Cisco—Painting of Access Points

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Application question:
I have a customer that for reasons of aesthetics, would like to paint the Access Points. Should this be encouraged? Additionally, does this void the warranty? Any third party solutions?

Application answer:
I would recommend that customers do not paint the access point for the following reasons:

1. Painting is a skill that varies in quality, often with unexpected side effects such as paint getting into RF and Ethernet connectors etc.
2. The color can affect the thermal and MTBF properties of the device.
3. Paint can plug critical holes needed for venting heat and/or draining moisture.
4. Certain paints contain conductive properties that can diminish the RF performance.
5. A painted product is considered a customer “modified” product rendering it unserviceable, therefore the manufacturer’s warranty is considered void.
6. Unserviceable means the product was returned in a fashion differently than how it was sold. We need to be able to refurbish the product (as warranty repairs are often replacements) for expediency therefore it is not practical to repair and return a modified item.

Rather than actually applying paint, a preferred solution to painting would be the use of colored plastic covers, referred to as "skins" many 3rd party companies offer these kinds of products (from custom colored skins) commonly available.
Other companies that offer 3D print services that can make custom enclosures in any shape or form. Care should be taken when fully enclosing an Access Point to make sure proper heat placement occurs so you do not significantly reduce the thermal characteristics perhaps causing premature failures or a reduction in MTBF (Mean Time Between Failure).

**Figure 1: Oberon offers vanity covers (Skin) for Cisco APs**

- Oberon Model CCOAPI-SKN shown with Cisco 3700 wireless access point (not included)

**Specifications:**
- Vanity cover for Cisco enterprise wireless access points
- Fabricated from textured UL 94-SVA ABS plastic
- The skin is virtually transparent to access point wireless signals
- Attaches to access point with mushroom head fasteners (included)
- Standard color is black, with textured semi-gloss finish
- Skins are paintable using an enamel spray paint such as Krylon (do not use oil based paint or metallic paint) and the surface does not need to be treated

http://oberoninc.com/images/WebDocs/CCOAPI_Skin_Spec_Sheet.pdf
If the goal is to change the color of the antennas on an AP, another option might be to use colored polyvinyl chloride tape for example, different colors of electrical tape offered by 3M.

*Figure 2: PVC Tape or sheeting material may be used*
Using third party 3D print services for custom solutions is also an option for example, companies such as www.shapeways.com can make custom cover plates or other 3D printed solutions that can then be painted yes still able to be removed later if warranty service is required.

**Figure 3: Example of a 3D printed cover**

![Figure 3: Example of a 3D printed cover](http://www.shapeways.com/product/M67DCYSEM/cisco-ap-3802-cover-plate?optionId=60844434)

**Figure 4: Example of a 3D printed cover installed**

![Figure 4: Example of a 3D printed cover installed](http://www.shapeways.com/product/M67DCYSEM/cisco-ap-3802-cover-plate?optionId=60844434)
When possible use modifications that can be removed so the device can be returned for service in the same condition that it was provided as at time of purchase. Otherwise it is likely the warranty would be void.

If a customer makes a decision that it is acceptable to void the warranty and chooses to paint the device anyway, here are some guidelines when painting RF (Access Point) devices.

**Tip** Use a paint that has no conductive properties (i.e. metal colored flakes etc.)

Here are some paints that were tested that displayed good RF characteristics.

<table>
<thead>
<tr>
<th>Brand Name</th>
<th>Product Line</th>
<th>Color</th>
<th>Spray Can Part Number</th>
<th>Gallons Part Number</th>
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</thead>
<tbody>
<tr>
<td>Rust-Oleum</td>
<td>Professional</td>
<td>Gray Primer</td>
<td>7582</td>
<td>7769 (Aluminum Primer)</td>
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<tr>
<td>Rust-Oleum</td>
<td>Professional</td>
<td>Light Machine Gray</td>
<td>7581</td>
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<tr>
<td>Rust-Oleum</td>
<td>Professional</td>
<td>Dark Machine Gray</td>
<td>7587</td>
<td>7786 (Smoke Gray)</td>
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<tr>
<td>Rust-Oleum</td>
<td>Professional</td>
<td>Hunter Green</td>
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<td>Professional</td>
<td>Gloss Black</td>
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Rust-Oleum brand can be found at https://www.rustoleum.com/product-catalog/consumer-brands/rocksolid

*Figure 5: When painting do not get paint into any of the connectors (tape them properly)*

Painting is all about skill and the ability to properly prepare the device to accept paint. Try to test paint on a similar material (or on a spot that is not visible first) to determine suitability.

If the device is outside consider the sun will impact the temperature of the device, as a device painted black will have more solar heat then say one that is painted white in color.

Again consider plastic covers or other enclosures perhaps painting the enclosure rather than then actual device when possible/practical to do so.
Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at www.cisco.com/go/offices.