HUBBELL

HUBBELL NextSpeed Shielded 10GbE System

10GbE Application Assurance.

3rd Party Tested Category 6A Channel Compliant.

Maximum Bandwidth Beyond 500MHz.

SolarFlare Verified for Active 10GbE Ethernet Transmission.

PoE and PoE+ Ready.

FEATURES

- *Full 100 meter Category 6A 10GbE channel performance.*
- *10GbE Application Assurance.*
- *Third party tested Category 6A Channel Compliant.*
- *Maximum bandwidth beyond 500MHz.*
- *AXT component compliant.*
- *PoE and PoE+ ready.*

The **NEXTSPEED**® Shielded 10GbE system is a tuned system of structured cabling components designed and center balanced to work together delivering true standards compliant 10 Gigabit Ethernet/Category 6A channel transmission for the full 100 meters. **NEXTSPEED**® Shielded 10GbE system provides headroom beyond 500MHz, and adds protection against Alien Crosstalk (AXT) and Electromagnetic Interference (EMI).

NEXTSPEED® 10GbE FTP cable is round with a .290 nominal O.D. These features allow increased pathways inside standard conduit, raceways and cable organizers. The round construction and smaller O.D. provides an advantage over Category 6A UTP when retrofitting or pulling new runs.

NEXTSPEED® 10GbE FTP System has been third party verified for Category 6A channel requirements and extensively tested to support existing PoE applications, and exceeds proposed PoE+ power levels.

STANDARDS/VERIFICATIONS

- *TIA/EIA-568-B.2.*
- *TIA/EIA-568-B.2-10 Draft Category 6A.*
- *IEEE 802.3af DTE Power over MDI verified.*
- *IEEE 802.3an 10GBASE-T Ethernet.*
- *UL Listed ISO/IEC 11801 (2nd edition) and EN50173.*
- *IEC 60603-7-5 specifications for Category 6 and Category 5e screened connecting hardware.*
- *SolarFlare.*

APPLICATIONS SUPPORTED

- *10 Gigabit Ethernet.*
- *Data centers.*
- *Storage Area Networks (SAN)*
- *Bandwidth intensive processing (i.e.medical imaging).*

What is EMI?

Electromagnetic Interference (EMI) or Radio Frequency Interference (RFI) is unwanted signal (interference/noise) which is transmitted or emitted from an electrical device or transmission medium. This energy can be disruptive to another device if it couples into another device or transmission channel. The coupling can be radiated, conducted or both. EMI interrupts, limits, obstructs, or degrades the transmission performance. There are two different forms of EMI, intentionally induced, or unintentionally, as a result of spurious emissions.

Shielding is the most common and effective means of reducing EMI by creating a conductive barrier between the emitting and receiving devices or channels. Shielding is typically applied to cables, isolating the internal wires from the environment around the cable, or is applied to enclosures separating electrical content from the outside environment. The amount of reduction depends upon the material used, the method of connection of the shield (or screen) and the frequency. Typical materials include sheet metal, metal mesh and aluminum foil.

Shielded cable is protected by a wire mesh or foil surrounding an inner core. When properly grounded and bonded, the shielding impedes the escape of any signal from the core conductors, and prevents external signals from being introduced to the core.

ElectroMagnetic Interference (EMI):

Any conducted, radiated, or induced voltage, which degrades, obstructs, or repeatedly interrupts the desired performance of electronic equipment.

The Impact of Alien Crosstalk

The IEEE, TIA and other standards groups determined the most important electrical parameter limiting the 10GbE performance of copper cabling systems is Alien Crosstalk. Alien Crosstalk (AXT) is noise from one channel coupling with adjacent channels. AXT occurs throughout the channel: cable, patch cords, neighboring jacks and between patch panel ports.

ENTERTAINMENT

Unlike NEXT, AXT appears random in nature making it difficult to filter out. In order to transmit 10GbE, AXT needs to be suppressed. There are alternate ways to do this over copper, that include a UTP Category 6A/10GbE third party verified system such as Hubbell's NEXTSPEED® Ascent 10GbE system, or a shielded 10GbE system. Shielded 10GbE systems virtually eliminate external signals (AXT) from being introduced to the physical layer. When properly bonded and grounded a shielded 10GbE system allows 10GbE transmission to run error free.

