



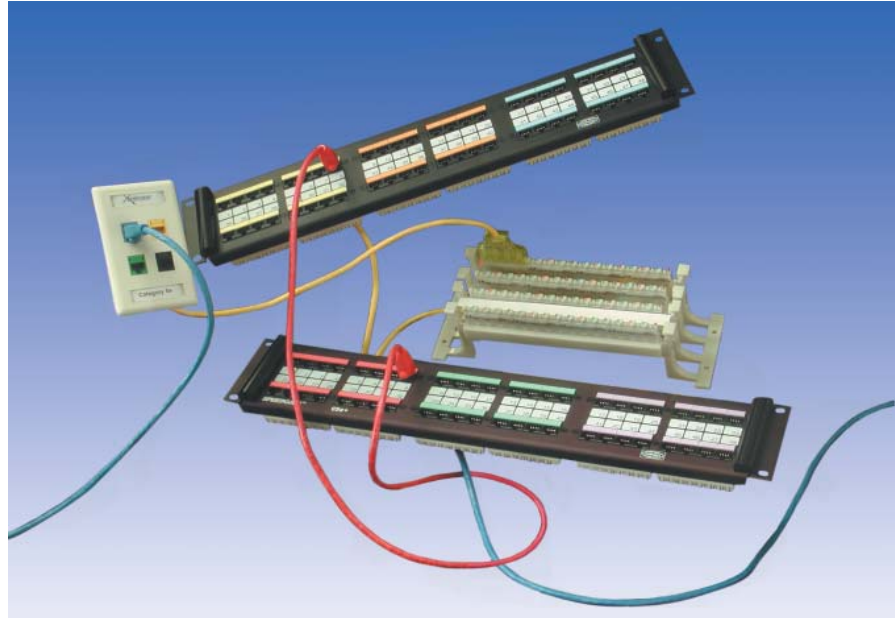
Ultimate Performance.

Optimally Balanced Solution.

PoE Ready.

Guaranteed Application Assurance.

Comprehensive Single Source Warranty Coverage.



Hubbell Premise Wiring's engineering expertise has produced the industry's leading Category 5e cabling system. All system components: jacks, patch panels, blocks, cords and cable are manufactured to exceed industry component requirements as specified in TIA/EIA-568-B.2.

STANDARDS/VERIFICATIONS

- ANSI/TIA/EIA-568-B.2.
- ISO/IEC 11801 (Class D) 2nd Edition.
- Throughput BER Assurance.
- IEEE 802.3af PoE verified.

APPLICATIONS

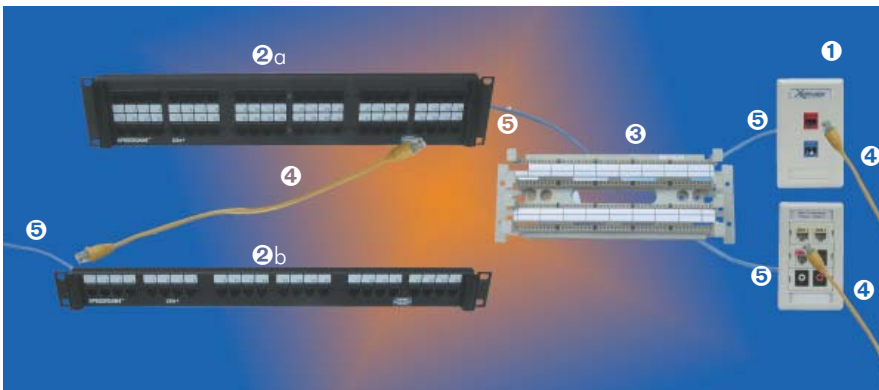
- ▲ Ethernet: 10/100/1000BASE-T.
- ▲ 155 Mbps ATM.
- ▲ 4/16 Mbps Token Ring.
- ▲ Analog and Digital VoIP.
- ▲ 100 Mbps TP-PMD.
- ▲ Broadband A/V.

