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WIDEAREA

# ADSL Loop Extender
# IPTV Booster
# Line Power
# Installation Tips

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# Benefits of ADSL Loop Extender

- Demonstrate to PSC 100% availability of broadband.
- Double the customers you can reach.
- Deliver 2-10 times the bandwidth.
- Defer costly remote DSLAM installations.
- Prove broadband demand in marginal markets.
- Avoid customer loss due to broadband service unavailability caused by extra long distance.
- Improve service quality.
- Comprehensive over-voltage protection.
- Easy to install, deploy and maintain.
- Fully compatible with all ADSL/ADSL2+ systems.
- Fully compatible with analog voice.

# ADSL Loop Extender

Original series

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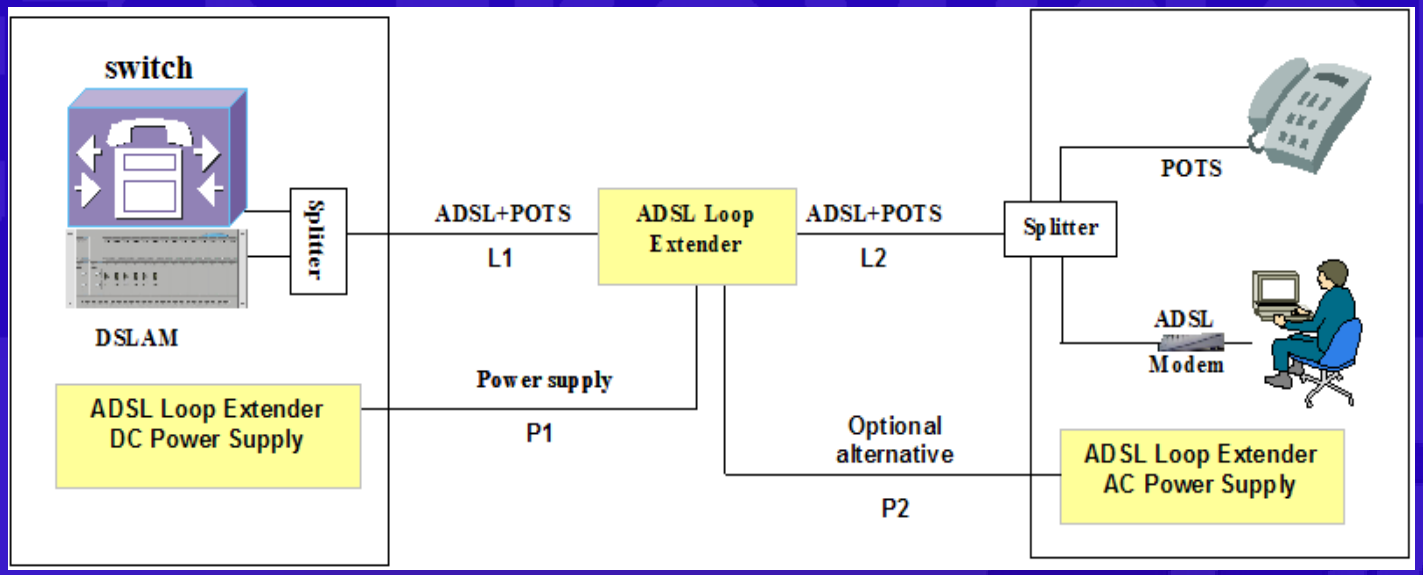
# Application of ADSL Loop Extender

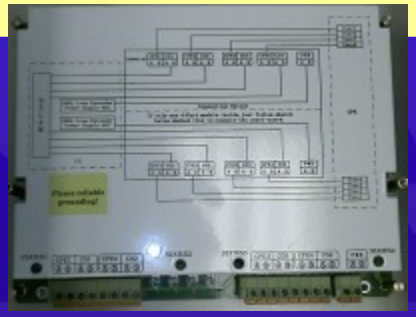



L1: The signal wire pair connecting ADSL Loop Extender to CO equipment.
L2: The signal wire pair connecting ADSL Loop Extender to CPE equipment.
P1: DC power derived from -48v plant in CO.
P2: Optional power derived from AC at customer premise or unmetered drop.

