

Fun CableMania **Facts**



CABLE *Mania*

We know that it's impossible to imagine the future and it always happens - today's seemingly fanatical concepts become tomorrow's everyday technology. Hey, who would have thought we'd be cooking foods with microwaves? At HCM, we have what it takes to deliver tomorrow's technology. Let's compare our progress against the predictions of the industry experts.

- 1** "Well-informed people know it is impossible to transmit the voice over wires and that were it possible to do so, the thing would be of no practical value." - Boston Post, **1865**. → HCM draws over 5 million pounds (2500 tons) of bare copper into telecommunications cables every year. This is the equivalent weight of 1,000 full-size Ford pickup trucks, the landing weight of 20 space shuttles, or 800 million pennies!
- 2** In **1943**, IBM chairman Thomas Watson predicted, "I think there is a world market for maybe five computers." → Since January **2000**, HCM's 30 AWG ribbon cables have powered over 25 million personal computers.
- 3** By the turn of the century, inventors realized that bent quartz rods could carry light, and patented them as dental illuminators. By the **1940s**, many doctors used illuminated Plexiglas tongue depressors. By **1960**, glass-clad fibers had attenuation of about one decibel per meter, fine for medical imaging, but much too high to ever be used for communications. → HCM processed 40,000 km of optical fiber cable for high-speed telecommunications applications in **2001**. That's the equivalent of 24 million tongue depressors (or 2 million doctors!) stacked end-to-end around the Earth's equator.

“Since 1986, our efforts have been focused on designing and manufacturing the best performing telecommunications and electronics cables in the industry.”



GoldLan™ Cables
Support the World's
Stock Trading Centers

HITACHI
Cable Manchester
we're obsessed with making great cable

Strange but True

Do you eat, breathe, and sleep cable?
If you're as obsessed as we are, you're bound to come across some pretty interesting cabling situations, like the one pictured here. Share your "strange but true" pictures with us, and we'll send you a FREE "CableManiac" t-shirt. Send your pictures to CableMania, 900 Holt Avenue, Manchester, NH 03109



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900 Holt Ave.
Manchester, NH
03109 USA

Welcome to CableMania CableMania™

Welcome to the first issue of Hitachi Cable Manchester, Inc.'s CableMania™ magazine!

Since 1986, our efforts have been focused on designing and manufacturing the best performing telecommunications and electronics cables in the industry. Over this last decade and a half, we have built a strong and loyal customer base. We have delivered proven performance time and time again and have gained market-share through word of mouth endorsements. In fact, so many of our new customers learn about us through a previous installation success story, that we often hear that we are the industry's best-kept cable secret!

In retrospect, we realize that being the industry's "best-kept secret" isn't the optimum way to reach telecommunications professionals looking to make educated cabling decisions. How can we help the industry learn more about who we are? Some cable manufacturers waste valuable time trying to out-specify each other with unsubstantiated claims of widest bandwidth, best performance, highest throughput, and future-proof networks (whatever that means!). We aren't interested in a marketing-hype mud-slinging contest; our obsession is making great cable.

So we asked ourselves - what better way to share this obsession, than by creating a publication featuring stories, facts, and features about what we do best? The decision to bring CableMania to life was quick and easy. The challenge was how to manage the flood of incoming material from the various staff members and departments who wanted to contribute to the first issue!

In light of the interest and excitement generated by the CableMania project, our Editor has planned for each issue of the magazine to be sponsored by one of our service departments. Since the Sales team is your first point of contact with HCM, we jumped at the opportunity to reach back to you through sponsorship of the premier issue of CableMania. We take our mission to provide fast and accurate information very seriously. And, we like to have fun while we're at it! We've even been told that our attitude carries through in this fact-filled issue of CableMania.

Sit down, relax, grab a cup of java, and enter our world for a little while. We'll tell you all about our obsession with making great cable!

