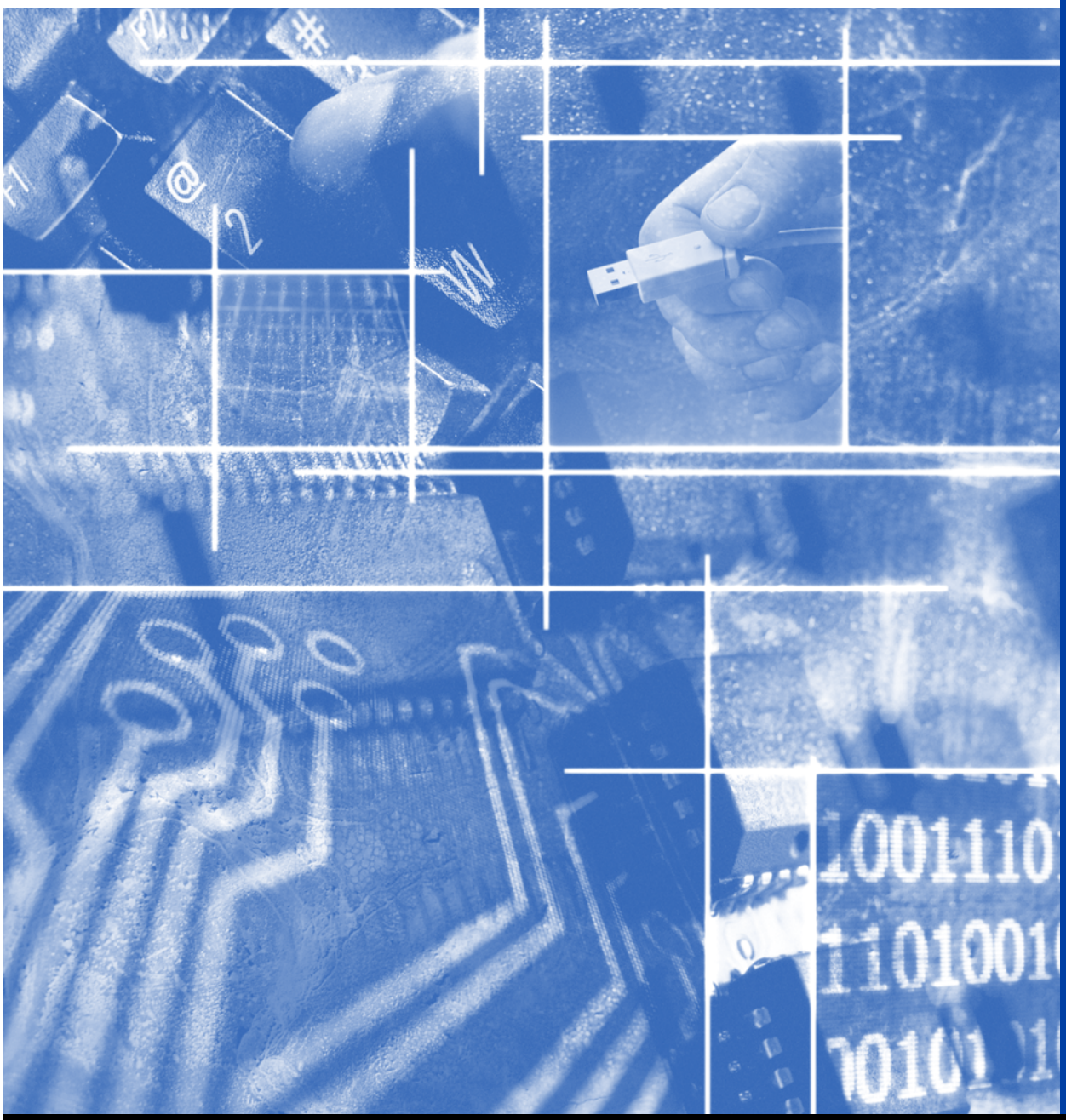
DataMax® Stranded Patch Cables



Your Connection to the Future, Today

The industry leader in design and performance

QUABBIN® WIRE & CABLE CO., INC.