# ADSL Loop Extender

AER800-1P

AER800-2P



AER800-4P

AER800-8P

H Module

AEC-B1P-A110
AEC-B1P-D48
AEC-B1PH-A110
AEC-B1PH-D48

AEC-B4P-D48
AEC-B4PH-D48

AEC-RACK
AEC-C2P-D48

# Power Module Usage

| Product Code | AEC-B1P-DC48 | AEC-B1P-A110 | AEC-B1PH-DC48 | AEC-B1PH-A110 | AEC-B4P-DC48 | AEC-B4PH-DC48 | AEC-C2P |
|---|---|---|---|---|---|---|---|
| AER800-1P | ✓ | ✓ | | | ✓ | | ✓ |
| AER800-2P | ✓ | ✓ | | | ✓ | | ✓ |
| AER800-1PB | | | ✓ | ✓ | | ✓ | ✓ |
| AER800-2PB | | | ✓ | ✓ | | ✓ | ✓ |
| AER800-8PB | | | ✓ | ✓ | | ✓ | ✓ |
| AER800-4P | | | ✓ | ✓ | | ✓ | ✓ |
| AER800-8P | | | ✓ | ✓ | | ✓ | ✓ |

# ADSL Loop Extender

NEW

Version 6.2

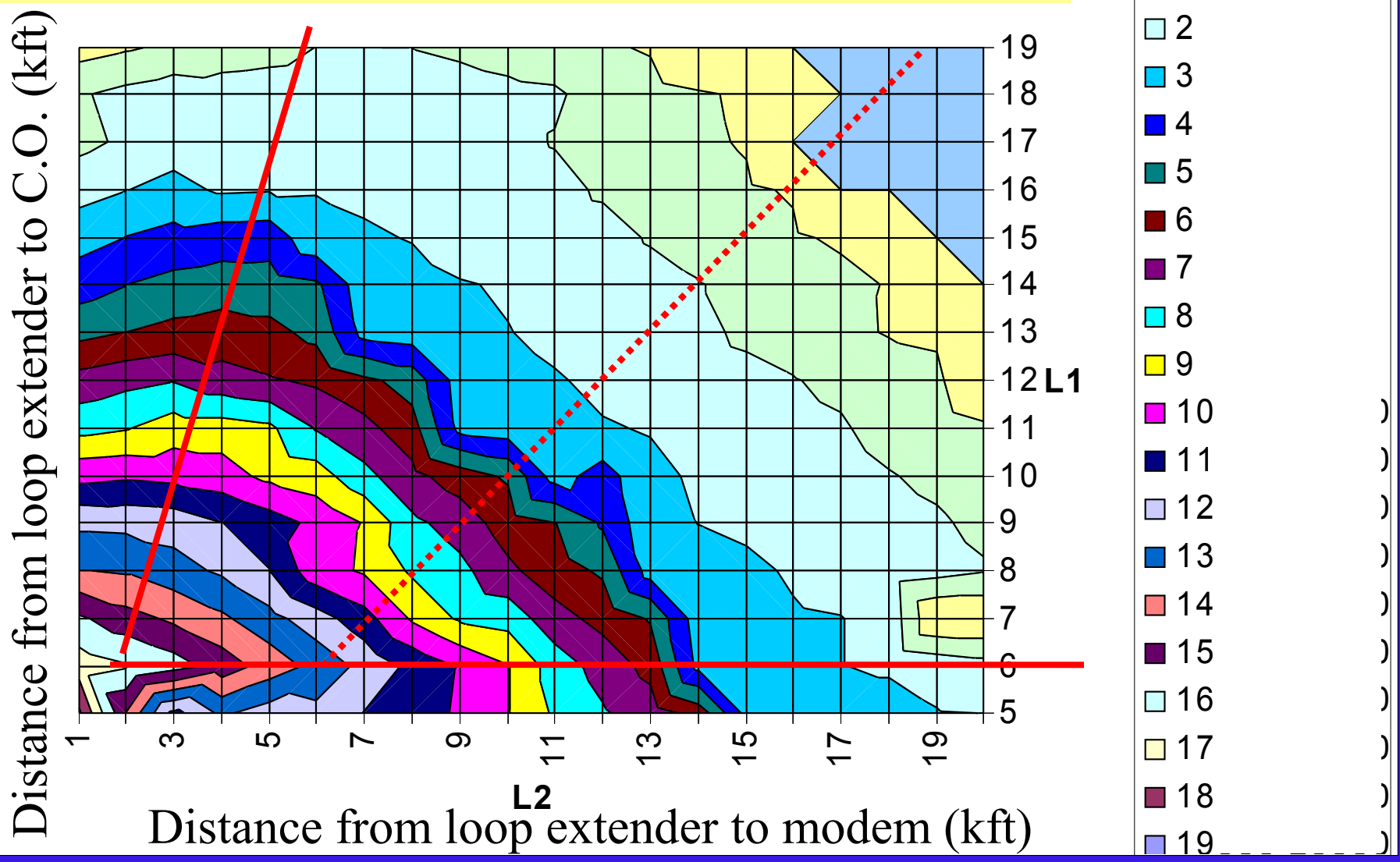
AER800 8P v6.2

AER800-4P v6.2

One Power Pair
For 8 subscribers!

