



TW7000 Family Weatherproofing



Waterproofing Challenges

- **Waterproofing and stress relieving an antenna connector is a key part of a successful antenna installation.**
- **Water can easily contaminate an antenna-to-antenna cable connection.**
- Even if a waterproof connector is used antenna-cable waterproofing is required.
- The rubber seal in a waterproof connector will dry out.
- Antenna cable connectors can come loose and the compression on the o-ring/gasket will fail.
- Diurnal temperature variation will cause a pumping (air and water vapour) action and slowly corrosion will occur and cause an antenna or connector failure.
- Antenna connection waterproofing should be inspected periodically.

Typical Antenna Connector Sealing Materials



Calian recommends a multi-pronged approach to waterproofing:

- High-Quality waterproof connectors and cables should be used.
- Cables should be stress relieved and not subject to vibration or oscillation.
- Dielectric grease should be used on the connector threads (just enough to fill the threads).
- Two rounds of Splicing tape (3M-130C), wound so that it tightens the connector (clockwise looking at the connector). 3M Splicing tape needs to be stretched and they recommend that the tape should be installed with the sticky side up. With small cables this is difficult, and we often put the sticky side down and maintain plenty of overlay.
- The next layer is mastic tape (3M-2210) and its seam should if practical be pointed down so that if any water gets in it drains away.

Dielectric Grease: Seals the connector threads



- Dielectric Grease is optional.
- The purpose of the grease is to fill the connector threads to mitigate water and air infiltration.
- The dielectric grease should only be used on the threaded outside of the connector and not applied to the inner part of the connector.
- Surplus grease should be removed so that the subsequent layers of tape make a tight seal to the exposed connector.

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- The purpose of the Dielectric grease is to help waterproof the connector.
- Care must be taken to keep the grease away from the center connector and the grounding area.
- Only put a thin film of grease on the threads (enough to fill the threads).
- Remove any surplus grease.

TW7000 Waterproofing: Splicing Tape Application



- Apply the splicing tape. Two rounds and make sure to overlap.
- Splicing tape directions call for the sticky side to be out, but it is easier to apply the first round with the sticky side against the cable and connector.
- Tape should be stretched to conform to the cable and connector (tightly wound clockwise).
- Start at the antenna cable and work towards the connector and maintain sufficient overlap.
- Cover as much of the connector as possible.

TW7000 Waterproofing: Mastic Tape Application



- Cut the mastic tape to conform to the shape of the connection.
- Apply the mastic tape.
- Orient the tape seam so that it will shed water away from the seam.
- Be sure to seal the interface between the plastic radome and the SMA connector.
- Start at the antenna connector and work towards the cable.
- Wrap the mastic tape tightly to the splicing tape.
- Make sure the seam is completely sealed.
- Once installed, the splicing and mastic taped connection will be waterproof.

TW7000 Waterproofing: Mastic Tape Application



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- When applying the mastic tape be sure to seal the interface between the plastic radome and the SMA connector.