H - distributions with unbounded multipliers

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H-measures were introduced independently by Tartar, [4] and Gérard, [3]. They are used to determine weather a weakly convergent sequence in $L^2(\mathbb{R}^d)$ converges strongly. Antonić and Mitrović in [2] introduced H - distributions, extension of H - measures to an $L^p - L^q$ setting for $1 < p < \infty$ and $q = p/p - 1$, . In [1], H - distributions are constructed for sequences in dual Sobolev spaces, $W^{-k,p} - W^{k,q}$. Test functions for H - measures and H -distributions are bounded Fourier multipliers.

We construct H - distributions for sequences in dual Bessel potential spaces, $H_q^k - H_p^{-k}$ and in this case test function can be unbounded multiplier. Also a necessary and sufficient condition is given so that the weak convergence in H_p^{-k} implies the strong one. Results are applied on a weakly convergent sequence of solutions to a family of pseudo - differential equations.

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