

“It does what it says on the tin”

**Richard Gould
Technical Advisor**

Environment Agency, England and Wales

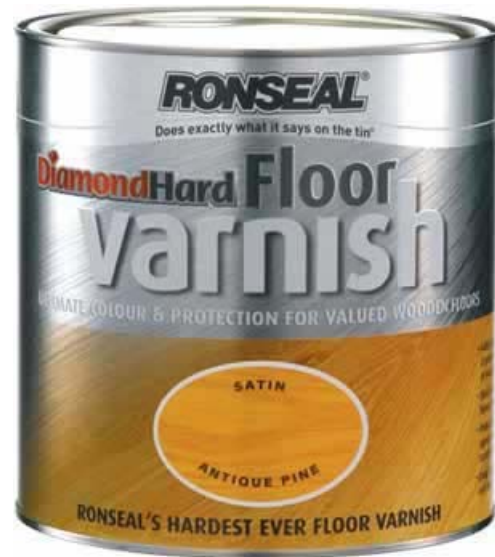
Outline

- Introduction – words and confusion
- Proving performance – a common goal
- MCERTS – an example
- Lessons we have learned

Big words and confusion?

- Verification
- Certification
- Type-Approval
- Type-testing
- Validation
- Performance Evaluation
- Conformity Assessment
- All the words have the same practical meaning?
- *Proving performance*
 - Testing to see if something works properly (or not...)

Proof of performance



“Does exactly what it says on the tin”

A simple expression

- “*It does exactly what it says on the tin*”
- Created by an advertising agency for *Ronseal*
- Tell buyers about performance
- First used in 1994
- Still widely used in advertising in 2008
- A registered trademark of *Ronseal*
- Has entered popular UK culture
- Google – 848,000+ examples

Proof of performance



Why is it relevant?

- The phrase embodies ETV
- Environmental problems
- Technical solutions
 - *Products with reduced environmental impacts*
 - *Energy efficiency*
 - *Pollution abatement*
 - **e.g. Carbon Capture and Storage (CCS)**
 - *Clean technologies*
 - **e.g. Renewable energy**
- Will the solutions work correctly?
 - *Benchmarks for performance*
 - *Reliable means of testing to prove performance*
 - *A means to compare similar products and processes*

Why is it relevant?

- Political drivers
 - *ETAP*
 - *EU Eco-design criteria*
 - *EC major green-product plan*
 - *Eco-design standards for appliances under the 2005 energy-using products (EuP) directive*
 - *Fast-tracking of clean-technology patents*
 - *ISO/AWI 14006 - Guidelines on eco-design*
 - *EN ISO 14020 series – environmental labels and declarations*
- Two critical needs
 - ***Users need proof that products and processes are better and actually work***
 - ***Financiers need proof for sound investments***

Carbon capture and storage



Carbon Capture and Storage



- Fossil-fuel use in industry - 40% of the EU's CO₂ emissions.
- CCS – up to 28% of CO₂ emission-reductions by 2050
- European Union
 - *CCS could help reduce CO₂ emissions by around 160 Mt (4% of emissions) by 2030*
 - *800 Mt in 2050 (a 20% reduction)*
- Building blocks of the technology exists, but...
- Investment of about €1 billion for commercial viability

Source – International Energy Agency

Solar panels



- Renewable Energy Directive – 20% by 2020
- One of the biggest markets – *micro-renewables*
- Projections of 15% to 40% growth per year
- Investment crucial
- Verification more important

Monitoring systems



Needs

- Processes have emission limit values
- Processes must be controlled
- Operators must monitor emissions
- So how do we know that each system is good enough?
- Are the results real and valid?
- Emissions trading for NO_x emissions
 - *Poor monitoring can cost a lot of money*

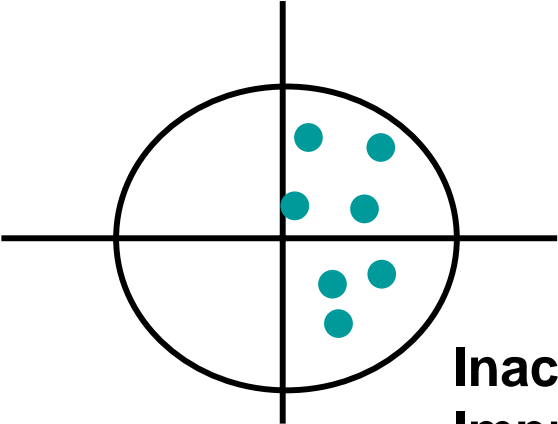
Past problems

- Systems varied in quality
 - *Very good to very bad*
- Variable accuracy and precision
- Poor reliability
- Unreliable data
- Systems did not always *do what they said on the tin*

