



PRESS RELEASE

Tellumat Group

July 23, 2009

Page 1 of 2

Environmental stress-testing offers peace of mind

Electronic equipment must withstand incredible stresses – cell phones are dropped, avionic instruments go through rapid variances in temperature and air pressure, and traffic controllers endure the vibration of vehicles passing alongside. Then there's coastal salt, ultraviolet radiation and radio wave interference – the list is extensive.

For these reasons electronic products are designed to withstand multiple stresses, which may occur naturally or uniquely because of an instrument's operating conditions, at any time between leaving the factory floor and being disposed of years later. To mitigate the risk of failure, manufacturing companies like Tellumat Electronic Manufacturing conduct (and offer) specialised 'environmental tests'.

Murison Kotzé, managing executive of Tellumat Electronic Manufacturing, says that having environmental testing facilities as an integral part of Tellumat's manufacturing capabilities is a huge advantage both in the design phase as well as when a product goes into production. "Once a product goes through qualification testing on our premises, the designer can be confident that the product will perform reliably in the field. In addition to this, subjecting a sample quantity of a product to environmental stress testing that is already in production, enables us to maintain a consistent level of quality throughout the manufacturing process."

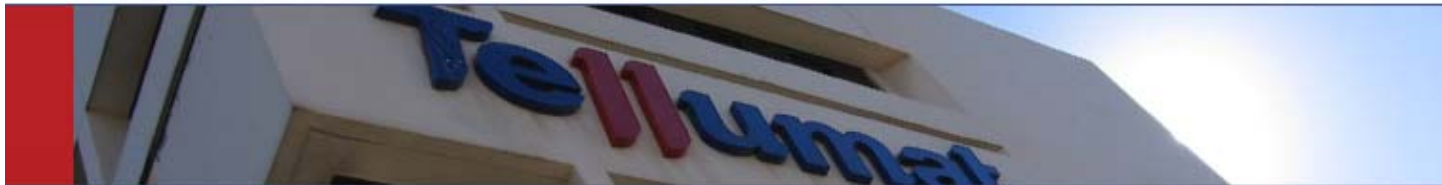
Bill Clarke, managing executive for Quality Assurance at Tellumat, explains that Tellumat typically uses international standards as the basis for its testing, giving its clients the peace of mind of global quality standards compliance.

A product's environmental profile

The environmental stresses a product may go through in its lifetime is called its environmental profile. How does one draw up such a profile? By way of illustration, one could use the example of a cell phone. It is typically wrapped and packed in a box along with others. The box is loaded (possibly unceremoniously) into a truck, taken on a trip (which could be bumpy) to a depot, where it is transferred into a bigger truck, driven to an airport and once again transferred, into the hold of an aircraft. As the aircraft gains altitude the temperature falls and air pressure drops. Turbulence might occur and the eventual landing may be rough. From there, the transport supply chain kicks in again until the phone ends up in a shop and once bought by a consumer, could go through many trials such as being dropped or left on a baking hot car dashboard. "There really is quite a lot to consider," says Clarke. "The trick is to determine what the stresses will be, and their ranges, and then to design a series of tests which will exercise the product through its environmental profile."

Clarke says Tellumat tests for vibration, thermo cycling (temperature variance), altitude, thermal shock (rapid temperature variance), mechanical shock (bump and drop), UV radiation, corrosion and waterproofing. Specialised testing equipment including climatic chambers, a vibration unit and so forth simulate environmental conditions at varying degrees of severity.

Subject to the environmental profile of the product, a standard test specification is often selected. Clarke notes that in certain instances, it is possible to accelerate the time taken to test the product.



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Page 2 of 2

He notes that designers, who know their products' usage scenarios best, specify the conditions under which products are transported and will operate. "Given this information we are often able to recommend a suitable test. We cannot determine what stresses a product will experience, unless it's our own product." He adds that military clients often prescribe a specific series of tests in accordance with military standards.

Testing in stages

Clarke says designers test a product at different stages of development. The first comes before progressing too far on the design path, but as soon as one has something representative of the final product. At that ineffable point (engineering judgment is exercised) it is advisable to test for weak points and to build confidence that the final product will meet its design specification. This kind of testing can happen repeatedly, until the final design is realised.

At the completion of the development phase, Tellumat puts its products through a process of qualification testing. As part of the process a number of units of the final design undergo rigorous environmental testing to prove that the product operates correctly across the entire environmental profile.

Once in production, certain of Tellumat's products also undergo environmental stress screening (ESS), otherwise known as "burn-in", before leaving the factory in an effort to mitigate the risk of early failure of a product once in the field.

Good investment

While all tests are specialised, many can be done very cost-effectively.

"Not doing it can result in unnecessary extra cost, such as that of recalling a product, as well as the damaging loss of reputation," says Clarke. "It's definitely a worthwhile investment. Without it, the risk of a product failing in some unforeseen way is just too great."

Ends.

About Tellumat

Tellumat is an innovative, black empowered, South African technology company that has achieved a BBBEE Status Level 4 rating, defined as "Superior Contributor to BEE" in terms of the DTI's Codes of Good Practice. It consists of three major trading divisions; Communications, Defence and Contract Manufacturing, and three partly owned companies; Sia Solutions (Pty) Ltd, Eence Engineering (Pty) Ltd and SIMpill (Pty) Ltd. Tellumat services three primary market areas, namely wireless voice and data communications, defence communication systems and high precision electronic and mechanical manufacturing. Tellumat is a world-class business focused on innovation, offering our customers dynamic and competitive technology products and services. We focus on understanding our customers' needs and forming long-term strategic alliances with likeminded enterprises worldwide.

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