for every compact $K \subset \Omega$.

The general version of Cauchy's formula

$$\varphi(0) = \frac{1}{2\pi\sqrt{-1}} \int_{\mathbb{C}} \frac{\partial \varphi(z)}{\partial \bar{z}} \frac{dz \wedge d\bar{z}}{z}, \quad \varphi \in C_c^\infty(\mathbb{C}),$$

given in Section 1 of Chapter 0 translates into the equation of currents

$$\bar{\partial}(T_K) = \delta_{\{0\}}.$$

By P2, Cauchy Integral Formula, $f \in C^\infty(\bar{\Delta})$, $z \in \Delta$.

$$f(z) = \frac{1}{2\pi\sqrt{-1}} \int_{\partial\Delta} \frac{f(w)\, dw}{w - z} + \frac{1}{2\pi\sqrt{-1}} \int_{\Delta} \frac{\partial f(w)}{\partial \bar{w}} \frac{dw \wedge d\bar{w}}{w - z}.$$

Choose $f = \varphi$, $\Delta \supset \operatorname{supp}\varphi$, $z = 0$.

$$\Rightarrow \varphi(0) = \frac{1}{2\pi\sqrt{-1}} \int_{\partial\Delta} \frac{\varphi(w)\, dw}{w} + \frac{1}{2\pi\sqrt{-1}} \int_{\Delta} \frac{\partial \varphi(w)}{\partial \bar{w}} \frac{dw \wedge d\bar{w}}{w}$$

// 0 since $\operatorname{supp}\varphi \subset \Delta$, $\varphi = 0$ on $\partial\Delta$.

// $\frac{1}{2\pi\sqrt{-1}} \int_{\mathbb{C}} \frac{\partial \varphi(w)}{\partial \bar{w}} \frac{dw \wedge d\bar{w}}{w}$, by $\operatorname{supp}\varphi \subset \Delta$,

$$\Rightarrow \varphi(0) = \frac{1}{2\pi\sqrt{-1}} \int_{\mathbb{C}} \frac{\partial \varphi(z)}{\partial \bar{z}} \frac{dz \wedge d\bar{z}}{z}$$

$\varphi(0) = \delta_0(\varphi)$.

$$(\bar{\partial} T_K)(\varphi) = (-1)^2 T_K(\bar{\partial}\varphi) = \int_{\mathbb{C}} \frac{1}{2\pi\sqrt{-1}} \frac{dz}{z} \wedge \bar{\partial}\varphi = \int_{\mathbb{C}} K \wedge \bar{\partial}\varphi$$

$$= \int_{\mathbb{C}} \frac{1}{2\pi\sqrt{-1}} \frac{dz}{z} \wedge \frac{\partial \varphi}{\partial \bar{z}} d\bar{z} = \frac{1}{2\pi\sqrt{-1}} \int_{\mathbb{C}} \frac{\partial \varphi}{\partial \bar{z}} \frac{dz \wedge d\bar{z}}{z}$$

$\Rightarrow \delta_0(\varphi) = (\bar{\partial} T_K)(\varphi)$ for all $\varphi \in C_c^\infty(\mathbb{C})$, $\Rightarrow \delta_0 = \bar{\partial} T_K$.