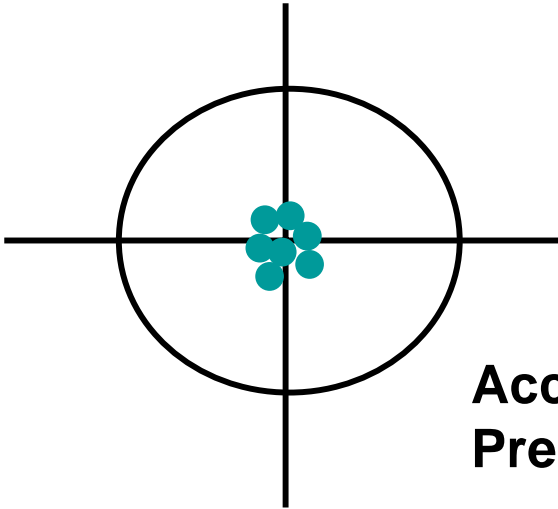
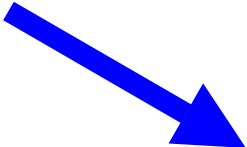
Solution

- Apply performance requirements
 - *Reinforce with laws*
- Use systems with proven performance
 - *Testing (Verification)*
 - *Certification (Approval)*
- Requirements for all test laboratories
 - *Standards, accreditation*
 - *Specifications from CEN, ISO and national standards*
- Standards packaged through MCERTS in the UK
 - *Monitoring Certification Scheme*
- Similar schemes in Germany, France and Italy

