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# RTO Technical Publications:

## a quarterly listing

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OCTOBER 2004

NUMBER 04-03

July 1, 2004 through September 30, 2004

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**20040081500** Research and Technology Organization, Neuilly-sur-Seine, France

### **Advanced Technologies for Military Training**

April 2004; 396 pp.; In English; Advanced Technologies for Military Training, 13-15 October 2003, Genoa, Italy; See also 20040081501 - 20040081525

Report No.(s): RTO-MP-HFM-101; AC/323(HFM-101)TP/52; Copyright; Avail: CASI; [C01](#), CD-ROM; [A17](#), Hardcopy

Computer-Based Instruction, Training System Design, Distributed Training, and Virtual Reality are technologies that have dramatically changed. But many of the problems and issues related to training technologies, its application, acceptance, and effectiveness are still with us today. This unclassified Symposium theme was to share data and establish working relationships that can continue to deal with the problem of training and simulation from a human systems integration point of view.

Author

*Computer Assisted Instruction; Virtual Reality; Training Simulators; Training Analysis; Training Evaluation; Learning*

**20040110970** Research and Technology Organization, Neuilly-sur-Seine, France

### **Assessment Methods for Personal Active Noise Reduction Validated in an International Round Robin**

Crabtree, Brian; Abel, Sharon; Dancer, Arman L.; Buck, Karl; Wessling, Thomas; Steeneken, Herman J. M.; Verhave, Jan A.; James, Susan Helen; Rood, Graham M.; McKinley, Richard; August 2004; 106 pp.; In English

Report No.(s): RTO-TR-HFM-094; AC/323(HFM-094)TP/53; Copyright; Avail: CASI; [C01](#), CD-ROM; [A06](#), Hardcopy

Methods used for the assessment of helmets and headsets equipped with Active Noise Reduction (ANR) are different from the (standardized) methods used for passive systems. ANR systems may introduce electronic noise and possess non-linear behavior at high noise levels. Therefore standard methods like comparison of subjective performance at threshold may not be valid. Alternative methods have been developed and compared in various laboratories. The performance of a number of test methods was assessed in an international Round Robin. Five laboratories participated in this test: DRDC Canada; ISL France-Germany; TNO-HF The Netherlands; QinetiQ UK, and AFRL/HECB USA. The passive and active sound attenuation of five headsets, all equipped with active noise reduction and an intercom, were determined. Several measuring methods were adopted including methods that are based on a human head, artificial head and artificial ear. With a human subject the maximum sound level is restricted due to a possible temporary or permanent hearing loss. Artificial ear and head based methods have no level limitation but may not be representative. This study presents a comparison of the validity of these methods. The speech intelligibility was predicted from measurements of the Speech Transmission Index (STI) and the Modified Rhyme Test (MRT). The personal comfort and performance of the headsets were evaluated subjectively. The results on attenuation show that most measuring methods are not significantly different. Also, inter and intra subject variance was small. The measurements covered the attenuation of the passive and active performance of the systems. The results presented in this report are focused on methods to determine the passive and active attenuation and speech communication quality. Also the speech communication measurements with subjects

and with an artificial head show a good correlation. Various measuring methods for attenuation and speech communication quality were validated and found to be very useful for military applications.

Author

*Noise Reduction; Helmets; Earphones*

**20040111000** Research and Technology Organization, Neuilly-sur-Seine, France

**All Electric Combat Vehicles (AECV) for Future Applications**

July 2004; 234 pp.; In English

Report No.(s): RTO-TR-AVT-047; AC/323(AVT-047)TP/61; Copyright; Avail: CASI; C01, CD-ROM; A11, Hardcopy

Based on preceding studies of the last 10 years new electric technologies, technology requirements, systems for mobility, survivability and lethality of All Electric Combat Vehicles (AECV) were analysed, including pulse power requirement and energy storage. Enabling technologies were identified and potential payoffs were balanced against technical issues. A vehicle demonstration was performed. The general result is that further developing electric vehicle drives will be of advantage. The study dealt in detail with: Requirements. Mobility. Lethality and Survivability. Modelling and Simulation. Power Generation, Management & Distribution. Performance. Standardization and Dual Use. Life Cycle Cost of AECV.

Author

*Combat; Electric Motor Vehicles; Energy Storage; Lethality*