



ATEC International V&V Program

Joint VV&A Meeting

14-15 Nov 01

Developmental Test Command
Technology Management Division

5/13/2004

Developmental Test Command



Agenda



- **Background**
- **International T&E Steering Committee (ITESC)**
- **International Test Operations Procedures (ITOPs)**
- **M&S and VV&A ITOPs**
- **Summary**



ITOP Management Structure



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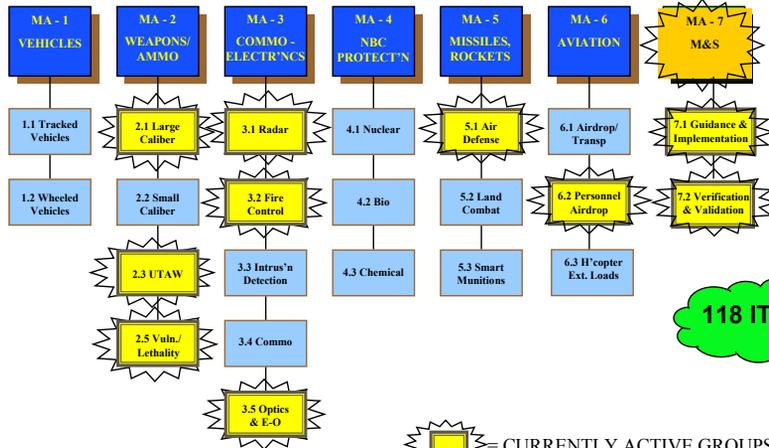
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Deputy Director Resources and Ranges, DOT&E



Four - Nation T&E MOU Organization Structure

FOUR - NATION
INTERNATIONAL T&E STEERING COMMITTEE
(ITESC)

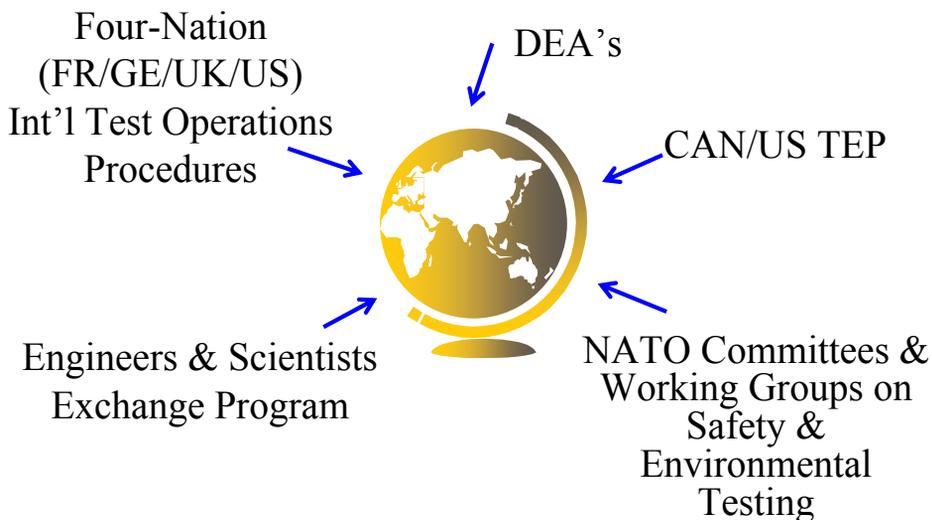


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ATEC's International Program



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DTC's international efforts can be grouped into four main areas:

1. DTC's Test Operations Procedures (TOPs) are harmonized and reissued under the auspices of a 4-Nation Memorandum of Understanding on Test & Evaluation. 4-Nation Working Groups of Experts meet twice a year to discuss test procedures in their technical areas. At this time, ten groups are actively working in such areas as Large Caliber Weapons and Ammo, Mines, Airdrop, Live Fire, Rockets and Missiles and others. 83 International TOPs have been published to date. Our procedures have improved, our testers have become smarter, and we have captured test technology for TECOM.
2. DTC has 7 bilateral Data Exchange Annexes, all dealing with Proving Ground Techniques. Our partner countries are Germany, France, Israel, The Netherlands, Sweden, Korea, and Australia. We use these agreements to discuss not only how we test, but how we manage our test ranges. These agreements exist so we can, with a partner, look for areas where we can jointly cooperate in test technology development. Sweden has agreed to send an engineer (under the SEEP) to YPG to help develop and characterize the Hardened Subminiature Telemetry Sensor System, an ongoing CTEIP project at YPG.
3. We accept Scientists and Engineers from such countries as Germany and Korea to work on our test ranges under DoD's SEEP. It has been a means of information exchange in both directions, as well as providing skilled labor for us.
4. We are currently active in two NATO Allied Committees: We provide Army representation for AC/301 on the Standardization of Materiel and Engineering Practices. (These activities directly feed U.S. MIL-STD-810, a recognized world standard on Environmental Testing of Materiel.). DTC also provides the chair an environmental safety testing of munitions subgroup under AC/310 on Safety and Suitability for Service of Munitions and Explosives. We have completed our work in AC/225, publishing over 75 Allied Vehicle Test Procedures.