Accuracy and precision

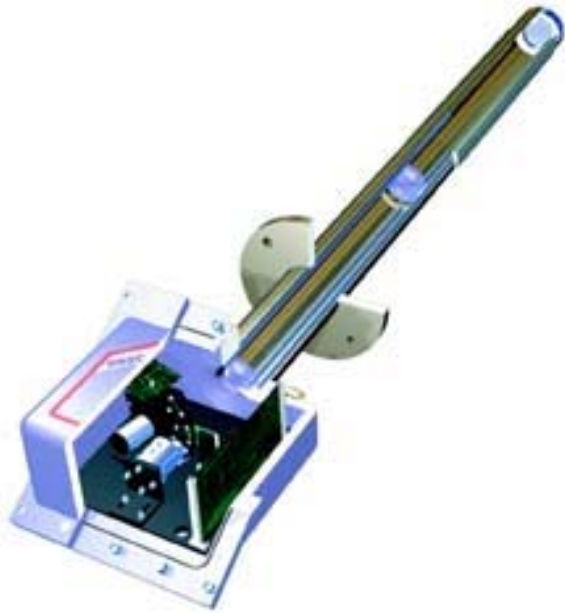


**Inaccurate
Imprecise**



**Accurate
Precise**

Proof of performance – Stage 1

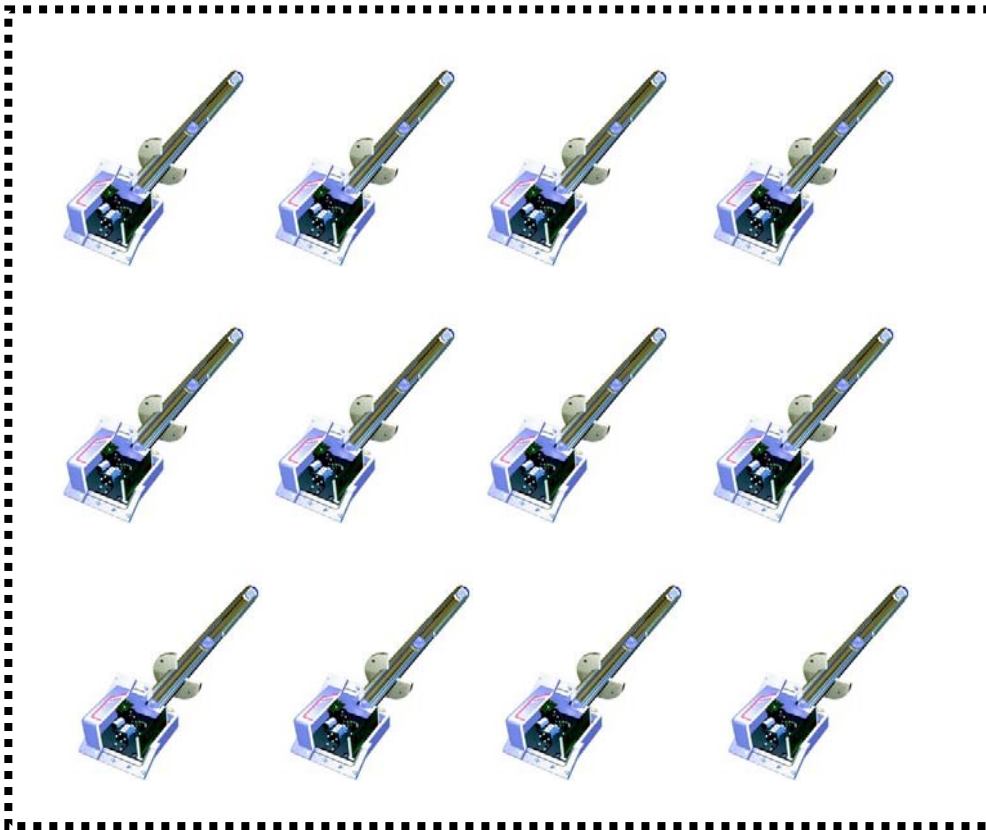


Testing



“Our monitoring system is in a series designed for analysing of up to six gases. The system meets the performance specifications that regulators want”

Certification – Stage 2



Assess
Manufacturing
processes



Official
Approval



Paired testing – laboratory tests



- Artificial stack
- Gas mixing systems
- Environmental controls

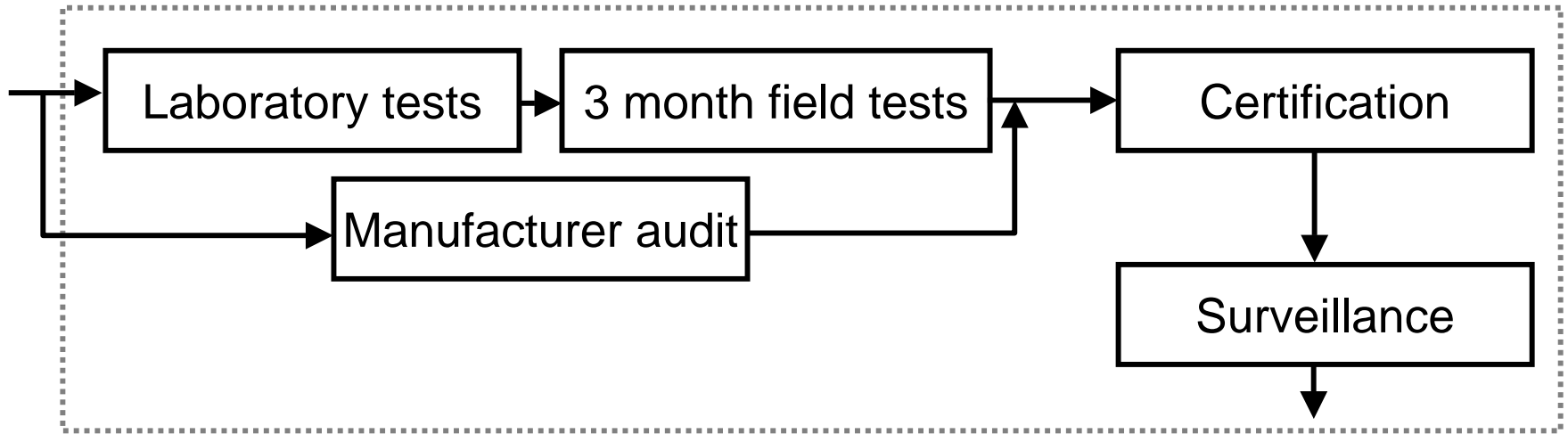


Field testing – comparison with a reference method

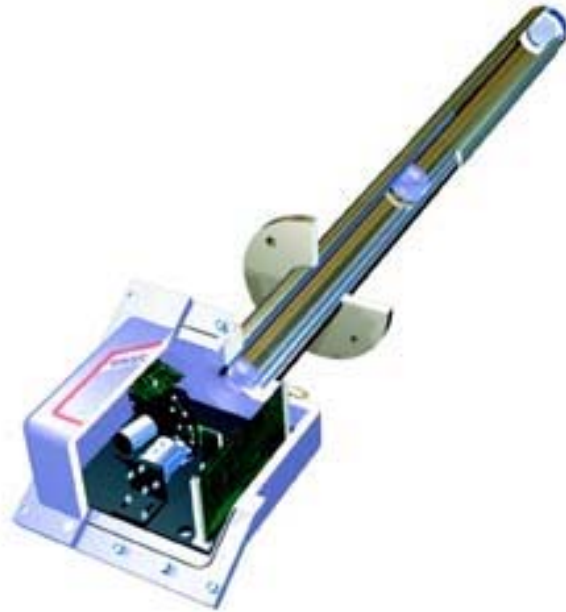


- Check of emissions, and monitoring-system readings, using a standard reference method (SRM)
- SRM yields a true reading (or as close as we can get)
- Test-laboratories must be MCERTS-accredited or equivalent

