With Power over Ethernet, both power and data are carried over one CAT 5 Ethernet cable. Deploying IP telephones utilizing Power over Ethernet eliminates the need for local power supplies, AC adapters and cables, and allowing power to be provided from the wiring closet/switch room where it can be easily connected to a UPS system. There are several power options, in addition to IEEE Power over Ethernet, available to customers to power their Avaya IP telephones.

AVAYA 1151B1 Individual Power Supply

The Avaya 1151B1 individual power supply is a “desktop”; single output 48-volt Direct Current (DC), 20-watt power supply. The power supply can operate within a wide range of Alternating Current (AC) input voltages: 90 - 264 Volts Alternating Current (VAC), 47-63 Hz. This power supply replaces the MSP-1, KS-22911-L1/2, 329A, 353A and the 1151A1/A2 DC power supplies and the 2012D AC transformer. The 1151B1 power unit has a green Light Emitting Diode (LED) that shows the unit has power on the PHONE jack, pins 7&8 when AC power is applied. This item is available in three different Price Element Codes (PECs) as follows:

- 1151B1 power supply: material code 700227242
- 1151B1 with a Category (CAT) 5 Cable for Internet Protocol Telephones: material code 175707
- 1151B1 with a CAT 3 Cable for Digital Communications Protocol (DCP) Telephones: material code 175706

1151B1 Local power supply:
The Avaya 1151B2 power supply is a "desktop", single output 48-volt DC, 20-watt power supply with battery holdover. The power supply can operate within a wide range of AC input voltages: 90 - 264 VAC, 47-63 Hz. When AC power fails the battery will provide 15 minutes of holdover at full load (20 watts) or 8 hours at light load (2 watts). The 1151B2 power unit has two LED's: a green LED that shows the unit has power on the PHONE jack, pins 7&8 when AC power is applied. A YELLOW LED that shows the unit is charging the battery when illuminated. The yellow LED is off when the battery is fully charged. The GREEN LED blinking indicates the unit is running on battery power. This item is available in three different PEC codes as follows:

- a. 1151B2 power supply: material code 700237019
- b. 1151B2 with a CAT 5 Cable for IP Telephones: material code 177086
- c. 1151B2 with a CAT 3 Cable for DCP Telephones: material code 177087

Avaya 1151B2 power supply with battery backup

The Avaya Mid-Span Power Distribution Units. These are power devices, specially designed for IP-telephony, providing power over Ethernet (PoE) for up to 24 IP telephones or wireless LAN (WLAN) access points. The Mid Span Power units are designed to mount in a 19-inch rack with the data equipment or they can be stacked up to four units high using the optional rubber feet. It is 1U in height (1.75 inches) and has up to twenty-four RJ45 data input jacks on the bottom row and twenty-four data and power output RJ45 jacks. The Mid-Span Power units provide a maximum of 200 Watts or a peak of 16.8 watts per port. The Mid Span Power units can also be called a PDU (Powered Data Unit) POE device. Power over the LAN will simplify the installation and support of IP telephones for our customers, enhancing acceptance of the technology. Data is unaffected if power is disrupted and if the device does not require power (an example is a laptop connected to the unit.) The Material Codes for the Mid-Span power units are:

Avaya Mid-Span Power Distribution Units
Avaya C460 Multilayer Modular Switch

The C460 can provide power to up to 196 IP phones. The Avaya C460 features a compact modular six-slot chassis with the following main characteristics:

- Four I/O slots and two Supervisor slots
- Fully redundant architecture (including switching fabric, supervisor modules and PSUs)
- Power over Ethernet (PoE) support with the FE ports
- High density – up to 192 FE PoE ports and 48 GE ports
- Fabric switching throughput of 64Gbps at Layer 2 and 48Mpps routing at Layer 3
- Policy and QoS mechanisms
- Full router functionality
- Wire-speed Layer 3 forwarding on all ports
- Optimal use of physical chassis size (10U)
- 300W or 1000W (for PoE support) power supplies

The C460 full redundancy (supervisor and fabric, power supply, link and port interfaces, router processor, and fans), high port density and powerful Layer 2 and Layer 3 wire-speed switching engine make it suitable for robust network infrastructure. The C460 offers advanced management and monitoring capabilities using complete GUI tools, including the SMON and Any-layer SMON applications based on the Avaya Integrated Management suite.