MANUFACTURING

Hubbell's NEXTSPEED® Shielded 10GbE system components: FTP cable, jacks, patch panels and patch cords are designed to suppress AXT, providing improved bandwidth, data throughput and overall network efficiency.

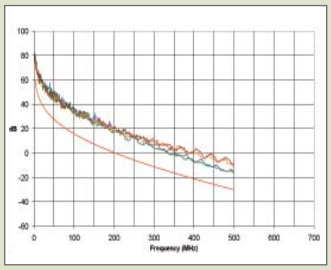
MEDICAL

Hubbell Premise Wiring
14 Lord's Hill Road • Stonington, CT 06378 • Tel: (860) 535-8326 • Fax: (860) 535-8328

NEXTSPEED® Shielded 10GbE System Performance Datasheet

The **NEXTSPEED®** Shielded 10GbE System cabling infrastructure system was tested in configurations from 1m to 100m.

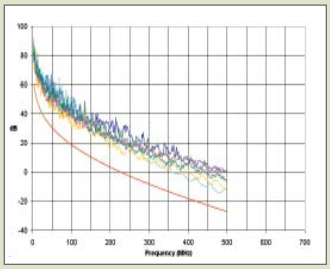
Power-Sum ACR (PSACR)



PSACR - Difference between the attenuation and the Power-Sum NEXT at a given frequency (signal to noise ratio). Available bandwidth is the point where PSACR is equal to zero.

FREQ	WORST CASE	AVERAGE	TIA SPEC
1	79.6	81.1	59.7
100	34.0	36.4	15.9
250	12.0	15.5	-5.8
500	-14.6	-10.8	-30.2

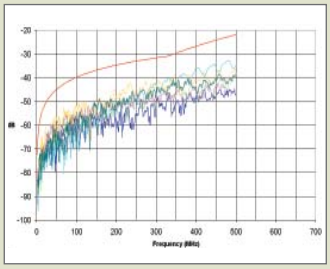
Attenuation to Crosstalk Ratio (ACR)



ACR - Difference expressed in dB between the signal attenuation produced by a cable and the near-end crosstalk (NEXT).

FREQ	WORST CASE	AVERAGE	TIA SPEC
1	82.4	86.9	60.0
100	37.2	45.9	18.7
250	12.8	23.3	-2.8
500	-13.2	-2.3	-27.1

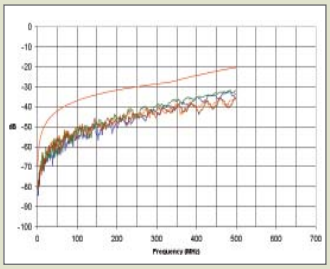
Near-End Crosstalk (NEXT)



NEXT - The noise coupled from one pair onto another pair of the near end.

FREQ	WORST CASE	AVERAGE	TIA SPEC
1	-83.8	-87.9	-72.7
100	-55.8	-60.4	-40.0
250	-44.5	-51.6	-33.1
500	-34.8	-40.6	-22.0

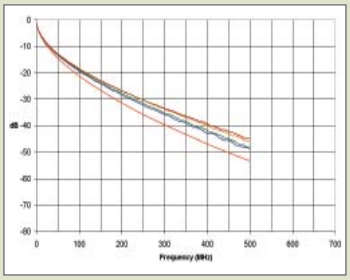
Power-Sum Near-End Crosstalk (PSNEXT)



PSNEXT - A computation of the unwanted signal coupling from multiple transmitters at the near end into a pair measured at the near-end.

FREQ	WORST CASE	AVERAGE	TIA SPEC
1	-80.8	-82.8	-70.3
100	-52.4	-54.9	-37.1
250	-43.4	-46.1	-30.2
500	-32.0	-35.1	-20.4

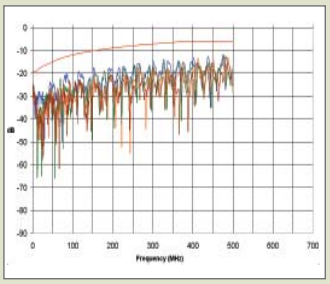
Attenuation



Attenuation - The decrease in magnitude of transmission signal strength between points, expressed in dB as the ratio of output to input signal level.

