

Thermal Measurement of QNAP TS-109 Series Turbo Station

Working in a noise free environment becomes a must for most SMB/ SOHO's demands. Undoubtedly, QNAP's **silent, fanless design**, TS-109 Series Turbo Station, is your ideal choice! You might have some concerns about the perceived overheat problem on the surface of TS-109 Turbo Station. What did QNAP do to find the solution? The fact is that physics dictates that heat will be always generated by the components on circuits and SATA HDD inside the TS-109 Series' enclosure. And they have to be dissipated somehow, either by convection (airflow with a fan), or "radiation" via a large metal surface. QNAP engineers have done a lot of thermal simulation during the design stage and our quality assurance engineer has made a very thorough thermal profile tests before the product is approved for production. The following thermal profile analysis has proven that TS-109 Series, TS-101 components' temperature inside the cabinet is **much cooler** than most of the similar products available in the market. In reality, the hot surface means that heat is properly channeled to the external surface as designed, and the heat is not trapped inside to harm the circuits. **The device is therefore more reliable as a result.** Please enjoy QNAP TS-109 Series with noise free, rather than concern that its hot surface necessarily means a hot operating temperature inside.

◆ **Test : Use Professional Software Winthrax to test Hard Disk temperature under different room temperatures by chamber**

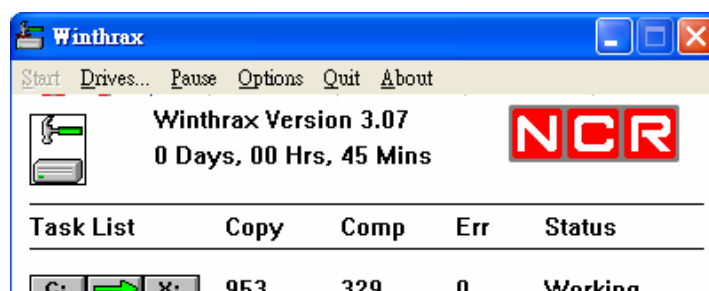
What and How to Test?

Winthrax is ran in both NAS under different room temperature, 25°C, 35°C, 40°C, and 45°C, and the Hard Disk temperatures are recorded.

Procedure

Step 1. Prepare the device and stick the professional thermal sensors on the center of the hard disk.

Step 2. Insert the hard disks to each NAS. Put both NAS into the chamber. Then configure both systems and their network settings.

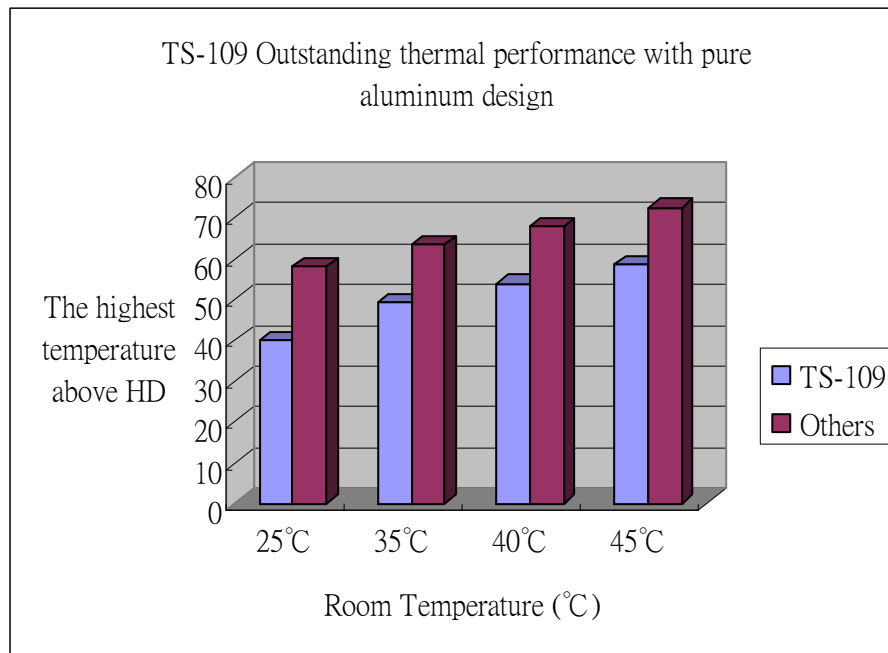


Step 3. Run Wintrax under chamber temperature of 25°C, 35°C, 40°C, and 45°C.

Record the Hard Disk temperature of each time stamp and each room temperature by the thermal testing device.

Step 4. See the result!!!

Room Temperature	25 °C	35 °C	40 °C	45°C
Other Brand (°C)	58.1	63.5	68.1	72.6
QNAP TS-101 (°C)	45.4	53.9	58.6	63.2
QNAP TS-109 Series (°C)	40.1	49.3	53.9	58.5
(TS-109 with Other Brand, °C)	18	14.2	14.2	14.1



Test Result:

Again, there are almost over 10°C differences. Moreover, under the normal room temperature of 25°C to 35°C, the hard disk temperature difference is even bigger.