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Digital radio fails the firefighters

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MANY firefighters in the US can no longer hear their colleagues amidst the noisy maelstrom of a fire rescue. The problem? Their brand new digital two-way radios.

The US has been equipping its emergency crews with digital radios because they take up half the radio spectrum of the old analogue ones. But fire crews complain that they cannot hear what their colleagues are saying.

It turns out the problem is in the "vocoders" that digitise speech and then compress the bits into a 12.5-kilohertz band of radio spectrum. Vocoders are designed for normal human speech, so their output degrades in the presence of loud background noise, or if a breathing mask muffles the firefighter's voice.

DJ Atkinson at the [Institute for Telecommunication Sciences](#) in Boulder, Colorado, who tested the radios, points out that most emergency workers can step away from noisy spots to talk, but firefighters cannot.

Now radio manufacturers, fire safety groups and government agencies are attempting to fix the problem by designing radios that work with breathing masks, and developing new procedures that keep microphones closer to the mouth and away from other sources of noise.

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