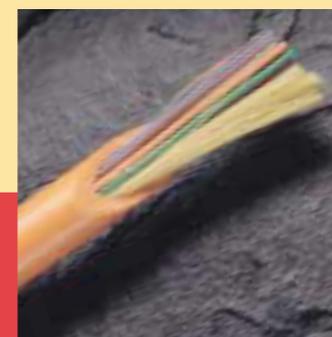
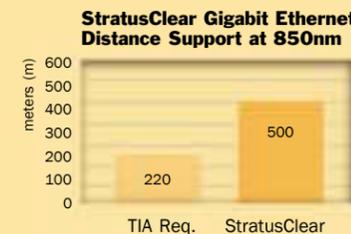
Sincerely,

The HCM Sales Team

PS. Drop a line to our Editor at: CableMania@hcm.hitachi.com with any thoughts that you'd like to share.



New Product Issue 1 Releases



StratusClear™ Multimode Fiber Supports Extended Gigabit Ethernet Distances

Hitachi Cable Manchester, Inc.'s new StratusClear 62.5/125 μ m multimode fiber cables bring extended distance support to IEEE 802.3z Gigabit Ethernet applications. In fact, StratusClear fiber cables are guaranteed to support Gigabit Ethernet systems over distances of up to 500 meters at 850 nm and 1,000 meters at 1300 nm - exceeding the standard by as much as 125%! StratusClear fiber can also significantly extend the transmission operation distances (up to 2,000 meters) for less demanding protocols such as Fast Ethernet, FDDI, and 155 Mbps FDDI.

StratusClear fiber is available for indoor, indoor/outdoor, and outside plant use in a variety of interconnect, SingleUnit and MultiUnit distribution, and central tube cable designs. All HCM outside plant fiber optic cable designs are available with corrugated steel armoring upon request.

Hitachi Cable Manchester Products are made with pride in the USA

HCM Joins with Superior Modular Products, Inc to Provide a Premium End-to-End Cabling Solution

Lantegra™ solutions are constructed from premium SMP connecting hardware and high performance HCM cable. In an improvement over other system offerings, Lantegra solutions not only deliver guaranteed performance headroom on a system level, but also provide best-in-class component level margins. Cabling systems offered support a wide range of TIA and ISO recognized cabling applications and configurations including:

- Lantegra 6+** Provides performance headroom to the proposed '568-B.2.1 category 6 standard
- Lantegra 6** Compliant to the proposed '568-B.2.1 category 6 standard
- Lantegra 5e+** Provides performance headroom to the '568-B.1 category 5e standard
- Lantegra 5e** Compliant to the '568-B.1 category 5e standard
- Lantegra 3** Provides voice grade and low-speed data applications support
- Lantegra FTTD** A horizontal, fiber-to-the-desk cabling solution featuring MT-RJ connectors used in conjunction with 50/125 mm or 62.5/125 mm multimode fiber optic cables
- Lantegra Zone 5e** The industry's first structured cabling solution specified to minimize alien crosstalk in a multipair environment

Our cabling systems are characterized by guaranteed worst-case (not typical, or average) performance, which has been independently verified by Underwriters Laboratories Inc. A comprehensive product and applications warrantee backs all Lantegra solutions for a period of 25 years.

For more information, visit the Lantegra website at www.lantegra.com.



GoldLan™

cablemania

Cables Support

the World's Stock Trading Centers

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H I T A C H I C A B L E M A N C H E S T E R

“We are pleased to report that every GoldLan cable in every financial institution throughout the world has delivered uninterrupted service to traders’ desks since 1996.”

Stock trading firms throughout the world’s financial districts rely heavily on the performance and reliability of their computer networks. Even a few seconds of downtime can result in the loss of hundreds of thousands of dollars. A network crash can be financially devastating.

At Hitachi Cable Manchester, Inc., we’ve found that our financial customers consistently emphasize the importance of the same set of cable features and performance parameters. Brian Griggs, HCM’s Senior Vice President, explains. “Our financial customers stress the importance of network reliability, the need to support Gigabit Ethernet and the ability to easily manage the number of voice, data, and redundant network connections provided at each trader’s desk. Of course, additionally providing manufacturing lot traceability and minimizing installation cost is of concern to all of our customers. Using 4-pair cables to satisfy this unique set of parameters wasn’t the optimum solution. So, we embarked on the development of our GoldLan family of hybrid cables.”

