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Efficiency of optimized microjets on realistic nozzles

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Even if chevrons nozzles are an efficient way to reduce jet noise during take off, they also decrease performances during cruise. An innovative way to avoid this decrease is the use of active devices that could be switch off after take off, such as microjets nozzles. Snecma led test campaigns at Martel Facility (LEA/CEAT) to optimize microjets settings (geometric and thermodynamic parameters) and to characterize their efficiency on both 2D axisymmetric and chevrons nozzles. Acoustic and PIV measurements were done on a single stream hot jet with and without external flow, and on a double stream hot jet with pylon.