NEW ZEALAND'S STANDARDS AND CONFORMANCE SYSTEM

A *Guide* for Business

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- Standards New Zealand
- Measurement Standards Laboratory of New Zealand
- Trading Standards Service, Ministry of Consumer Affairs
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- Joint Accreditation System of Australia and New Zealand

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- Foresight Strategy: New Zealand's Standards and Conformance Infrastructure: January 2000 - submission to Ministry of Research, Science and Technology
- Metrology and the Economy: December 2000 - commissioned report for Ministry of Consumer Affairs

Edited by Heather Baigent, Interact Consulting Limited, New Zealand

FOREWORD BY THE HON PAUL SWAIN, MINISTER OF COMMERCE

In today's global market place, meeting standards or specific requirements, and proving that you do, is essential for business success. Failure to do so can be a serious business risk.

The technical requirements of our trading partners can be a major barrier for New Zealand exports. Traders need to do their homework to be sure their goods will not incur substantial compliance costs at the point of import or, worse still, be refused entry at the border.

Standards and conformance is a complicated subject area and one where benefits can be hard to define. The Ministry of Economic Development has published this booklet to explain the concepts and organisations that make up the technical infrastructure that supports New Zealand business. The booklet describes the relationship between regulations, standards, measurement and conformity assessment, and outlines technical requirements in trade. The roles and activities of New Zealand's five technical infrastructure bodies are explained in detail, as are those of the core government agencies concerned with this area. The final section gives contacts for further information.

Technical standards and requirements have an effect on almost every part of a modern economy. The government, consumers and the community rely on standards and conformance to protect public health, safety and welfare and to guard our environment. Businesses use standards and conformance to support innovation and development and to maintain competitive edge. Strictly meeting technical requirements also attracts premium prices.

New Zealand sells globally and we source the components of our products globally. This makes it essential that our traders work to standards and specifications that are recognised internationally. We need to have in place processes and rules that will enable us to make the most of our trading opportunities, while limiting any associated risks.

We are fortunate in having high calibre scientific and technical specialists to protect and promote our interests in these areas. Our standards and conformance bodies have established an international reputation for expertise and integrity and have forged strong links with their international counterparts. These relationships have enabled New Zealand to establish Mutual Recognition Arrangements with major trading partners. This network is expanding rapidly, removing the necessity for goods to be re-tested or re-inspected on arrival in the export market and saving exporters time and money.

Our standards and conformance infrastructure can be of real assistance to New Zealand business. I hope this booklet will provide you with a useful reference.

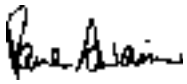

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Photo courtesy of The New Zealand Herald

INTRODUCTION

Technical requirements:

- **protect users and consumers**
- **protect the environment**
- **guard against fraud**
- **encourage innovation**
- **enhance quality and competitiveness**
- **facilitate trade**

Background

Technical requirements are now a critical issue for many businesses, particularly those in the export sector. Meeting standards or other specific requirements, and obtaining independent confirmation that you do, has become essential for business success.

In the domestic market, this means making sure that your products and services do not pose a risk to users, consumers or the environment. The trend is for business-related laws to place the responsibility for compliance squarely with business. If anything goes wrong, those supplying the goods and services are liable. Standards and conformance requirements are important aspects of managing business risk.

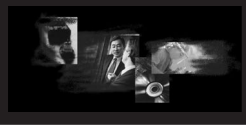
Standards and conformance also help build businesses. If customers know that you supply reliable and consistent products and services they will keep coming back. Customers may also have specific requirements for quality and performance. If you can prove that your product meets or exceeds these, you add value and attract premium prices. Technical competition encourages strong players to keep improving. Stringent technical standards create entry barriers to would-be competitors.

Internationally, things are more complicated. New Zealand relies on consumer protection legislation, with manufacturers being responsible for product failures. Many of our export markets, however, rely on more specific technical requirements that must be met before goods can be placed on the market.

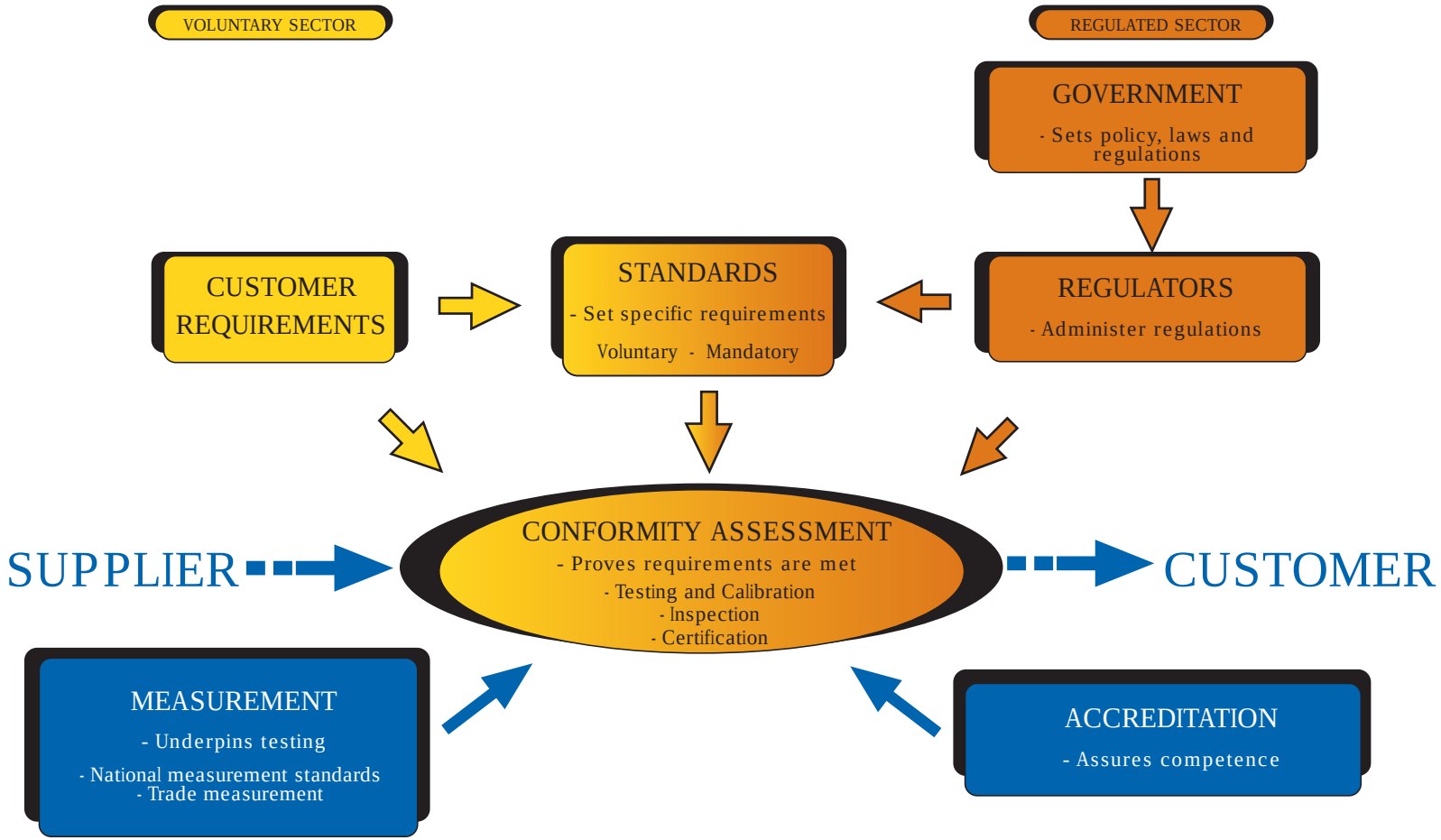
The difficulty is that each market has different requirements. Many countries insist that you use standards and specifications that they are familiar with. Many foreign regulators require their own tests and inspections before allowing your product to be sold in their country, although this is changing as the world adopts freer trade practices.

This booklet is designed to provide an understanding of the key concepts backing the New Zealand standards and conformance technical infrastructure. It summarises the functions of providers in this field and outlines the roles of core government players. Finally, it describes the relevant mandatory and voluntary processes.

Without careful research and preparation, export profit margins can vanish overnight. Exporters need to do their technical homework before entering the market. A good understanding of New Zealand's technical infrastructure and its international relationships can only benefit your business.



The Standards and Conformance Framework



Technical Requirements

Technical requirements include regulations, standards and conformance procedures. They are either mandatory or voluntary.

Mandatory requirements are set by governments in order to protect the national interest. If your products or services do not comply, it will be illegal to sell them.

Voluntary requirements are set by customers or encouraged by industry groups. If your products or services do not comply, you risk losing the sale.

Regulations

Regulations are mandatory (legal) requirements. They are technical rules covering such things as product safety, operator/user safety, environmental effects, quarantine requirements, consumer protection, packaging and labelling, and product characteristics. A regulation may include technical specifications or it may specify use of a particular standard as a means of compliance.

Standards

National and international standards are published documents setting out agreed specifications for products, processes, performance or services - in effect, recipes. They are developed in consultation with the relevant industry and other stakeholders, e.g. consumers, regulators. Standards are voluntary but become mandatory when included in a regulation. Customers may also require that products or services meet specified standards.

Measurement

National measurement standards are accurate measures of quantities such as length, weight, volume, temperature and time. They provide benchmarks to check whether tapes, scales, flow meters, thermometers, clocks and other measuring instruments are giving correct results.

Trade measurements ensure that traders who sell goods by a measure or number - a litre of petrol, 500g of sugar, 50 vitamin tablets - are providing customers with fair and accurate quantities.

Conformance

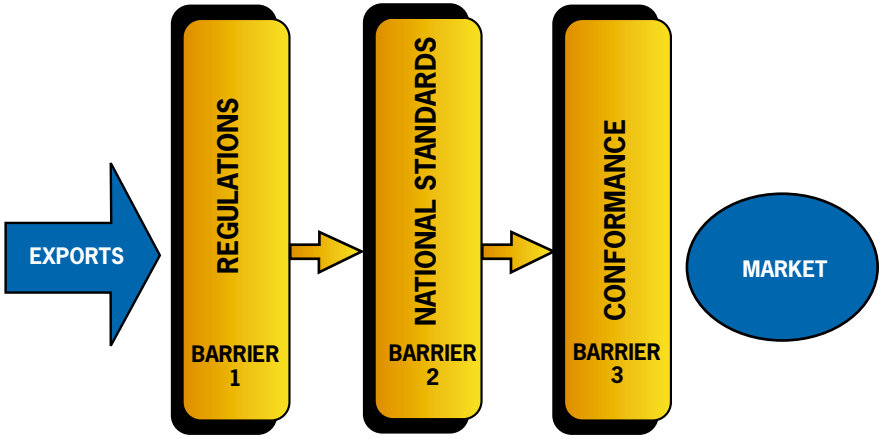
Conformance is the process of judging whether a particular product, process or service meets a standard and/or complies with a regulation. Conformity assessment is undertaken by technical experts. Decisions are based on the results of measurements, tests, inspections or audits. Conformity assessment bodies issue reports and certificates of compliance.

