



### **Q640 Inspection and Test Measurement Guard Banding (Rev 01/08/18)**

When the measurement accuracy of the inspection/test measurement system used to inspect/test characteristics identified as Safety, Special, Critical, Major, or Minor exceeds 10% of the tolerance, the inspection tolerance shall be guard banded to assure acceptance of only conforming product unless otherwise approved by GD-OTS. The Guard Banded tolerance shall have its lower limit increased and upper limit decreased by the measurement accuracy. If the measurement accuracy exceeds 20% of the tolerance, GD-OTS approval is required before the Inspection/Test Equipment may be used.

(Measurement accuracy is defined as the 95% confidence interval of the measurement uncertainty and is determined by the manufacturer's statement of accuracy or result of a Gage Repeatability and Reproducibility study).

In addition, the measurement accuracy of the Inspection/Test equipment shall be at least one additional significant digit to the right of the specification (for example if the specification for a characteristic is .315", the accuracy of the Inspection/Test equipment must be +/- .000X" or better where X can be any digit between 1 and 9.) Note that this requirement applies to the feature being measured and is independent of the tolerance band. If this requirement is not met, GD-OTS approval is required before the Inspection/Test equipment may be used and if approved, Guard Banding as noted above may be required to be applied; that is, the Guard Banded tolerance shall have its lower limit increased and upper limit decreased by the measurement accuracy.