THE DISTORTING EFFECTS OF SCBA EQUIPMENT ON SPEECH AND ALGORITHMS FOR MITIGATION (ThuAmPO4)

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Abstract :

High quality, reliable communications between public safety per−sonnel is essential for accomplishing missions while maintaining their own health and safety. The SCBA mask air delivery system is essential equipment in some public service activities, and its effects on speech must be considered in public service communications system designs. An SCBA mask encloses the face and mouth and alters articulation and the speech spectrum. SCBA system noises such as alarms and air regulator noise, in addition to environmental noises, add to the deterioration of speech quality in an SCBA−fronted communication system. In digital communication systems, corrupted speech affects codec performance increasing the poten−tial for diminished intelligibility. This paper describes a study of some of the distortion effects of SCBA equipment on speech qual−ity. It also describes two signal processing algorithms designed to mitigate some of the effects of the distortion.

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