**Air column resonance experiment**
01/03/2019

$$L_n + 0.66r = (2n-1)\frac{c}{4f}$$

predicted speed of sound /ms^-1 | 347
radius of tube /m | 0.01
end correction /mm | 6.6

| Tuning fork frequency /Hz | Measured air column length L1 /m | End corrected L1 /m | 1/(4f) | Predicted L1 + end correction /m | Predicted L2 + end correction /m |
|---|---|---|---|---|---|
| 256 | 0.325 | 0.332 | 9.766E-04 | 0.339 | 1.017 |
| 271.2 | 0.313 | 0.320 | 9.218E-04 | 0.320 | 0.960 |
| 288 | 0.292 | 0.299 | 8.681E-04 | 0.301 | 0.904 |
| 304.4 | 0.274 | 0.281 | 8.213E-04 | 0.285 | 0.855 |
| 320 | 0.269 | 0.276 | 7.813E-04 | 0.271 | 0.813 |
| 341.3 | 0.245 | 0.252 | 7.325E-04 | 0.254 | 0.763 |
| 362 | 0.235 | 0.241 | 6.906E-04 | 0.240 | 0.719 |
| 384 | 0.225 | 0.232 | 6.510E-04 | 0.226 | 0.678 |
| 406.4 | 0.208 | 0.215 | 6.152E-04 | 0.213 | 0.640 |
| 426.6 | 0.199 | 0.206 | 5.860E-04 | 0.203 | 0.610 |
| 456.1 | 0.190 | 0.197 | 5.481E-04 | 0.190 | 0.571 |
| 480 | 0.177 | 0.184 | 5.208E-04 | 0.181 | 0.542 |
| 512 | 0.165 | 0.172 | 4.883E-04 | 0.169 | 0.508 |



y = 347.18x
R² = 0.9938

+ Measurement
— Model L1
···· Linear (Measurement)
···· Linear (Measurement)

x-axis: 1/4f (s)
y-axis: L1 + 0.66r (m)