

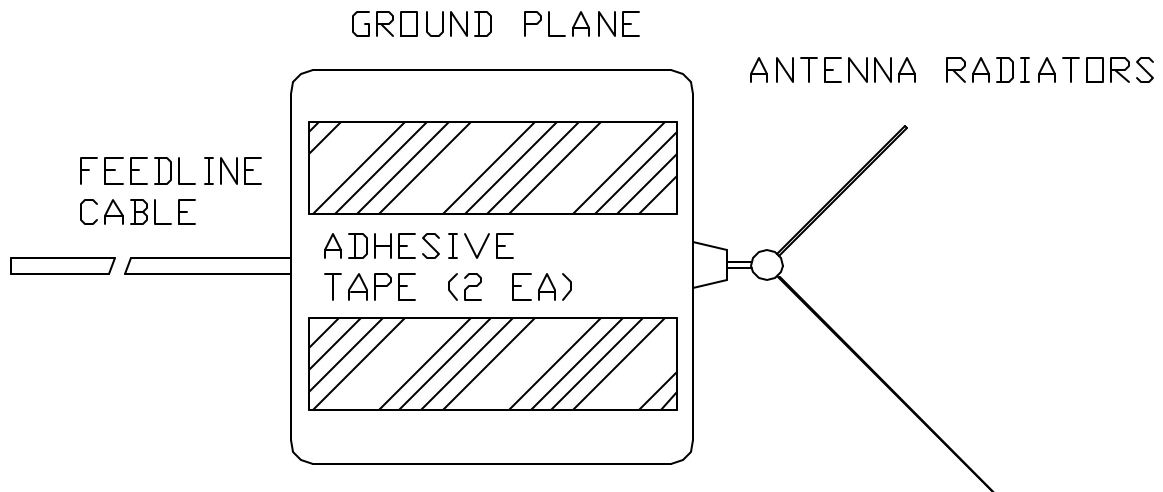
## CCAS Installation Considerations Dual Band, Cellular/ PCS Hidden Antenna System

### CCAS-DB-CEL/PCS PATENT PENDING

#### VERIFY:

1. **Part List:** The system package includes feedline cable, antenna, and connector of choice. Use only components supplied with the antenna system.
2. **Bandwidth:** The Cellular bandwidth for the antenna is 90 MHz wide and designed to operate in the Cellular band from 800 MHz to 896 MHz. The PCS band is 100 MHz wide and designed to operate between 1.8 GHz to 1.9 GHz. Be certain that the antenna was tuned to the frequency required.

