

Automated Adjustments Explained

Sophisticated software requires OEM expertise

Automated Adjustments if Needed

The days of screwdriver “tweaks” are long gone. Many of the performance advantages offered by Keysight products are due to the ability to “fine-tune” the hardware under microprocessor control. Amplifier gains, filter corners, DC offsets and other functions can be adjusted according to measurement environment and component age. These adjustments require complex iterative external measurements and calculations to characterize the instrument while changing internal digital-to-analog converter settings. Intimate knowledge of the architecture and detailed circuitry are required, which is why adjustment capability is available only in automated procedures from Keysight, the original equipment manufacturer

Keysight Service Center records indicate that roughly 10% of customers’ instruments fail at least one specification during performance testing. Instruments can be brought into compliance simply by performing automatic adjustments, which eliminate the need for a hardware repair.

Third-Party Calibration Labs Define an Adjustment as a Repair

When third-party calibration labs without Keysight OEM adjustments identify an out-of-specification instrument, they must forward the instrument to Keysight and charge the end customer for a hardware repair. If you are that end customer, you face a longer period without your instrument, plus charges for two calibrations, often with a handling surcharge for sending the instrument to Keysight.

The acceptance limit that determines when adjustments are performed depends on the calibration service that you purchase. With “Keysight calibration + Uncertainties + Guardbanding” adjustments are performed well before the measured performance exceeds the specification limit.



Free downloads

- ISO Guide for Expression of Uncertainty of Measurements
www.ukas.com
- Guidelines on the Reporting of Compliance with Specification ILAC-G8:03/2009
www.ilac.org
- ILAC Policy for Uncertainty in Calibration ILAC-P14:12/2010
www.ilac.org
- Metrology technical papers
www.keysight.com/find/metrology

Post-Repair Adjustments

In the unlikely event that your instrument does not pass performance tests and cannot be adjusted back into specification, it does need a hardware repair. See Figure 1. Repair begins with diagnosing the problem, then ordering parts. Major service centers like the one in Roseville, California, are co-located with major parts centers for rapid turnaround. After technicians have installed the necessary part or PC board, they run the appropriate adjustments. Then performance tests can be re-run. After the unit passes the performance tests, it's ready to make accurate measurements once again.

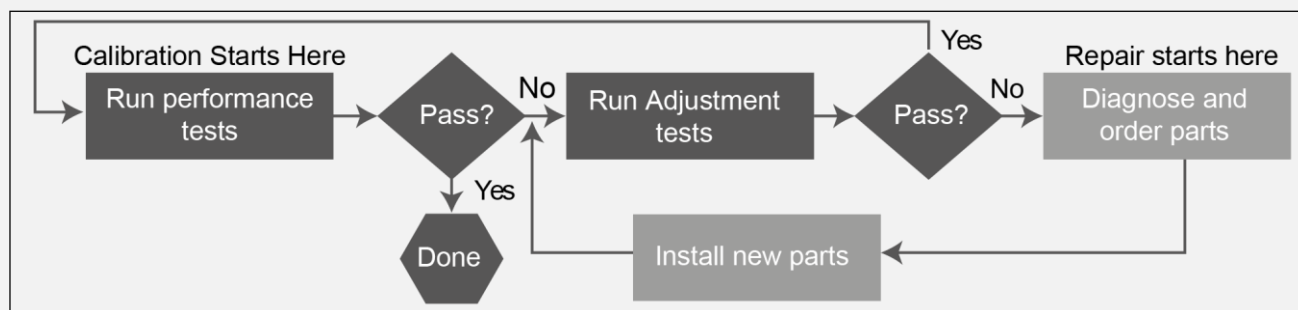


Figure 1: Calibration and repair flow diagram

Helpful Resources

- View Keysight's entire portfolio of Calibration Services at www.keysight.com/find/calibration
- Find Keysight's 40 sites in 20 countries with ISO/IEC 17025 accreditation at www.keysight.com/find/accreditation
- Learn more about Laboratory Accreditation and Accreditation Body Symbols on Calibration Certificates at <http://literature.cdn.keysight.com/litweb/pdf/5991-0005EN.pdf>

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