



Network Engineers Everywhere: Relax Your Minds—Not Your Standards



DataMax® Commercial Ethernet Patch Cable

The Strongest Link.



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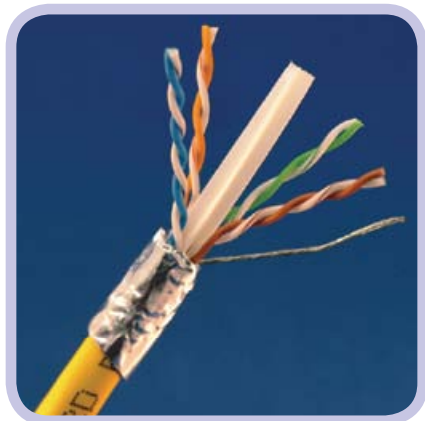


DataMax® Patch Cable is Precision Engineered to the Highest Standards — Yours.

For years cable companies marketed what they had available for patching applications.

The choices were either cross-talk sensitive silver satin or a fragile, flex adverse solid conductor. Both

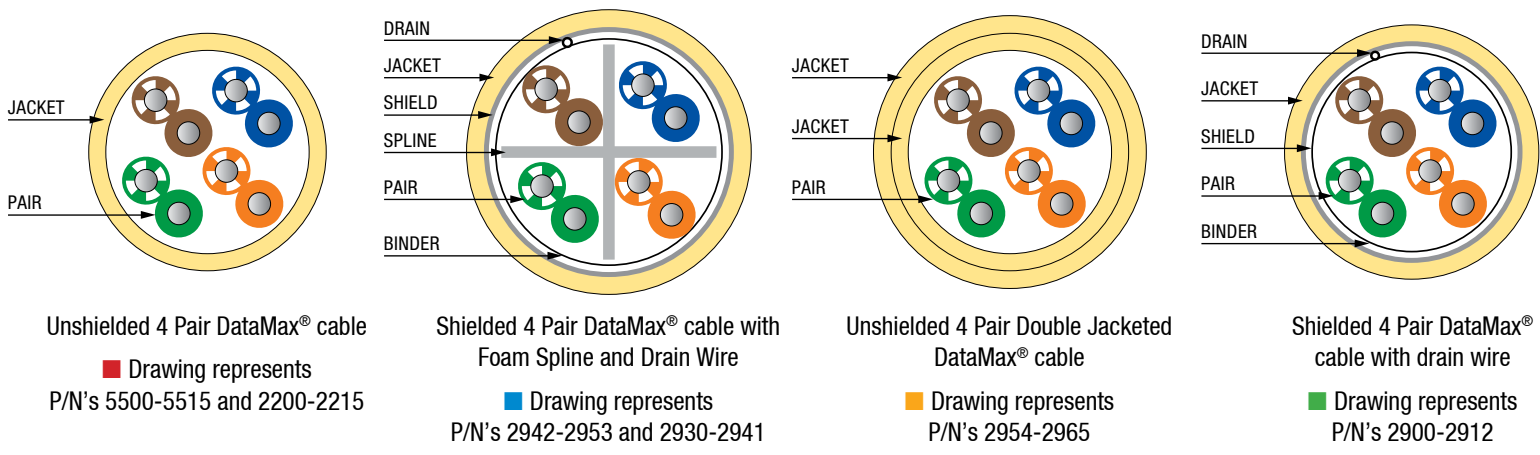
were mediocre at best, but due to the lack of a better solution they were reluctantly accepted by system designers. In an effort to fill the void, Quabbin® developed a flexible precision bulk patch cord to forever replace the repurposed products — the world's first verified, stranded, twisted pair, Category patch cable. Not only is Quabbin® patch cable proven to deliver component compliant performance, it's so good it has been known to 'lend' its headroom to the system, often bringing a subpar channel into compliance.



**DataMax® 6a shielded patch
cable featured above boasts
one of the smallest overall
diameters in the market at .235".**

Quabbin®'s leadership continues today with a full range of standard and specialty patch cable offerings, including commercial Category 5E, 6 and 6a as well as versions suitable for harsh environments.

