**Summary - Complete Dataset using internal calibration**

**Step 0: Test whether offsets are different depending on Phantom Type and Scanner**

*(I want to primarily demonstrate that adopting an Expanded phantom is better)*

Analysis of variance shows that weight offsets are significantly affected by Phantom Type (Expanded vs Normal) with a secondary significant effect coming from Equipment types (London or Bristol scanner) *– but bear in mind number of points from Bristol is very small and, most importantly, corals scanned in Bristol are not scanned again in London for a fully balanced test – this effect can be coming from the random choice of taking particular corals to Bristol. So equipment bias is something we can’t really test, only suppose and recommend as part of future studies)*

**A screenshot of a computer

Description automatically generated with medium confidence**

*VIF values indicate no multi-collinearity, so no need to standardize response variable (i.e., weight offset) and rescale this time.*

**Chart, box and whisker chart

Description automatically generated**

**Step 1: Test whether offsets are different depending on Phantom Type**

*(I want to primarily demonstrate that adopting an Expanded phantom is better)*

**Text

Description automatically generated**

Mean weight offsets are significantly different between PhantomTypes used

Chart, box and whisker chart

Description automatically generated Chart, box and whisker chart

Description automatically generated

ANOVA with Outliers removed

Text

Description automatically generated

**Step 2: Exploratory figures for VirtualDensity *vs* RealDensity**

**Chart, scatter chart

Description automatically generated**

Interpretation: Different corrections depending on Phantom Type used

*- We can say we must apply different corrections depending on the type of Phantom used (which is good if we want to correct density in old scans done with just the Normal Phantom)*

If we break it down based on CT lab, this is what we see:Chart, scatter chart

Description automatically generated

Interpretations:   
a) Slopes from ‘PhantomExpanded’ seem nearly parallel across CT labs (Bristol vs London)

b) Slopes from ‘PhantomNormal’ are identical across CT labs.

*– I reiterate that unfortunately we can’t say we need different corrections for different combinations of Phantom types and CT lab facilities, as we did not scan same corals in Bristol and in London.*

*- It is safer to suggest just 2 different general corrections based on just PhantomType and leave the bias coming from different scanners as a question mark for future investigations*