FEATURES

- Guaranteed installed 4-connector channel PSACR performance 6 dB above the Category 5e channel requirements on all **SPEEDGAIN®** Category 5e registered installations*.
- Channel bandwidth beyond 190 MHz.
- Optimally balanced Category 5e components include:
 - **XCELERATOR™** XJ5E Jacks.
 - **SPEEDGAIN®** Patch Panels, Cat 5e.
 - **SPEEDGAIN®** Patch Cords, Cat 5e.
 - **SPEEDGAIN®** 4-pair, UTP Cable.
 - 110 Cross Connect.
- **SPEEDGAIN®** Category 5e System delivers channel performance that exceeds all ISO/IEC 11801 Class D and ANSI/TIA/EIA-568-B Category 5e performance requirements.
- Independent third-party verification.
- Backed by Hubbell's **MISSION CRITICAL®** Enhanced 25-Year System Warranty.

* Field verification by Hubbell approved handheld testers, attenuation measurements are excluded. All projects must be installed and registered by HPW MCCI (MISSION CRITICAL® Certified Installer). Accuracy level of handheld tester ± 3dB.

Channel Configuration



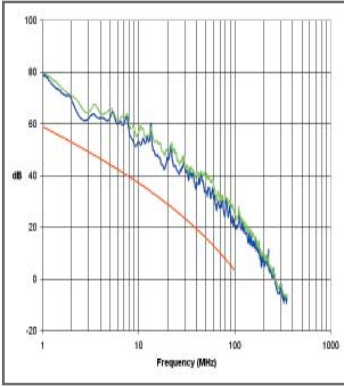
4-Connector Channel: ⑤ ≤ 90 meters; ④ ≤ 10 meters

SYSTEM COMPONENTS
Hubbell's Connectivity

- ① XCELERATOR™ Jacks, Cat 5e
- ②a SPEEDGAIN® Patch Panel, Cat 5e, 48-port
- ②b SPEEDGAIN® Patch Panel, Cat 5e, 24-port
- ③ Consolidation Point, Cat 5e
- ④ SPEEDGAIN® Patch Cords, Cat 5e
- ⑤ SPEEDGAIN® Cable, Cat 5e, 4-pair, UTP



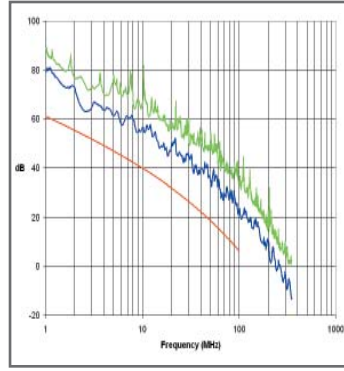
Power-SUM ACR (PSACR)



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
1.0	79.0	79.7	58.9
4.0	62.0	64.0	46.5
8.0	57.2	60.7	39.5
10.0	53.2	56.6	37.1
16.0	47.2	52.4	31.7
20.0	46.9	49.4	28.9
25.0	42.4	46.9	26.1
31.3	41.4	43.3	23
62.5	29.7	33.7	12.2
100.0	21.6	25.0	3.4
200.0	8.0	9.6	-
250.0	0.2	1.6	-

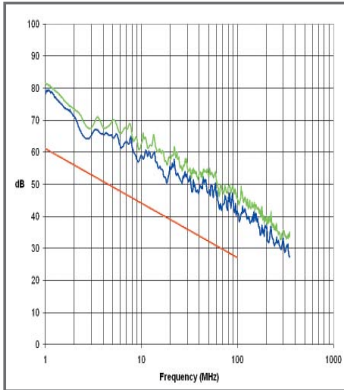
ACR



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

FREQ	WORST CASE	AVERAGE	TIA SPEC
1.0	79.9	89.0	61.1
4.0	63.5	70.1	49.2
8.0	60.1	69.9	42.4
10.0	56.4	66.2	40.0
16.0	48.8	59.6	34.7
20.0	49.9	56.6	31.9
25.0	45.6	56.8	29.1
31.3	43.9	50.4	26.0
62.5	33.2	43.0	15.3
100.0	23.6	33.5	6.4
200.0	10.2	22.7	-
250.0	-1.0	9.0	-

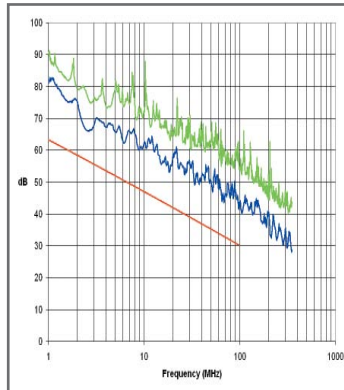
Power-Sum Near End Crosstalk PSNEXT



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
1.0	79.2	81.5	61.1
4.0	65.6	67.7	50.9
8.0	62.4	65.9	45.8
10.0	59.1	62.5	44.1
16.0	54.8	60.0	40.7
20.0	55.5	57.9	39.0
25.0	52.0	56.5	37.4
31.3	50.8	54.1	35.7
62.5	45.4	49.3	30.6
100.0	41.9	45.3	27.1
200.0	36.3	39.6	-
250.0	31.7	35.6	-

