



# ASQ CRE Prep course

Lesson IV. B. 2. c.

Reliability Prediction Methods

Tolerance Intervals



Not the same as confidence intervals – similar, not the same

# TOLERANCE INTERVALS



The background of the slide is a faded, light green map of the Pacific Ocean. It shows the outlines of continents like North America, South America, and Australia, as well as various islands and oceanic regions. The text is overlaid on this map.

# **Not the same as confidence intervals**

**The limits within which a stated proportion of the population is expected, at a given confidence level.**

**Applies to individual values, while  
Confidence intervals apply to means**

# Two-sided Tolerance Interval

**At a given tolerance, what interval will contain at least a fraction  $p$  of the population?**

$$X_{UL} = \bar{X} \pm k_2 s$$

# Lower side

**At a given confidence, what is the limit such that at least fraction  $p$  of the population lies below the limit?**

$$X_L = \bar{X} - k_1 s$$

# Upper side

**At a given confidence, what is the limit such that at least fraction  $p$  of the population lies below the limit?**

$$X_L = \bar{X} + k_1 s$$

**These only apply using a normal distributions.**

When to use  
tolerance vs  
confidence?

**Work the Examples, too**

**Take another Sample Exam**

**Send over your questions**

**fms@accendoreliability.com**





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Module 6

V. Reliability Testing