
Subject: Port length calculator

Posted by craigha@attbi.com on Thu, 03 Jan 2002 11:24:49 GMT

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Thanks Wayne. I'm getting more comfortable using PiAlign and BoxPlot. Here is an attempt at a port length calculator. From Loudspeaker Design by Vance Dickason For a tubular vent flush-mounted on a speaker, calculate the length by: $L_v = \frac{(1.463 \cdot (10^{**7}) \cdot (R^{**2}))}{((f_B^{**2}) \cdot V_B)} - (1.463 \cdot R)$ L_v = length in inches f_B = tuning frequency in Hz V_B = box volume in cubic inches R = radius of the vent in inches My favorite calculator is the Python interpreter. A Windows version is available at: <http://www.activestate.com/Products/Download/Get.plex?id=ActivePython> I wrote a function to calculate port length for me:

```
def portlen(diamInches,tuningFreq,boxVolCubFt): radiusInches = diamInches / 2.0 cubInchConv = 12.0 * 12.0 * 12.0 boxVolCubInch = boxVolCubFt * cubInchConv num = 1.463 * (radiusInches * radiusInches) * (10000000.0) denom = (tuningFreq * tuningFreq) * boxVolCubInch term1 = num / denom term2 = 1.463 * radiusInches len = term1 - term2 print 'calc port len diam.=',diamInches,'freq=',tuningFreq,'vol=',boxVolCubFt,'len=',len return len
Example output:
calc port len diam.= 0.5 freq= 54.0 vol= 0.23 len= 0.423228647155
calc port len diam.= 0.75 freq= 54.0 vol= 0.23 len= 1.2265769561
calc port len diam.= 1.0 freq= 54.0 vol= 0.23 len= 2.42441458862
calc port len diam.= 1.5 freq= 54.0 vol= 0.23 len= 6.0035578244
calc port len diam.= 2.0 freq= 46.0 vol= 1.0 len= 2.53815084366
calc port len diam.= 3.0 freq= 46.0 vol= 1.0 len= 6.80808939824
calc port len diam.= 4.0 freq= 46.0 vol= 1.0 len= 13.0786033746
```