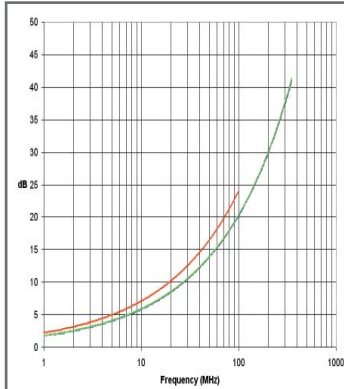
Near End Cross Talk (NEXT)



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

FREQ	WORST CASE	AVERAGE	TIA SPEC
1.0	81.7	81.7	63.3
4.0	67.2	82.0	53.6
8.0	65.3	81.7	48.6
10.0	62.2	82.0	47.0
16.0	56.4	82.2	43.6
20.0	58.5	81.7	42.0
25.0	55.3	80.6	40.4
31.3	54.8	79.4	38.7
62.5	48.9	75.6	33.6
100.0	43.9	73.3	30.1
200.0	40.2	68.5	-
250.0	33.2	62.2	-

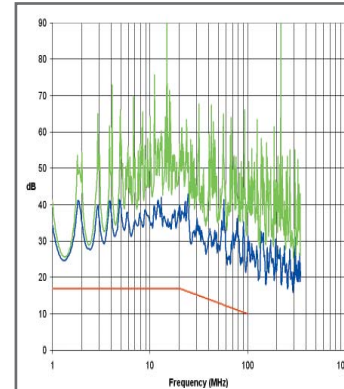
Attenuation



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
1.0	1.8	1.8	2.2
4.0	3.6	3.7	4.4
8.0	5.2	5.2	6.3
10.0	5.8	5.9	7.1
16.0	7.5	7.6	9.0
20.0	8.5	8.5	10.2
25.0	9.5	9.6	11.4
31.3	10.8	10.9	12.8
62.5	15.6	15.7	18.5
100.0	20.2	20.3	23.9
200.0	29.7	30.0	-
250.0	33.9	34.1	-

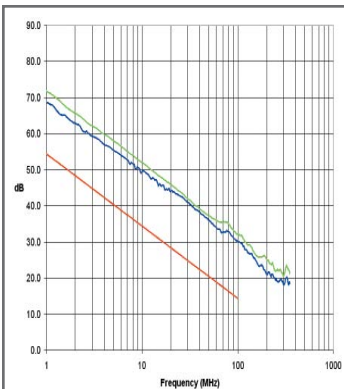
Return Loss



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
1.0	34.4	41.2	17.0
4.0	38.5	48.2	17.0
8.0	36.9	49.5	17.0
10.0	35.3	49.8	17.0
16.0	35.2	49.3	17.0
20.0	39.9	48.1	17.0
25.0	40.0	47.1	16.0
31.3	34.0	55.2	15.1
62.5	24.0	39.5	12.1
100.0	26.3	39.0	10.0
200.0	22.1	45.3	-
250.0	23.6	34.4	-

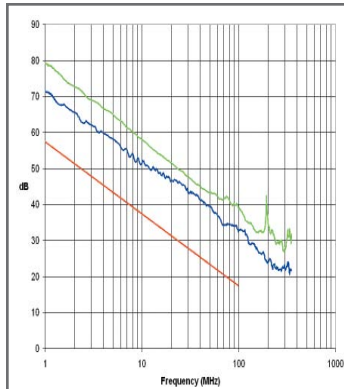
Power-SUM Equal Level Far End Crosstalk (PSELFEXT)



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
1.0	68.8	71.7	54.4
4.0	57.1	59.8	42.4
8.0	51.8	54.1	36.4
10.0	49.3	52.0	34.4
16.0	45.4	47.8	30.4
20.0	43.9	45.9	28.4
25.0	42.8	43.9	26.5
31.3	40.6	41.6	24.5
62.5	33.6	35.7	18.5
100.0	30.1	32.1	14.5
200.0	21.0	25.4	-
250.0	19.7	22.1	-

