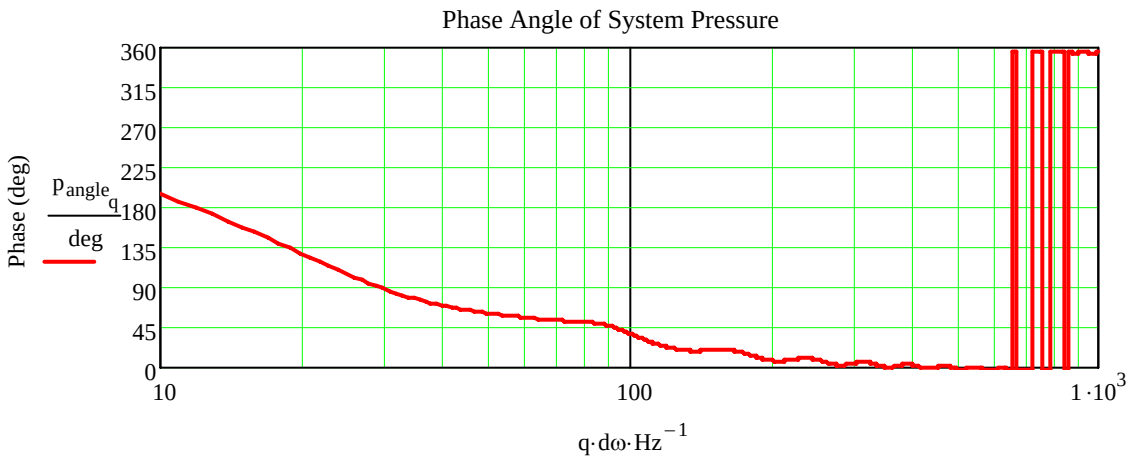
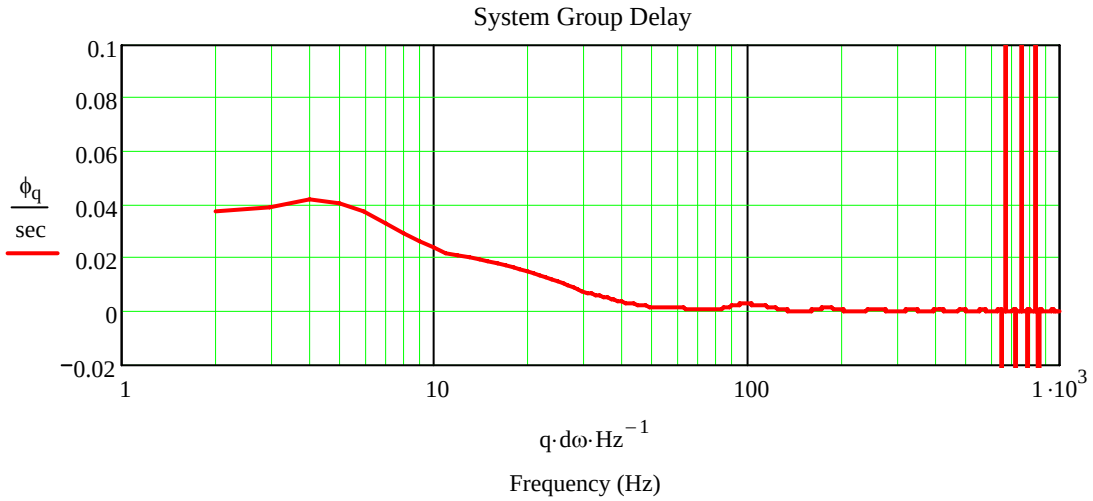
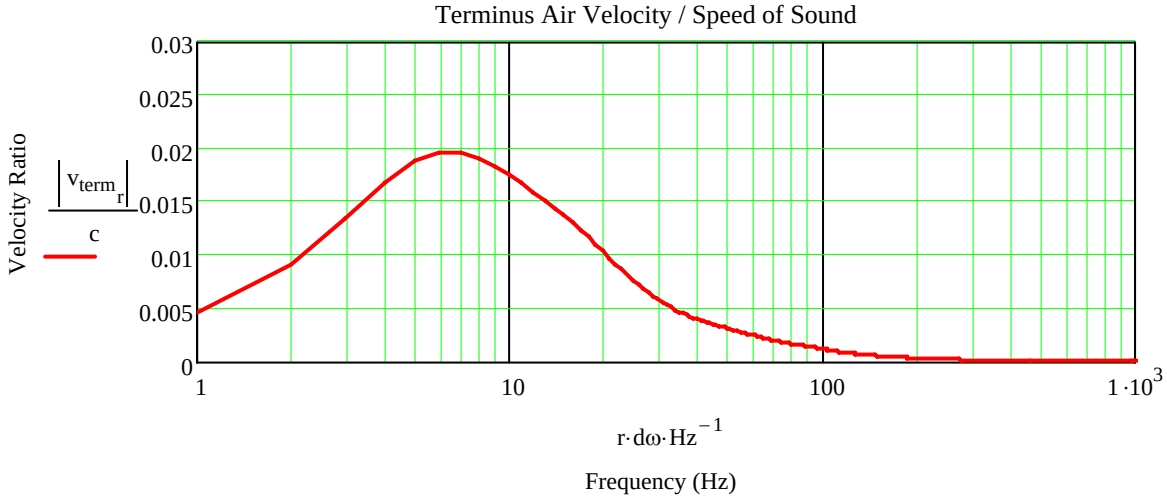
System Group Delay