A hybrid cable is an assembly of multiple 4-pair cables covered by one overall thermoplastic jacket (note that “skip-wrapped” or “speed-wrapped” products are not examples of hybrid cables). Since most financial districts are located in regions governed by Union labor guidelines where the number of cables pulled determines the installation cost, the use of GoldLan cables results in immediate installation cost reductions. For example, a hybrid cable containing six 4-pair cables (a “6x4 construction”) reduces the effective number of cables pulled by a factor of 6; yielding an installation cost reduction of over 80%!

A second immediate advantage of using GoldLan hybrid cables is the easy accommodation of redundant network configurations. Brian Griggs elaborates on the importance of this feature. “One of our largest financial customers provides a complete set of redundant voice and data services to each trader’s desk to guard against network failure. By color-coding each individual 4-pair cable jacket within the GoldLan construction, we’ve identified the information type and network connection of that particular cable. By adding a colored longitudinal stripe to the outer jacket of the GoldLan assembly, we’ve easily identified the redundant network connections for our customer.”

From an electrical and transmission performance perspective, HCM was the first cable manufacturer to attempt the design of a category 5e hybrid cable. Although the TIA standards recognized the parameters, designing a cable that did not suffer excessive signal interference from neighboring pairs within the hybrid assembly (i.e. “alien crosstalk”) proved to be a significant engineering challenge. Dave Camp, HCM’s Quality Manager, explained. “Many manufacturers

have developed ‘so-called’ hybrid cables that claim to deliver category 5e performance in an installed channel, but these cables provide no alien crosstalk performance assurance on a component level. This is not an acceptable design per TIA requirements and could result in throughput problems in the end-user’s network, particularly in applications such as Gigabit Ethernet where all 4-pairs are actively transmitting and receiving data at the same time. To comply with the TIA standards, our GoldLan cables are qualified for crosstalk performance in the following areas:

1. NEXT loss and ELFEXT is measured between all pairs within each 4-pair cable,
2. Power sum NEXT loss and power sum ELFEXT is calculated for all pairs within each 4-pair cable, and
3. Power sum NEXT loss is calculated between each individual pair and all other pairs external to that pair’s jacket.

The third power sum NEXT loss test that we conduct is the most difficult, but it is critical in ensuring that alien crosstalk levels within the GoldLan construction are qualified to be well within TIA hybrid specifications. These tests are performed by a state-of-the-art automated 25-pair test system, which is capable of testing NEXT loss and ELFEXT for all possible pair combinations up to 350MHz.

Because the operation of their networks is so critical, HCM’s financial customers often require stringent manufacturing lot control and product identification to support their detailed network documentation. Dave Camp reports that, “Some customers require transmission reports for lot sample sizes as small as 6,000 feet. We understand the critical nature of network management and, because our quality inspection records are linked to the sequential footage markings that we provide on our cables, reacting to a request for additional performance validation is very simple for us to do.”

Since GoldLan hybrid cables so easily satisfy the financial industry’s special needs for reliability and redundant systems support, these cables can be found providing network connections to both national and international banking and trading providers. Brian Griggs confirms the success of the GoldLan design. “We are pleased to report that every GoldLan cable in every financial institution throughout the world has delivered uninterrupted service to traders’ desks since 1996. Our engineering efforts don’t stop here, of course. HCM hopes to announce the release of our category 6 series of GoldLan cables very soon.”

