Scattering along a curve in the plane

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Quantum particles bounded to a curve in $\mathbb{R}^2$ by attractive contact δ-interaction are considered. The curve is assumed C^3-smooth, non-intersecting, unbounded, asymptotically approaching two different half-lines (non-parallel or parallel but excluding the "U-case"). The interval between the energy of the transversal bound state and zero is shown to belong to the absolutely continuous spectrum, with possible embedded eigenvalues. The existence of the wave operators is proved for the mentioned energy interval using the Hamiltonians with the interaction supported by the asymptotic straight lines as the free ones.