

Subsidiary radio communications tasks for workload assessment in R & D simulations

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Résumé ou extrait : Primary task interference and poor operator acceptance are problems associated with secondary task measures of aircrew workload which limit their usefulness during the later stages of system development. A possible solution to these problems would be to design secondary tasks which are an integral part of normal operator duties and retain the properties of valid measurement tasks. This report describes a concept of using realistic radio communications activities as subsidiary workload measurement tasks in R & D simulations and actual flight tests. In order to devise a generalized method of developing communications tasks with controlled levels of added workload which could be tailored to specific system and mission contexts, three methods of workload scaling were applied to 13 communications tasks typical of those occurring in the A-10 aircraft. The first technique provided workload estimates based on the information transmission demands of communications activities. Information theoretical metrics were applied to the perceptual decisions and manual action decisions required in response to incoming messages. In a second scaling effort, this approach was supplemented by estimates of the additional contribution to workload of memory demands, information gathering activities, and instruction complexity, which were not assessed by the information theoretical measures