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## **ACCREDITATION and COMPLIANCE: INSTRUMENT CALIBRATION AND CERTIFICATION**

Supporting documentation is available on request.

When requesting calibration or fit-for-purpose certification kindly identify the standards governing the instrument and related contractual responsibilities. Where convenient, a copy of a previously acceptable certificate will assist in identifying the inspection, test, and calibration methods to be applied. In addition to inhouse services, outsourcing gives our clients access to a well-rounded and economical facility. For most applications, operator training is offered.

### **OVERALL EQUIPMENT CATEGORIES**

Test and measurement equipment serviced and certified by Allen Associates:

Nuclear soils and thin layer densometer service, repairs, and calibration  
Radioactive leak testing  
Schmidt Hammers and generic Type N concrete test hammers  
Hardness testers  
Automatic, tilting, and dumpy Levels  
Opto-mechanical, Electronic and Distance-measuring Theodolites  
IR long-range distance measuring equipment and Total Stations  
Robotic and Smart Total Stations  
Laser scanners  
On-line Industrial measurement systems, video & photogrammetry kit  
Rotating and line Lasers with/without grade control  
Grade controlled pipe lasers  
Projection lasers  
Machine Control Systems (Laser, Total Station and GPS)  
Handheld Sonic and Laser/IR measuring devices  
Engineering precision spirit levels and electronic grade leveling devices  
Global Positioning and GNSS Systems  
Environmental monitoring equipment  
Alcohol breathalysers and gas analysis safety devices  
Shear vane soils testers  
Mass and length (rule and tape) measurement  
Anemometers, hygrometers, air pressure and weather monitoring systems

### **SA Bureau of Standards (SABS), International Standards Organisation (ISO) and NIST**

Various regulations are of special application in different industries. For instance, measurement calibration for the automotive industry by Allen Associates meets the ISO/TS 16949:2002 (E) standard. This involves the application of ISO 9001-2000. It does not imply that AA are a calibration laboratory accredited e.g. under ISO/IEC 17025:2005 but that AA conforms to the requirements for competency in testing and calibration laboratories under Regulation 7.6.3.2 governing external laboratories which must evidence compliant capabilities or be accredited in terms of ISO/IEC 17025. Sensitive equipment is preferably subjected to minimal handling after calibration, making a local or national laboratory the choice rather than using a remote manufacturer with handling and transport risk of disturbing its settings.

### **VESA Certification**

When Allen Associates install and maintain vehicle tracking systems for fleet management and security in the Eastern Cape such as the approximately 800 mobile GPS/GSM/GPRS for Global Telematics/Vodacom, the mobile workshop and workmanship standards demanded by VESA, the Vehicle Security Association of South Africa are met, and the Accreditation Certification receives annual update. Inspections carried out on our workmanship by the standards audit were without a demerit in a seven-year period of contract.

### **Metrology**

Fine Measuring Room Metrology accredited facilities certifying dimensional accuracy contract Allen Associates to certify industrial *survey* instrumentation certification required in terms of ISO specifications. This type of automotive on-line mobile equipment is capable of measuring to micron accuracy in a 3m x 3m measuring cell.

Similar contracts include certification of as-built measurements of robotic welding booths prior to construction acceptance and base heights for press installations. Allens are consulted in civil engineering disputes involving test track construction standards.

When certification of measuring tapes and steel rules is required, the services of the appropriate metrology service are contracted.

Allens supplied and maintained industrial three-dimensional fine measuring systems based on dual on-line survey total stations for precision car body measurements with 12 micron accuracy. Further, using this method Allens have supervised setting up and alignment of a slat conveyor systems and certified the survey instruments of engineering survey specialists co-contracted.

Routine calibration and certification of survey instruments is carried out by Allens for most Eastern Cape consulting civil engineers under their professional and ISO requirements. Similarly, builders and contractors rely on the expertise and service offered by Allen Associates for selection and maintenance of survey systems used in construction projects.

### **Environmental Monitoring**

Predelivery certification to NIST standards is arranged at factory level in USA for Davis Weather Monitors in addition to standard supply according to traceable standards of Davis and a variety of weather stations. Anemometer, humidity, pressure and temperature are calibrated locally.

