CLAS12 Drift Chamber Reconstruction Code Validation[1] M. ARMSTRONG and G. GILFOYLE, University of Richmond - Jefferson Lab's upgraded CLAS12 detector studies the quark-gluon structure of hadrons with electron scattering experiments. The CLAS12 software reconstructs particle events collected by CLAS12 or simulated. Upgrades to its more than 84,000 lines of executable code are validated on a nightly basis with unit tests that apply it to a standard data set. Scattered electrons bend in the CLAS12 magnetic field leaving tracks in drift chambers (DC). The reconstructed trajectory is used to determine momentum and vertex position. The raw data (*e.g.* ADCs) for a single event are stored in the code, reconstructed, and compared to standard values. As the software evolved the previous DC test would signal a failure when the reconstruction was done properly. Recent improvements had changed the momentum reconstruction so it was outside the acceptable range. We also discovered a large discrepancy with the vertex position. To fix the test we simulated momentum and vertex distributions using the CLAS12 Common Tools and extracted the reconstruction resolution. We generated new, simulated raw data for a single event, redefined the acceptable momentum ranges, and added a new requirement on the vertex. The results have been tested and incorporated into the Common Tools.

[1] Supported by the US Department of Energy.