Patch Cords Matter

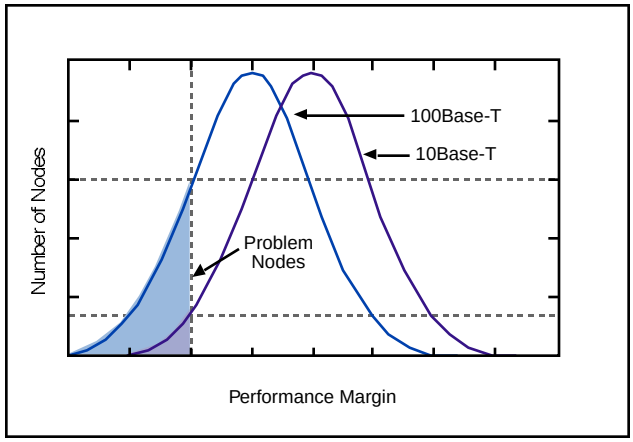
Patch cords can make or break a network

There is no secret as to how to make the highest quality patch cable, but it is extremely difficult. Manufacturers must optimize all the electrical, dimensional, and mechanical requirements and produce a very consistent 100-Ohm cable that has very little variation along the length of each pair. Quabbin has mastered the cable design and also the techniques for high-speed manufacture and control of all critical variables. The result is a DataMax cable that contributes very little return loss to a channel yet can easily terminate to a modular plug.

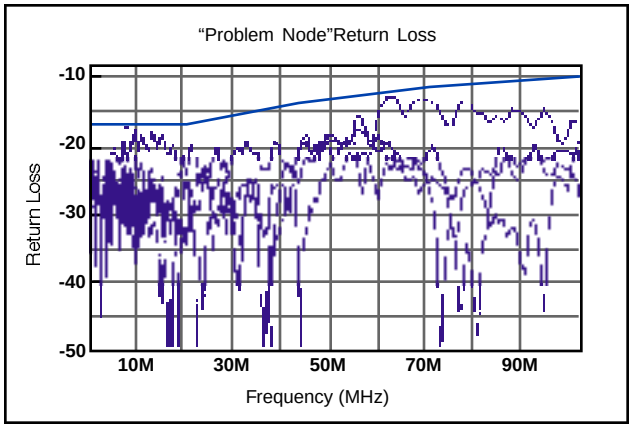
Network Migration Problems

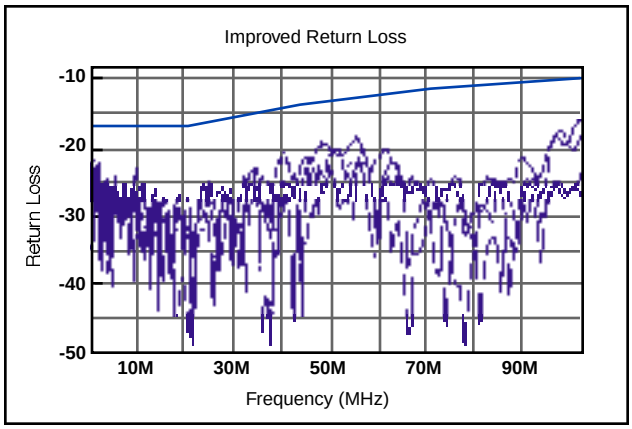
Today most LANs operate using 10Base-T Ethernet or Token Ring protocols over 2 pairs of the commonly used 4 pair cabling network. However, many are beginning to migrate to faster 100Base-T, ATM, or even Gigabit Ethernet. This evolution stresses existing premise cabling so that there are more trouble calls, node crashes, and slower network speeds due to retransmissions.

The headroom or operational safety factor that networks had with 10Base-T is evaporating. The signal to noise ratio in networks is getting smaller. Network noise sources that didn't affect 10Base-T now matter. Signal distortion adds more problems. The number of "Problem Nodes" increases.



