$$= (-1)^q K_\varphi(\bar\partial\psi)\cdot(-1)^{(2n-q+1)(2n+1+q)} + (-1)(-1)^{(2n-1+q+1)(2n-q)} K_{\bar\partial\varphi}(\psi)$$

$$= (-1)^{q+q^2-1} K_\varphi(\bar\partial\psi) + (-1)^{q^2-1} K_{\bar\partial\varphi}(\psi)$$

$$= -K_\varphi(\bar\partial\psi) + (-1)^{q-1} K_{\bar\partial\varphi}(\psi) = (-1)\left(K_\varphi(\bar\partial\psi) + (-1)^q K_{\bar\partial\varphi}(\psi)\right)$$

(by Stoke's theorem)

$$= \lim_{\epsilon\to 0}\int_{\Delta_\epsilon} k(z,w)\wedge\psi(z)\wedge\varphi(w) = (-1)^D\int_{\mathbb{C}^n}\psi(z)\wedge\varphi(z) = (-1)^D T_\varphi(\psi)$$

$\Delta_\epsilon = \epsilon$-nbd of Δ

$$\Rightarrow \quad T_\varphi = K_\varphi\bar\partial + (-1)^q K_{\bar\partial\varphi} \Rightarrow$$

$$\bar\partial K + K\bar\partial = \text{identity}, \text{ for } \varphi\in A_c^{0,q}(\mathbb{C}^n)$$

$$(\bar\partial K)(\varphi)(\psi) = (-1)^q K_\varphi(\bar\partial\psi)$$

$$(K\bar\partial)(\varphi)(\psi) = K_{\bar\partial\varphi}(\psi)$$

$$\lim_{\epsilon\to 0}\int_{\Delta_\epsilon} k(z,w)\wedge\psi(z)\wedge\varphi(w) = (-1)\lim_{\epsilon\to 0}\int_{\Delta_\epsilon} k(z,w)\wedge\varphi(w)\wedge\psi(z)$$

$$= \int_{\mathbb{C}^n}\varphi(z)\wedge\psi(z) = \int_\Delta k(z,w)\wedge\varphi(w)\wedge\psi(z) \quad --- \text{①}$$

From ⊛

$$-\int_{\mathbb{C}^n\times\mathbb{C}^n-\Delta} k\wedge\bar\partial(\psi\wedge\varphi) = -k(\bar\partial(\psi\wedge\varphi)) = (-1)(-1)\,(\bar\partial k)(\psi\wedge\varphi)$$

$$= (-1)^q(\bar\partial k)(\varphi\wedge\psi) \quad --- \quad \text{②}$$

On the other hand,

for $\varphi\in A_c^{0,q}(\mathbb{C}^n)$, $\psi\in A_c^{n,n-q}(\mathbb{C}^n)$

$$T_\Delta^0(\pi_2^*\varphi\wedge\pi_1^*\psi) = T_\Delta^0(\varphi(w)\wedge\psi(z)) = \int_\Delta \pi_1^*\psi\wedge\pi_2^*\varphi$$

$$= (-1)^0\int_{\mathbb{C}^n}\varphi\wedge\psi = (-1)^0 T_\varphi(\psi). \quad --- \quad \text{③}. \quad \text{①} = \text{②} = \text{③}.$$