AER800-C1P v6.2

# Loop Extender Performance



# IPTV Booster

## AER800 B-Series

**Problem:**

IPTV needs 15Mbit downstream speed to give 3 standard definition channels, but the ADSL loop extender doesn't improve things enough at these high speeds. So we developed the ipTV booster...

# IPTV Booster

AER800-1PB

AER800-2PB

AER800-8PB

AEC-B1PH-A110

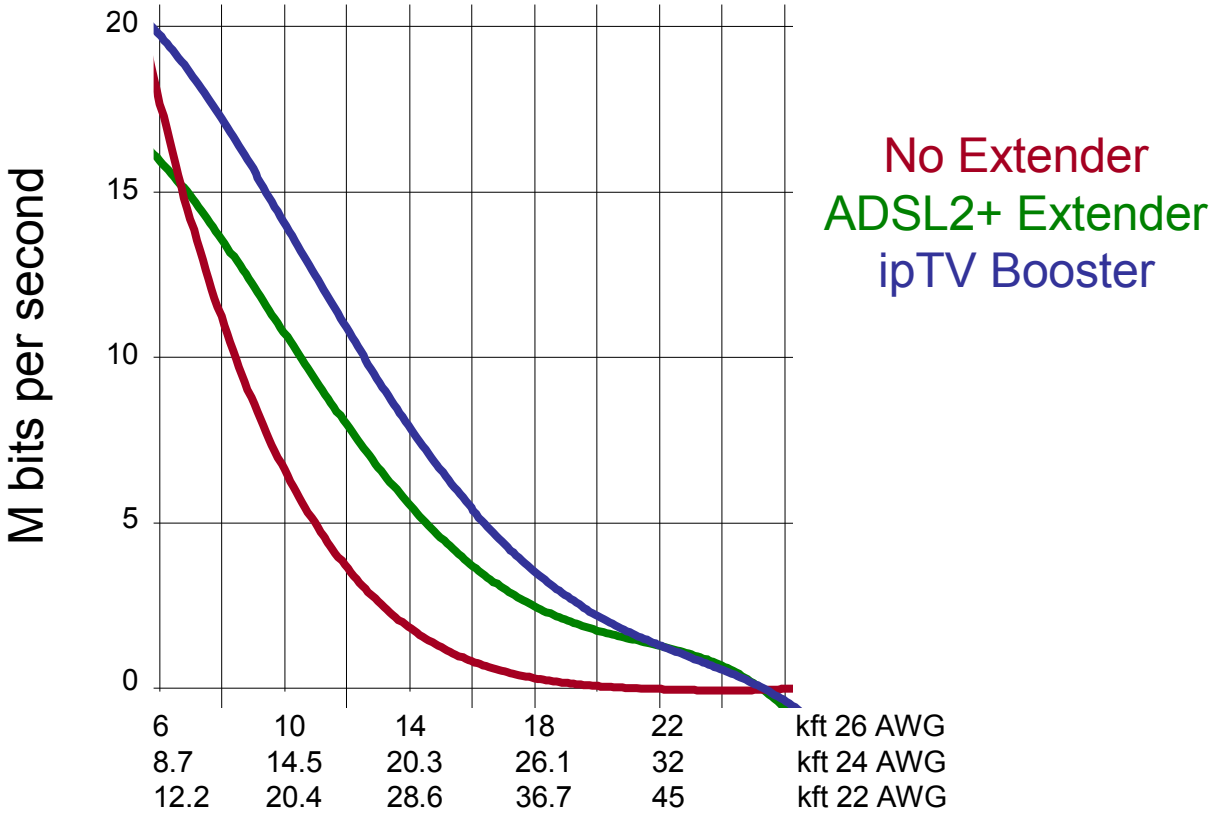
AEC-B1PH-D48

AEC-B4PH-D48

AEC-RACK-D48

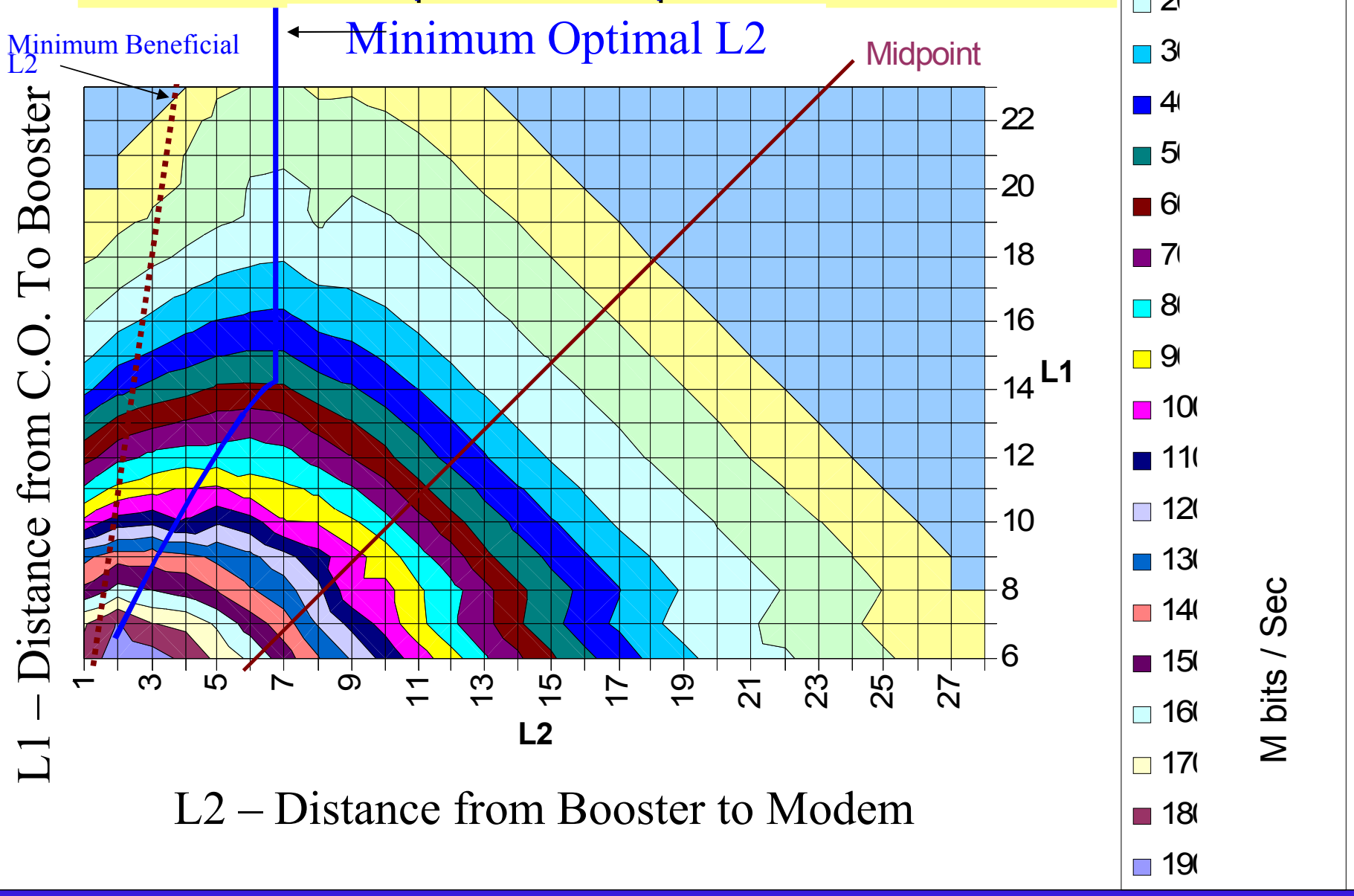
AEC-C2P

# ipTV Booster vs. ADSL Loop Extender



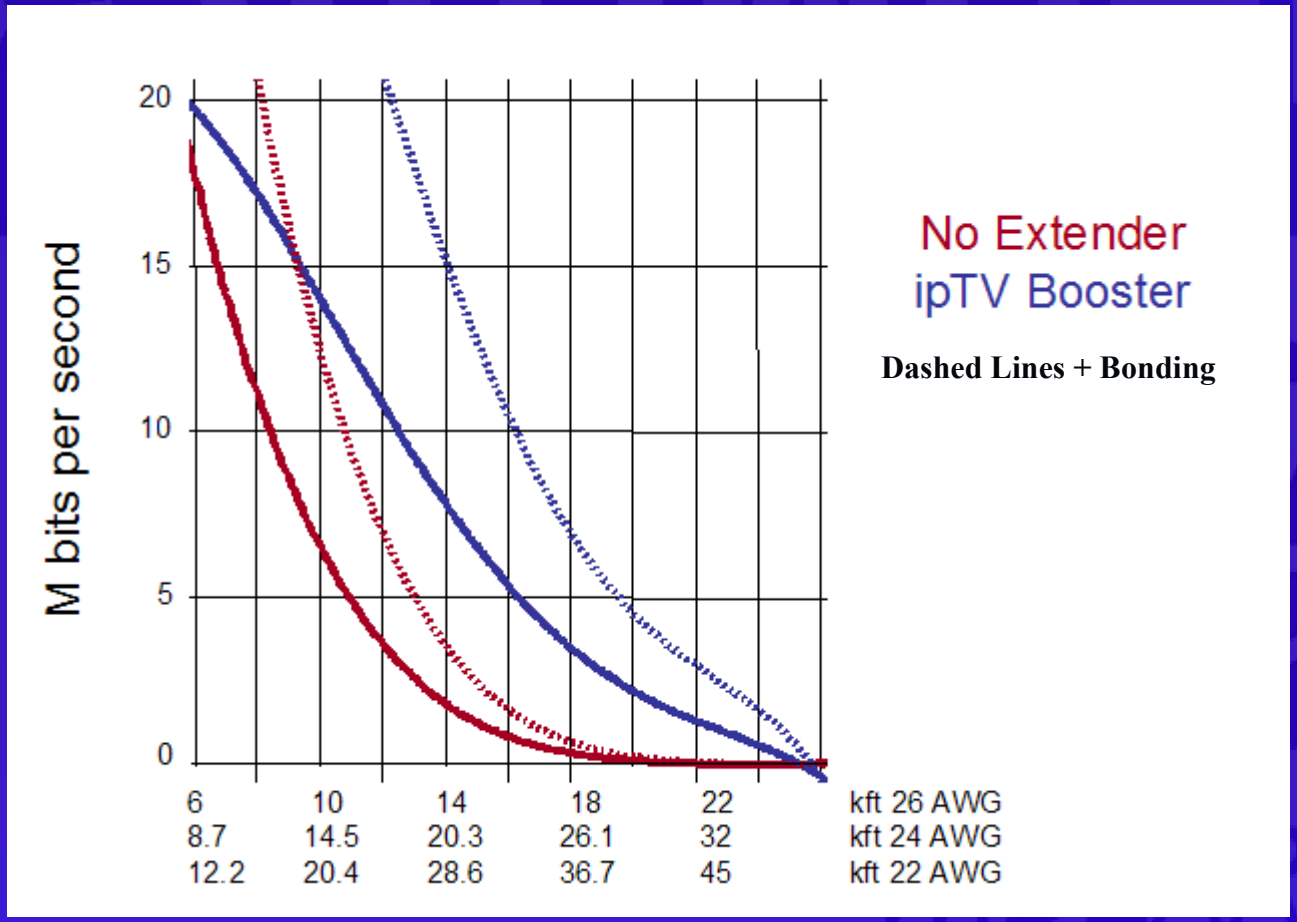