Migrating to 100Base-T dramatically increases the number of problem nodes.





Improving Channel Performance

The chart at left illustrates the actual return loss noise in a "Problem Node". Notice that it barely meets the required minimum performance for Category 5e. There is very little performance margin.

Switching to 100Base-T, ATM, or 1000Base-T would stress the node, absorbing the little margin available. The result would be timing errors, retransmissions, slowed data rates, or even a crash.

The lower chart illustrates the same node or channel after simply replacing the patch cords with high quality DataMax cords. The wall plates, patch panels, horizontal cabling or other connectors were unchanged. The channel has gained 4-6 dB of return loss headroom. A "Problem Node" has been converted to a healthy one by an inexpensive yet effective fix.

Quabbin's Patch Cable Leadership

Years ago, when others were promoting solid conductors, stranded 26 AWG, or silver satin as patch cable, Quabbin Wire & Cable was the first manufacturer in the world to produce a verified Category 5 stranded patch cable. That leadership continues today, but with a full range of patch cable offerings.

This brochure outlines Quabbin's stranded patch cable capability.

DataMax Patch Cable Benefits

Quabbin Wire & Cable manufactures bulk stranded patch cable, not patch cord assemblies. However, over the years Quabbin's testing and ongoing interaction with cord assembly customers resulted in a valuable body of knowledge. Quabbin's bulk cable is optimized for the dimensional, cosmetic, and consistency characteristics that high-volume cord assembly houses value.

DataMax patch cable is easy to jacket-strip, identify color-codes and terminate to standard plugs. It also provides outstanding run to run consistency.

DataMax Patch Cord Benefits

Cords made with Quabbin's DataMax patch cable have superior and repeatable electrical performance. They also reduce the electrical losses and increase data throughput of premise networking channels.

End-users, installers, and premise hardware equipment manufacturers agree. Cords made with Quabbin DataMax cable improve LAN performance and reduce trouble calls. That simple fact is why Quabbin Wire & Cable is today's market leader in high quality cords and private labeled OEM premise hardware system cords.

History and Development

Since the early '90's, Quabbin Wire & Cable has led the industry in the development and manufacture of four-pair, 24 AWG stranded UTP patch cable. In 1995, when the first comprehensive revision of the industry standard issued (TIA/EIA 568A), Quabbin still retained that leadership.

Quabbin's dominance manufacturing stranded patch cable continues today. From the beginnings, in what became UTP Category 3, 4, and 5 cord, Quabbin has added shielded ScTP designs, Category 5e, IBM 150 Ohm Type 6, and now the standard-setting DataMax 6 Category 6 patch cable products.

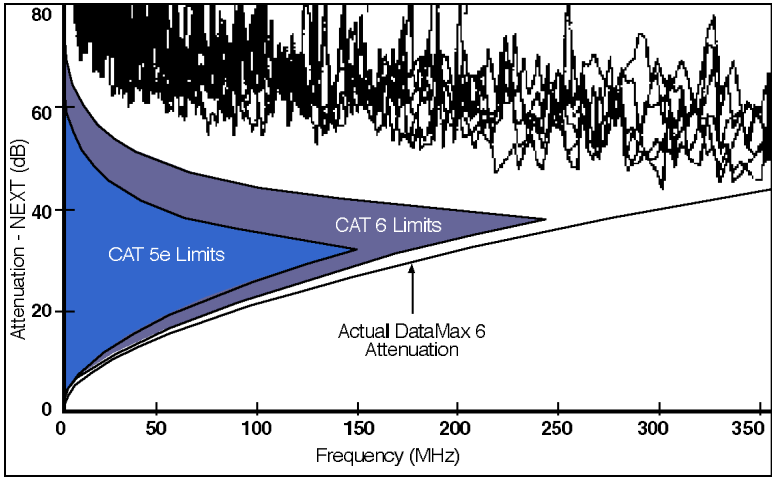
Summary Chart of Quabbin Wire's Stranded Patch Cable Families