The diagram on page 4 sets out New Zealand's standards and conformance framework. The chart on page 6 gives examples of the relationship between regulations, standards and conformance.

TECHNICAL REQUIREMENTS: Regulations; Standards; Conformance

Element/Responsibility	Description/Purpose	Example: Soft toy	Example: Butter	Example: Food processing machine
Legislation/regulation - set by governments (outcome based) NB Most regulations include technical specifications and standards	- protection of public health and safety - environmental and security protection - protection against fraud - support for industry - trade facilitation	**Outcomes** - no illness, injury or death - trade access	**Outcomes** - no illness, injury or death - no contamination - no fraud - trade access	**Outcomes** - no illness, injury or death - no fires - no electrical interference - no contamination of food - no fraud - trade access
Standards and specifications - developed by standards-writing bodies, in consultation with regulators, industry and other stakeholders NB Standards are voluntary unless cited in a regulation, but can be used as a means of proving regulatory compliance. Customers may also require evidence of conformity to standards to ensure goods and services will meet their needs.	- agreed specifications (recipes) for products, systems and processes - agreed minimum performance requirements and examples of best practice - based on international standards where possible NB Standards do not yet exist for many products, especially innovative products	- fabric dyes - fillings - attachments (e.g. eyes, sharp items) - labelling (e.g. not suitable for children under 3 years)	- milkfat content - water content - residue levels - accurate weight - packaging and labelling - food safety system (HACCP)	- electrical safety - electromagnetic interference - mechanical safety - pressure safety - chemical safety - accurate operation and timing - accurate measuring equipment - cleaning systems, storage etc.
Conformity Assessment - testing - inspection - certification NB certificates of product conformance or compliance are usually supported by test and/or inspection reports. Certificates of compliance can also be issued for systems, processes or services.	- deciding whether the product or service conforms to a standard and/or complies with a regulation - using internationally agreed assessment procedures (including test methods) and professional judgement NB Where there is no standard to check against, the process is more complex.	- identification and toxicity testing of dyes - testing/inspection of fillings - inspection of attachments - inspection of labelling Conformance decision	- testing of chemical composition and residues - testing of microbiological contamination - inspection of packaging and labelling - food safety audit (HACCP) Conformance decision	- electrical testing/inspection - electromagnetic testing - mechanical inspection - pressure vessel inspection - chemical testing of components in contact with food - inspection and testing of cleaning systems - calibration of timing mechanisms - calibration of measuring mechanisms Conformance decision
Mutual Recognition Agreements	**Trade facilitation**	**Acceptance of conformance decision**	**Acceptance of conformance decision**	**Acceptance of conformance decision**

Technical Requirements for Export



Requirements vary from country to country. Many countries have their own technical regulations and standards, including different systems of measurement. Goods must comply with the local rules or they may not be allowed to enter the market.

This may mean repackaging for a specific market. For example, Canada insists on labels in both French and English. The United States generally operates in pounds and ounces, feet and inches, and degrees Fahrenheit. It may even mean producing a specific product line to meet local regulatory requirements. The European Union has a broad set of safety Directives (for CE marking) that must be complied with.

Conformity assessment procedures also differ. As a result, many products need to be re-tested or re-inspected at the importing country's border. The exporter usually has to pay for this, adding to the cost of the imported product. It may also result in long delays before your product gets to market.

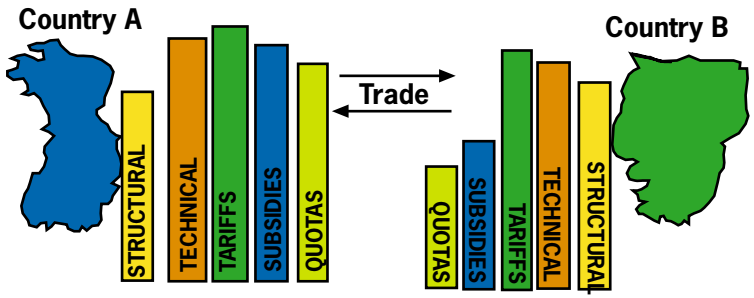
Finding reliable information on the regulations, and the testing and inspection requirements, for a specific product in a specific market can, in itself, add to the cost of your product - and to your level of frustration.

Fortunately, growth in world trade has forced governments to consider ways to reduce these technical barriers so that goods can cross borders without unnecessary delay or added cost.

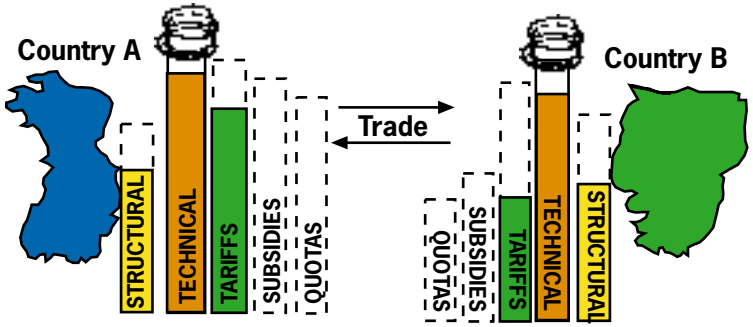
Most trading nations are members of the World Trade Organisation (WTO), or have applied to become members and are working to WTO rules. The WTO was established in 1995, following conclusion of the Uruguay Round of trade negotiations. The WTO administers the revised General Agreement on Tariffs and Trade (GATT) and the new General Agreement on Trade in Services (GATS).

WTO members have agreed to free up international trade by lowering tariffs, phasing out subsidies and quotas and reducing structural barriers. Goods that were previously banned can now enter new markets. Removal of these other barriers has exposed technical requirements as a major market access issue. In many markets, technical requirements are increasing.

PRE - 1995 (Conclusion of the Uruguay Round)



POST - 1995 (Implementation of Uruguay Round)



The WTO administers a package of Agreements and all members must sign on to the whole package. Two of these Agreements contain rules for technical regulations or requirements set by governments.

The Agreement on Technical Barriers to Trade (the TBT Agreement), covers regulations, standards and conformance requirements for all traded products.

The Agreement on Sanitary and Phytosanitary Measures (known as the SPS Agreement) sets rules for regulating human, animal and plant health, including food safety and quarantine.

The TBT and SPS Agreements require that regulations affecting trade must be:

- *Transparent* - technical requirements must be published and available to any trader. Each WTO member must have national TBT and SPS Enquiry Points to provide information on technical requirements for products entering that country
- *Justifiable* - there must be good scientific or technical reasons for any regulation
- *Non-discriminatory* - products from all WTO members must be treated the same. Technical requirements for imported goods and for the same goods produced locally must be the same. (This is sometimes known as "national treatment")
- *Based on international standards* - where possible, all regulations should be based on international standards and guidelines. Measurements should be able to be verified against national measurement standards (traceable). Processes for checking conformance, including test methods, should also be internationally recognised

New Zealand is a full member of the WTO.

- Our TBT Enquiry Point for all non-agricultural products is Standards New Zealand (contact details on page 37)
- Our SPS Enquiry Point (for agricultural products) is the Ministry of Agriculture and Forestry (contact details on page 36)

These Enquiry Points provide information on regulations and technical requirements for any products imported into New Zealand.

Exporters can find information on regulations for specific products in export markets from that country's TBT and SPS Enquiry Points. The current list of Enquiry Points, by WTO member country, is available on the WTO website, www.wto.org. Trade New Zealand is also able to provide advice on market entry requirements.

Case Study: Shattered dreams

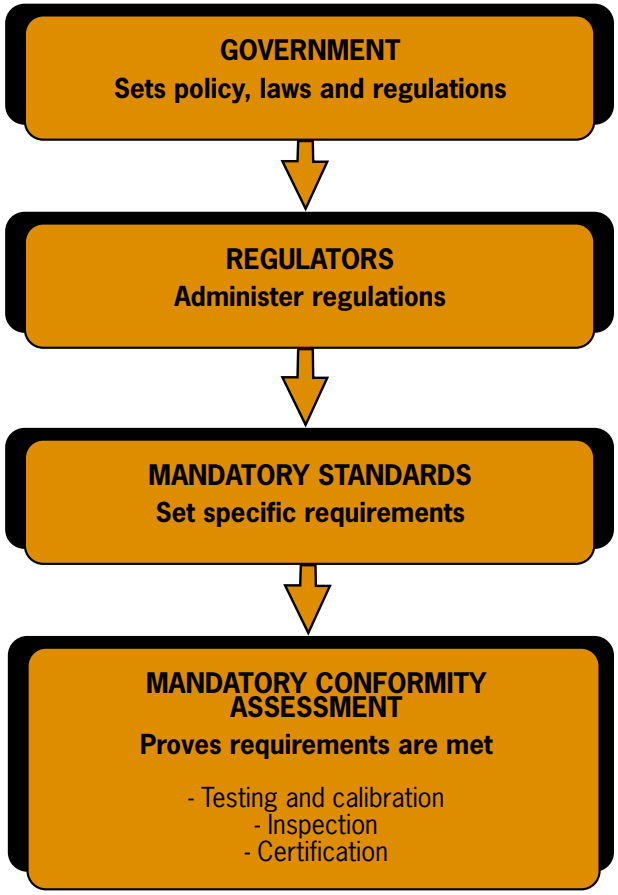
A mechanical engineer spends years developing a unique, and highly effective, machine. Technical specifications and performance test reports sent to potential customers in Europe attract a lot of interest - and firm orders. The future looks very bright. The engineer mortgages his home and goes into production, aiming for delivery before Christmas.

During a telephone conversation, a European customer asks: "By the way, who was your Notified Body?" The engineer is puzzled. "CE marking," explains his customer. "You can't sell it in Europe without CE marking." The engineer spends a frustrating afternoon calling various agencies for advice and is eventually referred to IANZ. He needs CE marking by next week, he says. Can IANZ help?

In a meeting lasting several hours it is explained to him that his machine will need to comply with three different European Directives (regulations): Low Voltage (electrical safety); Electromagnetic Compatibility and Machinery. The conformity assessment process is very complex, will be expensive (a prototype may have to be sent to Europe), and will take at least six months.

A very upset engineer leaves IANZ wondering how he is going to pay his mortgage. It had not occurred to him that Europe might have different regulations, nor that New Zealand test reports might not be accepted in Europe.

