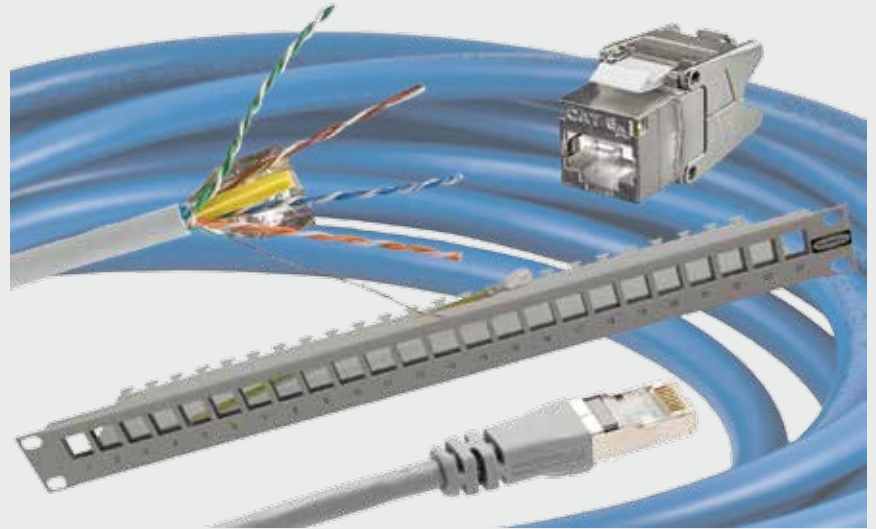


- Third Party Verified Category 6A ISO Component Exceeds TIA and ISO Limits
- Precision and Reliable Tool-less Termination
- Designed for Critical, Bandwidth Intensive 10GBASE-T Applications
- Bulk Packaging Reduces Excess Waste on the Job



Ascent Shielded Category 6A is a tuned system of structured cabling components designed and balanced to work together to deliver headroom beyond 500MHz. Ascent Shielded systems provide the highest level of reliability with additional protection against AXT and other external noise sources.



### Features

- **Jack:** Unique tool-less termination cap allows cable to be laced without disruption of the pairs, maintaining the twist integrity for optimized performance
- **Patch Cord:** 2-piece conductor sled design controls NEXT Cable tuned to deliver maximum Cat 6A and 10GbE performance
- **Patch Panel:** Durable 14 gauge steel construction with an integrated cable management and strain relief shelf
- **Cable:** Constructed with round .290 O.D. allowing for more cable capacity inside conduit, ladder racks, raceway channels and cable management ducts

### Applications

- Bandwidth intensive 10GBASE-T (802.3an)
- Data center
- Government
- Healthcare
- PoE and PoE+

### Specifications

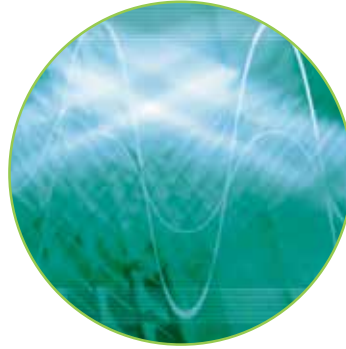
- Supports IEEE 10GBASE-T (802.3an)
- Bit error rate tested ( $\leq 1 \times 10^{-13}$ )
- ANSI/TIA-568-C.2 Category 6A component, link and channel compliant
- Third party tested, Intertek Testing Services (ETL)
- Backward compatible with Gigabit Ethernet, Category 6, 5e
- Provides AXT suppression/security EMI immunity



Hubbell is a Solution Developer Partner within the Cisco Developer Network Program

**What is EMI?**

Electromagnetic Interference (EMI) or Radio Frequency Interference (RFI) is an 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. EMI can come from unintentional radiation due to poor design, due to operation or spurious emissions, or may be purposefully generated with the intent to disrupt.