PRODUCT FAMILY	CONSTRUCTION DETAILS	CAT./APPLICATION	TEST/PERFORMANCE DETAILS	SPECIAL NOTES
DataMax 6 (UTP) **22XX part number series**	Multipair, 24 AWG, stranded, tinned copper Unshielded 100 Ohm impedance Single layer insulation	Draft TIA Category 6	Tested to 350 MHz TIA requirements to 250 MHz	For 1000Base-T and beyond Adds margin to problem nodes
DataMax 5e (UTP) **55XX part number series**	Multipair, 24 AWG, stranded, tinned copper Unshielded 100 Ohm impedance Single layer insulation	TIA Category 5e	Meets ISO impedance stability requirements Tested to 350 MHz TIA requirements to 100 MHz	Current standard for most new Systems
DataMax ISO 11801 (ScTP) **96XX part number series**	Multipair, 26 AWG, stranded copper Overall shielded 100 Ohm impedance Single layer foam insulation	TIA Category 5	Tested to 100 MHz TIA requirements to 100 MHz	Maximum 8 meter cords allowed per channel
DataMax 5 (UTP) **54XX part number series**	Multipair, 24 AWG, stranded, tinned copper Unshielded 100 Ohm impedance Single layer insulation	TIA Category 5	Tested to 100 MHz TIA requirements to 100 MHz	Standard superseded by Category 5e
DataMax 3 (UTP) **93XX part number series**	Multipair, 26 AWG, stranded copper Unshielded 100 Ohm impedance Single layer insulation	10Base-T Signaling	Tested to 16 MHz TIA requirements to 16 MHz	Return loss testing not required Supports 10Base-T 10 Mbps
DataMax Type 6 (STP-A) **Part number 9705**	2 pair, 26 AWG, stranded, tinned copper Shielded 150 Ohm impedance Dual layer insulation	Token Ring Signaling	Supports 16 Mbps Token Ring	Modified IBM Type 6 to fit modular connector

Usable Bandwidth or ACR

The graphic on the right illustrates the frequency range where ACR (attenuation to crosstalk ratio) remains positive, providing an indication of usable bandwidth. Industry limits for Category 5e and Category 6 show that nominally compliant patch cable remains positive to approximately 140 MHz and 240 MHz respectively. However, actual data (shown) for DataMax 6 cables remains positive beyond 300 MHz. DataMax 5e exhibits positive ACR (not shown) beyond 200 MHz.

Detailed specification information and actual performance data for all of the above DataMax cable families is available in Quabbin's product catalog, published specifications, and in Quabbin web site (www.quabbin.com). You may also contact your local Quabbin representative or Quabbin's headquarters sales office at the location listed on the back cover.



DataMax 6 Certified Assemblers

Quabbin Wire's certified patch cord assembler program combines superior UTP patch cable design, proven assembly techniques, trained assemblers and a proprietary cord return loss test. The result is a patch cord that exceeds industry Category 5e requirements and is guaranteed to improve legacy network test performance. Visit www.datamax6.com for more information.

Other Products from Quabbin

Quabbin Wire produces many other products in addition to the stranded patch cables outlined in this booklet. These include PVC multiconductor and multipair shielded and unshielded cables for low-voltage, instrumentation, control, and signaling applications. Quabbin also manufactures special designs and cabling for T-1 (DS-1), T-3, E-1, and xDSL applications.

Technical Leadership

Quabbin is an active corporate member in both BICSI and the TIA.Quabbin's research and modeling data has been presented to the industry through presentations and contributions, thus influencing industry standards. As an example, Quabbin Wire is acknowledged to have led the industry in the study of LAN channel return loss and return loss effects.

More Information

If you would like a full line catalog, additional information on Quabbin's products, or technical white papers; contact your local Quabbin representative, Quabbin's sales department, or visit the Technical Briefs section at Quabbin's web site.

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