost and is willing to share several key points.

• Twist resistance

While most test cables on the market perform well in pulling and crushing, they often get damaged not due to pulling and crushing but by frequent twisting. Anoison has addressed this issue. Anoison PT cable ends show a super-twist resistance. They can bear 5,000 times twist torque force and never get damaged. (See Figure 1-3).

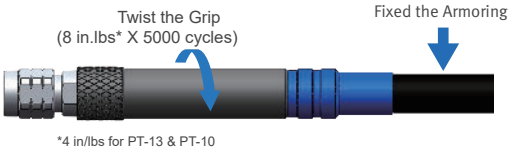


Figure 1. Twist Resistance Test of PT Cable

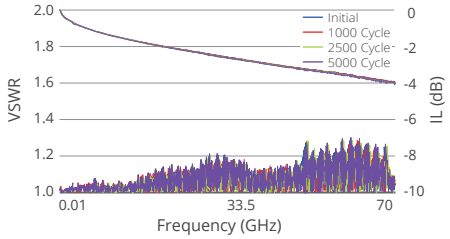


Figure 2. Twist resistance test curve (70 GHz)

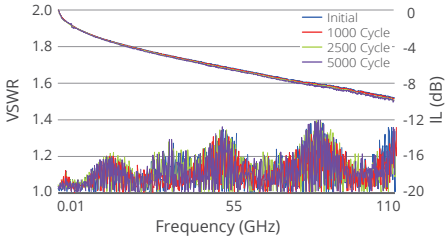
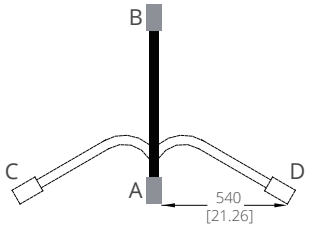


Figure 3. Twist resistance test curve (110 GHz)

• Bending at cable end

When using a test cable, users often handle the cable end as a "grip", causing extra bending on the cable end. Anoison recognized this issue and addressed it with a smart (or should we say artful?) armoring module that supports the cable to easily pass a minimum of 5,000 bends in the Cable End Bending test. (See Figure 4-6).



Bending ±90° around a 25.4mm /22.5mm radius mandrel

Figure 4. Cable end bending test

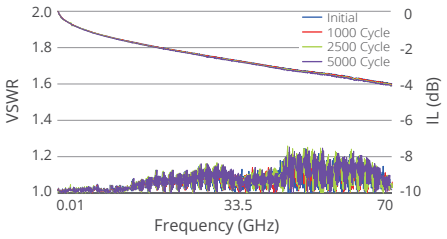


Figure 5. Cable end bending test curve (70 GHz)

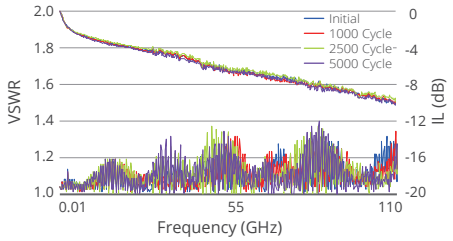


Figure 6. Cable end bending test curve (110 GHz)

• "Snake Test"

A high-quality test cable should maintain stable performance over the long term, even after being bent multiple times during its operational life. The Anoison PT cables can undergo 20,000 bending cycles (PT18 even passed an extreme test of 100,000 bending cycles) in tough testing while maintaining stable insertion loss (IL). We refer to this as the "snake test". (Refer to Figure 7-9 for more details.)

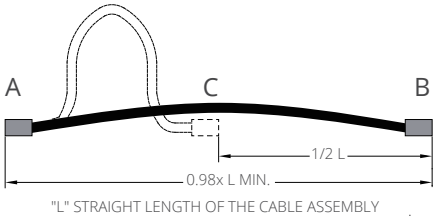


Figure 7. Flexing endurance ("snake" beding) test

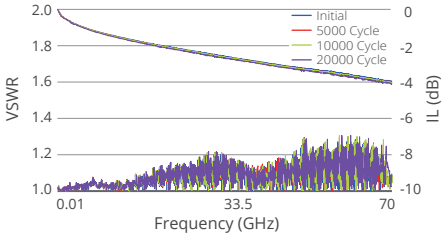


Figure 8. Flexing endurance test curve (70 GHz)

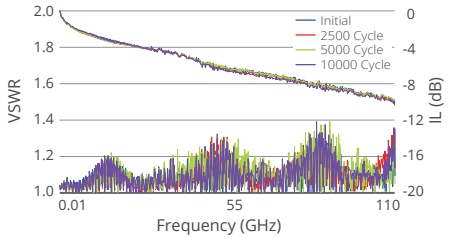


Figure 9. Flexing endurance test curve (110 GHz)

• PT vs VNA cable

A high-quality test cable should be versatile. Many people tend to use bulky VNA cables without questioning why. While ruggedness is important, using such large VNA cables for indoor testing doesn't make sense except in specific situations. Through extensive testing, Anoison has proven that the compact PT cables can cover all indoor test applications without compromising durability, stability, and versatility.

And an additional benefit is PT support small distance/high density test, the minimum port center to port center is 9.2mm only comparing traditional VNA 24mm. Anoison also offers full NMD port options with PT cables, including the miniNMD, which maintains the same interface and ruggedness as traditional NMD but in a compact size. If your situation requires high-quality VNA cables, Anoison can help; but consider the quality, durability, and costs of the Anoison PT cables for most test cable needs.

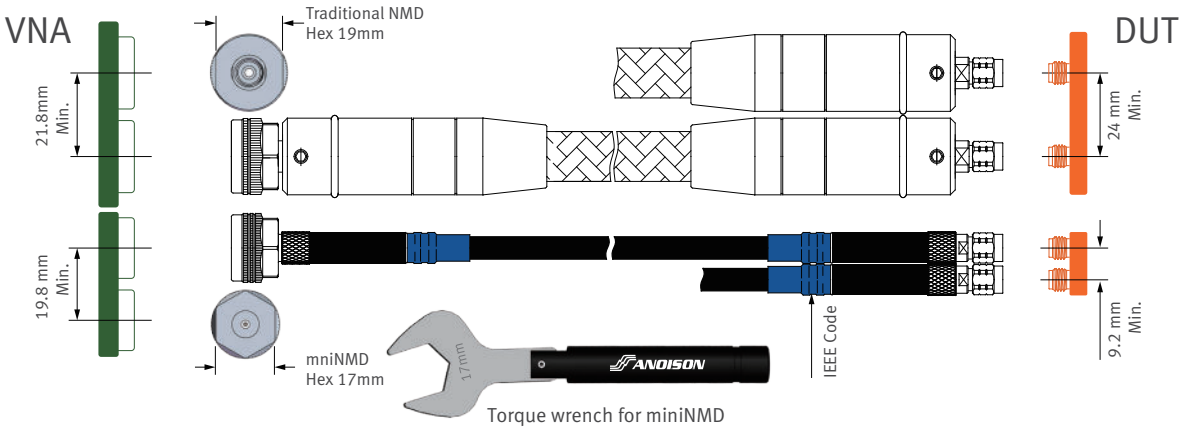


Figure 10. Traditional NMD VNA cable vs miniNMD PT cable

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