I POLICY & REGULATION



Ministry of Economic Development

33 Bowen Street, (PO Box 1473), Wellington
Telephone: (04) 472 0030
Website: www.med.govt.nz

The Ministry of Economic Development (MED) advises the government on regulations, standards and conformance and their impact on the business environment. It also co-ordinates technical input into international trade negotiations.

The Ministry of Economic Development (MED) is responsible for overseeing New Zealand's standards and conformance infrastructure. Its objectives are to:

- Co-ordinate and assist the development of a technical infrastructure that meets the needs of local business and consumers and supports New Zealand trade
- Encourage competition, innovation and productivity
- Reduce compliance costs to business

The Ministry works closely with New Zealand's five specialist technical bodies through the Standards and Conformance Infrastructure Liaison Group:

- Standards New Zealand (SNZ)
- Measurement Standards Laboratory of New Zealand (MSL)
- Trading Standards Service (TSS)
- International Accreditation New Zealand (IANZ)
- Joint Accreditation System of Australia and New Zealand (JAS-ANZ)
  The role of these bodies is explained in Sections II, III and IV.

Supporting trade

MED plays a principal role in supporting New Zealand exporters and importers through promoting internationally the use of "best practice" approaches to reducing technical barriers to trade. The Ministry also negotiates agreements with our trading partners that are designed to address specific barriers. These approaches are consistent with the WTO TBT and SPS Agreements (see page 7).

The same principles are embodied in agreements established with Australia, with the European Union and, most recently, with Singapore. These agreements promote the use of international standards, recognition of conformity assessment and/or recognition of the equivalence of outcomes.

Mutual Recognition

Nations may agree that, although their standards and conformance regimes are not identical, the regimes deliver equivalent outcomes in terms of public safety, environmental protection and other community concerns. Accordingly, they are prepared to recognise each other's regimes as providing the most appropriate or cost efficient approach to reducing or removing technical barriers.

Mutual Recognition Agreements or Arrangements (MRAs) enable New Zealand's test and inspection reports, and product and quality certificates, to be accepted by other economies, and vice versa. MRAs are based on shared confidence in the technical competence of each other's systems and procedures.

Mutual recognition partners agree to accept conformance decisions made in the other country without the need for further assessment. This saves exporters time and money and enables products to be imported from other countries without compromising national or public safety.

- MRAs between governments are in the *regulated sector*, covering legal requirements, and are fully accepted by the regulators in the partner economies
- MRAs in the *voluntary sector* are between national infrastructure bodies and cover systems for measurement and conformity assessment. Many regulators in export markets will also accept test and inspection reports and certificates bearing the logos of voluntary MRA partners

MED has prime responsibility for negotiating and maintaining government-level MRAs (regulated sector). These include:

Trans-Tasman Mutual Recognition Arrangement (TTMRA)

The TTMRA came into force on 1 May 1998. It recognises the special relationship between New Zealand and Australia and provides for the most advanced level of integrating regulations between two economies: "if it is good enough for you, it is good enough for me". Products that may be sold in one economy may legally be sold in the other, regardless of differences in standards or other sale-related regulatory requirements. Similarly, persons registered to practise an occupation in one country are, with a few exceptions, entitled to practise an equivalent occupation in the other without undergoing further testing or examination.

Agreement between New Zealand and the European Community for Mutual Recognition of Conformity Assessment (NZ/EU MRA) – for CE marking

The NZ/EU MRA enables conformity assessment (testing, inspection, certification) of products traded between New Zealand and any of the fifteen members of the European Union to be undertaken in the exporting country, before the goods are shipped.

The NZ/EU MRA does not recognise "equivalence". Each party retains its own regulations and standards, but agrees that: "you may assess on my behalf". Test and inspection reports and management system certificates must be issued by laboratories, inspection bodies and certification bodies that have been designated as competent to assess against the other partner's regulations.

The NZ/EU MRA currently covers only six general product sectors, although there is scope to extend. Exporters needing information on CE marking should contact MED (see page 36).

Agreement between New Zealand and Singapore on a Closer Economic Partnership (CEP)

The New Zealand/Singapore CEP provides a broader framework of approaches for addressing technical barriers to trade. These include harmonising standards and technical requirements with international standards, recognition of conformity assessment systems and recognition of equivalence of regulatory outcomes.

To date, the parties have negotiated mutual recognition of conformity assessment in electrical and electronic equipment. Conformity assessment agreements, or other approaches to deal with specific technical barriers to trade, will be negotiated in other product sectors in due course.

The Prime Ministers of New Zealand and Singapore sign the CEP

Asia Pacific Economic Co-operation (APEC)

Officials from MED represent New Zealand on the APEC Sub-Committee on Standards and Conformance, which is working to harmonise mandatory technical requirements for trade between economies in the Asia Pacific region.

APEC has already established regional MRAs covering electrical and electronic equipment and food products. Each partner economy retains its own regulations but accepts assessments undertaken in the exporting country. An APEC MRA is now being negotiated to cover telecommunications. Not all APEC members have signed these agreements, but most intend to do so once they have suitable systems in place.

Ministry of Foreign Affairs and Trade

The Ministry of Foreign Affairs and Trade (MFAT) is responsible for broader international trade policy, including negotiations in the WTO. MFAT maintains a mission in Geneva, headquarters of the WTO, where it represents New Zealand on the Committee on Technical Barriers to Trade (TBT) and the Committee on Sanitary and Phytosanitary Measures (SPS).

MFAT deals with trade barriers and other issues of access to New Zealand's overseas markets. It leads negotiations with other governments in any trade disputes and, if necessary, will take issues to the WTO disputes settlement process.

MFAT works closely with MED to ensure policy developments are consistent with New Zealand's economic and business interests. As part of its responsibility for New Zealand's international treaty-making, MFAT provides advice on the negotiation and approval of Mutual Recognition Arrangements.

Contact details for MFAT are on page 36.

Ministry of Agriculture and Forestry

The Ministry of Agriculture and Forestry (MAF) manages risk to the New Zealand public, and to our food, fibre, forestry and associated industries, from any plant or animal sources. This is achieved through implementing legislation and mandatory standards in:

- production, processing and export of food and other animal products, including dairy products and seafood
- registration and use of agricultural compounds, including veterinary chemicals
- biosecurity - risks to animal and plant life, whether these are introduced or arise locally
- animal welfare

MAF advises government on all animal and plant health matters and liaises with other agencies on all developments affecting agricultural industries, the rural community and trade in primary products. When trading partners require assurances that New Zealand produce complies with regulations or standards, MAF will issue certificates of compliance. These certificates are based on on-going checks that standards are being properly followed at all stages of production.

MAF is also New Zealand's Enquiry Point for the WTO Agreement on Sanitary and Phytosanitary Measures (SPS) for agricultural products.

Contact details for MAF are on page 36.

Regulators

New Zealand has relatively few regulations for traded goods and services. Manufacturers and traders take responsibility for the safety of their products through self-regulation. This is backed up by consumer protection legislation.

Some products do, however, pose a particular risk to users, consumers and the general public. In those areas, government has imposed mandatory technical requirements that must be met before the product is placed on the market. These requirements are in the form of regulations, administered and enforced by the government agency with expert knowledge of the technology involved. Examples are:

Food safety and HACCP

The Ministry of Health is responsible for enforcing food safety regulations for all food sold on the domestic market. The Ministry of Agriculture and Forestry has responsibility for food safety in primary production and exported products.

Many countries, including New Zealand, now encourage the use of the international Hazard Analysis Critical Control Point (HACCP) food safety system. HACCP was developed by the Codex Alimentarius Commission, a joint committee set up by the United Nations bodies, FAO and WHO, that specialises in food quality and safety.

Put simply, HACCP requires food handlers to analyse their operations, identify any potential risks and put systems in place to guard against those risks.

A HACCP system ensures that food processors, wholesalers and retailers, restaurants and other food premises are identifying and managing any areas or processes where food contamination or deterioration could occur. Risks must be managed from supply through to delivery. Staff must also be trained in food safety practices and the whole system must be monitored continuously. The system must be audited regularly by independent HACCP auditors.

HACCP is especially important to food exporters as some markets now insist that all food suppliers have an independently audited and certified HACCP system in place. In Europe and the United States, HACCP has become mandatory for many food products.

In the domestic market, HACCP is voluntary, but food processors and retailers with an independently audited HACCP system in place can apply to the Ministry of Health for exemption from regular food safety inspections.

Electrical and gas safety

The Energy Safety Service in the Ministry of Consumer Affairs is responsible for safeguarding people and property from the dangers of gas and electricity. This includes responsibility for the safety of electrical and gas appliances and installations, and the safety of electricity supply and generating systems. The service also regulates the quality and measurement of gas and electricity and the quality of petrol and diesel.

Electrical appliances may also need to be checked for electromagnetic compatibility to ensure that emissions are safe and do not cause electrical interference.

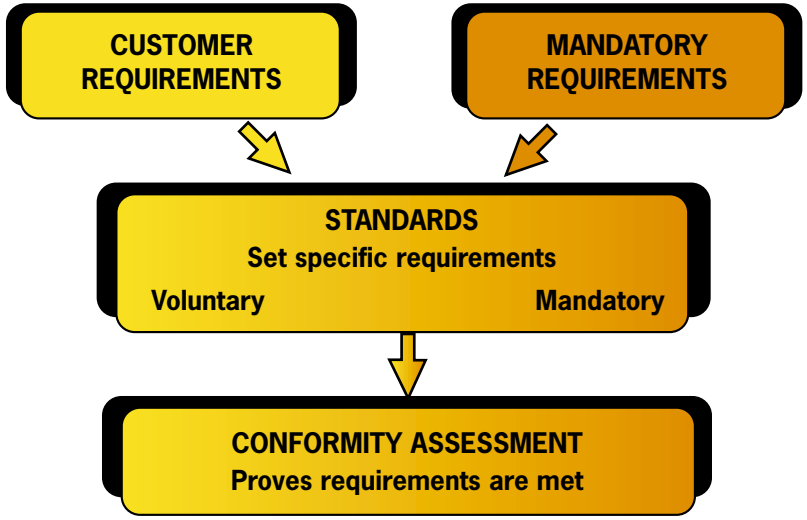
Machinery, pressure equipment, cranes and passenger ropeways

Machinery and equipment that could injure operators, users or members of the public is regulated by the Occupational Safety and Health (OSH) division of the Department of Labour. Things such as pressurised boilers, cutting machines and fairground rides must meet OSH requirements before they can be used in New Zealand.

In many of New Zealand's export markets, the regulatory regime is more complex and more regulations are enforced pre-sale. That means that products must be tested or inspected and certified before being placed on the market.