DESIGNED FOR YOUR APPLICATION



Unshielded 4 Pair DataMax® cable
■ Drawing represents
P/N's 5500-5515 and 2200-2215

Shielded 4 Pair DataMax® cable with
Foam Spline and Drain Wire
■ Drawing represents
P/N's 2942-2953 and 2930-2941

Unshielded 4 Pair Double Jacketed
DataMax® cable
■ Drawing represents
P/N's 2954-2965

Shielded 4 Pair DataMax®
cable with drain wire
■ Drawing represents
P/N's 2900-2912

QWC Part Numbers	AWG	Shielded	Insulation	Tested To	Spline	CMR	CMG	CM	DC Resistance	Meets TIA Standard for
■ 5500-5515	24	No	Polyethylene	350MHz	No	•	•		26Ω	Cat 5e
■ 2200-2215	24	No	Polyethylene	500MHz	No	•	•		26Ω	Cat 6
■ 2942-2953	26	Yes	Polyolefin	500MHz	Yes		•	•	14Ω	Cat 6a
■ 2930-2941	26	Yes	Polyolefin	250MHz	Yes		•	•	14Ω	Cat 6
■ 2954-2965	26	No	Polyetheyene	500MHz	No	•			14Ω	Cat 6a
■ 2900-2912	26	Yes	Polyolefin	100MHz	No			•	42.6Ω	Cat 5e

Available in a wide variety of colors — call for availability



Colors shown are a representation only. If you require color matching please contact us direct.

ALL DESIGNS

- Come standard with a RoHS complaint PVC jacket
- Meet all electrical performance of TIA 568-C
- Provide quick termination & high yield
- Are compatible with bel-Stewart, Sentinel® and other popular plugs
- Are constructed with high performance tinned copper
- Are specifically produced for patching and datacenter applications
- Benefit from inline monitoring of manufacturing process
- Suitable for “component compliant” assemblies
- Designed using premium materials/components
- Spooled on production equipment with minimal handling and no abuse
- Designed & manufactured in the same facility providing direct communication between engineering and production



LEARN MORE

800.368.3311

www.quabbin.com

10 GIG DATA RATES: THE FUTURE IS HERE AND GOOD PATCH CORD STILL MATTERS

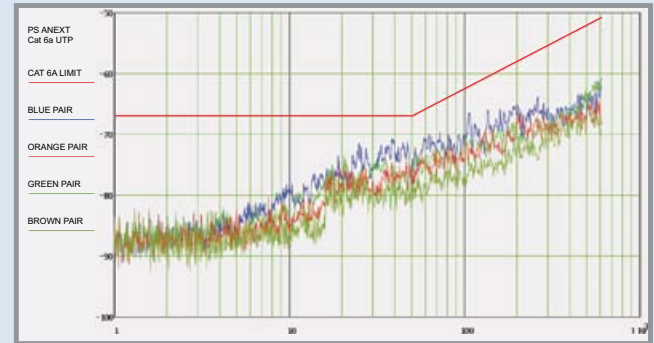
In fact, good patch cord matters more than it ever did. When data rates increase to 10 Gigabits/second not only do all of the previously discussed factors still apply, two more elements come into play: noise immunity and optimization.

NOISE IMMUNITY: ANEXT AND RETURN LOSS

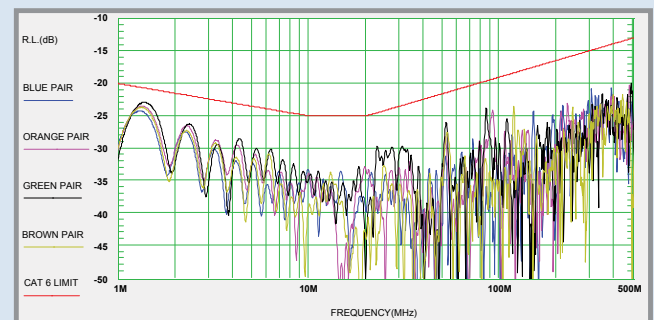
As data rates have increased over time so has the frequency at which the data is transmitted. Original Category 5e transmits and is tested at 100MHz, whereas Category 6a transmits and is tested at 500MHz. As the transmission frequency increases the cables susceptibility to noise, especially external (Alien) noise also increases. Sensitivity to noise has become the critical factor for verifying a good 6a cable design and is responsible for initiating the new ANEXT test parameter for 10 gig cables included in the TIA 568 C revision. ANEXT (Alien Near End Cross Talk) occurs in the first part of the channel or the “ends” of the cable “near” the transmit and receive hardware. A little known fact is that at the higher frequency of 500MHz a 7ft patch cord appears five times as long as it would electrically appear at 100MHz. This is critical bearing in mind that it compounds the ANEXT issue by making the “ends” of the patch cord appear 5 times longer electrically thus expanding the area of concern and opportunity for externally generated interference. Although ANEXT is very important, it isn’t the only noise parameter. None of the traditional noise parameters monitored in category 6 and below have gone away. They’re still here, ANEXT is in addition. Therefore, it’s critical to maximize immunity to noise, both alien and internal. When we discuss noise, we need to focus on the total noise budget of the cable not just one type, because the noise affecting a cable is cumulative. ANEXT, Return Loss, Cross Talk, etc. will combine and the sum can’t surpass the cables total noise budget. Design ideas that bring down the noise level of one constraint may increase the noise level of another. It can be a complicated juggling act to achieve the equilibrium of optimum performance in all areas, while remaining below the total “noise budget”. Achieving perfect electrical performance would be simple if the market would accept a cable of any size and shape. However, once size and shape restrictions are introduced, the perfect cable reflects a balance of various and conflicting parameters, where the positive characteristics are maximized and the negative qualities are minimized. When this maximize/minimize design approach is successful, the result is an OPTIMIZED cable with the perfect combination of properties.