International Test Operations Procedures (ITOPs)



ITOPs ...

- Are international agreements.
- Document T&E procedures for testing military materiel.
- Are cooperatively developed by subject-matter experts of 4-Nations.

ITOPs capture expertise of
world's testing experts



Authority for ITOPs



Memorandum of Understanding (MOU) among the Governments of France, Germany, The United Kingdom and the United States relating to *The Mutual Acceptance of Test and Evaluation* for the *Reciprocal Procurement of Defense Equipment*.

... December 1983



ITOPs are Unique International Documents



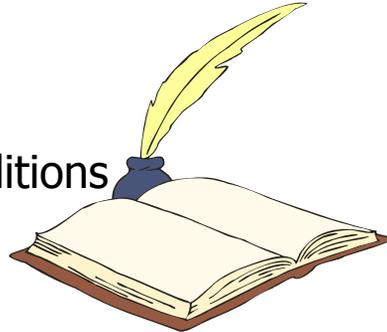
- Focused Specifically On Mutual Acceptance of T&E.
- Level of Detail Designed for Direct Use in T&E - Development of Test Plans and Conduct of Test.
- Four Nation Effort - Provides for Rapid Development of Procedures (1-3 years).

DOES NOT DUPLICATE OTHER PROCEDURES, E.G., STANAGS



ITOP Format

- Scope
- Facilities and Instrumentation
- Required Test Conditions
- Test Procedures
- Data Required
- Presentation of Data



Ref: Publishing and Printing
TOPs and ITOPs,
DTC Reg. 25-30



MANAGEMENT COMMITTEE - 7 MODELING & SIMULATION



- **ACCOMPLISHMENTS:**

- Extensive exchange among members on applications of M&S in T&E and on activities of NATO and other organizations.
- Received industry briefings and demonstrations on uses of M&S.
- Prepared "Scope of M&S MC-7" for presentation to ITESC.
- Reviewed activities of WGE 7.1 (M&S WGE) and WGE 7.2 (VV&A) and provided guidance.



WORKING GROUP OF EXPERTS WGE 7.1 M&S GUIDANCE AND IMPLEMENTATION



- **ACCOMPLISHMENTS:**

- Partnered with WGE 3.2 (Fire Control) to develop and test procedures.
- Planned completion of complete draft of new ITOP guidance document August 2000.
- Information presentation at ITEA workshop, Las Cruces, New Mexico, December 1999.
- Looking ahead to possible guidance document for testers.

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- WGE 7.1 has briefed at two WGE 3.2 meetings and WGE 3.2 has reviewed the last two working drafts.
- Basic document draft has been completed. Working on annexes at the next meeting.
- Briefing available for presentation at other forums.
- Feedback has indicated a need for document to provide guidance to test planners on how to best use simulation to support testing.



M&S ITOP Format

Paragraphs

1. Purpose
2. Scope
3. Background
4. References
5. Explanation of Terms
6. General
7. Simulation Methodology

Appendices

- A. Acronyms
- B. Terms/Glossary
- C. Cost/Benefits Checklist
- D. Sample Format



WORKING GROUP OF EXPERTS 7.2 M&S VV&A



- **ACCOMPLISHMENTS:**

- Each nation wrote assigned sections of the draft VV&A ITOP.
- Refining the draft VV&A ITOP for ratification.
- Will be producing three language versions.
- Significant work still to be accomplished:
 - Detail procedures.
 - Refine Credibility Template or Workbook for capturing VV&A information .
 - Qualify and quantify "Levels of Credibility."
 - Identify M&S Tools and Resources.



VV&A ITOP Format



1. GENERAL
 - 1.1 Purpose
 - 1.2 Scope
 - 1.3 Background
 2. INTRODUCTION
 - 2.1 Applicability
 - 2.2 Definitions and Anatomy
 - 2.3 Verification and Validation
 - 2.4 Concepts and Credibility
 - 2.5 Roles and Responsibilities
 3. PROCEDURES
 - 3.1 Pre-requisites
 - 3.2 What to do to be compliant
 - 3.3 Deliverables to be compliant
 4. IMPLEMENTATION
 - 4.1 Selection of levels
 - 4.2 Credibility planning
 - 4.3 Providing Evidence
 5. DOCUMENTATION
 - 5.1 Transfer Report
 - 5.2 Credibility Workbook
 - 5.3 Acknowledgements
- Appendix A Credibility Workbook Template
- B Credibility Levels – Arguments & evidence
 - C Guidance – Methods and Tools
 - D Standards and References
 - E Glossary and Definitions
 - F Acronyms

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Summary



- **ATEC has an extensive international cooperation network and history.**
- **International cooperation has produced valuable results.**
- **Looking forward to additional partnerships.**
- **Our test procedures facilitate acquisition reform**
- **Frequent interchange among test engineers promote technology transfer and bring testing to U.S.**
- **Several new efforts on-going.**