Exporters need to check carefully whether there are any technical requirements their product must meet in each market and what is involved. Failure to do so can lead to frustrating and expensive delays. Trade New Zealand's overseas offices are able to assist with advice on market entry requirements. Information is also available from the TBT and SPS Enquiry Points in the importing country. (The list of Enquiry Points for each WTO member, with contact details, is on the WTO website: www.wto.org)

II STANDARDS



Standards New Zealand

155 The Terrace, (Private Bag 2439), Wellington
Telephone: (04) 498 5990
Website: www.standards.co.nz

Mission: *"To be a world leader in the development and provision of consensus-based standards solutions achieved through an active, profitable partnership with our customers"*

Standards New Zealand (SNZ) prepares, adopts and publishes most of the technical and commercial standards in New Zealand. Standards development is an open process of consultation and consensus, with all interested parties invited to participate.

Mandatory standards are those cited in laws or regulations, either as formal requirements or endorsed as examples of approved practice.

Most standards are **voluntary**, i.e. they are not required by law. Voluntary standards may be used as the best way to make sure a product is safe, or to give assurance to customers and add value to your product or service.

The current trend is towards acceptance and adoption of international standards wherever possible.

Examples of standards, guidelines and codes of practice are:

- Timber framed buildings
- Code of practice for the management of agrichemicals (English and Chinese language versions)
- Quality Management Systems
- Methods of testing child restraints - dynamic testing
- Acoustics - measurement of environmental sound
- Electrical Installations (wiring rules)
- Code of practice for bungy jumping
- Health and Disability - Infection control
- Health and Disability - Restraint minimisation and safe practice
- Materials and Workmanship for Earth Buildings
- Professional Standards for Telenursing Practice
- Risk Management for Local Government
- Guidelines for Risk Management in Healthcare

Standards are also the basis of conformity assessment. Laboratories, inspection bodies and certification bodies refer to standards when testing samples, inspecting safety equipment or auditing quality systems. Accreditation bodies use standards to check that laboratories, inspection bodies and certification bodies are competent to undertake the work they do for their clients.

Structure

Standards New Zealand is the trading arm of the Standards Council, a Crown-owned entity operating under the Standards Act 1988. The Standards Council is an appointed body, with representatives from consumers, industry and government. The Council has statutory responsibility for overseeing the development and adoption of standards and standards-related products. SNZ has a staff of 43 and relies on over 2,000 New Zealanders who give their time to serve on the many boards and standards development committees.

SNZ does not receive direct government funding for its activities, apart from contestable contracts. Revenue comes from contracts with industry and government for the adoption, development and support of standards and from the sales of standards publications.

Operations

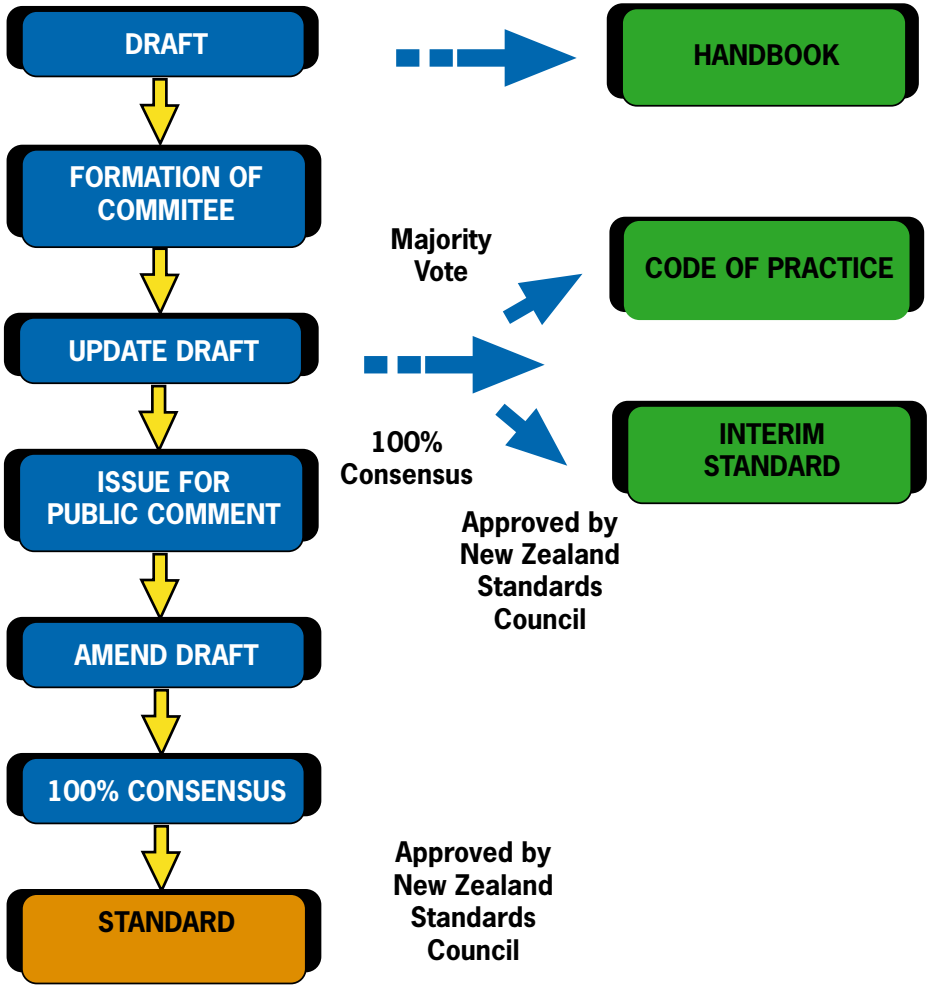
Standards provide formal guidelines for safe, efficient products and practices that help organisations, industry and the community. Other SNZ products include codes of practice, handbooks and interim standards. SNZ also offers membership services and runs public seminars about the content of key standards.

A standard or code of practice sets acceptable levels of quality and performance, usually a minimum level or a "best practice" benchmark. For clients, this provides an opportunity to:

- Define specifications that ensure a quality product or service within their business, industry or community
- Reduce cost (and risk) by providing a solution that key stakeholders agree is the "way to do" a task or specify the characteristics of a product
- Meet international requirements, reducing barriers between exporters and their international markets
- Use standards as a marketing tool, a proud stamp of quality
- Provide a means of compliance with legislation
- Achieve national and international recognition for best practice

The Process

Development of standards and codes of practice is based on an internationally recognised process of consultation and consensus. Importantly, the process is independent and seen to be independent within an agreed scope. The key elements are as follows:



Products and Services

Standards New Zealand is responsible for:

- New Zealand Standards, specified for New Zealand conditions
- Joint Australian/New Zealand Standards for use on both sides of the Tasman. Joint standards are developed and published in conjunction with Standards Australia International, under an Active Co-operation Agreement. Over 2,500 joint AS/NZS standards are now in use
- Overseas standards adopted or amended to suit New Zealand conditions
- Codes of Practice or Industry Technical Agreements - these are quicker and less expensive to develop than a full standard
- Useful, easy to understand handbooks that assist practical application of standards in the community
- Seminars to inform and train people on the content of specific standards and to publicise new standards
- WTO TBT Enquiry Point for all non-agricultural products

Case Study: Winstone Wallboards

Winstone Wallboards is conscious that, ultimately, it competes in a global market. We believe it is important for us to demonstrate our technical credibility to manufacture products to meet the needs of our New Zealand and export customers. We maintain a Quality Management System certified to ISO 9000 and ensure that the products we manufacture meet the requirements of other relevant standards.

Winstones has supported the development of performance based standards - versus prescriptive standards - for building materials and systems, as this promotes competitive innovation.

As an example, we found that the Australian construction market did not have any gypsum-based, high impact, low maintenance, interior lining systems. The end result is the recent, successful introduction of Gib Toughline. This is an internationally patented "reinforced" plasterboard, developed with good Kiwi know-how. It was extensively tested to ensure it met the specific Building Code performance requirements of both the New Zealand and Australian markets.

International Role

SNZ represents New Zealand in the International Organisation for Standardisation (ISO) and the International Electro-technical Commission (IEC) and facilitates New Zealand representation on relevant ISO and IEC technical bodies and standards committees. This enables New Zealand to have input into shaping international standards developments that help reduce barriers to trade in our major export sectors and markets.

SNZ is contracted by the Ministry of Foreign Affairs and Trade to act as New Zealand's Enquiry Point for the WTO Agreement on Technical Barriers to Trade (TBT). The Enquiry Point notifies the WTO of any new New Zealand regulations that may impact on trade. It also responds to enquiries from overseas on any regulations or requirements that must be met before specific products can be imported into New Zealand.

SNZ is a founding member of the Pacific Area Standards Congress (PASC) and participates in PASC activities. SNZ also works closely with government in standards and conformance activities within APEC and on standards issues in negotiations between Australia/New Zealand (CER) and trade groups in Southeast Asia and South America. SNZ also provides advice to the government on standards issues within international organisations such as the WTO and the OECD.

SNZ assists in meeting the government's development assistance objectives by providing consultancy support, training and capacity building opportunities for standards bodies in developing countries.

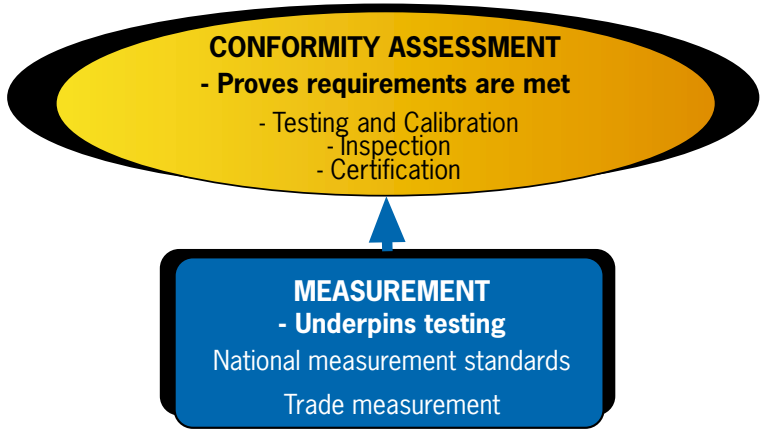
Case Study: Relevant Standards for Aviation Industry

Five years ago, when the aviation industry started to use standards on a regular basis, it found that some were out of date or irrelevant. The industry decided to get involved in the standards development process in order to make sure that the end product reflected the industry's needs.

The first standard to be reviewed was AS/NZ 2430.3, which addresses the classification of hazardous areas, including aircraft hangars. The earlier version of the standard was written as if modern aircraft were powered by petrol. In fact, they are usually powered by Jet a1, a kerosene-type fuel. The revised standard distinguishes between different fuel types and the dangers that each type poses. This has proved to be of significant benefit to the industry by providing a realistic standard that can be readily complied with.

