

HR — Step A (Provisional Closure)
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Zeros:

- Files: odlyzko_zeros1.dat, odlyzko_zeros2.dat, riemann_zeros_final.txt, riemann_
- $T0(\text{target})=3.000\text{e}+12$, $T0(\text{effective})=3\text{e}+12$
- γ in $[14.1347, 9.99685\text{e}+69]$ (count used: 128081)
- $S1 = \sum 1/|\rho| = 8.024840\text{e}+00$
- $C0' \text{ (upper)} = S1 / (\log 2)^2 = 1.670265\text{e}+01$

Kernel (Paley–Wiener $(1-|t|)^3_+$):

- $\sigma = 1.0$, computed $||g'|||_{L1}$ (unscaled) = $1.77876451\text{e}-01$
- $\sup|h''| = 5.995501\text{e}+00$, $\text{Tail} \leq \sup|h''|/(\pi U)=1.908\text{e}-02$, $U=100.0$
- scaling $\alpha = 5.62187965\text{e}+00 \Rightarrow ||g'|||_{L1}(\text{after}) = 1.0$

VK (provisional from $R=55.241$):

- $B_VK = 150$, $b_VK = 0.00371327$, $x1 = 1\text{e}+06$

Constants:

- $C_bajo = 1/(4\pi) + C0' + C_R(\text{kernel}) = 1.678223045941\text{e}+01$ (with $C_R(\text{kernel})=0$.)
- $X0 = 9\text{e}+24$
- $F(X0) = 1.320189\text{e}+11$
- $C_alto \approx \sup_{x \geq X0} F(x) = 2.738851\text{e}+31$
- $C_empalme = \max(C_bajo, F(X0)) = 1.320189223768\text{e}+11$
- $\varepsilon = 1.0\text{e}-12$
- $C_tot = 2.738851306602\text{e}+31$

Notes:

- This report closes Step A numerically but keeps VK and $C_R(\text{kernel})$ as conservative
- To fully certify: provide $C_R(\text{kernel})$ from explicit remainder analysis and expli

VK-based bound $F(x) = |\psi(x)-x| / (\sqrt{x} (\log x)^2)$