Evaluation – the MCERTS model

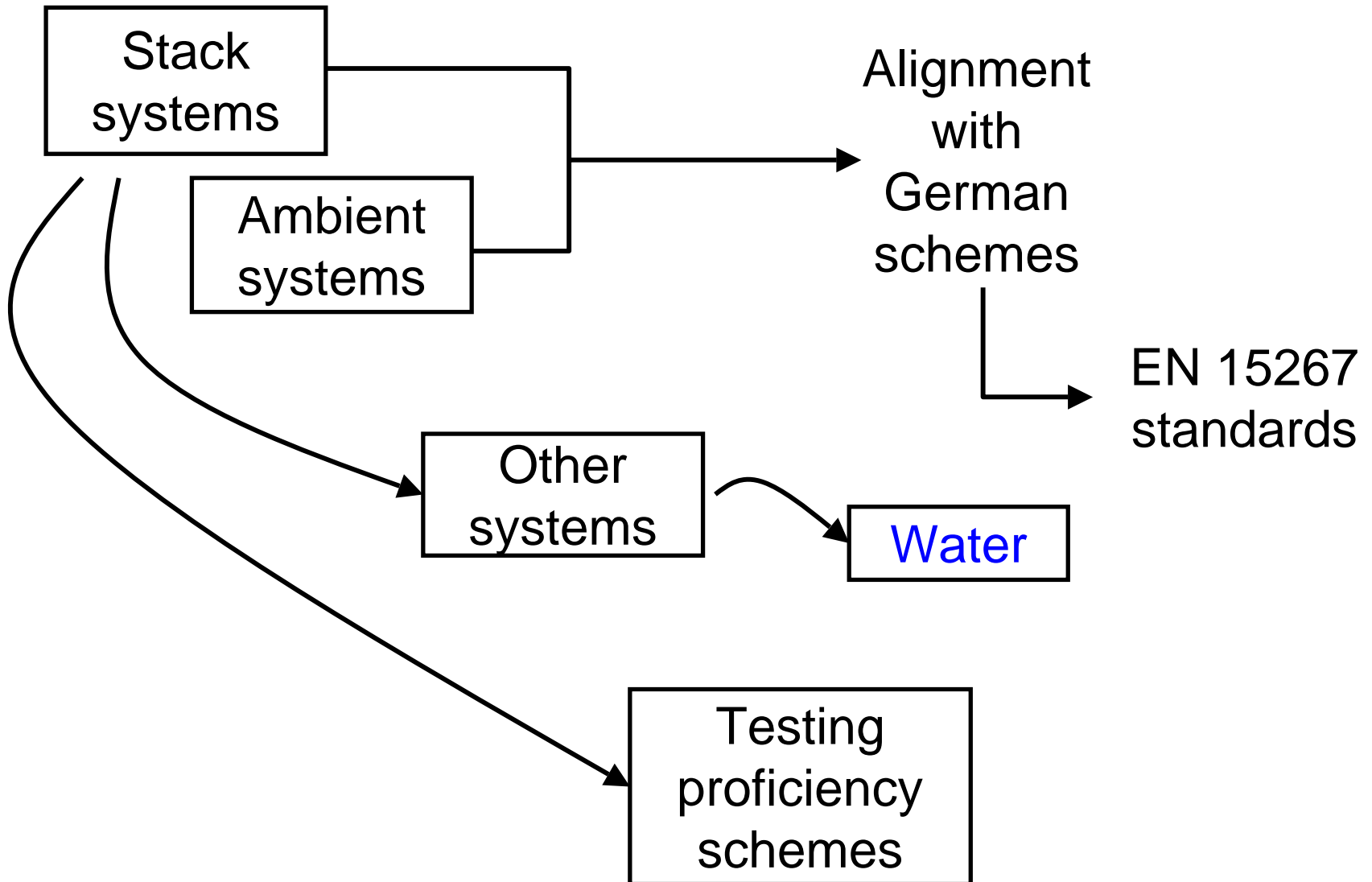


Proof of performance



“It does what it says on the tin”

MCERTS expansion



Summary

- ETV is about proof of performance
- The most important part is testing
- There are testing schemes already, which work well
 - *USEPA ETV*
 - *Canadian ETV*
 - *EU testing & certification scheme for air pollution monitors*
 - *TUV Cologne system for solar panels*
 - *TRITECH ETV*
- Buyers, regulators and investors just want to know if a technology *does what it says on the tin*