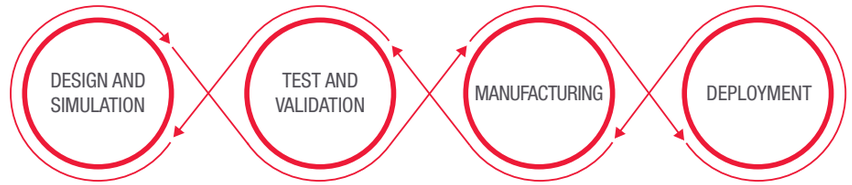
Measurement Matters

Think Guardband

Apply the science of measurement (metrology) to improve product quality across your life cycle.



What?

Optimize false pass and false fail with guardbanding.

Based on your product specifications, yield and quality goals vary. Based on these goals, you can optimize the trade-offs between false pass (passing a defective product) and false fail (failing a good product) with guardbanding.

Measurement uncertainty (MU) is a key contributor to false pass and false fail conditions. When the MU is known, setting guardbanding test limits will reduce false passes.

There is no room for error in military and automotive applications.

Guardband is the offset from the specification that determines the acceptance limit for pass or fail decisions, and for performing adjustments

Figure 1. The risk of a radar receiver operating outside its specification will fail to decipher signals correctly from long distances during military maneuvers

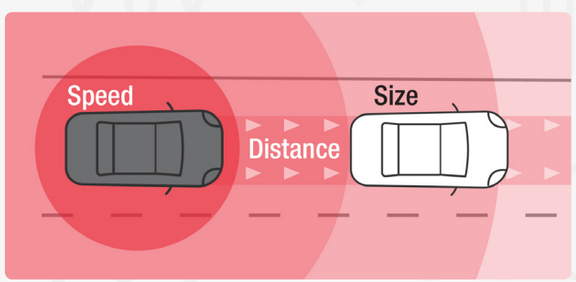


Figure 2. An error in time delay that measures distance, and an error in attenuator control precision that measures object size, can be catastrophic

Your teams define the important upper and lower test limits for the measured value. But a proper calibration of your test equipment ensures your equipment performs to the factory specifications.

Why care?

Guardbanding protects against false pass results.

Guardbanding reduces risk and optimizes between false pass and false fail results. Optimizing false passes and false fails reduce costs and liability. Instruments calibrated with guardbanding perform to a tighter tolerance.

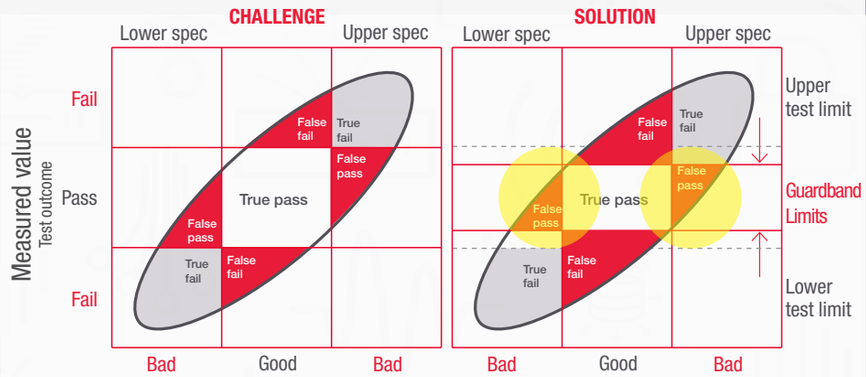
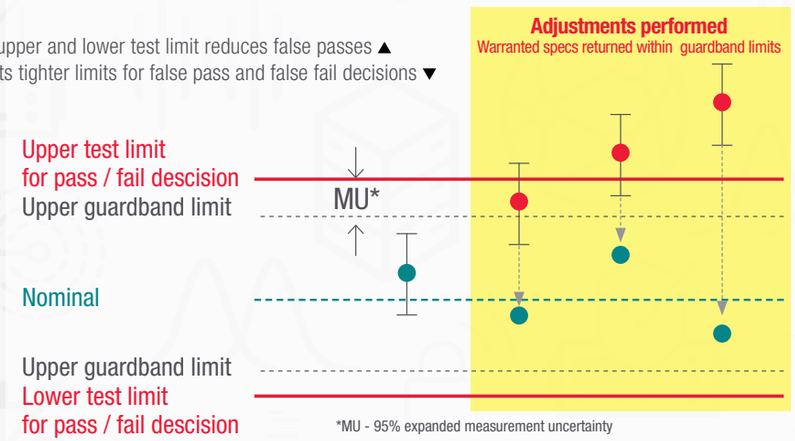


Figure 3. Setting a tighter upper and lower test limit reduces false passes ▲
Figure 4. Guardbanding sets tighter limits for false pass and false fail decisions ▼



KEYSIGHTCARE

Learn more at www.keysight.com/find/metrology
Need help? www.keysight.com/find/KeysightCare

KEYSIGHT TECHNOLOGIES