The industry has also had input into the revision of AS/NZ2381.1, which covers electrical equipment in hazardous zones. The revised standard enables different equipment to be used safely within hazardous zones, provided the risk is managed through testing for explosive vapours and an audit trail. This gives the aviation industry flexibility to use a wider range of equipment while still meeting safety standards.

III MEASUREMENT



Measurements Standards Laboratory of New Zealand

Industrial Research Limited, Gracefield Road,
(PO Box 31 310), Lower Hutt
Telephone: (04) 569 0000
Website: www.irl.cri.nz/msl

Mission: "*... provide for the use throughout New Zealand of uniform units of measurement of physical quantities, and for the establishment and maintenance of standards of measurement of physical quantities."*

The Measurement Standards Laboratory of New Zealand (MSL) ensures that New Zealand has a system that delivers accurate and reliable measurements. Hundreds of daily activities rely on accurate measurement: meeting a friend at an agreed time; buying a bottle of drink or packet of chips; using electricity; competing in sports; checking blood pressure; keeping to the speed limit or heating the oven. The government requires reliable measurements for legislation and regulation. Suppliers and customers use measurement as a basis for fair trade.

MSL's measurement capability underpins our whole technical infrastructure. Its key functions are:

- To support the standards of measurement relevant to New Zealand
- To ensure that users, both national and international, have confidence in New Zealand's standards of measurement
- To ensure that all measurements in New Zealand can be traceable to the International System of Units (le système international d'unités or **SI**)

International trade depends on accurate and compatible measurement.

- *Heavy machine guns ordered from overseas by the New Zealand Army were rejected because they could not be mounted rigidly enough. Accurate measurements in New Zealand showed that the mounting hole and pin did not fit properly.*
- *A container load of New Zealand ice cream was rejected, and subsequently destroyed, because of a dispute over the level of a particular food colouring. The importing country measured an unacceptable level while the New Zealand laboratory that measured it before export found the level of food colouring to be acceptable.*

Structure

MSL was established in 1992 as part of the crown research institute, Industrial Research Limited (IRL) - previously part of the former Department of Scientific and Industrial Research. IRL is a government-owned company with its own board. MSL operates under the Measurement Standards Act 1992 and the National Standards Regulations 1976 (with Amendment No. 1, 1992).

MSL is contracted by the Minister of Research, Science and Technology to provide measurement services related to New Zealand's national measurement standards. This recognises that MSL is part of the scientific innovation system. MSL advises the government on national and international measurement issues and developments.

Operations

Relevant Measurement Standards

MSL provides appropriate national measurement standards for the SI units of importance to New Zealand. For example, MSL has temperature fixed points to establish the temperature scale; a Josephson volt apparatus to provide accurately known voltages; and standard weights with mass values known in terms of the kilogram (an artefact held in Paris).

Measurement standards are dynamic. User needs change with time. New standards must be introduced and existing standards extended in range and accuracy. In practice, this means that MSL is continually improving the measurement standards it supports. For example, a cryogenic radiometer has recently been commissioned for light measurement. The previous room temperature radiometer could not meet the accuracy now required for measuring ultraviolet light from the sun.

MSL experts in measurement undertake the research and development associated with this continual improvement. MSL scientists also monitor international developments in their specialist areas so that they can report on and respond to changes, such as new definitions for SI units.

Confidence in Measurement

Confidence in measurement is important for enforcement of local and central government regulations and codes, and for well-being in society. Up-to-date measurement capabilities underpin New Zealand's competitive advantage, especially in advanced technology product development. Internationally, confidence in New Zealand's standards of measurement is essential for access to the global market-place and to meet international standards and conformance requirements.

To help establish this confidence, MSL participates in international measurement comparisons, principally those organised by the international Metric Treaty Organisation (which is responsible for supporting the SI unit system), and the Asia-Pacific Metrology Programme. These measurement comparisons are used to demonstrate that New Zealand's national measurement standards are consistent with national measurement standards in other countries, and hence that they are acceptable measures of the SI units.

MSL publishes the results of its measurement standards research in international journals to provide additional evidence of New Zealand's measurement capability and to contribute to the body of scientific knowledge on measurement.

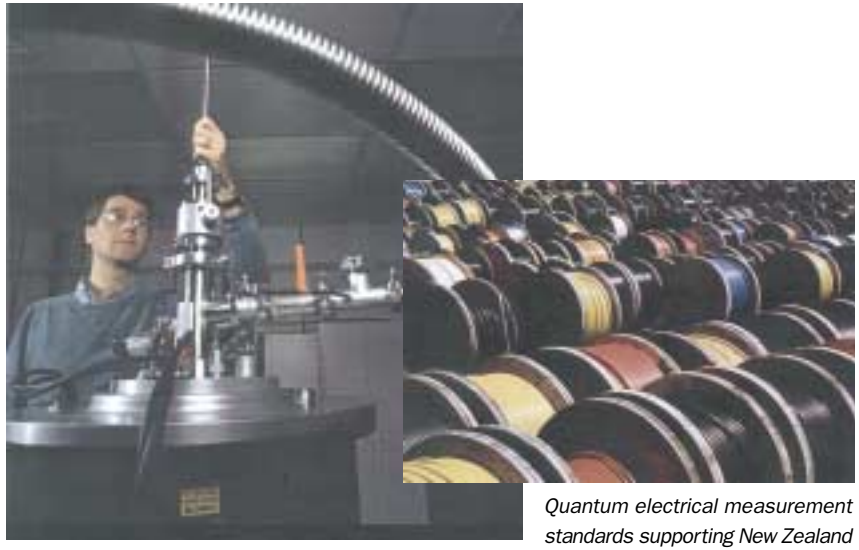
Measurement Traceability

The only measurements that can be relied on are those that are traceable. Traceability is an unbroken chain of comparisons back to the SI in the form of a national measurement standard. Each comparison in the chain is of known accuracy and is undertaken by people who are technically competent.

MSL provides a wide range of calibration services to help clients to establish the traceability of their measurements. All MSL calibrations are certified as traceable to New Zealand's national measurement standards.

MSL calibrates the reference measurement standards of IANZ-accredited calibration laboratories. These laboratories, in turn, provide a traceable calibration service to anyone needing to check the accuracy of measuring devices.

All measuring devices that are used for critical measurements require regular calibration to a suitable accuracy. This applies to simple instruments, such as pressure gauges, rules and thermometers, as much as it does to more complex measuring devices, such as weighing instruments and co-ordinate measuring machines.



Quantum electrical measurement standards supporting New Zealand manufacture of high voltage cables

MSL Capabilities

- Calibration capabilities in length (laser wavelength, line scales and end standards); mass; volume; density; pressure; time interval, frequency and time-of-day; electricity (voltage - direct and alternating, resistance, current, power and energy, capacitance, impedance); temperature; humidity; photometry; radiometry and spectrophotometry
- Advice on the acceptability of calibration, test or measurement information
- Measurement-related consultancy services based on specialist technical expertise. Some examples are colour and lighting, electricity metering, electrostatic hazards, laboratory accreditation, laser safety, UV hazards, and temperature control
- Workshops and attachment training to build technical competence in testing and calibration. Workshop subjects include Traceable Electrical Energy Metering; Photometry and Colour Measurement; Measurement, Uncertainty and Calibration; Temperature Measurement and Calibration; Balances and Weighing; Length Measurement; Pressure Calibration; and Infrared Radiation Thermometry
- Provision of measurement experts, e.g. for the technical assessment or peer review of laboratories

Case Study: Electricity Supply

Changes in the electricity supply market meant that suppliers needed to improve their ability to measure electricity. MSL assisted the industry by:

- *Organising a watt-meter proficiency testing programme so that the industry could judge how well it was performing*
- *Advising on industry codes of practice for electricity metering and encouraging the requirement for laboratory accreditation to ensure ongoing performance*
- *Running training workshops on traceable electrical energy metering*
- *Developing a more accurate measurement standard for electrical energy*
- *Extending calibration services to include three-phase energy meters and current transformers*

Development of these improved services was underpinned by a research project to improve the accuracy of the ac volt.

The outcome is greatly increased mutual confidence in electricity measurements between suppliers and purchasers in the wholesale electricity market.

International Role

New Zealand has adopted the SI or metric units of measurement, which are supported and developed under the inter-governmental Metric Treaty of 1875. New Zealand became a signatory to the Metric Treaty in 1991.

In October 1999, MSL, together with counterparts from 37 other Metric Treaty member countries, signed an Arrangement for the "Mutual Recognition of National Measurement Standards and of Calibration and Measurement Certificates issued by National Metrology Institutes". The MRA requires that National Measurement Institutes of signatory countries carry out regular international measurement comparisons.

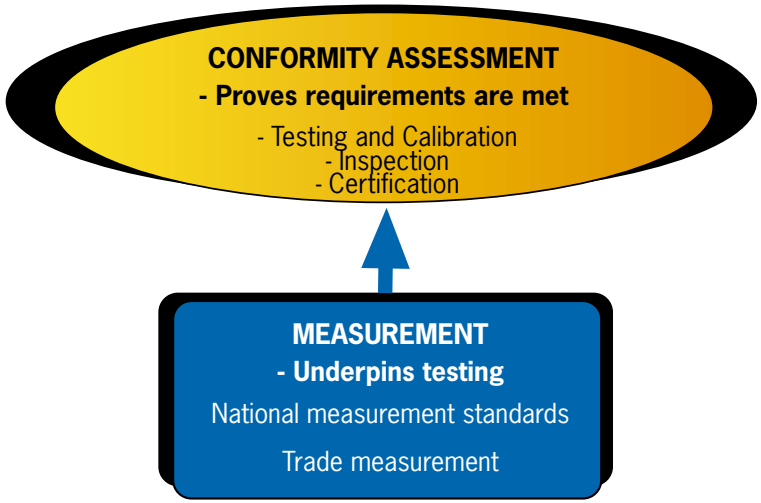
This MRA is a major step forward in international measurement traceability. Regular comparisons help to make sure that measurements from different countries are effectively the same. They help ensure that components from country A will fit machines from country B; that aircraft can safely use navigation systems in different countries; and that a 500mL glass in Dunedin will hold the same amount as a 500mL glass in Shanghai.

Regional Co-operation

MSL participates in metrology activities in the Asia-Pacific region to help build the metrology capabilities in the region and to increase New Zealand and international confidence in these capabilities. MSL (and its forerunner in the DSIR) has been an active member of the Asia-Pacific Metrology Programme since its inception in 1977.

With support from the New Zealand Government, MSL is successfully training metrologists from a number of Southeast Asian countries. MSL also contributes to measurement aspects of regional trade agreements, including CER with Australia and negotiations between CER and ASEAN.