Terminus Air Velocity (should be < 10 m/sec / 342 m/sec = 0.03)



Part 2 : Detailed SPL Response Calculation

Calculation Includes :
Position of Driver and Terminus on the Baffle.
Baffle Step Defraction for the Driver and the Terminus.
Floor and Rear Wall Reflection for the Driver and the Terminus.

Geometry

Coordinate System :
Origin is the lower left corner of the front baffle
x = horizontal direction
y = vertical direction

The variables num_r, n_drv, and n_mth control the number of simple sources used in the calculations. Increasing each will improve accuracy at the expense of longer calculation times. Increase each variable until final plotted SPL stops changing at which point the solution has converged.

Enclosure Geometry Input

width := 20·in	(Front Baffle Width)
height := 88.5826in	(Front Baffle Height)
depth := 17.7165in	(Depth of Enclosure)
dist := 18·in	(Front Baffle Distance from Rear Wall > Depth, to Eliminate Rear Wall use 100 m)
num_r := 9	(Number of Points per Quadrant of Baffle Edge)

Driver Geometry Input

x_{dc} := 8.858in	(Driver Center x Coordinate)
y_{dc} := 88.5826in	(Driver Center y Coordinate)
n_dvr := 5	(Number of Points Across Diameter)

Terminus Geometry Input

x_{mc} := 8.858in	(Terminus Center x Coordinate)
y_{mc} := 78.74in	(Terminus Center y Coordinate)
w_{mth} := 17.72in	(Terminus Width)
n_mth := 10	(Number of Points Across the Width)
Locate := 1	(0 = Front Baffle Terminus, 1 = Rear Baffle Terminus)

Listening Position (Default Location is at 1 m Distance Along the Driver's Axis)

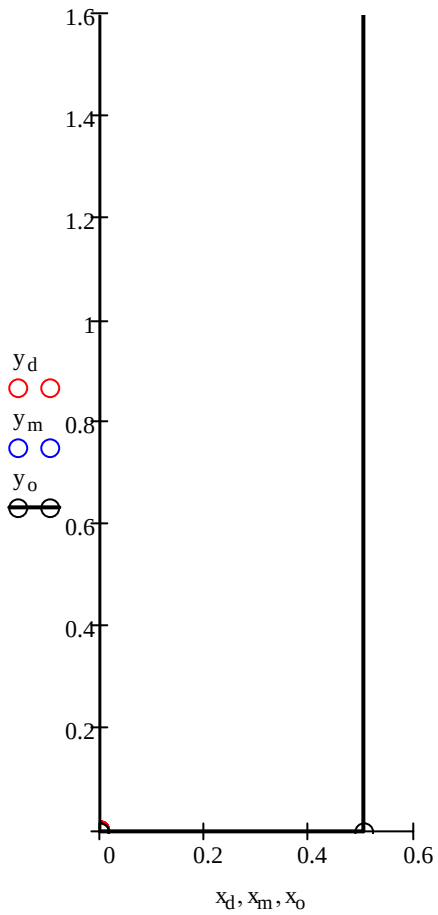
radius := 1·m	(Calculation Radius, Effective Radius is Greater if y_p is Changed from Default)
θ := 0·deg	(0 deg is along the Driver's Axis, -80 deg < θ < 80 deg)
y_p := y_{dc}	(Default Height is equal to Driver Height)

