

Cable Intelligence Series

In both residential and commercial networking infrastructures, reliable connectivity is critical to system performance. As you know, counterfeit and unverified cable threatens system performance and longevity. Installing cable verified to strict industry standards will protect your investment in the long run, saving you time while upholding your business reputation.

Establishing Testing Parameters for Category Cable

In the United States, industry standards for category cable are created by the Telecom Industry Association (TIA/EIA), and backed by the American National Standards Institute (ANSI). Currently, the TIA/EIA recognizes five types of Category Cable: Cat 3, Cat 5e, Cat 6, Cat 6A and Cat 8. Each category has specific performance requirements that need to be met to be verified for that category. Verified Cat 5e, Cat 6 and Cat 6A Cable protect system longevity, but operate best in specific applications, as seen in the table below.

Category	Category 5e	Category 6	Category 6A
Standard Frequency	100 MHz	250 MHz	500 MHz
Typical Applications	Voice and Data Networks Gigabit Ethernet	Voice and Data Networks Gigabit Ethernet IP Video Power over Ethernet (PoE)	Voice and Data Networks 10 Gigabit Ethernet IP Video Power over Ethernet (PoE) Data Centers Wireless Access Points
Network Throughput	1 Gbps (up to 100 meters)	1 Gbps (up to 100 meters) 10 Gbps (up to 55 meters)	10 Gbps (up to 100 meters) 40 Gbps (up to 30 meters)

What about Cat 7 Cable? Despite being used overseas, it's not recognized in North America by TIA/EIA standards! See why: <https://www.linkedin.com/pulse/cat-6a-vs-7-daniel-dunar/>.

Verifying Cable Performance

The TIA/EIA standard for Category Cable, TIA 568, focuses on a cable's electrical performance. This includes, but is not limited to, signal loss, near-end crosstalk, far-end crosstalk and impedance. Cables failing to meet set standards can experience incomplete signal transfer and signal interference, affecting the performance of the entire system.

Setting industry standards for different categories of networking cables simplifies the cable selection process, benefiting contractors and installers, and protecting end-users. As a contractor or installer, you can be better equipped to:

- Identify cable that reliably operates at the frequency and speed of an application.
- Create an open cabling infrastructure that more-readily adapts to changing business needs.
- Extend the lifespan of cabling solutions.
- Protect device and system performance with verified products.

Category Cables must be tested by a Nationally Recognized Testing Laboratory (NRTL) to TIA 568 standards in order to receive a verification mark. Choosing an unbiased, third-party testing partner adds credibility that transforms a manufacturer's claim to a trustworthy verification.



Cat 5e



Cat 6



Cat 6A

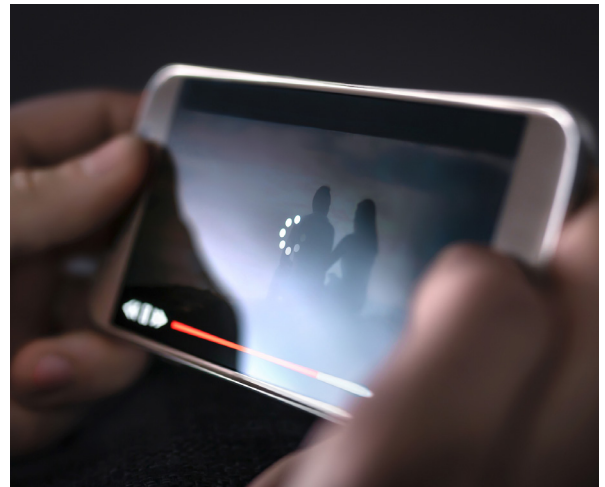
TIA performance requirements are tested up to standard frequencies for each category: Cat 5e at 100 MHz, Cat 6 at 250 MHz and Cat 6A at 500 MHz, and all are tested at a length of 100 meters. Any manufacturer claims of performance beyond these lengths and frequencies should be examined and considered with extreme caution.

Don't Trust Unverified Products

Some manufacturers cut corners and create cabling solutions that don't meet TIA/EIA standards. Others claim products can perform at levels beyond set testing parameters. Both are detrimental to system longevity and performance – and shouldn't be trusted.

If a product claim seems too good to be true, it probably is. Claims of performance levels above set TIA/EIA standards require products to be used within specific circumstances and applications. In these cases, cables are overdesigned in one area and under-designed in another, sacrificing the versatility of a standard, verified category cable. Installing unverified cables reduces system flexibility for future business needs, leading to unnecessary rip-outs and reinstallations down the road and costing you additional time and money.

Learn more on why manufacturer claims about frequency shouldn't be trusted: <https://www.linkedin.com/pulse/debunking-megahertz-misconception-brian-meachum>.



At Genesis, our entire category cable portfolio is tested and verified to TIA/EIA standards. Offering Cat 3, Cat 5e, Cat 6, Cat 6+ and Cat 6A cable, we have the cable you need for every networking application.

If you ever need assistance or have questions, you can call a Genesis customer service rep at **800-222-0060**. They are available to offer support all day, every business day.

For more information about Genesis Cable products and solutions, follow Genesis on LinkedIn at [linkedin.com/company/genesis-cable](https://www.linkedin.com/company/genesis-cable).