# Keysight Technologies
## Selecting a Calibration Vendor

White Paper

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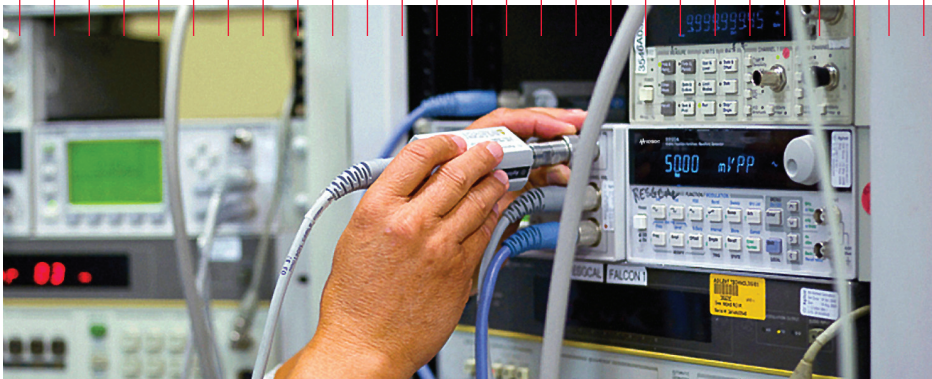
# Introduction

Cost is important but are there any other questions that need to be asked in selecting a calibration supplier? Is the ubiquitous ISO 9001 registration enough?

If your car needed a 12,000 mile service you might expect the choice of garage to be somewhat arbitrary. You'd probably expect that, wherever you took it, the maker's recommended procedures would always be followed and that recommended tools and parts would always be used. This would be even more likely if the garage had "Approved Main Dealer" status.

## The ISO 9001 Standard

It seems logical to apply this analogy to "calibration dealers" with ISO 9001 approval, but remember that this standard is procedural: a Quality Management System (QMS) standard. It doesn't define the product in any way, only the checks and measures required to maintain a consistent quality level as defined by that particular supplier.

It doesn't mean that, for example, all electronic instrument suppliers have the same quality level. Whether the service meets the customers' needs is beyond the scope of this certification.

## Commercial Considerations

Both commercial and technical needs have to be met when seeking a calibration service. Cost and turnaround time are two fundamental commercial criteria. And the technical need is most appropriately described as "an adequacy of testing that confirms usage requirements".

Many users find it difficult to define their testing needs exactly and simply request a "Calibration to spec". This can be ambiguous.

Calibration can vary from a thorough performance evaluation of every mode and range to a cursory check of basic functionality. While the latter may meet a customer's need for a low cost service, it implies a higher level of risk - that the equipment has an undetermined performance deficiency with potentially serious consequences.

## Manufacturer's Recommendation

In general, test equipment makers design recommended calibration procedures which carefully compromise expensive over-testing with the increased risk associated with under-testing.

Their understanding of how the equipment works and the crucial areas of its performance ensures that reputable servicers following the makers' guidance can maintain confidence in the ability of a unit to fully meet its specification.

The provision of a certificate, even to spec, does not necessarily guarantee that the methods used are technically sound. This is where the added assurance available from a UKAS accredited calibration facility — one accredited against ISO/IEC17025 comes in.

Calibrations reported on a UKAS certificate must be made using methods and equipment which are closely scrutinized by technical experts from the UK National Physical Laboratory. Choosing a calibration supplier is not necessarily straightforward. Unlike the car analogy, it's not an arbitrary decision. ISO 9001 is certainly one of the prerequisites, as is UKAS certification. But beyond this there are still questions to be asked; these are offered for guidance:

– Who defines the testing? Is it less than that suggested by the maker?
– Does the calibration certificate/results include a clear statement about the spec compliance of the item? And is attention drawn to out-of-tolerance measurements so that further action can be taken?
– Are specs/test limits unambiguously included with the test data or do you have to wade through the equipment handbook and interpret complex data to quantify performance against your requirements?
– Is equipment returned in a spec compliant state, or do you have to specially request adjustment and re-test?
– Are documented procedures followed or do technicians invent 'suitable' testing as they go along, leading to inconsistency and inability to recreate queried results?

Whether potential suppliers are ISO 9001 or UKAS accredited, it's still the case that equipment users seeking support contractors need to investigate the technical breadth (adequacy) of the calibrations provided.

Keysight Technologies, Inc. believe that formalized QMS and measurement accreditation gives an excellent foundation on which to develop the credible services demanded by today's quality-conscious market. They will, eventually, lead to the formulation of defined instrument testing criteria. Then users will at last have a "level playing field" on which to judge service providers, so easing selection.

## Independent Advice

Visit the GAMBICA website to download their publication "*Choosing Calibration - A Guide to Choosing Services and Suppliers for the Calibration of Your Test and Measurement Equipment*".

GAMBICA is the British trade association for the instrumentation, control and automation industry.
   www.gambica.org.uk

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