converges to zero and well-posedness obtains without any restrictions on γ. This result could also extend to infinitely differentiable ϕ with some zeros and applies in the univariate deconvolution to error distributions such as the uniform and triangular (see Schwartz, pp. 123-125).

Below we provide cases of well-posed deconvolution where less restrictive differentiability conditions are imposed on ϕ; this would require additional conditions on the γ's. The nature of the conditions is to ensure that the product pair is defined for the Fourier transforms; for a continuous ϕ this requires a trade-off between the degree of singularity of γ (and correspondingly, ε) and the differentiability of ϕ, these trade-offs can occur locally as in the example where γ is the derivative of a $\delta-$function and ϕ is continuously differentiable at 0, but to streamline the proofs we consider global restrictions in the product pairs.

First, suppose that both ϕ and γ are continuos functions, then ε is continuous as well. Let Γ be a subspace of all continuous functions on R^d such that all $\gamma \in \Gamma$ belong in a bounded set in S^*; then for some $\bar{m}$ we have $\Gamma = S^*_{0,\bar{m}}(V)$ (implying $\left((1+t^2)^{-1}\right)^{\bar{m}} |\gamma| < V < \infty$). Then for any bounded continuous ϕ the product $\varepsilon = \gamma\phi \in S^*_{0,\bar{m}}(V)$.

Lemma 2. *Suppose that $\gamma, \gamma_n \in S^*_{0,\bar{m}}(V)$, ϕ is a bounded continuous function; $\varepsilon_n = \gamma_n\phi, \varepsilon = \varepsilon_0 = \gamma\phi, 0 \leq n < \infty$ and ϕ^{-1} is a continuous function that satisfies (13). Then if $\varepsilon_n \to \varepsilon_0$ as $n \to \infty$ in S^* we get that $\gamma_n = \phi^{-1}\varepsilon_n$ converges to $\gamma = \phi^{-1}\varepsilon_0$.*

Proof. First note that for any number $\xi > 0$ for any $\psi \in S$ there exists