Asia Pacific Metrology Programme Directors sign Mutual Recognition Arrangement.
(L to R: Japan; New Zealand; Korea; Thailand; Australia; Singapore; and China.)



Trading Standards Service

Ministry of Consumer Affairs, 33 Bowen Street
(PO Box 1473), Wellington
Telephone: (04) 474 2750
Website: www.consumer-ministry.govt.nz

Mission: *"The Trading Standards Service works to ensure that goods are exchanged on the basis of recognised, informed and accurate weight or measure ... by promoting effective market practices, and ensuring compliance with those practices."*

The Trading Standards Service (TSS) is responsible for the administration and enforcement of the Weights and Measures Act 1987 and the regulations issued under the Act. TSS also provides advice to government on the New Zealand legal measurement system and its operation.

The Weights and Measures Act 1987 provides for the system of weights and measures to be used in trade. It sets out:

- the standards of weights and measures used to ensure traceability to the New Zealand primary standards held by MSL
- the obligations to trade in metric units
- the method by which goods should be sold by weight, measure or number
- the requirements for the accuracy of weighing and measuring equipment used for trade

It also provides a system for enforcement of the provisions of the Act and for offences and penalties for breaches of the Act.

The Act sets down a number of fundamental rights for consumers and those involved in trading goods by weight, measure or number. It underpins the trading environment within New Zealand and gives international credibility to our exporters.

Importers in other countries can be assured that New Zealand weights and measures meet international standards and that goods supplied from New Zealand can be accepted as being sold by fair weight, measure or number.

Structure

The Trading Standards Service is a section within the Ministry of Consumer Affairs (MCA). MCA is an operating division of the Ministry of Economic Development but reports directly on policy and operational issues to the Minister of Consumer Affairs.

Operations

The principal activities of the TSS, in relation to trade measurement, are:

- To provide policy advice to Government on trade measurement related issues
- To ensure compliance with the provisions of the Weights and Measures Act 1987 through education and enforcement
- To protect the integrity of the New Zealand trade measurement system by using traceable standards of weight and measure
- To promote assurance on the accuracy of weighing and measuring equipment used in trade by operating a scheme for the accreditation of private sector verifiers
- To maintain a "type approval" laboratory where new types of weighing and measuring instruments can be checked against international measurement standards. This helps to prevent fraud
- To maintain New Zealand measurement credibility in the international arena through ongoing dialogue with inter-governmental legal metrology organisations

Legal Metrology

Legal metrology refers to the legislated requirements for measurements. The Weights and Measures Act 1987 deals only with measurements in trade. The TSS, through its membership of inter-governmental organisations, is able to give advice on wider legal metrology issues.

The accuracy of weighing and measuring instruments used for trade.

TSS Capabilities

- Testing and approving new weighing or measuring instruments, including those imported for use in New Zealand. Approved instruments range from drink dispensers to weighbridges
- Carrying out spot checks of weighing and measuring equipment used in trade
- Checking the accuracy of the quantity of packaged goods
- Investigating complaints from the public
- Auditing private sector verifiers of trade measuring equipment
- Maintaining an accredited measurement standards laboratory

Recent TSS activities:

- Commissioning a report for government on the economic value of trade measurement to New Zealand
- Successfully prosecuting a major fast-food chain for selling underweight goods
- Requiring firewood merchants to sell a fair measure, either by description (e.g. a trailer load, a sackful) or by volume (e.g. 3 cubic metres)
- Promoting the adoption of international standards for quantity statements on packaged goods
- Working with major retailers to establish company policies aimed at compliance with weights and measures legislation
- Requiring weighbridge manufacturers and operators to meet specific design features

Case study: CNG sold through dispensers

Compac Industries, based in Penrose, Auckland has a substantial export business in CNG dispensers. This was threatened by a proposed new international standard for measuring CNG sold through dispensers.

The first draft of the new standard was written round a particular way of measuring CNG. This would have prohibited other technologies and precluded innovation. In particular, it would have discriminated against Compac and other New Zealand companies selling CNG dispensers that used a different system of measurement.

The International Association for Natural Gas Vehicles (IANGV) has had its secretariat in Auckland since 1986 and has been heavily involved in the preparation of international CNG standards. IANGV made submissions on behalf of the industry and attended working group meetings in Europe of the international body, Organisation International de Métrologie Legale (OIML). They succeeded in getting a new trade measurement standard that did not favour any particular measurement technology. This ensured that New Zealand suppliers were still able to compete on the international market for CNG dispensers.

International Role

International Organisation of Legal Metrology

The Organisation International de Métrologie Legale (OIML) was established in 1955. Its main objective is international harmonisation of legal metrology. OIML currently has 57 countries as full members and a further 48 countries as corresponding members. New Zealand is a corresponding member.

Asia Pacific Legal Metrology Forum

New Zealand is a member of the Asia Pacific Legal Metrology Forum (APLMF), a specialist regional body established under APEC (Asia Pacific Economic Cooperation). APLMF aims to promote integrity and harmony in legal metrology activities and services within the Asia-Pacific region and to build mutual confidence in trade measurement. New Zealand chairs the APLMF working group on goods packed by measure.

Trade Measurement Advisory Committee

The Trade Measurement Advisory Committee (TMAC) consists of the trade measurement authorities from New Zealand and from the Commonwealth, States and Territories of Australia. The Committee focuses on trade measurement issues within Australia and between Australia and New Zealand and provides policy advice on trade measurement issues to the Australian State and Federal Governments and the New Zealand Government.

ASEAN Free Trade Area (AFTA) and Australia/New Zealand Closer Economic Relations (CER)

New Zealand and Australia also work alongside partners in the ASEAN Free Trade Area (AFTA) on trade measurement issues.

A TSS officer tests that a new weighing instrument is still accurate at -10°c.

IV CONFORMANCE

Conformity assessment is "any activity concerned with determining directly or indirectly that relevant requirements are fulfilled" (ISO/IEC Guide 2: 1996)

Conformity assessment is the process of deciding whether or not a product or system conforms to a standard and/or complies with a regulation. There are three main types of conformity assessment: **testing, inspecting** and **certifying**.

Over recent years, the international conformance structure has evolved as a hierarchy (see page 25). The implementation of the World Trade Organisation's TBT and SPS Agreements (see page 7) have encouraged this. Most WTO member countries are now developing similar structures in order to facilitate trade. The basic structure is as follows:

Government

Governments have a role in ensuring that systems are in place to meet the requirements of international agreements within the WTO and within regional organisations such as Asia Pacific Economic Co-operation (APEC). The national system must be scientifically rigorous, and the processes transparent and reliable. This enables our trading partners to have confidence and trust in any conformance decisions made in New Zealand. Similarly, the New Zealand government must be confident that decisions made overseas are accurate and reliable and that imported products will not place New Zealand citizens at risk.

Accreditation

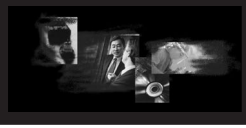
Accreditation is: *"a procedure by which an authoritative body gives formal recognition that a body or person is competent to carry out specific tasks"*. Governments establish or endorse technical accreditation bodies. Accreditation is voluntary but provides confidence in results. Accreditation bodies check that those doing the actual testing, inspecting and certification are competent and reliable. The parallel in the education sector is the New Zealand Qualifications Authority that accredits educational institutes as competent to issue trade training certificates or award degrees.

Testing, Inspecting, Certifying

The actual conformity assessment is undertaken by private organisations on a commercial basis. Specialist laboratories undertake tests or check measurements and issue test or calibration reports. Inspection bodies undertake various types of professional inspections and issue inspection reports. Certification bodies license products or audit quality or environmental management systems and issue certificates of conformity.

Mutual Recognition

Mutual Recognition Arrangements (MRAs) are based on conformity assessment: whether the authorities in one country can trust a decision made in another country. MRAs are agreed after rigorous peer evaluation to ensure that each partner is using the same or equivalent standards or specifications and undertaking checks using the same methods.



Conformity Assessment Structure

VOLUNTARY

REGULATORY

INTERNATIONAL MUTUAL RECOGNITION (ILAC)

INTERNATIONAL MUTUAL RECOGNITION (IAF)

REGIONAL MUTUAL RECOGNITION (APLAC)

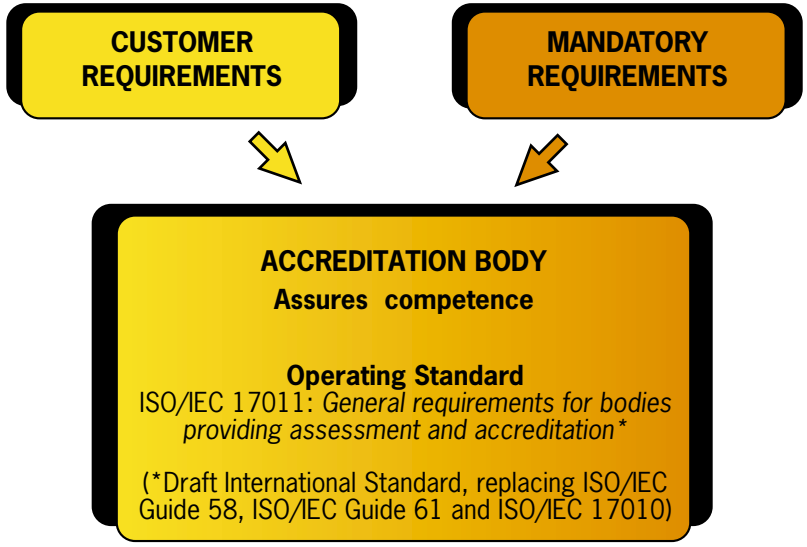
REGIONAL MUTUAL RECOGNITION (PAC)

GOVERNMENT
Recognises accreditation bodies

ACCREDITATION BODIES
Accredit Laboratories, Inspection Bodies, Certification Bodies
(ISO/IEC 17011*)

LABORATORIES	INSPECTION BODIES	PRODUCT CERTIFIERS	QMS CERTIFIERS	EMS CERTIFIERS	PERSONNEL
test items and materials or calibrate equipment (ISO/IEC 17025)	inspect designs, processes, services products or plant (ISO/IEC 17020)	license products to use a Certification Mark (ISO/IEC Guide 65)	certify Quality Management Systems (ISO/IEC Guide 62)	certify Environmental. Management Systems (ISO/IEC Guide 66)	certify personnel as competent (ISO/IEC 17024*)
An item or material is certified (standards and specifications)	Designs, processes, services products or plant are certified (standards and specifications)	Identical products are marked as complying (safety specifications)	Companies are certified (ISO 9001: 2000)	Companies are certified (ISO 14001)	Personnel are certified to check against requirements

Users and Consumers have Assurance



International Accreditation New Zealand

626 Great South Road, Greenlane
(Private Bag 28 908, Remuera), Auckland
Telephone: (09) 525 6655
Website: www.ianz.govt.nz

Mission: "*To underpin and facilitate domestic commerce and external trade through appropriate national conformity assessment and training.*"

International Accreditation New Zealand (IANZ) is the national authority for accrediting technical professional services. Its primary role is the accreditation of testing and calibration laboratories and inspection bodies. It also accredits specific professional activities, including radiology services and pharmacies.

