

## ECO-002 – Installation of DDS Heat Sink – 8/17/04

**Purpose:** The purpose of this ECO is to add a heat sink to the DDS chip on the TRX board. This modification will drop the DDS case temperature by as much as 20 degrees Centigrade. *TRX boards shipped after July 19, 2004 have the heat sink factory installed.* Forced air-cooling of the enclosure that houses the radio is also desirable.

**Procedure:** A Vantec Iceberg Copper BGA Ramsink (16x13x9mm) or similar type copper heatsink that uses thermal tape is recommended for this modification. These or similar heat sinks are available online and from stores that carry PC upgrades. They are designed to attach to high-speed PC memory chips. **NOTE: The Iceberg parts will only fit in radios that have the RFE installed or that were shipped as a receive only version (SDR-1000/RO).** Because of its height, the heat sink will touch the pins of T2 on the BPF board. A lower profile part is required if no RFE board is installed.

(An antistatic work area is recommended for the following work)

- 1) Remove all power and computer connections to the SDR-1000. Remove the radio board stack if installed in an enclosure.
- 2) Remove the BPF filter board by removing the 4ea 4-40 nuts securing it to the stack. Lift carefully. If there is a RFE board installed, remove the small coax connection between the two.
- 3) If the RFE board is installed, removed the four nylon standoffs (5/8" long) and remove the RFE board. If not proceed to step 4. Please note that there are 4 nylon washers on the standoffs.
- 4) Remove the TRX board by removing the four nylon standoffs (3/8" long) and remove the TRX board. Please note that there are 4 nylon washers on the standoffs.
- 5) Remove the protective film from the heatsink thermal tape and apply directly to the top of the DDS chip IC4 as seen in the photo. Push firmly but not hard when applying as this may stress or fracture the IC.
- 6) Reassemble in the reverse order. Insure that all connectors mate properly when reassembling.

