TESTIA
For INNOVATIVE Solutions

6th Symposium for NDT in Aerospace

Opening new ways in ndt using OMA communication system with Smart NDT Tool, UT & ET equipment

Enhanced NDT by collaboration between mobile inspectors and distant supporting experts

P. Bernay. November 2014
NDT is an AIRBUS Group core activity for Certification & Quality Assurance to demonstrate & guarantee the safety of primary aero-structures

- Capitalize on 25 years of NDT skills and experience and market externally (NDT expert/France)
- Additional training, engineering, expertise services…expected for MRO & Airlines for composite structures maintenance
- Internationalisation of AIRBUS Group industrial facilities + risks partners for aero-structures => Needed support & NDT operations locally in
The company owns a number of certifications and qualifications:
- EN4179, NAS 410, National Boards (COSAC ...)
- EN 9100 – ISO 9001-2000
- EASA, FAA PART 145

TESTIA has created a Workforce Management Policy to ensure the best adaptation of its services to match the planned and urgent needs of the customer.

The core business of TESTIA is the Non Destructive Testing. Nevertheless, the company intends to diversify its activities further in the field of Aerospace Quality Services and Inspection Products.

TESTIA Services are divided into 6 departments:
- Training
- Engineering
- In service inspections
- Manufacturing
- Consultancy
- NDT products for aerospace
Testia worldwide organisation

- NDT Expert France
  - Services
  - Training
  - Subsidiaries in South Africa and Mexico

- ENSIA Spain
  - Services
  - Training

- TESTIA Germany
  - Training school currently set up in Cassidian facilities

- TESTIA UK
  - Services
  - Training

- TESTIA Russia
  - Services
  - Training
  - Business ready to start

- TESTIA Singapore
  - Services
  - Training
  - Business plan under finalization

- TESTIA Holding

- TESTIA Products
  - MiRA
  - NDT Techno
  - AIRBUS Group Innovation's new Technologies

- Airbus Group
The future growth in the Aerospace NDT Market is driven by:

- The increasing need for Qualified NDT Engineers and Technicians
- More stringent Airframe Inspection requirements and increasing number of Aircrafts in service
- Industry driven approval and certification requirements
- Need for automated NDT Tools and trained Technicians.
- Increased use of Composites in Aerostructures
Content

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2. System Components: Hardware
3. OMA Functions-General
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5. OMA Usage
OMA development project

- Improve maintenance operations
- Enhanced ndt
- Full or partial control
- Improve aircraft availability
- Optimize resources
Solution Concept

Dedicated server
Secured data transmission
Authentification procedure
OMA System Components

**Mobile Unit**
- NDT Equipment
- Computer
- Camera
- Wireless Modul
- OMA 2.0

**Communication medium**
- Wired Connection
- GSM, 3G, EDGE, etc.
- LAN
- WLAN, Bluetooth

**Support-Unit**
- Computer
- Camera
- Wireless Modul
- Internet access
- OMA 2.0

**Smart NDT tools**

[Diagram showing communication mediums and components]
Online Maintenance Assistance Concept

**Maintenance Base**
- NDT Inspector (Level 1)
- Smart NDT Tool Equipment
- Inspection Area

**Support Center**
- NDT Level 2 Specialist
- Service PC with MMA Software
- Knowledge Database

Data Flow:
- Audio
- Video
- Data
Don't we have already tools available?

- Audio and video communication via Internet is standard today (videokonferencing, Skype, WebEx, etc.)

What OMA brings more:
- Usage restricted to company employees
- Macro-enabled cameras
- Viewing 2 video signals at the same time
- Remote control of measuring instruments
- Digital and analog video inputs
- Extensible to additional functions
OMA Functions - General
OMA Concept

Screen signals

Video

Audio

Intranet / Public network

Remote control

Video

Audio

Operator

Airport Service Hangar

Expert

Airline Service Center

Smart UE1
Current Concept

OMA 2.0

Online Conference

Video Support

Snapshot

Remote control

Whiteboard

Offline Data Acquisition (Report)

Security Concept

User Management
Visual Communication + Remote Guiding

First approach to carry an inspection is to visualize

- The context and environment
- The area to be inspected
- The flaw / defect characteristics
- Show the inspection as done at the hangar / inspection site

Support can be given via OMA by:

- Demonstrating the optimum way of work in the Lab
- Flaw analysis (e.g. corrosion or crack appearance)
- Guiding through a NTM procedure

Both ways

- Transmission of screenshots, images, sketches etc.
Snapshot Function

Video Service
- Snapshot
- Video Support
- Whiteboard
Whiteboard

Video Service

Snapshot  Video Support

Whiteboard
OMA Functions - NDT
Main features & benefits

- User friendly interface:
- Lightweight tablet plus acquisition unit
- HD Multi touchscreen
- Intuitive general features
- Automatic calibration
- Automatic real time diagnosis and recording of the table of results in XLS or DOC format
- Application-specific modules
Remote control of “High-End” NDT equipment

• Software in PAUT Equipment adapted for remote control
• Access to C-scans and parameter settings
At least 70% of the screen should be used for video. The other 30% for the control components.
Other ndt methods: Image / Video Transfer

A pure Image / Video Transfer can be done with the following NDT instruments (using e.g. S-Video):

- Endoscope
- Thermography Camera
- Shearography System
- X-Ray images / detector live stream
- External camera and display, e.g. from analogue instruments
Remote control of “High-End” NDT equipment

DEMO
OMA Support in Aircraft Maintenance

+ NDT inspections are complex processes
+ NDT systems are more and more complex
+ Worldwide support 24/7
+ Support today mainly by E-Mail and speech
+ Travelling is time and cost intensive
+ Faster, uncomplicated support is required by the customer
OMA Support in manufacturing in large facilities

Local network.Wlan
OMA to support suppliers

- New manufacturing concept at and increased number of suppliers
- Suppliers are responsible for NDT, but may not have the skilled personnel.
- NDT qualification needs increased support for the suppliers for
  - Document preparation
  - Test performance
  - Data evaluation
Remote NDT, on going developments

Airbus Stade:
Remote NDT tests with OMA at Airbus Stade, including ndt experts from Bremen and Hamburg

Case study with Airbus subcontractor in France: assistance to UT Level 1 from UT Level 3

On line assisted NDT use cases in the aircraft industry:
• Inspections made overseas by Level 1 inspectors
• Decisions made by distant certified inspectors
Smart NDT tools

To deliver added value

- On line assistance
- Enhanced NDT
- Easy reporting
- Time saving

Aircraft availability
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