# Optimal Location

## best place for the ipTV Booster

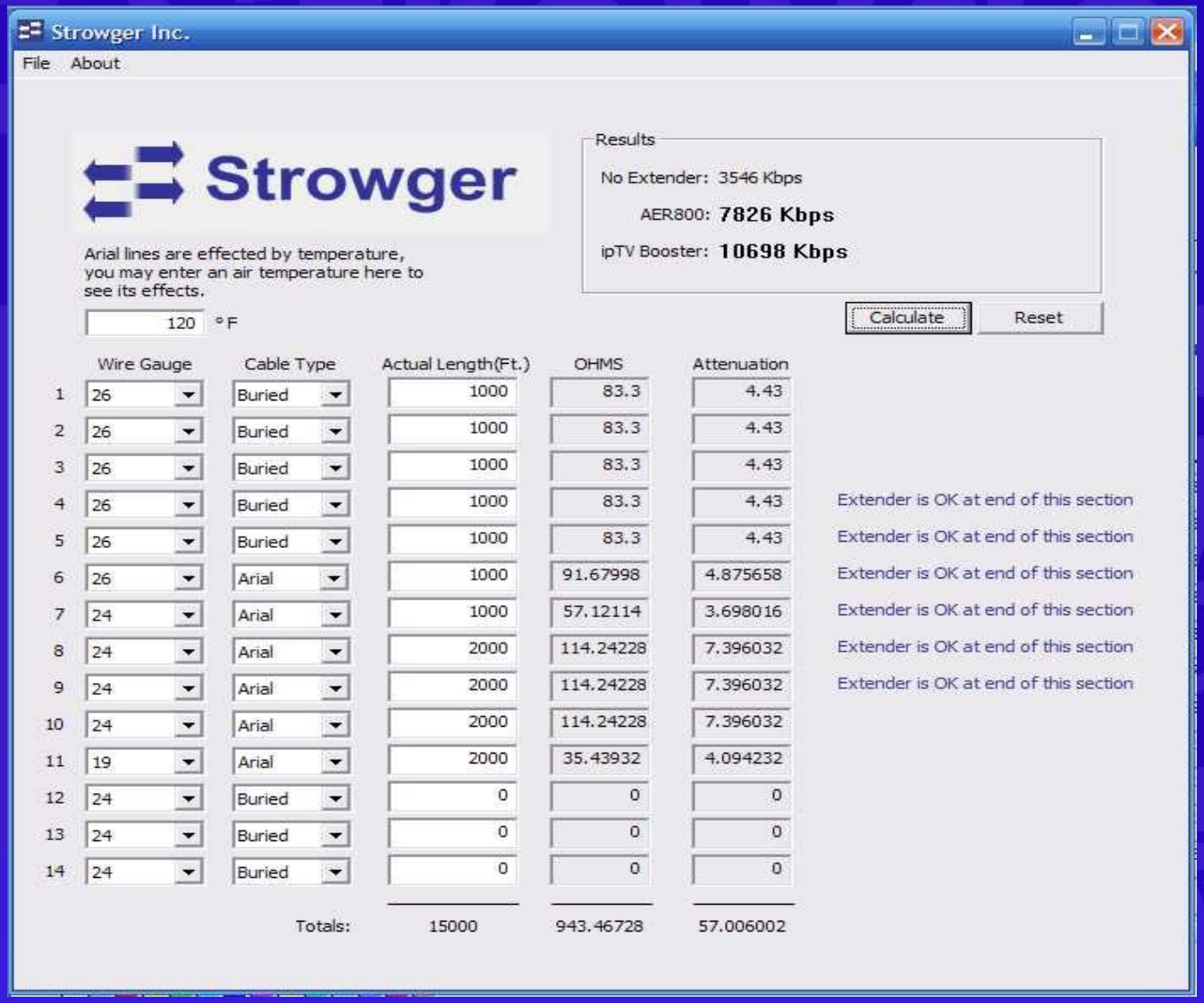


# Loop Extender plus Bonding

## Reach everybody with ipTV



# Bandwidth Estimator
# www.widearea.us



# Line Power

## AER800 L-Series

*Utilize switch power on working POTS/ADSL line.

*Allows loop extenders to be used even when pairs are scarce.

