

ACOUSTICS2008/132**The sound wave reflection from the corrugated plane streamlined by the low Mach number shear flow (generalized Miles mechanism)**

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The plane sound wave reflection from the periodically corrugated plane streamlined by the parallel shear flow is studied. The incident wave scatters on corrugations and gives both the mirror reflected sound wave and two inhomogeneous nonpropagating in the normal to the plane direction waves. One of the inhomogeneous waves goes in the same direction along the plane that the flow and the second one - in the opposite. The first inhomogeneous wave interacts with critical layer of flow according to Miles mechanism (which was originally applied to the generation of surface waves by the wind (JFM: 1957, 1959)) and reflects from this layer back to the plane. After that this inhomogeneous wave scatters from the corrugated plane and gives some additional part to the mirror reflected sound wave. The total reflection coefficient of sound wave appeared to be more than 1. The angle dependence of the reflection coefficient is analyzed. The equivalent impedance is calculated. The obtained amplification is compared with thermal and viscous surface losses