OPTIMIZATION: AN OVERSIZED CABLE ISN'T AN OPTIMIZED CABLE

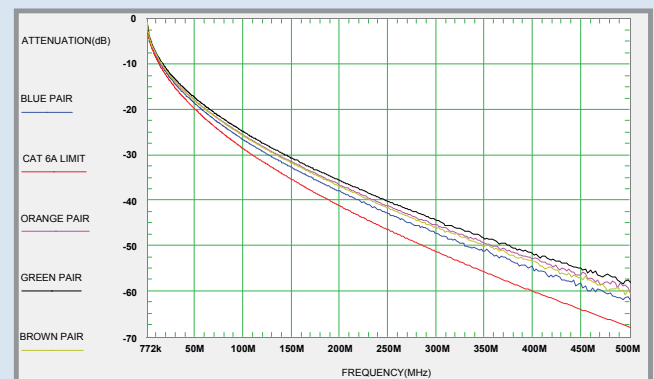
As discussed, noise immunity is very important in a patch cable especially as data rates increase. Increasing jacket insulation thickness will protect the cable from external noise (ANEXT) however making it too thick will compromise an equally important factor, minimized diameter. The cable must accommodate certain sets of criteria the first being limits on connector sizes you can have the best cable in the world, but if it’s too big for the connector it’s of no use. The second reason for a slim design is to not overlap ports and render some unusable. Further, smaller diameters are inherently more flexible which benefits internal cabinet routing. Through extensive development Quabbin® has achieved a design that exceeds performance requirements for Category 6a patch cable with an OD as small as .235” and no compromise to performance or noise immunity.



ANEXT The unique construction of Datamax® 6a resists electrical noise trying to couple from one pair of wires to another within a multi-pair cable. Notice how the crosstalk levels of the various cable pairs do not touch the red limit line. This is optimum and demonstrates that any crosstalk present in the cable is too small to affect transmissions.



RETURN LOSS test results show superior performance which means impedance variations that distort high speed transmissions are minimal, resulting in optimized signal strength and clarity.



ATTENUATION (Insertion Loss) in this case measures the change in signal strength over the length of the cable. The signal at the far end must be strong enough for the receiver to distinguish it. If not, retransmissions are required which gives the user the impression that the network is slow. As seen in the graph, the signals of the pairs are much stronger than the limit line requires for success on the first transmission.

Building a computer network infrastructure is a significant investment.

End users expect to receive the speed and functionality they paid for and were promised. Coincidentally, the cable, one of the least expensive parts of the network, can and does have an enormous impact on system response time. The key to success is measured with a cable cost to performance ratio that always makes the Quabbin® user a winner. Not only is Quabbin® patch cable proven to deliver fully compliant operational characteristics, it's so good it can enhance the overall performance of a subpar channel as shown below.

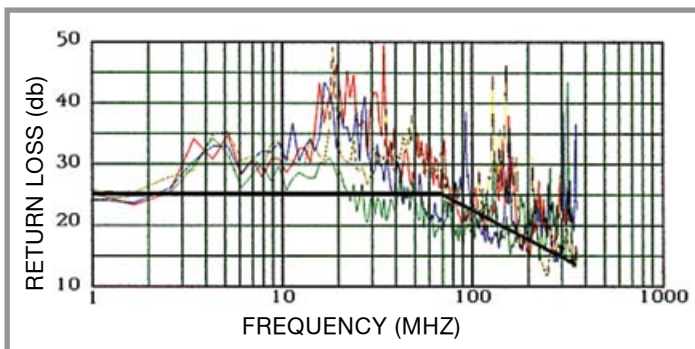
IMPROVING CHANNEL PERFORMANCE

The chart at lower left illustrates the actual return loss noise in a “problem channel”. Notice that it barely meets the required minimum performance for Category 5e. There is very little performance margin/headroom.