C460’s available I/O modules:
- 48 10/100 PoE port Inline Power module
- 48 10/100 PoE port Inline Power + 2 GBIC (SFP) Gigabit Ethernet port module
- 12 GBIC (SFP) ports Gigabit Ethernet module
- 48 10/100 port Ethernet module
- 48 10/100 port Ethernet + 2 GBIC (SFP) Gigabit Ethernet port module

The C460 extends Avaya Convergence solutions to the network edge by providing advanced network capabilities, including Quality of Service (QoS), high performance, advanced power management, security and manageability. Designing a converged network infrastructure using this highly resilient, modular, high performance solution ensures a lifespan of the network, which will reduce cost of ownership and improve return on investment.

With its flexible configuration options and high-capacity performance, the C460 can also be deployed as a distribution layer switch or as the network backbone for small to medium enterprises looking for a reliable modular solution.

For enterprises deploying Avaya Communications Manager for mission-critical call center and large-scale campus environments, the C460 offers an ideal IP Telephony platform that combines fault tolerance, network responsiveness for business continuity, and integrated management and monitoring for converged networks.

The following table includes the PoE items of the C460:

<table>
<thead>
<tr>
<th>Avaya C460</th>
<th>Description</th>
<th>Material Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>C460ML-PWR-CFG</td>
<td>C460 Switch PoE basic configuration (SPV, PSU, fan)</td>
<td>700281603</td>
</tr>
<tr>
<td>M4648ML-T-PWR</td>
<td>C460 Multi-layer 48 x 10/100BaseT (RJ-45) Inline Power module</td>
<td>700281587</td>
</tr>
<tr>
<td>M4648ML-T-2G-PWR</td>
<td>C460 Multi-layer 48 x 10/100BaseT (RJ-45) + 2 x GBIC (SFP) Inline Power module</td>
<td>700281579</td>
</tr>
<tr>
<td>MPS4610-AC</td>
<td>C460 1000w Power Supply (AC) Inline Power Support</td>
<td>700281595</td>
</tr>
</tbody>
</table>
Despite the ratification of IEEE 802.3af-2003 and the support of the standard by vendors, some customers may utilize a legacy power scheme supported by Cisco switches. The following power adapter is specifically for Avaya IP Telephones and can be used to power these telephones from specific Catalyst power blades (Catalyst is a registered trademark of Cisco Systems, Inc.). The Avaya IP Phone Power Adapter (material code 700259369) was tested and will work with the following:

- Catalyst 6000 Inline Power 10/100 BaseT Switching Module - (WS-X6348-RJ45V).
- Catalyst 4000 Inline Power 10/100 BaseT switching module - (WS-X4148-RJ45V).

More detail on implementation of IP Power options is covered in the IP Office IP Phone Installation manual.
Power Consumption

Measured in Watts using an IEEE 802.3af power supply at 48V.

<table>
<thead>
<tr>
<th>Phone</th>
<th>Typical</th>
<th>Worst Case</th>
<th>IEEE 802.3af</th>
</tr>
</thead>
<tbody>
<tr>
<td>4601, 4602, 5601, 560</td>
<td>3.5W</td>
<td>4.6W</td>
<td>Class 2</td>
</tr>
<tr>
<td>4602SW, 5602SW</td>
<td>4.1W</td>
<td>5.0W</td>
<td>Class 2</td>
</tr>
<tr>
<td>4606, 4612, 4624</td>
<td>5.0W</td>
<td>6.4W</td>
<td>Class 0</td>
</tr>
<tr>
<td>4610SW, 5610</td>
<td>4.0W</td>
<td>6.0W</td>
<td>Class 2</td>
</tr>
<tr>
<td>4620</td>
<td>7.7W</td>
<td>9.9W</td>
<td>Class 3</td>
</tr>
<tr>
<td>4620SW, 4621SW, 5620</td>
<td>5.9W</td>
<td>8.0W</td>
<td>Class 3</td>
</tr>
</tbody>
</table>

Typical is measured off-hook sample size 1. Worst Case is analytical. Except the 4601, 4602, 5601 and 5602 all telephones had a PC attached at 100Mbps. The