Strongly Elliptic Operators for a Plane Wave Diffraction Problem in Bessel Potential Spaces

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Abstract: We consider a plane wave diffraction problem by a union of several infinite strips. The problem is formulated as a boundary-transmission one for the Helmholtz equation in a Bessel potential space setting and where Neumann conditions are assumed on the strips. Using arguments of strong ellipticity and different kinds of operator relations between convolution type operators, it is shown the well-posedness of the problem in a smoothness neighborhood of the Bessel potential space with finite energy norm.

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