

Measured Data

$$I_{fd1} := 3.377 \cdot A$$

$$I_{fd1} = 3.377 \text{ A}$$

$$V_{LL1} := 172.5 \cdot V$$

$$E_{q1} := \frac{\sqrt{2} \cdot V_{LL1}}{\sqrt{3}}$$

$$E_{q1} = 140.846 \text{ V}$$

$$X_{adu} := \frac{E_{q1}}{I_{fd1}}$$

$$X_{adu} = 41.707 \text{ } \Omega$$

$$V_{LLNP} := 230 \cdot V$$

$$V_{LLB} := V_{LLNP}$$

$$I_{fdB} := \frac{\frac{\sqrt{2} \cdot V_{LLNP}}{\sqrt{3}}}{X_{adu}}$$

$$I_{fdB} = 4.503 \text{ A}$$

$$Z_{sfdB} := X_{adu}$$

$$X_{adu} := \frac{X_{adu}}{Z_{sfdB}}$$

$$X_{adu} = 1$$

$$I_{fd2} := 4.503 \cdot A$$

$$I_{fd2} := \frac{I_{fd2}}{I_{fdB}}$$

$$I_{fd2} = 1$$

$$V_{LL2} := 217 \cdot V$$

$$E_{q2} := \frac{V_{LL2}}{V_{LLB}}$$

$$E_{q2} = 0.943$$

$$E_{q2U} := X_{adu} \cdot I_{fd2}$$

$$E_{q2U} = 1$$

$$S_{e2} := \frac{E_{q2U} - E_{q2}}{E_{q2}}$$

$$S_{e2} = 0.06$$

$$I_{fd3} := 5.402 \cdot A$$

$$I_{fd3} := \frac{I_{fd3}}{I_{fdB}}$$

$$I_{fd3} = 1.2$$

$$V_{LL3} := 247.8 \cdot V$$

$$E_{q3} := \frac{V_{LL3}}{V_{LLB}}$$

$$E_{q3} = 1.077$$

$$E_{q3U} := X_{adu} \cdot I_{fd3}$$

$$E_{q3U} = 1.2$$

$$S_{e3} := \frac{E_{q3U} - E_{q3}}{E_{q3}}$$

$$S_{e3} = 0.114$$

$$X := \frac{\ln\left(\frac{S_{e3}}{S_{e2}}\right)}{\ln\left(\frac{I_{fd3}}{I_{fd2}}\right)}$$

$$X = 3.506$$

$$K := \frac{S_{e2}}{I_{fd2} \cdot X}$$

$$K = 0.06$$

$$S_i(I_{fe}) := K \cdot I_{fe}^X$$

$$E_{qcf}(I_{fe}) := \frac{X_{adu}}{1 + S_i(I_{fe})} \cdot I_{fe} \quad E_{qag}(I_{fe}) := X_{adu} \cdot I_{fe}$$

