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JISFA2#4 - Uncomfort due to noise and vibration in aircrafts

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The comfort of aircraft passengers depends on many factors, including the noise and vibrations passengers are submitted to. Levels can be very high (in helicopters in particular) or more reasonable (large airplanes). In some cases (e.g. engines), the same source is responsible for both sensations. Noise assessment procedures use classical indicators (A-weighted level, possibly penalised according to tonal emergence). For vibrations, the ISO 2631 standard is used. This presentation will show examples of the use of these indicators in helicopters and aircraft. For noise, the work has shown that, as in many cases, loudness metrics are able to predict discomfort better than the overall A-weighted level. For vibration, the indicator proposed by the ISO standard can be slightly improved by considering amplitude modulations that may be present in engine vibration signals. Finally, a combined noise/vibration discomfort model will be proposed.

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