Shielding is the most common and effective means of reducing EMI by creating a conductive barrier between the environment 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

**Channel Margin Guarantees\***

Parameter	Margin vs. TIA-568-C.2
Insertion Loss	3%
NEXT	3db
PSNEXT	5db
ACR	4db
PSACR	6db
Return Loss	3db
ACRF	6db
PSACRF	7db
PSANEXT	8db
PSAACRF	8db



**Standards**

- TIA-568-C.2 Category 6A component compliant
- ISO 11801 Class E<sub>A</sub> component compliant (Category 6A)
- IEEE 802.3an
- IEEE 802.3at
- UL Listed 1863

**The Impact of Alien Crosstalk**

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



Unlike NEXT, AXT appears random in nature, making it difficult to filter out. In order to transmit 10G, AXT needs to be suppressed. There are two ways to do this. Over copper, use a UTP Category 6A/10G Third Party Verified system or a shielded Cat 6 system. Utilizing a shielded Cat 6 system virtually eliminates external signals (AXT) from being introduced to the physical layer. When properly bonded and grounded, a shielded Cat 6 system allows 10G transmission to run error free.



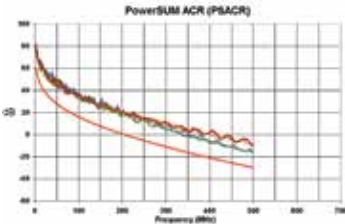
Hubbell's NEXTSPEED® Shielded Category 6A system components—cable, jacks, patch panels and patch cords—are designed to suppress AXT, providing improved bandwidth, data throughput and overall network efficiency.

*\*Channel margin guarantees are based on third party testing, field testing and in-house laboratory testing. Field test results of each channel may vary, depending upon installation, tester accuracy and overall system design. All channel margin guarantees are based on 4-connector channel configurations.*

## NEXTSPEED® Shielded Category 6A System Performance Data

The NEXTSPEED® Shielded Category 6A cabling infrastructure system was tested in configurations from 1 to 100 meters.

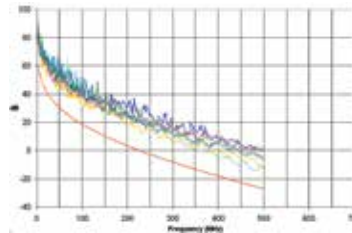
### Power-Sum ACR (PSACR)



**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

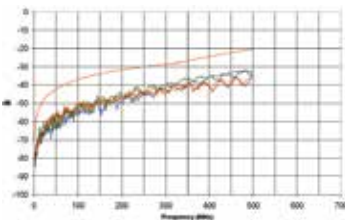
### Attenuation to Crosstalk Ratio (ACR)



**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

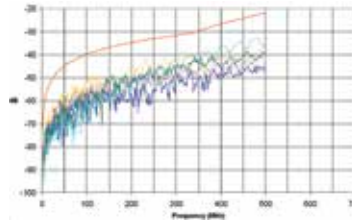
### Power-Sum Near-End Crosstalk (PSNEXT)



**PSNEXT:** 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

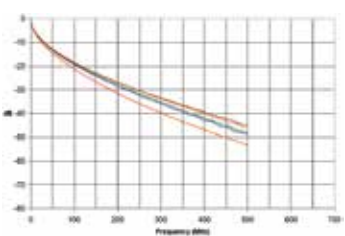
### Near-End Crosstalk (NEXT)



**NEXT:** The noise coupled from one pair onto another pair at 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

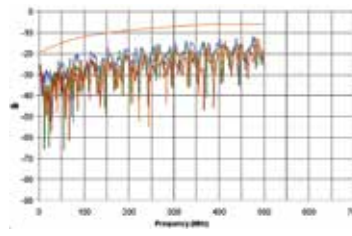
### Attenuation



**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

## Comprehensive Warranty Coverage and Support



Hubbell 10G Systems provide comprehensive coverage for applications and performance headroom, along with training and support services:

- Independent third party (ETL) verified performance
- System must be registered and installed in accordance with Hubbell's Mission Critical® warranty program
- PoE+ application assurance
- Backward compatibility
- Trained, qualified network of design-install partners
- BIM models (available on Autodesk® Seek; visit seek.autodesk.com)

**Jacks, NEXTSPEED® Shielded Category 6A**

State-of-the-art transmission performance, features the highest level of reliability, and is the industry's fastest terminating jack.

