

Updated August 2022

Model CP data from Test 653 are provided here.
This data replaces the CP data posted in 2020 for Test 653.

New variables calculated:

- New datafiles contain “cpz” as part of filename and “CPZ” as part of the Zone title.
- The “CPZ” variables were calculated to include the total pressure deficit in the test section. The current implementation of the 14x22 tunnel calibration does not account for this deficit. New equations were added to account for this deficit (based on data from Test 508 which is what the current 14x22 tunnel calibration is based on). These equations were modified so that the tunnel reference conditions are all referenced to tunnel station 17.75 feet for an empty tunnel.
- Taking total pressure deficit into account causes a change to the static pressure calculation which in turn affects the Cp calculations. This shifts Cps $\sim +0.018$. Accounting for this deficit causes a minimal effect on other tunnel conditions, i.e. Mach, dynamic pressure, velocity, Reynolds number.

Data are provided from 9 different runs for each of the following tunnel incidence angles:
-10.0, -7.5, -5.0, -2.5, 0.0, 2.5, 5.0, 7.5, and 10.0 deg.

In each case, mean and 2sigma are provided, along with individual data from each of the 9 different runs (6 upright: runs 202, 203, 204, 211, 213, 214; 3 inverted: 207, 209, 210). Generally, 18 sets of data went into the computation of mean and 2sigma (because the L and R sides were also used, where applicable). Note that only 9 sets were used for particular rows for which orifices existed only on the R side. And sometimes there were bad calibrations for module 19, so that would have less data sets as well. A “999” indicates that the particular data point is not used.

Note that for some angles of incidence (-10 upright, -7.5 upright, 7.5 inverted, 10 inverted), the model could not be positioned as desired in the "center" of the tunnel (see associated README files for those angles for details).

README-Test653Alpha*_cpz.txt - README file giving details for incidence angle * deg

Test653Alpha*_cpz.dat - Data file for incidence angle * deg

Plots*deg*_cpz.pdf - PDF file containing plots for incidence angle * deg
(intended to just give a quick overall look at the data; some data may not be plotted)