The lower right chart illustrates the same channel after simply replacing the patch cables with high quality DataMax® cords. The wall plates, patch panels, horizontal cabling and other

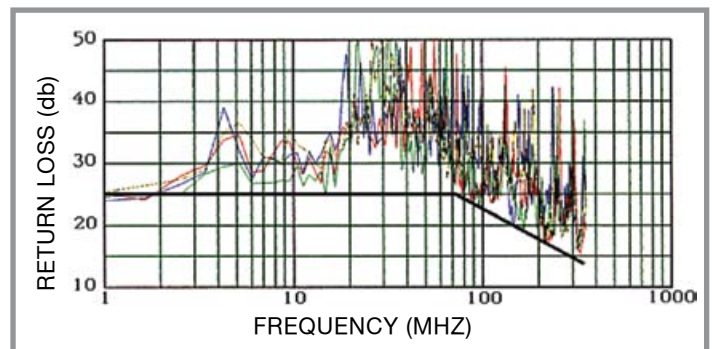
components were unchanged. Since any enhancement or decline in channel component performance is cumulative, the improvement in patch cable performance translates into a 4-6 dB increase in return loss headroom for the entire channel. A borderline network has been converted to a healthy one with an inexpensive yet effective fix.

Problem Channel



Return loss noise barely meets the required minimum performance for Category 5e. There is very little performance margin/headroom.

Channel after patch cables replaced with DataMax®



The same channel after simply replacing the patch cables with high quality DataMax® cords — resulting in increase in return loss headroom for the entire channel. A borderline network has been converted to a healthy one with an inexpensive yet effective fix.

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FLEXIBLE IN SO MANY WAYS

INSTALLATION

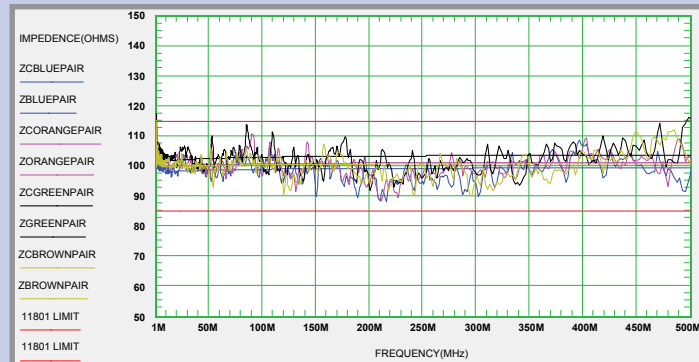
When it comes to patch cable, flexibility can mean many different things. The first and most obvious is the ease with which it bends. The importance behind having a pliable patch cord has to do with installation and in cabinet routing. Flexibility allows easy manipulation between wall outlets and patch panels while increasing the durability important when considering a lifetime of “moves & changes” typical in data centers. Durability is paramount in allowing these changes to take place without compromising the cable.

STABLE IMPEDANCE

Stable impedance is extremely important for network reliability and flexibility for future expansion. According to TIA 568 C, patch cable impedance should be approximately 100 Ω (Ohms). Some manufacturers will allow cable impedance to drift within a range because it will still work with the hardware they pair it with. However, functioning with other brands does not necessarily mean functioning well. When close tolerance of impedance is held as is the case with Quabbin® cable, it will dependably integrate with a mixture of equipment from different manufacturers. This is the basis for Quabbin®’s strict adherence to industry standards such as TIA 568 C. Through precision manufacturing and sophisticated in line monitoring, Quabbin® guarantees to meet or exceed all applicable requirements for category cable mandated by the TIA. End users appreciate this commitment and consistency because it allows the freedom to expand a network at a later date without being dependent on the original system manufacturer.

ROUND PATCH CABLE SAVES MONEY AND HASSLE

Sure round cables look better than bumpy, convoluted or even oval cables. However, there’s another reason to use round cable—the bottom line. Patch cable has to be processed and assembled. Quabbin® cables have been designed to be round, smooth, and suitable for easy processing in virtually all popular cut and strip and crimping machines. Further, where a spline is necessary, a soft foam material is used rather than rigid material, making it much easier to remove on the fly. This equates to maximum throughput, high yields and a short learning curve for assemblers. Secure your throughput and yield while keeping the piece price low by selecting a DataMax® cable designed specifically to contribute to the success of your operation.



IMPEDANCE The key to a precision data cable is stable impedance. (see return loss graph) The impedance chart above shows both an upper and lower limit line depicting high and low impedance. The trick is to design a cable with impedance stable enough to plot right between the two limit lines. Not an easy feat, but as shown above the DataMax® 10Gig product is a fabulous success.

MADE IN THE USA

- Eliminates overseas shipping times and costly delays
- Stocking warehouses from coast to coast (MA, IL, FL, TX, CA)

EASY ORDERING & SHIPPING

- Sales representatives located throughout the country
- Live inside sales specialists available from 8-7 EST to answer questions and take your orders
- Orders for in-stock items qualify for same day shipping (Orders must be placed by 2pm EST for same day shipping)



Learn more about DataMax®

**Contact Quabbin's Sales Service Department at
1-800-368-3311 or Sales@quabbin.com**



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