FREQ	WORST CASE	AVERAGE	TIA SPEC
1	-1.9	-1.4	-2.1
100	-18.8	-18.4	-21.2
250	-31.1	-30.4	-35.9
500	-46.8	-44.9	-53.4

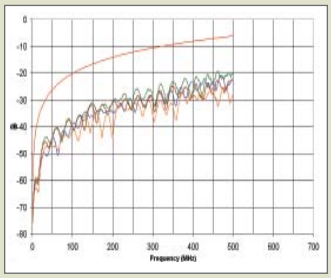
Return Loss



Return Loss - Ratio of the signal reflected back at the transmitter relative to the original signal sent. In a full duplex application, like 1000BASE-T, significant Return Loss can cause network errors.

FREQ	WORST CASE	AVERAGE	TIA SPEC
1	-24.9	-28.6	-19.0
100	-27.3	-33.7	-12.0
250	-19.1	-23.5	-8.0
500	-17.3	-24.0	-6.0

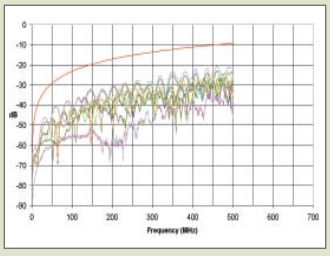
Power-Sum Equal Level Far-End Crosstalk (PSELFEXT)



PSELFEXT - A computation of the unwanted signal coupling from multiple transmissions at the near-end into a pair measured at the far-end and normalized to the received signal level.

FREQ	WORST CASE	AVERAGE	TIA SPEC
1	-74.9	-76.9	-60.3
100	-40.3	-41.9	-20.3
250	-32.3	-33.7	-12.3
500	-23.4	-29.0	-6.3

Equal Level Far-End Crosstalk (ELFEXT)



ELFEXT - A measure of the unwanted signal coupling from a transmitter at the near-end into another pair measured at the far-end and relative to the received signal level.

FREQ	WORST CASE	AVERAGE	TIA SPEC
1	-80.3	-90.8	-63.3
100	-45.7	-56.7	-23.3
250	-38.4	-61.1	-15.3
500	-29.7	-48.5	-9.3

Conduit Capacity Requirements at 40% Fill Ratio

	Conduit size				
Cable O.D.	¾"	1"	1¼"	1½"	2"
.21" (C5e)	5	9	14	20	36
.25" (C6 UTP)	4	6	10	14	26
.29" (C6 FTP)	3	5	7	11	19
.35" (C6A)	2	3	5	7	13

NEXTSPEED® Shielded Jacks, Category 6/10GbE

Hubbell's **NEXTSPEED®** SJ6 jack is designed to deliver reliability and consistency with its inversely oriented right-angled IDC contacts. This IDC formation allows each pair to be segregated suppressing pair-to-pair NEXT. The **NEXTSPEED®** SJ6's unique tool-less termination cap allows the cable to be laced in without disruption of the pairs, maintaining the twist integrity of the cable. Die cast metal construction provides the durability and rigidity needed for any shielded installation.

Quantity	B-Wired Catalog No.	A-Wired Catalog No.
2 pack	**SJ62B**	**SJ62A**
24 pack	**SJ624B**	**SJ624A**

NEXTSPEED® Shielded Patch Cords, Category 6/10GbE

The PS6 patch cords are constructed with specially designed patch cable and a cross pair separator delivering one of the industry's highest performing patch cords. The PS6 plug incorporates a two-piece conductor sled design to optimize performance, control NEXT by separating and staggering pairs to provide a consistent contact-to-conductor alignment. Every PS6 patch cord is 100% performance tested, assuring high quality and reliability before it leaves the factory.

Description	Catalog No.
Shielded Patch Cords, Category 6/10GbE, B-Wired	**PS6XXXX**

XX=Length: '**03**'=03, '**05**'=05, '**07**'=07, '**10**'=10, '**15**'=15, '**20**'=20, '**25**'=25.

XX=Color: '**B**'=Blue, '**GY**'=Gray.