# Line Power Architecture

AER-800-8PL

# Line Powered Loop Extender

NEW

AER800-8PL v8.0

AER800-4PL v8.0

No Power Supply Needed

AER800-C1PL v8.0

AER800-1PL

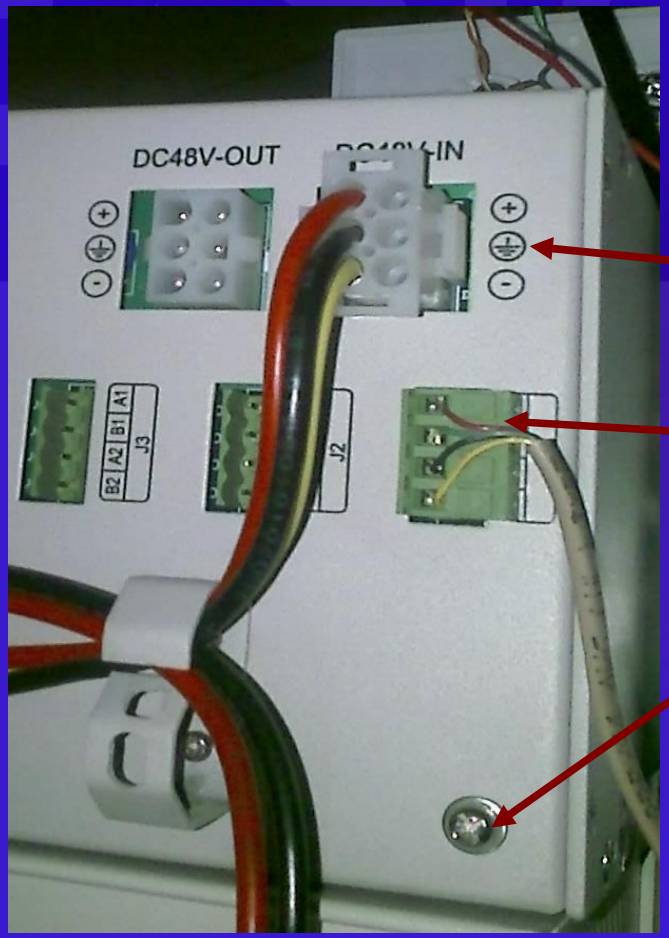
NEW

# Line Power for remote devices

AEC-
POWER v2

# Installation Tips

# Installation – AEC RACK

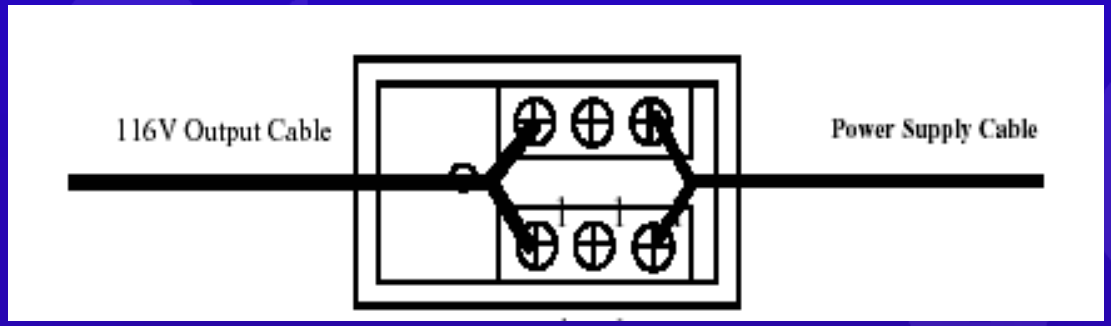



-48vDC input to 7-10A fuse

Two 116/155vDC outputs per slot to main distribution frame. Polarity not important. Current limited to 60mA.