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
1.0	71.4	79.3	57.4
4.0	59.9	66.6	45.4
8.0	54.1	60.2	39.4
10.0	51.5	58.1	37.4
16.0	48.0	53.6	33.3
20.0	46.4	51.6	31.4
25.0	46.1	49.4	29.5
31.3	43.2	47.3	27.5
62.5	36.6	41.8	21.5
100.0	32.4	39.0	17.4
200.0	23.5	35.9	-
250.0	22.3	29.3	-





Throughput Assurance

- ◆ Network Support for Existing and Emerging Technology.
- ◆ Clean, Error-Free Data Transmission.
- ◆ Provides Noise Reduction and Immunity.
- ◆ Return on Investment.
- ◆ Total Cost of Ownership.

BER Test Results for Hubbell 4-Connector Channel Active Testing

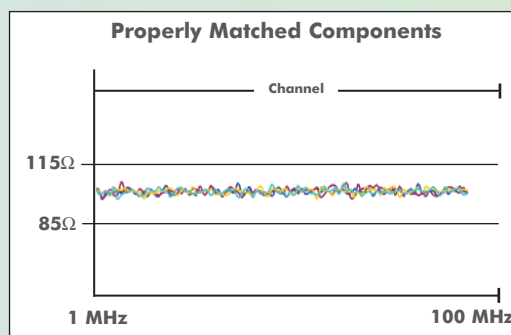
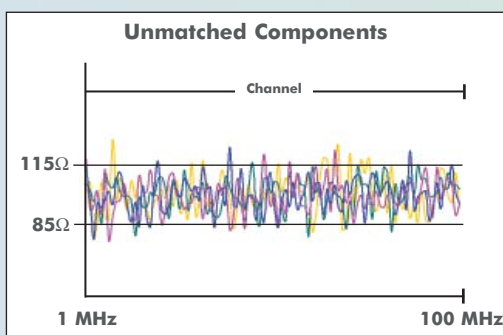
Frame Size	NEAR-END*		FAR-END*	
	64	1518	64	1518
Tx Frames**	10,615,207,854	10,929,180,587	10,615,182,902	10,929,169,928
Rx Frames**	10,615,182,902	10,929,169,928	10,615,207,854	10,929,180,597
Rx Bytes	679,371,705,728	16,590,479,950,704	679,373,302,656	16,590,496,131,066
CRC Errors***	0	0	0	0
Oversize	0	0	0	0
Frag/Undersize	0	0	0	0
BER ($\leq 1 \times 10^{-10}$)	0	0	0	0

* NEAR and FAR-END designations selected arbitrarily to distinguish the two ends of a system.

** Tx: Transmitted, Rx: Received

*** CRC: Cyclic Redundancy Check

The Balanced Solution



The Quality Solution

Many systems today are designed to meet Category 5e standards, remember standards are minimum requirements and ensure only minimal performance. You can't run tomorrow's applications with yesterday's standards. **Look to exceed all minimal requirements.**

Minimum compliant Cat 5e

TODAY



TOMORROW

Far superior

Hubbell Channel Solution

The **SPEEDGAIN®** Category 5e System far exceeds all performance requirements as defined by ANSI/TIA/EIA 568-B.2 (Category 5e).

The Warranty Protection

SPEEDGAIN® Category 5e System provides the industry's most comprehensive 25-year warranty coverage on all applications designed to operate over Category 5e rated cabling systems, including continuous power applications. (IEEE 802.3af - DTE Power)

System Guarantees

Installed 4-connector channel performance 6dB above Category 5e channel requirements on all **SPEEDGAIN®** Category 5e System registered installations*

- ◆ Positive PSACR to 190.MHz.
- ◆ Application Assurance.
- ◆ Performance.
 - Provide $\leq 1 \times 10^{-10}$ BER (small & large packet size) 100/1000BASE-T.



Hubbell Channel Solution Support:

- ◆ 1000BASE-T
- ◆ VoIP
- ◆ Zone Cabling
- ◆ Audio/Video
- ◆ PoE
- ◆ Applications:
 - Wireless Access
 - VoIP
 - Security

* Field verification by HPW approved handheld testers, attenuation measurements are excluded. All registered projects must be installed by HPW MCCI (MISSION CRITICAL® Certified Installer). Accuracy level of handheld tester ± 3 dB.



ORDERING INFORMATION

SPEEDGAIN® Jacks, Category 5e

The XJ5e jack supports 10/100/1000BASE-T applications with usable bandwidth of 190 MHz.

