Salt mist test  
*Avoid the damaging effects of salt in the atmosphere*

**When is a salt mist test relevant?**
How well is your equipment able to function in a salt-laden atmosphere? This question is relevant to producers of marine and wind turbine equipment as well as automotive and certain equipment for military use. Salt is present in the atmosphere offshore, in coastal areas as well as near roads where salt is spread in order to prevent icing — and the effect of salt can be quite damaging, as many of the producers have already experienced.

The purpose of a salt mist test is to demonstrate that equipment can withstand the influence of a salt-laden atmosphere.

**What is there to gain from a salt mist test?**
A salt mist test gives you one or more of the following advantages:

- Approval according to EU directives or international standards
- Confidence in your product with respect to robustness against salt laden atmospheres prior to introducing it to the market
- Shorter time-to-market when you specify a relevant salt mist test from the onset of the development of your product
- Knowledge about potential areas of improvement

**One type of test, different objectives**
Reproducible and accelerated tests are required for approval of certain equipment such as exposed marine equipment which needs approval according to IEC/EN 60945 or IACS E10.

However, the same tests are often applied to products that will be used in close proximity to the sea or at sea like wind turbines or to equipment otherwise exposed to salt like vehicles and automotive equipment in countries where salt is spread on roads during wintertime. Due to the fact that salt is ubiquitous as a natural element in the environment and its severe impact on material, salt mist tests have lately been applied more broadly to all types of mobile equipment from cell phones to hearing aids. On metallic parts, the test will demonstrate the electrochemical impact of salt corrosion and similar complex chemical reactions apply to other materials as well.

**Standardised or customised tests**
At DELTA the salt mist test is typically carried out according to relevant international standards. In addition to these standardised tests, DELTA can assist in developing special ised tests addressing unique or severe environmental conditions or extended lifetime impact. As an example, DELTA has developed in collaboration with one of our customers a special HALT (Highly Accelerated Life Testing) concept using salt mist exposure.

**Trouble-shooting and product review**
If a salt mist test reveals unexpected damage to the product, DELTA offers assistance in evaluation of the test result, trouble-shooting and identifying possible new solutions. On request the same knowledge and experience of DELTA’s specialists in this area can be applied during initial specification of the product, increasing the chance of a successful outcome of the final salt mist test considerably.

**Accredited test report**
If required, DELTA will during the test
develop an accredited test report with a description of the test, key findings and conclusions. DELTA’s DANAK accreditation will allow this report to be used for formal product approval, if required.

Facilities
DELTA has two salt mist chambers, one of which is a new Weiss SC-1000. The chamber is programmable with automatic control of salt solution, humidity and temperature and supports all relevant international standards for reproducible, accelerated corrosion tests. The maximum size of the equipment to be tested is 70 × 130 × 50 cm (h × w × d).

Antennas in a harsh environment
RFS Denmark wanted to verify that their TMAs (Top Mounted Amplifiers) were able to withstand severe environmental conditions.

The amplifiers were to be mounted on masts in coastal areas of southern Europe as well as other places. DELTA designed a test sequence which included 28 days’ cyclic salt mist as well as UV, vibration, HALT, bump, cyclic humidity and IP. Different design alternatives were tested, and based on the results, RFS Denmark was able to verify the robustness of the design prior to introducing it on the market.

“From the process we gained knowledge about the margins of our product with respect to the severe environment as well as valuable input about areas of potential improvements in future products”,

states Mechanical Engineer Henrik Hangler, RFS Denmark A/S

International standards
IEC 60068-2-11 Ka – Salt mist.
A steady-state salt mist test.
IEC 60068-2-52 Kb – Salt mist, cyclic.
MIL-STD-810F, Method 509.4 – Salt fog.
A military testing standard for equipment specifying a cyclic salt mist/fog test consisting of alternating salt mist/fog exposures and drying exposures.
Nordtest method NT elec 016G – Electrical equipment: Environmental test procedures.