Detected Resonant Frequencies (0-200 Hz):
124
144
186

Estimated Damping Ratios:
Mode near 124.00 Hz → ζ = 0.0323
Mode near 144.00 Hz → ζ = 0.0208
Mode near 186.00 Hz → ζ = 0.0430

Normalized Mode Shapes (0-200 Hz):

Mode at 124.00 Hz:
X: 0.093∠44.6°
Y: 0.152∠40.4°
Z: 1.000∠-134.3°

Mode at 144.00 Hz:
X: 0.045∠77.7°
Y: 1.000∠-55.8°
Z: 0.494∠171.9°

Mode at 186.00 Hz:
X: 0.154∠-60.3°
Y: 0.685∠139.3°
Z: 1.000∠142.1°
=== Modal Parameter Summary (0-200 Hz) ===

Freq_Hz	Damping	Phi_X	Phi_Y	Phi_Z
124	0.032258	0.06606+0.06504i	0.11604+0.098681i	-0.69821-0.71589i
144	0.020833	0.0096775+0.0443i	0.56229-0.82694i	-0.4896+0.069333i
186	0.043011	0.076257-0.13391i	-0.51947+0.44626i	-0.78929+0.61402i

Detected Resonant Frequencies (0-200 Hz):
124
144

186

Estimated Damping Ratios:
0.0323
0.0208
0.0430

=== Modal Summary (0-200 Hz) ===
Mode 1: f=124.00 Hz, Damping=0.0323, k_dyn_X=83447594.19 N/m, k_dyn_Y=50785962.12 N/m, k_dyn_Z=7735969.49 N/m
Mode Shape (X,Y,Z): 0.093∠44.6°, 0.152∠40.4°, 1.000∠-134.3°
Mode 2: f=144.00 Hz, Damping=0.0208, k_dyn_X=384224085.37 N/m, k_dyn_Y=17422694.95 N/m, k_dyn_Z=35234239.07 N/m
Mode Shape (X,Y,Z): 0.045∠77.7°, 1.000∠-55.8°, 0.494∠171.9°
Mode 3: f=186.00 Hz, Damping=0.0430, k_dyn_X=429326012.14 N/m, k_dyn_Y=96604504.78 N/m, k_dyn_Z=66158128.07 N/m
Mode Shape (X,Y,Z): 0.154∠-60.3°, 0.685∠139.3°, 1.000∠142.1°