### **Hazardous Substances: Ionising & Non-ionising Radiation, Leak Testing & Densometer Calibration**

The Hazardous Substances Act 1973/1993 specifies requirements in South Africa for the possession, use, conveying, causing to convey and servicing of particular classes of radioactive QA and research instrumentation. In this class fall Group IV Hazardous Substances Nuclear Density Gauges used in civil engineering for soils and asphalt compaction testing, and Neutron Hydroprobes used in agriculture crop management and water research. The Allen Associates calibration laboratory and storeroom meet international standards, and calibration blocks are certified by Troxler Inc represented in SA by Messrs Rutherford VI. Radioactive leak tests and scans are conducted by Allen Associates RPOs, and densometer maintenance and calibration carried out.

### **Transport of Radioactive Materials**

Allen's provide a courier service for radioactive substances observing IAEA SSR-6 provisos, The SA TRUG 91-1 Code, the SA Transportation Act and the 1993 Hazardous Substances Regulations. Accordingly, our PrDP DG Class 7 "D" license vehicle and driver provides SAHPRA compliant transport within SA.

### **Nuclear Radiation Protection Officer Certification**

Allen Associates provides short courses in radiation safety and technology for certification of Authority holders in terms of the Codes of Practice for both Ionising Radiation and Non-Ionising radiation for Radiation Protection Officers and Laser Safety Officers respectively. Allen Associates certificates are accepted by the SAHPRA Radiation Control. In the case of Group III Industrial Radiography, the introductory courses conform to Licensing requirements and UN IAEA regulatory standards. X-Ray Forensic equipment and XRF Analysers are covered.

With respect to laser radiation Classes 1 to 3, safety training is not yet mandatory in South Africa, but Allen Associates apply the SA Laser Safety Officer Codes of Practice and overseas-recognised safety standards in the supply, use and training in the use of Construction Lasers Classes 2 and 3, normally 635 Nm wavelength as regulated by EC825 and current updates. Certified training is provided for Designated Responsible Persons and Alternatives engaged in Laser welding, cutting, or etching, utilizing Class 3B and 4 laser systems.

### **Survey Laboratory Facilities**

For standards required, the onus is on clients to satisfy themselves of the facilities and procedures in place to control the quality of workmanship and instruction. An emphasis is placed on systems and documentation. All Allen Job Cards and Certificates are numbered and archived in accordance with legal requirements.

**Elevation calibration:** For autolevel calibration Allen's maintain, with at least weekly calibration, sub millimeter collimation baselines of 10m and 30m respectively, in addition to certified 32x magnification collimators. The elevation control facility for grade lasers is based on the graduated baselines and the service is unique in the Eastern Cape.

**Distance calibration:** Short-range distance verification facilities are available for coarse and fine checks, the former at 10m and 30m, and the latter at long range. For precise determination of calibration factors and longer range checks a standard facility is used. Memo GI 9/13/9 by the Chief Directorate: Land Surveys, Mowbray allows Allen Associates to calibrate EDM instruments on the Survey baseline provided alongside Victoria Drive comprising five concrete pillars with forced centering facilities up to a slope distance of 959.969m. This permits compliance with Regulation 7 of the Land Survey Act, with accuracies within 1 ppm. The baseline in Cape Town is routinely used with distances of 60m, 760m and 900m.

### **Qualifications for operating a Survey Instrument Service Facility**

The diversity of technical and administrative skills is such that one institution seldom possesses all that are necessary and must judiciously outsource specialised requirements. Disciplines covered demand precision engineering, knowledge of properties of materials especially metals and adhesives, optical prism and lens manufacture, practical and theoretical electricity, radio and electronics, applied mathematics, and survey techniques. Add a balanced view of finance and costing to the mix which must also provide reliable "beyond economical repair" verdicts. Workshop management, communication skills and secretarial resources make up essentials of an effective survey instrument service facility. Staff and client product training must be ongoing. A body of satisfied users of the services of the company is the best testimony to the standards maintained.

### **Supplier Relations**

A high level of trust is maintained between the central supply organizations, their workshops, with ours. Allen Associates have open accounts with all relevant importers and personal relationships with the workshop personnel of South Africa in major centres. Communications extend as necessary to factory personnel in the Far East and Europe especially on our house brands. Ready information flow, diagrams, and spare parts are key to our success. Internet, email, Skype, Teams and Zoom along with traditional communication media play a role. Qualified courier services are available on main and country routes. Hazmat couriers and cross-border specialist brokers are contracted for import/export of service items.

<b>Accredited 17025 laboratories contracted by Allen Associates - SANAS and NIST</b>	
Metrology	Geotechnical
Mass	Opto-mechanical
Gas	Pressure
Weather monitoring	IR Distancers