Accreditation ensures that the government, consumers and the public can have confidence in the quality and competence of New Zealand's testing, inspection and other assessment services. Reliable technical services contribute directly to improved business efficiency and to the international competitiveness of New Zealand's industry and technology.

Accreditation is in the voluntary sector, i.e. there is no legal requirement for facilities to be accredited. Regulators and other government authorities are, however, increasingly using formal accreditation to international standards as a reliable measure of competence to undertake some government-funded services.

Recent cases of fatal errors by non-accredited medical laboratories, for example, have led health funders to require laboratories seeking government medical testing contracts to have current IANZ accreditation.

IANZ advises government on conformance issues and technical barriers to trade, and participates in the standards and conformance aspects of trade negotiations.

Structure

IANZ is the operating arm of the Testing Laboratory Registration Council, a statutory body established by Act of Parliament in 1972. The Council has nine appointed members from various technical disciplines and sectors of industry, and reports to Parliament through the Minister of Commerce. IANZ is entirely user-funded and does not receive any government funding. IANZ has a staff of 35 based in Auckland, and undertakes accreditation assessments throughout New Zealand.

All recommendations to grant IANZ accreditation are referred to Professional Advisory Committees, consisting of invited external technical experts who contribute on a voluntary basis. This ensures that the process is independent, objective and transparent. The relevant Advisory Committee also considers recommendations for suspension or withdrawal of accreditation.

IANZ relies on a pool of over 200 technical experts who act as technical assessors for peer reviews of laboratories or inspection bodies in their specialist field.

IANZ itself is subject to regular peer evaluations by counterpart accreditation authorities from Europe, North America and the Asia Pacific region. This ensures that its competence and procedures remain consistent with international practice. IANZ participates in similar peer evaluations of its overseas counterparts.

A technician carries out routine microbiological testing of milk product samples

IANZ Operations

- Testing and calibration laboratory accreditation (ISO/IEC 17025)
- Inspection body accreditation (ISO/IEC 17020)
- Radiology service accreditation (ISO/IEC 17025 adapted)
- Pharmacy accreditation (ISO/IEC 17025 adapted)
- Proficiency testing programme accreditation (ISO/IEC Guide 43)
- Registration of OECD GLP Compliant Laboratories
- Designating Authority for approval of laboratories and inspection bodies for CE marking (see page 10)
- Assessment of Ministry of Health food safety system (HACCP) auditing bodies
- Assessment of MAF meat industry laboratories
- Development of accreditation programmes and technical criteria
- Technical information and advice
- Input to development of international standards relating to testing, inspection and accreditation
- Training courses in a range of technical areas, including laboratory quality management, measurement, testing and auditing skills. Specific courses cover accreditation requirements for medical testing, radiology and inspection services
- Advisory service for developing country accreditation authorities

The accreditation process follows international accreditation standards. Assessors check both the technical competence of the organisation and its quality management system. This includes checking that staff are properly qualified and experienced and that their knowledge is up-to-date. It covers test or inspection methods, environment and equipment, recording and all other aspects that could affect the result.

The specific tests or inspections that meet accreditation requirements are listed in the organisation's Scope of Accreditation. Accredited organisations are entitled to put the IANZ logo on reports of tests or inspections within their scope.

Laboratory accreditation

IANZ accredits laboratories against the international standard: ISO/IEC 17025: *General requirements for the competence of testing and calibration laboratories.*

Laboratories are currently accredited in the following fields:

- Biological and microbiological
- Chemical
- Dairy products
- Electrical
- Gas cylinders
- Mechanical
- Medical
- Metrology and Calibration
- Applied physics
- Wool

Inspection Body Accreditation

IANZ accredits Inspection Bodies against the international standard: ISO/IEC 17020, *General criteria for the operation of various types of bodies performing inspection.* At present, IANZ is the only provider of Inspection Body accreditation in New Zealand.

Inspection bodies undertake a range of activities, from inspection of agricultural products to boilers, cranes and ski lifts. The government Quarantine Service is gaining Inspection Body accreditation for its border control services. The Ministry of Health is using criteria based on ISO/IEC 17020 to ensure the technical competence of food safety inspection services.

Radiology Service and Pharmacy Accreditation

Radiology services (x-ray and other imaging) and pharmacies offering prescription services are accredited against Codes of Practice based on ISO/IEC 17025, and developed in close consultation with the relevant professional bodies.

Proficiency Testing

Proficiency testing programmes check the consistency of procedures between laboratories and the reproducibility of test results (whether an identical test will always give the same result). Identical samples or artefacts are sent to laboratories for testing or calibration. Results are analysed by statisticians and studied by technical consultants, expert in the field being tested. A report is returned to each participating laboratory on its performance and indicating any remedial action needed. All IANZ-accredited laboratories are required to participate in proficiency testing programmes.

Public Database of IANZ Accredited Organisations

IANZ maintains a database of its accredited organisations and their scopes of accreditation. This is accessible through the IANZ website (see page 38).

International Role

IANZ assists in reducing technical barriers to trade through Mutual Recognition Arrangements (MRAs) with counterpart accreditation authorities in New Zealand's major export markets. MRA partner accreditation authorities will accept test, measurement and inspection reports from New Zealand if they bear the IANZ accreditation logo.

IANZ currently has MRAs for laboratory accreditation with 40 accreditation authorities in 29 of New Zealand's major overseas markets, including Europe, North America, Australia and a number of developed Asian countries. These will be added to as new accreditation authorities meet the stringent peer evaluation requirements for MRA status.

International Involvement

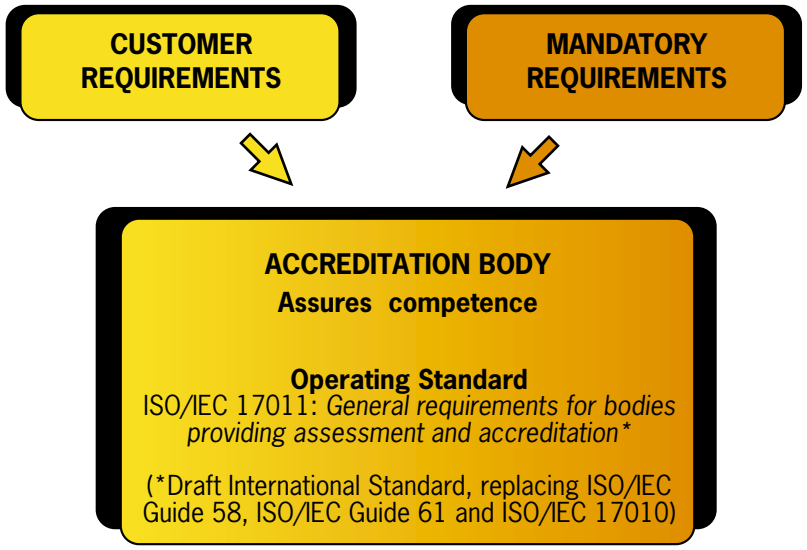
IANZ is a founding member of the international grouping of laboratory accreditation authorities, International Laboratory Accreditation Co-operation (ILAC) which was established in 1978 and currently has 58 members from over 50 countries. IANZ is also a founding member of the regional grouping, Asia Pacific Laboratory Accreditation Co-operation (APLAC), which is recognised by APEC as a Specialist Regional Body.

IANZ represents New Zealand in ILAC and APLAC, and on the OECD Panel on Good Laboratory Practice. These responsibilities are recognised by the New Zealand Government through a Memorandum of Understanding.

IANZ staff provide input into a number of international committees, including the ISO Committee on Conformity Assessment (CASCO), and participate in meetings of other regional groupings of importance to New Zealand, such as European co-operation for Accreditation (EA).

IANZ provides consultancy services for developing accreditation authorities, particularly in the Asia Pacific region, and provides training for their staff, both offshore and in New Zealand. IANZ also regularly hosts overseas delegations keen to learn from the extensive experience IANZ has gained in competency-based accreditation, proficiency testing and co-operation with regulators.

A quantum Hall dc resistance device



Joint Accreditation System of Australia and New Zealand

22 The Terrace (PO Box 708), Wellington
Telephone: (04) 474 3348
Website: www.jas-anz.com.au

Mission: *"To ensure the JAS-ANZ accreditation process enhances New Zealand/Australia and international trade and achieves international recognition of the excellence of Australian and New Zealand goods and services."*

The Joint Accreditation System of Australia and New Zealand (JAS-ANZ) accredits inspection bodies that certify management systems or auditor training courses or personnel and bodies that license products. JAS-ANZ also provides accreditation programmes for regulators and industry specific schemes using criteria modelled on international standards and guidelines.

Increased trade and greater competition from imported products has brought into focus the need for quality in products, processes and services

JAS-ANZ accredits third party certification bodies as competent to carry out independent audits of management systems and to issue certificates of compliance. Accredited bodies may issue certificates for a quality management system (ISO 9001:2000 - or QS 9000 for the automotive industry), an environmental management system (ISO 14001) or other management systems with specified criteria. Accreditation of the body issuing the certificate provides companies with assurance that their management systems have been audited in line with international practice and that their ISO 9001:2000 or ISO 14001 certificates will be recognised by their customers.

JAS-ANZ also accredits inspection bodies to the international standard ISO/IEC 17020 : *General criteria for the operation of various types of bodies performing inspection.*

Auditors qualified to undertake various competence assessments, including management systems audits, are registered by personnel certification bodies. JAS-ANZ accredits the personnel certifiers as competent to assess auditors' qualifications and industry knowledge and to issue the appropriate registration. JAS-ANZ also accredits organisations that provide auditor training courses.

Products that conform to specific requirements can be licensed to use product certification markings. JAS-ANZ accredits the bodies that certify these products to the international standard ISO/IEC Guide 65 : *General requirements for bodies operating product certification systems*

JAS-ANZ also provides accreditation services for a range of other specialist technical activities.

Structure

The Joint Accreditation System of Australia and New Zealand (JAS-ANZ) is an international organisation established by a formal treaty between the governments of Australia and New Zealand. The treaty was signed on 30 October 1991. The organisation operates on a self-funding, non-profit basis.

JAS-ANZ is controlled by a Governing Board comprising ten members, six of whom are appointed by the Australian Government and three by the New Zealand Government. The Chief Executive of JAS-ANZ is the tenth member. A senior official from MED represents the New Zealand Government on the Governing Board. A secretariat, located in Canberra and headed by the Chief Executive, handles the day-to-day functions of JAS-ANZ.

