IMD calculations

Method A

$f0 := 250Hz$ $f1 := 8kHz$

output voltage: $v_{f0.A} := 706.47 \cdot 10^{-3} V$ $v_{f1.A} := 176.0 \cdot 10^{-3} V$

simulated A: $f2_{R.A} := 8.25kHz$ $v_{f2.R.A} := 126.27 \cdot 10^{-6} V$

$f3_{R.A} := 8.5kHz$ $v_{f3.R.A} := 958.21 \cdot 10^{-6} V$

$f2_{L.A} := 7.75kHz$ $v_{f2.L.A} := 111.70 \cdot 10^{-6} V$

$f3_{L.A} := 7.5kHz$ $v_{f3.L.A} := 855.80 \cdot 10^{-6} V$

IMD A calc: $d2_A := \frac{v_{f2.R.A} + v_{f2.L.A}}{v_{f1.A}}$ $d2_A = 1.35 \times 10^{-3}$

$d3_A := \frac{v_{f3.R.A} + v_{f3.L.A}}{v_{f1.A}}$ $d3_A = 10.31 \times 10^{-3}$

$IMD_A := \sqrt{d2_A^2 + d3_A^2}$ $IMD_A = 10.40 \times 10^{-3}$

$IMD_A = 1.04\%$

$IMD_{A.e} := 20 \cdot \log(IMD_A)$ $IMD_{A.e} = -39.66$ [dB]

Method B

$f0 := 250Hz$ $f1 := 8kHz$

output voltage: $v_{f0.B} := 176.13 \cdot 10^{-3} V$ $v_{f1.B} := 709.37 \cdot 10^{-3} V$

simulated B: $f3_{R.B} := 8.5kHz$ $v_{f3.R.B} := 62.84 \cdot 10^{-6} V$

$f3_{L.B} := 7.5kHz$ $v_{f3.L.B} := 53.81 \cdot 10^{-6} V$

IMD B calc: $d3_B := \frac{v_{f3.R.B} + v_{f3.L.B}}{v_{f1.B}}$ $d3_B = 164.44 \times 10^{-6}$

$IMD_B := \sqrt{d3_B^2}$ $IMD_B = 164.44 \times 10^{-6}$

$IMD_B = 0.016\%$

$IMD_{B.e} := 20 \cdot \log(IMD_B)$ $IMD_{B.e} = -75.68$ [dB]

R means right of f1, L means left of f1