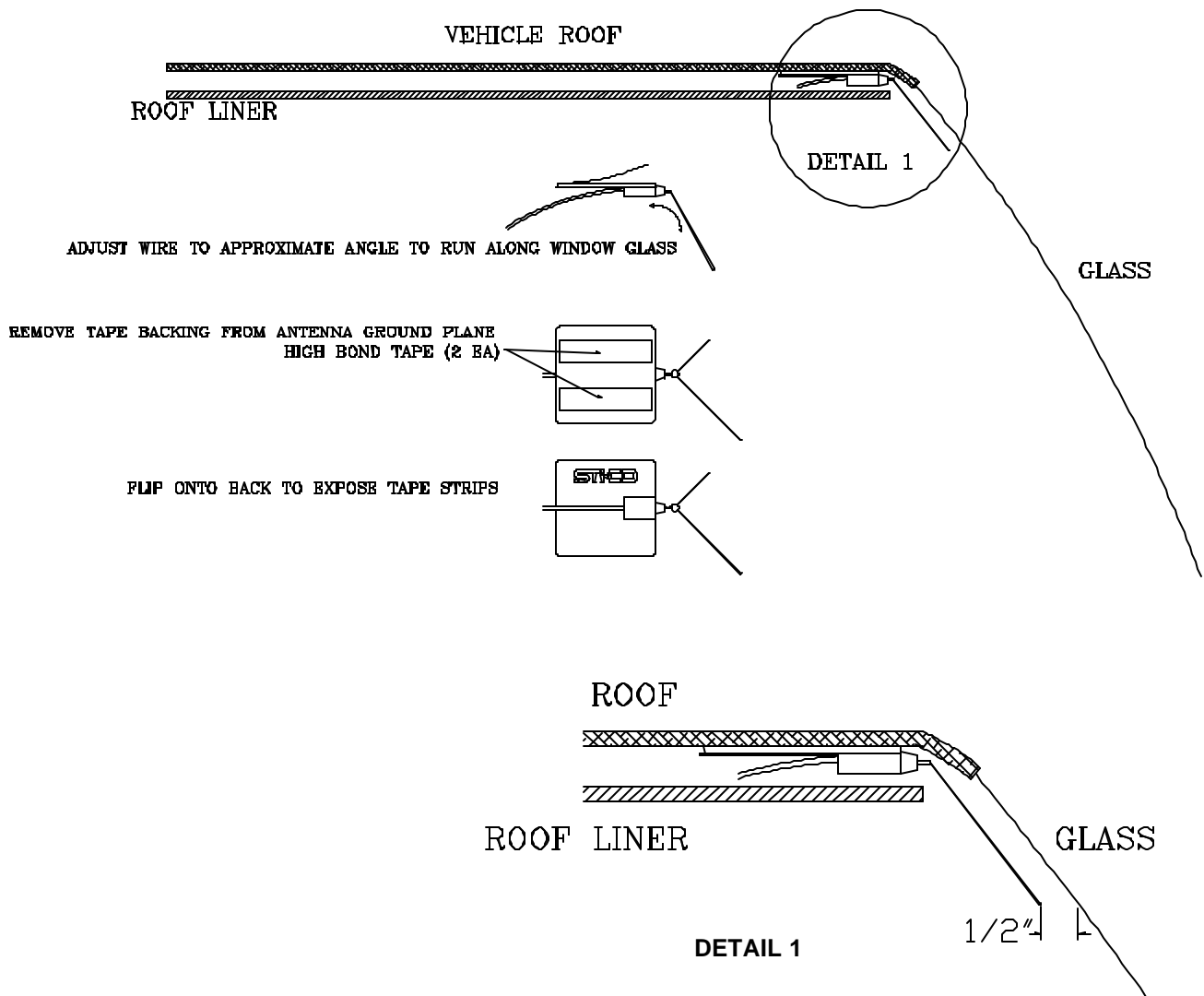
#### LOCATE POINTS OF INTEREST:



1. **Ground Plane:** This is an integral component of the antenna system. The ground plane cannot be trimmed smaller for performance reasons. The ground plane is flexible and will take the contour of the areas around a vehicle window.
2. **Adhesive Tape Strips:** The strips are made from very high bond tape. The tape strips are already attached to the ground plane prior to delivery. The tape backing is removed just before ground plane is to be attached to the vehicle's roof.
3. **Antenna Radiator:** This is the radiating material that is eventually going to be the only component exposed of the antenna system. The radiator will protrude from the interior roof liner but will not come in contact with the roof.
4. **Metal Window Rim:** The platform that the rear window rests on. The metal window rim will serve as the holding point.
5. **Feedline Cable:** The feedline is permanently attached to antenna and can be cut to length once reaching the transmitter. At that time the connector of choice can be attached.

**INSTALLATION PROCEDURE:**

1. Locate the area where you intend to install the antenna. Look for an area that is clear of vertical metallic structures ex. roof pillars. The middle of a rear widow on a sedan or side window on a SUV or van provide the best "line of sight".
2. While holding the interior roof liner, dry fit the antenna so that you can estimate the amount of bend needed on the antenna radiator to keep it away from touching the glass.
3. Final adjustment on the antenna radiator should be approximately ½ inch from the glass. See Detail 1 below.
4. Once a desired fit is achieved, remove the backing on the adhesive tape strips and position on roof as shown in installation diagram.
5. Route feedline cable towards transmitter, cut to length, and install connector of choice.
6. Return interior roof liner to its original position.



**TESTING:**

Installation testing, if required, must take place at the transmitter side of the feedline. This will ensure that the cable connectors and cables have the proper continuity. Make sure all doors; hood, and trunk are closed.

1. **Reflective Power:** A measurement of reflective power using a wattmeter, you can expect up to 11% reflected power. When results are greater than 11%, recheck grounding.
2. **SWR:** A measurement of SWR (standing wave ratio) will yield better than 2:1. If greater than 2:1, recheck installation.