1.7.7 Parameter Measurement Summary Sheet

Driver Make and Model: _____

Test Performed By: _____ Date: _____

Voice-Coil Resistance: $R_E =$ _____ Piston Radius: $a =$ _____

Off Box Resonance Frequency: $f_S =$ _____ On Box: $f_{CT} =$ _____

Off Box at Resonance: $V_B/V_A =$ _____ On Box: $V_B/V_A =$ _____

Off Box: $R_E + R_{ES} = R_S \times V_B/V_A =$ _____ On Box: $R_E + R_{ECT} =$ _____

Off Box: $R_1 = \sqrt{R_E(R_E + R_{ES})} =$ _____ On Box: $R_1 =$ _____

Off Box: $V_B = V_A \times \dfrac{R_1}{R_S} =$ _____ On Box: $V_B =$ _____

Off Box: $f_1 =$ _____ On Box: $f_1 =$ _____

Off Box: $f_2 =$ _____ On Box: $f_2 =$ _____

Off Box: $f_{\text{check}} = \sqrt{f_1 f_2} =$ _____ On Box: $f_{\text{check}} =$ _____

Off Box: $Q_{MS} = \dfrac{f_S}{f_2 - f_1} \sqrt{\dfrac{R_E + R_{ES}}{R_E}} =$ _____ On Box: $Q_{MCT} =$ _____

Off Box: $Q_{ES} = \dfrac{R_E}{R_{ES}} Q_{MS} =$ _____ On Box: $Q_{ECT} =$ _____

Off Box: $Q_{TS} = \dfrac{R_E}{R_E + R_{ES}} Q_{MS} =$ _____ On Box: $Q_{TCT} =$ _____

Test Box Volume: $V_T =$ _____ $V_{AS} = V_T \left[\dfrac{f_{CT}}{f_S} \dfrac{Q_{ECT}}{Q_{ES}} - 1 \right] =$ _____

Mass Correction Factor: $k_M = \sqrt{1 + 10.65 \dfrac{f_S^2 V_{AS}}{c^2 a}} =$ _____

$\dfrac{f_S}{k_M} =$ _____ $Q_{MS} \times k_M =$ _____

$Q_{ES} \times k_M =$ _____ $Q_{TS} \times k_M =$ _____

Efficiency: $\eta_0 = \dfrac{4\pi^2}{c^3} \dfrac{f_S^3 V_{AS}}{Q_{ES}} =$ _____

Voice-Coil Inductance: $C =$ _____ $f =$ _____ $R_e = \left(R_S \times \dfrac{V_b}{V_a} - R_E \right) =$ _____

$X_e = \dfrac{1}{2\pi f} =$ _____ $n = \dfrac{1}{90} \arctan \left[\dfrac{X_e}{R_e} \right] =$ _____ $L_e = \dfrac{\sqrt{R_e^2 + X_e^2}}{(2\pi f)^n} =$ _____