

Condensation Prevention for LNAs and Associated Modules

by

Jeffrey M. Lichtman
Radio Astronomy Supplies
jmlras@mindspring.com

Abstract

Whenever air is present, and temperature differs between the electronic module and the surrounding ambient air temperature, the possibility of condensation may exist. Your electronic module has some heat buildup due to the working of internal. In this scenario, condensation will form on the inside and possibly the outer portion of the module. This scenario will also be in effect if one is using cooling devices.

Condensation continues to be an annoying problem. In some cases, deterioration or ultimate failure “May” occur if the amounts are too great.

After giving this considerable thought and, reviewing how the professionals deal with condensation, I have successfully come tackled the condensation problem.

As we know, the low noise amplifiers are in a vacuum atmosphere. Hence, without air present, the module is not affected by condensation.

Simple Vacuum Sealing Technique –

The food industry as well as the home requires food to be vacuum-sealed. There exists a food preservation system, which removes air and then seals the plastic pouch. Thus, we have a perfect way to accomplish the fight against condensation.

Referring to Figure 1 and the following steps:

1. Slide your LNA into a plastic pouch, supplied with the vacuum-sealing unit. Next, cut out a snug hole to allow the input, output and power connectors for accessibility.
2. Remove the LNA from the pouch and place a liberal amount of RTV (silicone) around the base of each connector.
3. Slide the LNA back into the pouch, allowing the connectors to fit through the holes previously cut.
4. Press the plastic pouch firmly into the areas that contain the RTV sealer.
5. Place a bead of RTV on the outside of the pouch to ensure a proper continuous seal.

6. Allow a few hours for the RTV to dry. The drying time may differ in some cases. To be sure, wait 24 hours.
7. When the RTV is dry, place the open end of the pouch into the sealing machine and turn on. The sealing process will evacuate the air and seal the pouch.

Conclusion –

The LNA will now be in vacuum-sealed atmosphere and thus, be protected from condensation and outside moisture, due to rain etc.

Note: All modules should be shaded from direct sunlight or reflected sunlight. Overheating of any module will cause gain or noise figure to deteriorate. LNAs and other modules must be in an atmosphere to allow heat dissipation due to any internal heat from the normal operation of the module.