Frame ground. 14AWG min.

# Installing AEC-B1P-D48



# Power Supplies

- Can also be installed in remote DSLAM cabinet with AC or 48V DC source
- All Power Supplies must be powered directly from fused battery!
- Never use switch line card to power a power supply!
- Power supply DOES NOT go in the ped
- Accept no more than 2V/1000 ft loss

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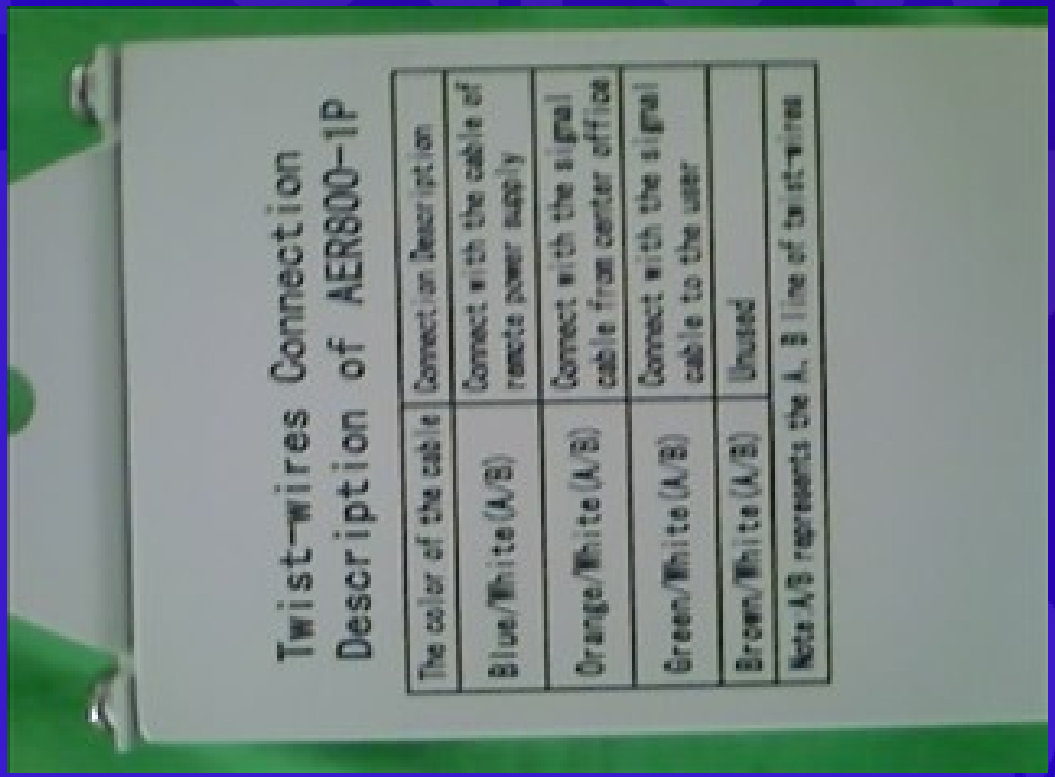
# Where to install Loop Extender

