$$\sum_{k\geq k_0}\left|\mathcal{F}\left(\frac{1}{Q_k}\sum_{j=0}^{k-1}(g_jq_j-g_{j+1}q_{j+1})\zeta_j+\frac{q_kg_k}{Q_k}\zeta_k\right)\right|^{t_k}$$

$$\leq\sum_{k\geq k_0}\left|\mathcal{F}\left(\frac{1}{Q_k}\sum_{j=0}^{k-1}(g_jq_j-g_{j+1}q_{j+1})\zeta_j+\frac{q_kg_k}{Q_k}\zeta_k\right)\right|^{p_k}<\infty.$$

From this, it is clear that $\zeta\in r_{\mathcal{F}}^{q}(\triangle_g^t)$ and the result follows.$\diamond$

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