Issue 1

Examples of Hybrid Cable Constructions:

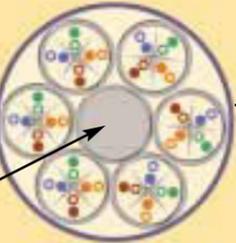
2 x 4 Hybrid Cable
(Star Separator for improved Crosstalk)



3 x 4 Hybrid Cable

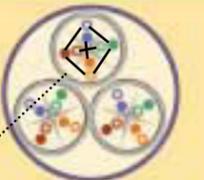


6 x 4 Hybrid Cable
(Tube Filler to maintain Cable Shape)

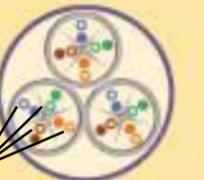


Three TIA Category 5e Hybrid Cable Crosstalk Requirements:

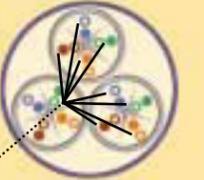
1. Pair-to-pair Crosstalk within each 4-pair Group
(6 tests per 4-pair group)



2. Power Sum Crosstalk within each 4-pair Group
(4 calculations per 4-pair group)



3. Power Sum Crosstalk between each Pair and all other Groups
(Number of measurements for one hybrid power sum calculation)



H I T A C H I C A B L E M A N C H E S T E R

Site Story

CableMania



The Elmwood Park Public Library Project: First Lantegra™ Installation in the Chicago Area

John Ferrentino, President of the Elmwood Park Public Library Board, takes his obligation to provide books and technology to his patrons very seriously. After outgrowing the existing library in a short 25 years, John told us, "Our objective was to develop a state-of-the-art library and computer network to bring a wide range of information services to the residents of our Chicago suburb. Our new facility is more than twice the size of the original library and features unprecedented workstation technology. We provide two computer laboratories, including one specifically designed for children, to facilitate both internal and Internet research. All of the computers in the facility feature T1 lines with high-speed Internet access, so specifying a robust cabling system to meet our data demands was an important consideration for us."

It was decided in the initial phases of the library design that category 6 cabling would be used for all data lines and category 5e cabling would be used for all voice lines. Ken Sorensen, President of EEC Wire & Cable, assisted the Library Board in selecting the cabling system to be installed. "Because I've had over a decade's worth of experience using HCM's data cables, as well as Superior Modular Product's connecting hardware and rack lines, I was pretty excited that both companies came together to form the Lantegra solution," says Ken. "The Lantegra performance parameters were clearly specified

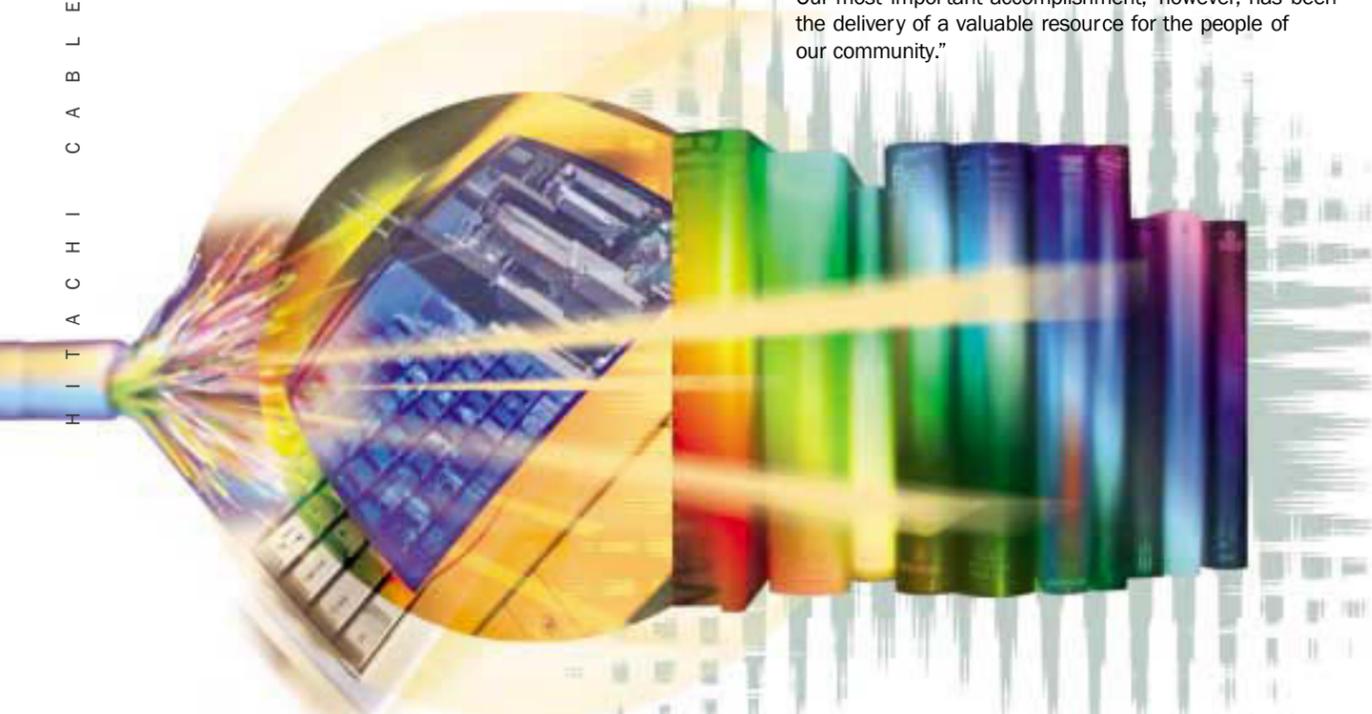
and easy to understand. I decided to present the Lantegra solution to the Library Board because it was the solution that provided the most performance headroom at no additional cost."