NEXTSPEED® Shielded Patch Panels

Hubbell's **NEXTSPEED®** 19" panels are a 1 rack unit 24-port high-density patch panel. These rugged panels are powder coated and constructed with 14 AWG steel providing ultimate rigidity. PSJ24 has a built in shelf providing cable management and strain relief for each individual cable. The PSJ24 has a UL rated grounding strap already installed making it very easy to terminate.

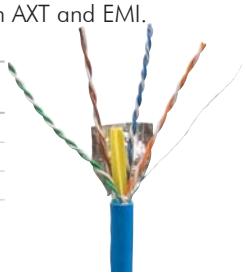
Ports	Height	Rack Units	Catalog No.
24	1.75" (45)	1	**PSJ24**

NEXTSPEED® FTP Cable, Category 6/10GbE

NEXTSPEED® Category 6/10GbE FTP cable is finely tuned to work with Hubbell's SJ6 jacks and PS6 patch cords to deliver maximum Category 6/10GbE channel performance. **NEXTSPEED®** Category 6 FTP cable is constructed with polyester backed aluminum foil shield, which protects the twisted pairs from AXT and EMI.

1000' Length

Color	Plenum Catalog No.	Riser Catalog No.
Blue	**C6FTPSPB**	**C6FTPSRB**
Gray	**C6FTPSPGY**	**C6FTPSRGY**
White	**C6FTPSPW**	**C6FTPSRW**



Hubbell 10GbE Warranty Coverage

Terms	What's Covered (Must be a Hubbell CI)	Support	Application Assurance
25 Years	Cable	Installation Issues	All existing and future applications developed under ANSI (TIA, IEEE, ISO) required to operate over Category 5e/6/6A rated cabling
	Connecting Hardware	Product Replacement (if defective)	
	Labor	Labor	
	Applications	Technical Representative	

Installation must be completed by a Hubbell CI and must consist of complete end-to-end Hubbell Solution including patch cords and the project must comply with all terms of Hubbell MISSION CRITICAL® program.

Application Guarantee

- Guaranteed to meet IEEE 802.3an requirements for 10GBASE-T operation.
- Guaranteed to support any IEEE standardized applications specified to operate over Category 5, 5e, 6 or 6a cabling.

System Performance Guarantee

- Guaranteed all components meet AXT requirements as specified in TIA-568-B.2-10 (proposed draft).
- Guaranteed to meet PSANEXT requirement up to 500MHz.
- Guaranteed to meet AXT requirement in channel configurations from 1 to 100m.
- Guaranteed to support PoE/PoE+ standards.
- Guaranteed backward compatible with 5, 5e, 6.

Hubbell Premise Wiring
HUBBELL INCORPORATED (Delaware)
14 Lord's Hill Road • Stonington, CT 06378-0901 • (860) 535-8326 • 800-626-0005
Fax: (860) 535-8328 • Internet site: **http://www.hubbell-premise.com**

DS-A10 1/08

Worldwide Locations

Hubbell Premise Wiring, Asia Pacific	852-2836-7131	Fax: 852-2836-7132
Hubbell Canada Inc.	905-839-1138	Fax: 905-839-9108
Hubbell Premise Wiring, Central America	506-309-4158	Fax: 506-260-1616
Hubbell Premise Wiring, China	86-21-6374 2660	Fax: 86-21-6374 2799
Hubbell Premise Wiring, Europe	44-01283 500500	Fax: 44-01283 500400
Hubbell Wiring Systems, India	91-80-4022-4089	Fax: 91-80-4022-4033
Hubbell Int'l. Inc., Korea Branch	(82 2) 2607 1363	Fax: (82 2) 2603 7386
Hubbell Premise Wiring, Latin America	305-408-4501	Fax: 305-408-8201
Hubbell de Mexico, S.A. de C.V.	(5255) 9151-9999	Fax: (5255) 9151-9989
Hubbell Premise Wiring, Middle East	971-4-393-4192	Fax: 971-4-393-4194
Hubbell Premise Wiring, Puerto Rico	787-855-1075	Fax: 787-855-3265
Hubbell-Taian Co., Ltd., Taiwan	886-2-2522-1862	Fax: 886-2-2522-1872
Hubbell Premise Wiring, Venezuela	58-212-5156482	Fax: 58-212-6627258