Floor Condition

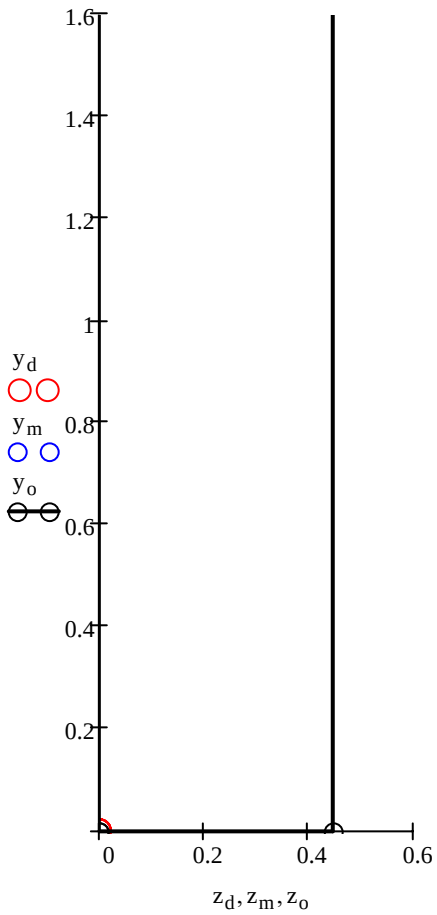
Reflect := 1	(0 = hardwood or concrete, 1 = carpeted)

