

DataTrace Applications

Date: December 2008

Subject: Monitor temperatures inside test chambers during product testing

Facility: An ISO 9001 engineering, manufacturing and testing facility

Equipment:

DataTrace: MPRF Host Interface System, Three MPRF Temperature Loggers (2 calibrated to -80°C and 1 to -40°C) and one MPRF Humidity Logger.



Facility:

Test chambers (~20 cu ft.) are used to subject high voltage (26k volts) components to rigorous environmental testing. Some of the products are subjected to high voltage conditions inside the chambers. The chambers must hold a set temperature of between -55°C to +125°C within a tolerance of +/- 3°C. Recovery time after chamber door opening should be longer than 5 minutes.

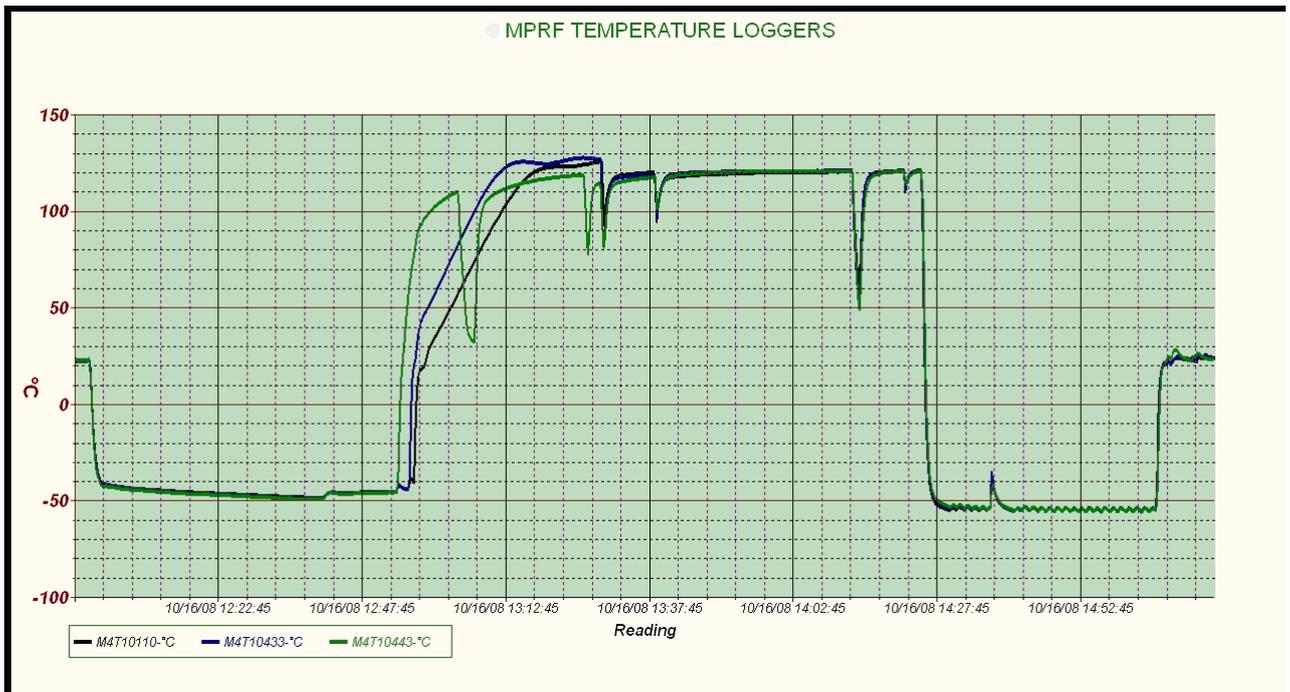
Evaluation Procedure:

The MPRF Temperature Loggers were placed into several chambers; some with "windows" and some without. The Host Interface and Laptop were in another lab about 40 feet from the chambers. No repeaters were used. An MPRF Humidity Logger was used as an RF control and kept near the Host Interface.

Results:

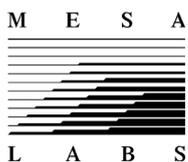
In general all MPRF Temperature Loggers worked very well. The graph of the data shows the Loggers were very responsive to slight changes in temperatures in the high and low temperature ranges. The temperature cycling of a -45°C chamber can easily be seen on the graph along with a "recovery" back down to -55°C after the door was opened for a few seconds. This cycling was never seen before and led to the discovery of a faulty door gasket on that particular -55°C chamber. (see graph page 2)

DataTrace Technical Note



Interruptions in RF data transmission were seen during the evaluation. Those chambers without windows were prone to RF signal loss but once transmission was established, data was restored. It's difficult to say whether RF data interruption with some chambers

were from chamber seal non-transmission or the RF interference in the area of the testing lab including the chamber with the 26k volt transformer at -55°C. At one time, the MPRF Humidity Logger (RF control) showed some transmission loss, but eventually filled in the data. There is always RF transmission in the factory and testing labs. The MPRF Loggers proved themselves under this difficult RF environment.



For more information, visit
www.cik-solutions.com
or contact us at
info@cik-solutions.com