Color	Catalog No.
Single pack	<b>SJ6A</b>
24-pack	<b>SJ6A24</b>



**Patch Cords, NEXTSPEED® Shielded Category 6A**



NEXTSPEED® Shielded Category 6A patch cords feature a conductor sled to optimize performance, control NEXT, and separate pairs, providing a consistent contact-to-conductor alignment during termination.

Description	Catalog No.
Shielded Cat 6A patch cord	<b>PC6Ayyxx</b>

**xx** = Color: **BK** (Black), **B** (Blue), **GY** (Gray) and **Y** (Yellow).  
**yy** = Length: **03** = 3', **05** = 5', **07** = 7', **10** = 10', **15** = 15', **20** = 20' and **25** = 25'. Made to order lengths available in 5 foot increments from 30 to 75 feet.

**NEXTSPEED® Ascent Shielded Category 6A  
Trunk Cable Assemblies**

BIDnet Pre-Terminated Copper Trunk Cable Assemblies improve air flow in the data center, decrease installation time and will supply superior performance.

- Simplifies installation time by 75%
- Reduces initial installation cost by 30%
- 100% factory tested and assembled
- Mission Critical 25-Year Warranty



Note: Contact your local distributor or Hubbell's customer service for additional information on BIDnet Pre-Terminated Copper Trunk Assemblies.

Cat 6 UTP



.235 O.D.

Cat 6A FTP



.290 O.D.

Cat 6A UTP



.330 O.D.

**Patch Panels, NEXTSPEED® Shielded, Unloaded**



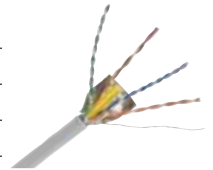
NEXTSPEED® Shielded Category 6A patch panels are powder coated and constructed with 14 AWG steel providing ultimate rigidity. They feature a built in shelf that provides cable management and strain relief for each individual cable.

Ports	Height	Width	Rack Units	Type	Color	Catalog No.
24	1.75"	19"	1	Standard	Silver	<b>PSJ24S</b>
24	1.75"	19"	1	Standard	Black	<b>PSJ24BK</b>
48	3.50"	19"	2	Standard	Black	<b>PSJ48BK</b>
24	1.75"	19"	1	Angled	Black	<b>PSJ24AU</b>
48	3.50"	19"	2	Angled	Black	<b>PSJ48AU</b>

**FTP Cable, NEXTSPEED® Ascent 10 GbE, 4-pair**

NEXTSPEED® Ascent 10GbE 4-pair FTP cable provides usable bandwidth beyond 625 MHz to run all of your bandwidth-intensive applications. Whether it's server-to-server in the data center or delivering IP convergence to the desktop, NEXTSPEED® Ascent 10GbE cable is your perfect solution.

Color	Riser Spool Catalog No.	Plenum Spool Catalog No.
Blue	<b>C6AFTPSPB</b>	<b>C6AFTPSPRB</b>
Gray	<b>C6AFTPSPGY</b>	<b>C6AFTPSPRGY</b>
White	<b>C6AFTPSPW</b>	<b>C6AFTPSPRW</b>
Yellow	<b>C6AFTPSPY</b>	<b>C6AFTPSPRY</b>



All category rated cable is packaged in 1000 foot quantities.

**Conduit Capacity Requirements at 40% Fill Ratio**

Cable O.D.	Conduit Size				
	3/4"	1"	1 1/4"	1 1/2"	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