Catalog No. **HXJ5EXX**

XX = Color:

- 'AL'** = Almond
- 'BK'** = Black
- 'B'** = Blue
- 'EI'** = Electric Ivory
- 'GL25'** = Gold*
- 'GY'** = Gray
- 'GN'** = Green
- 'OW'** = Office White
- 'OR'** = Orange
- 'P25'** = Purple*
- 'R'** = Red
- 'TI'** = Telco Ivory
- 'W'** = White
- 'Y'** = Yellow

* 25-packs only.



SPEEDGAIN® Patch Panel, Category 5e

This universal panel is rugged, feature rich and provides performance that exceeds ANSI/TIA/EIA-568-B.2.

Catalog No. **P5EXXU**

XX = Ports

'24' = 24-port, 1.75"H; **'48'** = 48-port, 3.50"H; **'96'** = 96-port, 7"H



SPEEDGAIN® Patch Cords, Category 5e

Designed to guarantee application assurance, the PCX5E Category 5e patch cords are center balanced with SPEEDGAIN® 5e patch panels and jacks to deliver positive PSACR to 190 MHz with enhanced warranty protection.

Color	Catalog No. Black	Catalog No. Blue	Catalog No. Gray	Catalog No. Yellow
	PCX5EBK**	PCX5EB**	PCX5EGY**	PCX5EY**

** = Length: **'01'** = 1'; **'03'** = 3'; **'05'** = 5'; **'07'** = 7'; **'10'** = 10'; **'15'** = 15'; **'20'** = 20'; **'25'** = 25'.



PCX5EB03

110 Block Kit

Category 5e performance in a cost-effective 110 block system.

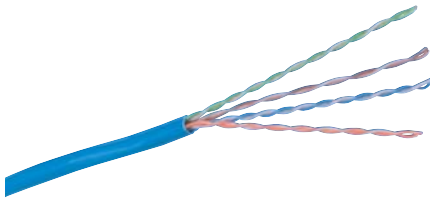


Description	Catalog No.
50-Pair Kit with 4-pair blocks	110BLK50FTK4
100-Pair Kit with 4-pair blocks	110BLK100FTK4
300-Pair Kit with 4-pair blocks	110BLK300FTK4

SPEEDGAIN® Category 5E, 4-pair UTP Cable

Color	Catalog No. Riser		Catalog No. Plenum	
	Spool	REELEX*	Spool	REELEX*
Blue	C5EPSRB	C5EPRRB	C5EPSPB	C5EPRPB
Gray	C5EPSRGY	C5EPRRGY	C5EPSPGY	C5EPRPGY
White	C5EPSRW	C5EPRRW	C5EPSPW	C5EPRPW
Yellow	C5EPSRY	C5EPRRY	C5EPSPY	C5EPRPY

* REELEX is licensed and patented by Windings Inc.



110 Patch Cords

Available with 110 to 110 or 110 to RJ45 connection, these patch cords provide modularity and quick termination to our 110 connecting blocks.



Length	Catalog No.	
	110 to 110	110 to RJ45 T568B
3'	PC110C5EL3	PC119C5EL3
5'	PC110C5EL5	PC119C5EL5
7'	PC110C5EL7	PC119C5EL7
9'	PC110C5EL9	PC119C5EL9
12'	PC110C5EL12	PC119C5EL12



Hubbell Premise Wiring

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 Fax: (860) 535-8328 • Internet site: <http://www.hubbell-premise.com>

Worldwide Locations

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 Hubbell Premise Wiring, Central America
 Hubbell Premise Wiring, China
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 Hubbell Premise Wiring, Europe
 Hubbell Int'l. Inc., Korea Branch

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 905-839-1138 Fax: 905-839-9108
 506-309-4158 Fax: 506-260-1616
 8621-6309-0119 Fax: 8621-6309-0122
 571-245-8940 Fax: 571-340-0925
 44-01283 500500 Fax: 44-01283 500400
 82-2-(0)2607-1363 Fax: 82-2-(0)2603-7386

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 (5255) 9151-9999 Fax: (5255) 9151-9989
 971-4-393-4192 Fax: 971-4-393-4194
 886-2-2522-1862 Fax: 886-2-2522-1872
 90-216-313-5016 Fax: 90-216-414-8148
 58-416-680-7453 Fax: 58-281-274-7900