Circular Driver and TL Terminus Simple Source Pattern with Baffle Edge Outline

Front View

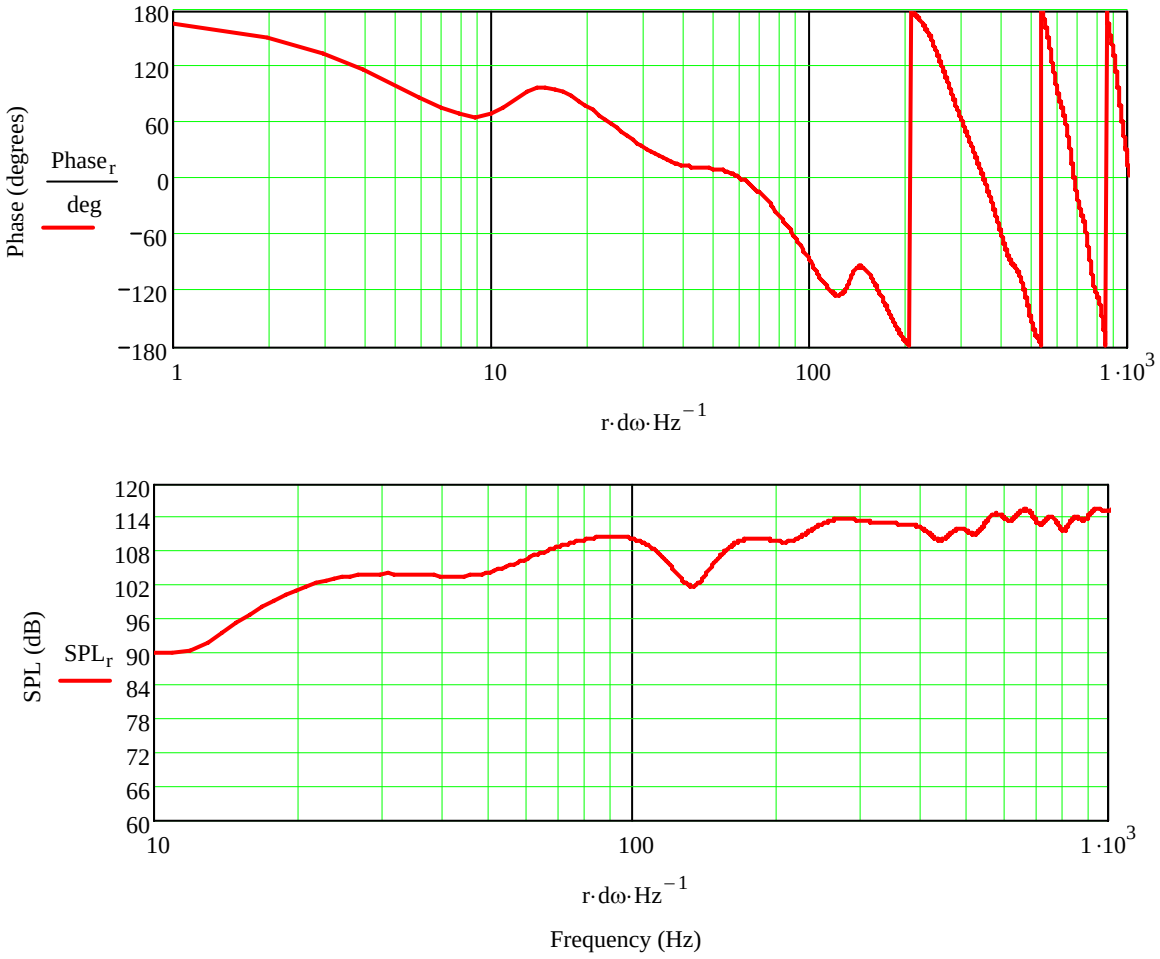


Side View

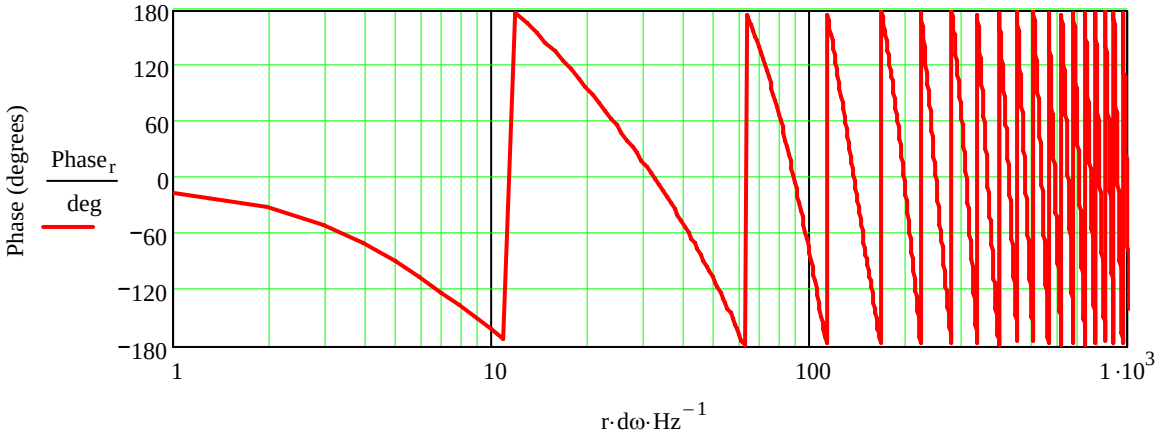


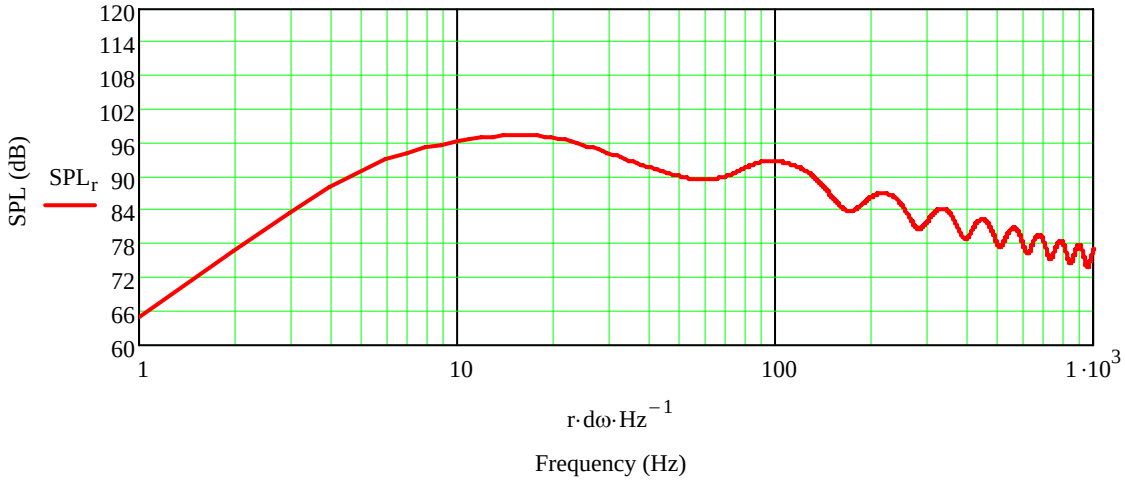
Red sources represent the driver.
Blue sources represent the terminus.
Black outline represents the baffle edge.
Origin is at the bottom front left corner of the enclosure.

