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WEAK LEVI CONDITIONS IN SEVERAL COMPLEX VARIABLES[1]

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1. **Introduction.** Let $\Omega=\{z;\, z\in\Omega_0,\ \rho(z)<0\}$ be a bounded domain in C^n, where $\rho\in C^2(\Omega_0)$, Ω_0 a neighborhood of Ω, and let grad $\rho\neq 0$ on $\partial\Omega$. As is well known, if Ω is a domain of holomorphy then for any $x^0\in\partial\Omega$,

$$(1)\quad L(\rho(x^0),w)\equiv\sum_{j,k=1}^{n}\frac{\partial^2\rho(x^0)}{\partial z_j\partial\bar z_k}w_j\bar w_k\geqq 0\quad\text{whenever}\quad\sum_{j=1}^{n}\frac{\partial\rho(x^0)}{\partial z_j}w_j=0,$$

and, if (1) holds with strict inequality (for $w\neq 0$) then Ω is a domain of holomorphy. (1) is called the *Levi condition* (LC) and, in case of strict inequality, the *strict* LC. One of the consequences of the present work is that the above statement remains true if the assumption $\rho\in C^2$ is replaced by $\rho\in H^{2,\infty}$ (see §2).

In what follows Ω is always given by ρ as above, where $\rho\in C^1(\Omega_0)$, grad $\rho\neq 0$ on $\partial\Omega$.

2. **Definitions.** If ρ has second weak derivatives which belong to $L^p(\Omega_0)$ $(1<p<\infty)$ then we say that Ω and ρ belong to $H^{2,p}$. Actually we shall only need the derivatives $\partial^2\rho/\partial z_j\partial\bar z_k$ to belong to L^p, but then

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