

Title:

"Evaluating aircraft escape path marking in immersive virtual reality"

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Abstract:

According to Advisory Circular 25.812-1A, escape path marking systems should be designed in such a way that they do not lead passengers past available exits. This is especially critical in the case of non-floor level overwing exits where recognition of exit features and markings might be obscured by seats. In a recent study that involved simulated evacuations in virtual reality from a smoke-filled A320 aircraft cabin, we observed multiple instances of users overlooking overwing exits while trying to evacuate the aircraft, despite the availability of commonly used escape path marking. This motivated our current study, aimed at assessing the effectiveness of different escape path marking designs for non-floor level overwing exits. In particular, we focused our attention on the aisle cues that are used to inform passengers about the existence of overwing exits, taking into consideration four escape path marking designs based on point lights, with each design using a different combination of light color (green/red) and light behavior (steady/flashing). Results of our study highlight peculiarities of the participants' behavior during simulated evacuation scenarios as well as strong and weak points of the considered marking designs. As in previous studies, we used virtual reality technology to easily create the evacuation scenarios for our tests.