Plotted Baffle Step and Reflection SPL Response for the Circular Driver Source

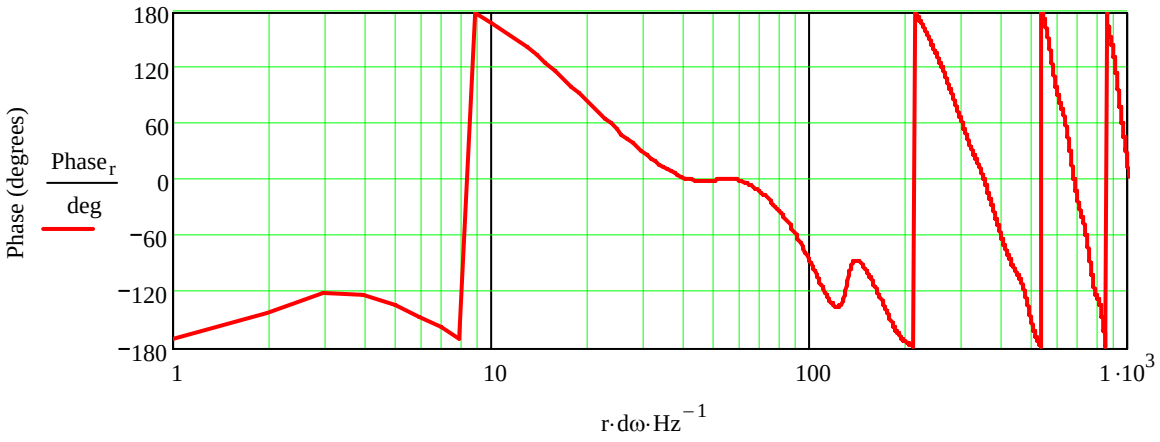


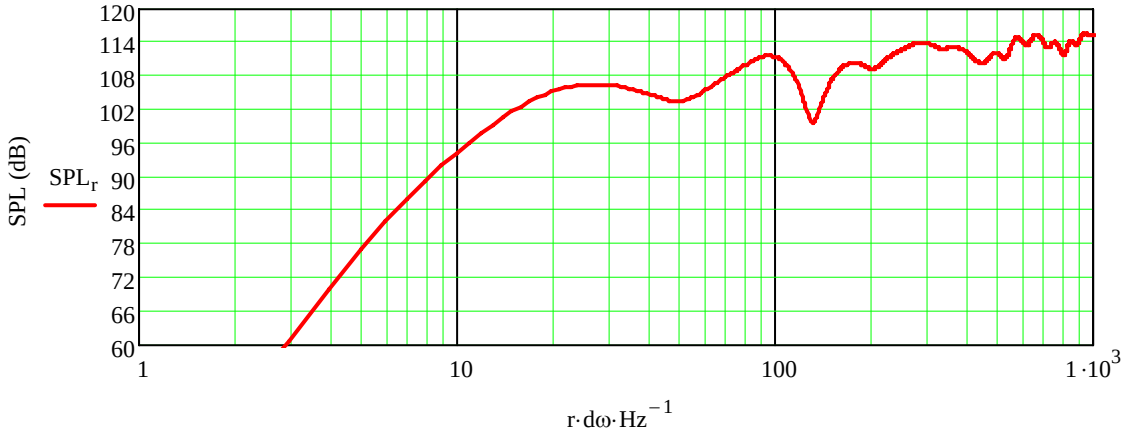
Plotted Baffle Step and Reflection SPL Response for the TL Terminus





Plotted SPL Response for the System





Frequency (Hz)