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New Measurement Procedure and Rating Categories for Speech Privacy of Closed Rooms

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A procedure for assessing the speech privacy of enclosed rooms is described based on measured level differences between room-average levels in the room and levels at spot receivers 0.25 m from the outside boundaries of the room. The procedure is not sensitive to the acoustics of the receiving space, assesses conditions at more sensitive listening positions, and can describe variations in speech privacy due to weaker elements such as doors. The arithmetic average of the level differences over speech frequencies from 160 to 5k Hz is used to determine uniform-weighted signal-to-noise ratios found to indicate the audibility and intelligibility of transmitted speech (J. Acoust. Soc. Am. 116 (6) 3480-3490 (2004)). The degree of speech privacy is related to the speech levels in the room, the measured transmission characteristics and ambient noise levels outside the room. The probability of transmitted speech being audible or intelligible to eavesdroppers is related to the likelihood of louder speech in the meeting room. The measured statistics of speech levels in a large number of meeting rooms have been used to describe categories of speech privacy of rooms ranging from minimal privacy to situations where transmitted speech would be very rarely audible.