Cabling the library was anticipated to be fast-paced from the start of the project. Corporate Communications, a cabling group headed by Greg Arends, installed the Lantegra solution and had to address demanding turnaround times in order to keep the library construction progress on schedule. Greg reported that overnight cable deliveries were required to adhere to the tight timeline. "At one point, we had to call the HCM Inside Sales Staff with an urgent request for product delivery. The cable that we had specified required a manufacturing lead-time, so HCM offered to upgrade our cable free-of-charge. Our cable shipped that day and our installers were pulling it into the library walls within 24 hours."

Today, the library has officially opened as the "Elmwood Park Public Library/Peter N. Silvestri Cultural and Learning Center." The facility has been recognized and supported by the Jesse White, the Secretary of the State of Illinois and State Librarian, for its forward-thinking approach to library technology. In fact, the Elmwood Park Public Library technology model was so successful that workstations within the patron computer laboratory are currently being utilized as training resources to support the technological advancement of other libraries throughout Illinois. John Ferrentino says it best: "Clearly this project has been a success because the Elmwood Park Public Library is now a model state-of-the-art research facility. Our most important accomplishment, however, has been the delivery of a valuable resource for the people of our community."

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HITACHI CABLE MANCHESTER



Cable

Rave™

If you have a Cable Rave™ that you would like to have featured in CableMania,™ please forward it to the Editor at CableMania@hcm.hitachi.com. If we print your rave, we'll send you a CableManiac t-shirt.

Bob Debinski raves,

"I must say out of all the cables we have tried down through the years the PRIMARY reason we like Hitachi Cable Manchester, Inc.'s cable is quite simple. It's the way it pulls out of the box and the way the footage is numbered. That's it!!!!"

You could never know just how frustrating it is to set up 25 - 30 boxes to make multiple runs with one pull and to have the wire get hung up in the boxes. My guys would go off cussing and cursing... Boxes would be falling all over the place... (Of course standing in the background watching was kind of funny.) But yes, the Hitachi just pulls so nice... so smooth... no hang-ups... no kinks... it's easy on the nerves."

Hitachi Cable Manchester, Reelex® Cable Packaging Features

HCM Category 3, Category 5e, Hi-Net 350™ and Hi-Net Plus™ 4-pair UTP cables are available in user and environmentally friendly Reelex boxes. Standard cable length is 1,000 feet (305 m).

HCM Reelex boxes utilize an oversized payout tube, a feature developed by HCM and Windings, Inc., which facilitates easy-pull and kink-free cable dispensing while maintaining optimum electrical performance. The result is a superior performing installation with less hassle for the installer.

All cables in Reelex packaging feature reverse sequential footage markings so the installer knows exactly how much cable remains in the box.

HCM's rugged Reelex packaging holds up under field abuse. Partially used packages do not unravel.

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HITACHI CABLE MANCHESTER