Note 13: Environmental testing

General:

- Where fixtures are not specified, it is assumed that the equipment will be secured using basic clamping arrangements. If on subsequent review, it is deemed that clamping is not suitable TÜV SÜD will propose the most appropriate solution. We may have a suitable fixture that could be used but in some cases a custom fixture may be required. In either case, TÜV SÜD will provide a fixture price where appropriate.

Functional / Performance testing:

- It is assumed that you will be responsible for carrying out any functional / performance tests and will supply all test equipment required by the programme, unless otherwise agreed with our Project Manager.

Thermocouples:

- For the climatic tests we have included an allowance of up to 8 thermocouples with a data logger to monitor the temperature of the unit during testing.

Driving Dust:

- The maximum temperature we are able to apply for the high temperature phase of the testing is +80°C.
- Although the chamber is 4M x 3.5M x 2.5M high, the sand / dust will be introduced into the chamber via a 230/300mm diameter duct, only the area directly in front of the duct will meet the full requirement of the specification.

Vibration & Shock:

- We have included an allowance of up to 8 uni-axial response accelerometers.
- The shock test will be carried out without respect to gravity.
- TÜV SÜD would wish to assess the suitability of any fixture not designed / manufactured by us prior to carrying out any of the above mentioned vibration tests and before formally acknowledging receipt of your purchase order. The purpose of this activity is to ensure that the performance will meet the requirements of the specification and the safety of both equipment and personnel are not compromised.

Highly Accelerated Life Testing (HALT)

- Functional samples will be submitted to undergo the Developmental HALT process. It is also recommended that spare samples be provided in the event that the failures found cannot be repaired.
- For maximum efficiency during this process, an engineer from your company, who is familiar with the design of the product, is in attendance during the entire Developmental HALT process. This engineer will be needed to determine the root cause of any failures that occur. Each time a failure occurs, the product should be examined for root cause of failure. Once the root cause of failure is determined (if possible), it will be fixed and placed back inside the chamber to continue with step stressing.
- An engineer will oversee all testing that is performed and a technician or engineer will be present full-time to operate our test equipment, take measurements during the testing and assist your engineer with troubleshooting any failures that occur.
- The sample(s) will be mounted to the vibration table and the airflow directed onto them. Supporting equipment used to functionally test the sample(s) will be located outside of the chamber. The sample(s) under test will be fully operational during the HALT process. Functional test processes and test routines will be run to check functionality of the sample(s) being tested.
- Test equipment, needed to functionally test and monitor the sample(s) under test, shall ideally be delivered a minimum of two business days prior to the scheduled service so that the initial set-up can be completed prior to your arrival. This includes cabling; spare parts; sample(s) to undergo testing; product specifications; component placement drawings showing desired thermocouple placement and instructions for equipment set-up. At an additional cost, we can arrange to rent any supporting test equipment you need to test your product.