# Wiring at the Ped



Twist-wires Connection Description of AER800-1P

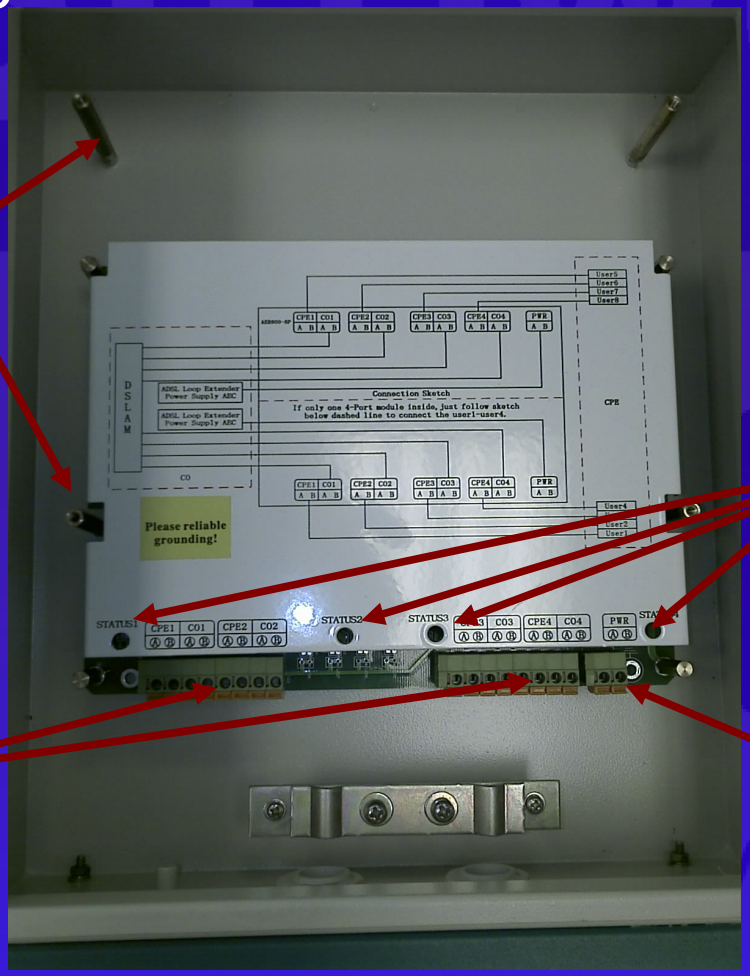
| The color of the cable | Connection Description |
|---|---|
| Blue/White(A/B) | Connect with the cable of remote power supply |
| Orange/White(A/B) | Connect with the signal cable from center office |
| Green/White(A/B) | Connect with the signal cable to the user |
| Brown/White(A/B) | Unused |

Note: A/B represents the A, B line of twist-wires

Blue – Power
Orange – C.O.
Green - Customer

# Installation - AER800-8p

Single 4p Module



Mounting screws for 2nd 4p module

LEDs blink when power applied
Solid when tones

DSL Lines
4 in
4 out

Power

# Voice Engineering

- Voice will pass through the loop extender even in power outage conditions.
- The use of “Smart Coils” for H-88 type loading is recommended for longer loops at normal copper intervals for the Voice (POTS) transmission. Smart Coils, allow the transparent passage of DSL Data while providing loading for voice.
- Do not install load coils / smart coils on high voltage parts of the circuit.

# Sync Tips

- You must be at least 200 ohms from the extender to test sync.
- Try sealing current to bond the connections:  ring the phone, answer it.
- If you drop the minimum SNR margin to 1 and minimum data rate to 32k you can get sync if is possible at all.  Then slowly increase these parameters until you reach the desired service level.
- Walk the circuit back ped by ped. Compare the data rate you achieve with the Bandwidth Estimator.

# Tandem Extenders

- Two loop extenders on the same circuit can improve downstream speeds on longest loops (< 2Mbit goal).
- IpTV booster has switch inside that increases range by up to 1 additional mile (38kft on 24AWG)
- DSLAM should allow ADSL2 / Annex L
- Tandem extenders should not be your first installation!
- Call for further details.

# ADSL Tester WAT-2A

- Low Cost hand held test set
- Works like a modem
- LED Shows line statistics
- Simplifies troubleshooting at PED or NID

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# Why Widearea?

- Lowest cost solution
- Widest selection of locations to install
- Automatically adjusts gain for changing line conditions
- Highest bandwidth
- Complies with NEBS, IP66, UL, FCC
- Multi-port models available / Compact size
- The most lines in service

# Thanks A Lot!

- Strowger, Inc.
- www.strowger.com
- www.widearea.us
- Office number: (816) 272-1826