Bodies seeking accreditation have to satisfy the requirements of the accreditation criteria published by the JAS-ANZ Governing Board. These criteria are based on international standards and guidelines. This process facilitates international mutual recognition of accredited certificates.

Accreditation is based on assessments undertaken on behalf of the Governing Board. All recommendations to grant accreditation are subject to approval by the Accreditation Review Board, appointed by and operating under delegated authority from the Governing Board. Recommendations for suspending or withdrawing accreditation are also subject to Board approval.

Operations

JAS-ANZ is responsible for:

- Maintaining a joint accreditation system that will give users in Australia and New Zealand confidence that goods, services and personnel certified by accredited bodies meet established standards
- Supporting trade by obtaining and maintaining overseas acceptance of product certificates and management systems certificates issued in New Zealand and Australia
- Establishing links with relevant bodies in the areas of conformity assessment services and recognition of standards in relation to goods and services
- Obtaining mutual recognition and acceptance of certificates of conformity with relevant bodies in other countries

JAS-ANZ also provides advice to the government on conformance issues and participates in standards and conformance aspects of trade negotiations.

Accreditation programmes are currently available for the following activities:

Accreditation of Certifiers of Management Systems
- Certification of Quality Management Systems (ISO 9000 and QS-9000 for the automotive industry)
- Certification of Environmental management systems (ISO 14001)
- Certification of Food Safety Systems based on Hazard Analysis Critical Control Point (HACCP)
- Certification of HACCP Management systems
- Certification of Occupational Health and Safety Management Systems (OH&S - AS/NZS 4801)
- Certification of Information Security Management Systems (ISMS - AS/NZS 4444)

Accreditation of Product Certifiers
- Certification of Products licensed to carry Certification Markings

Accreditation of Personnel Certifiers
- Certification of Audit Personnel

Other Accreditation Programmes
- Inspection Bodies - Third Party Verification Agencies
- Auditor Training Course Providers
- Family and Community Services Disability Employment Services
- Medical General Practice Accreditation programme
- Regulatory sector schemes
- Industry specific sector schemes
- Designating Authority for the approval of certification bodies competent to undertake certification of management systems for CE marking (see page 10)

The JAS-ANZ Register

JAS-ANZ produces a Register of Accredited and Certified Organisations, in association with Standards Australia International. The Register lists all bodies accredited by JAS-ANZ, plus all the organisations and personnel certified by these accredited bodies. The register is updated monthly from information provided by the accredited certification bodies. The Register is available on the JAS-ANZ website (see page 38).

International Role

A primary objective of the JAS-ANZ Board is to establish international links so that the certifications that are granted by JAS-ANZ-accredited bodies will be recognised in any international market.

JAS-ANZ is a founding member of the International Accreditation Forum (IAF), which aims to promote mutual recognition between accreditation bodies, and to be a forum for the

exchange of information and ideas of common interest. The IAF was established in 1993 and now has members from over 35 countries. The main work of the IAF to date has been the development of uniform interpretative documents based on the relevant ISO/IEC accreditation and certification Guides.

A multilateral Mutual Recognition Agreement (MRA) has been signed by 29 members of the IAF, including JAS-ANZ. This MRA covers accreditation of ISO 9000 certification bodies.

JAS-ANZ is a foundation member of the International Auditor and Training Certification Association (IATCA). IATCA is establishing a mutual recognition scheme for ISO 9000 auditors and auditor training courses, based on uniform criteria and a common code of practice for the operation of auditor certification and auditor training course accreditation. A similar programme has been established for the certification of environmental management system (ISO 14001) auditors.

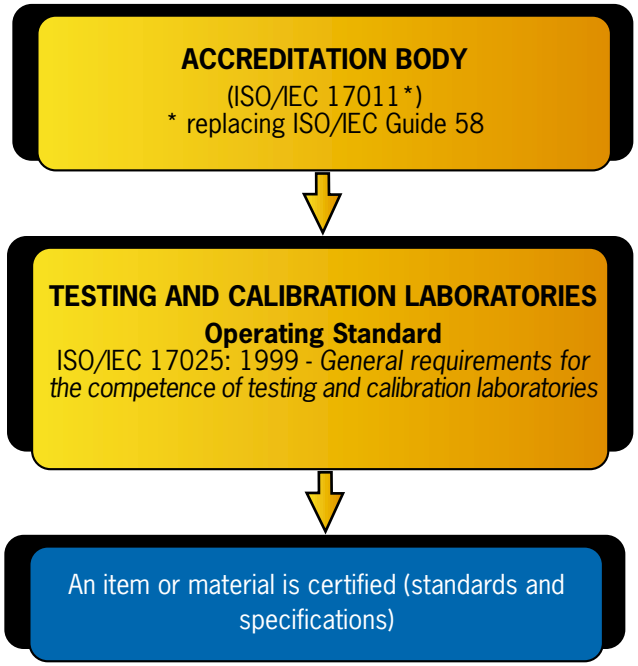
Regional Co-operation

JAS-ANZ is a foundation member of Pacific Accreditation Co-operation (PAC), a specialist body within APEC. PAC promotes acceptance of certificates of conformity through mutual recognition. It encourages and supports the development of national accreditation authorities throughout the Asia Pacific region. PAC develops regional consensus among members on accreditation and certification issues to be taken to relevant international forums such as the IAF. A regional MRA covering accreditation of ISO 9000 certification bodies has been signed by members of PAC, including JAS-ANZ.

JAS-ANZ has signed an MRA with European counterparts covering accreditation of certification of environmental management systems (ISO 14001) and product certification.

The inside of a caesium beam atomic clock, plus time displays

Conformance: Testing and Calibration



- **Testing** is the process of determining the characteristics of an item or material using recognised scientific methods.

  Tests are carried out in laboratories and reports relate only to the sample tested. Most tests are conducted using standard test methods that specify the equipment, environment and processes required to achieve a reliable result. Microbiological testing, for example, requires a sterile environment, with staff wearing protective clothing. When non-standard test methods are used, the scientists must be able to prove that the test method is valid.

  Accreditation means the laboratory and its staff are competent to undertake the specific tests listed in its Scope of Accreditation. A laboratory may be accredited to test food products for chemical residues, but not to check for microbial contamination. Or it may be competent to test building materials for ability to withstand earthquakes or to test the toxicity of paints used on coffee mugs. Test reports may only carry the accreditation logo if the laboratory is accredited for those tests.

There are over 500 accredited laboratories in New Zealand. A list of laboratories accredited for specific tests is on the IANZ website (see page 38).

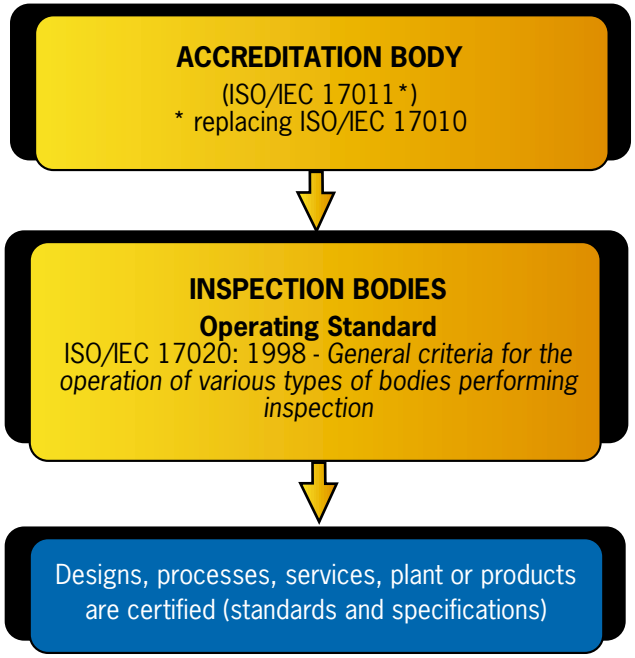
- **Calibration** is the process of ensuring that measuring instruments are giving accurate results.

  Measuring instruments are calibrated in calibration laboratories against reference standards that have been calibrated by MSL. This ensures that any measurements performed with the calibrated instruments will be traceable back to the national measurement standard. Calibration laboratories can be accredited to calibrate a wide range of measuring instruments, including speed cameras, analytical balances, measuring tapes, pressure gauges and electrical power meters.

  Calibration reports may only carry the accreditation logo if the laboratory is accredited for those calibrations. A list of laboratories accredited for specific calibrations is on the IANZ website (see page 38).

An accredited laboratory type testing telephone equipment.

Conformance: Inspection



- **Inspection** is the use of skill and professional judgement to determine whether technical and safety requirements are being met.

  The international standard for professional inspection bodies (ISO/IEC 17020) covers designs, products, services, processes and plant. Specialist inspectors examine the technical aspects of such things as pipelines, crane designs, boilers, buildings, machinery, quarantine services or food premises.

  Many inspections require the use of internationally recognised standard inspection methods to ensure that all safety aspects are checked. An example is AS/NZS 3788:1996 - *Pressure equipment - in-service inspection.*

  Accreditation assessments of inspection bodies include detailed on-site observation as well as checking of procedures, records and reports. This enables technical assessors to be confident that approved inspection body staff have the necessary skills, experience and systems to support their results. Inspection reports may only carry the accreditation logo if the inspection body is accredited for those inspections.

  There are over 80 accredited inspection bodies in New Zealand. A list of accredited bodies, together with their Scope of Accreditation, is on the IANZ website (see page 38).

Routine inspection of the Skyline gondola at Queenstown during an accreditation assessment.

Conformance: Certification

As the chart opposite illustrates, there are several categories of certification. Certification bodies are accredited to specific international standards, depending on the type of certification they are competent to undertake. Certification bodies issue certificates of compliance to suppliers of goods and services.

A management system certification body may be accredited to audit and certify a quality management system (ISO 9000) or an environmental management system (ISO 14001), a health and safety system or other management systems with published standards or codes of practice. The range of standards a certification body is accredited to audit against is specified in its Scope of Accreditation.

Compliance certificates may only carry the accreditation logo if the certification body is accredited to audit against that standard. A list of certification bodies accredited for specific standards is on the JAS-ANZ website (see page 38).

Note: A company is never "accredited". A third party certification body is accredited; the company it audits is certified (see page 25).

Certification of Quality Management Systems (ISO 9001: 2000)

Quality management system (QMS) certification is the process of carrying out an independent audit of an organisation's documented management system against the requirements of the standard and of ensuring that written procedures are applied in practice. Certification bodies issue certificates of compliance.

The first international standards for quality management systems, the **ISO 9000** series, were published in 1987 and revised in 1994. The current version, ISO 9001: 2000, brings together key elements of the earlier standards and places greater emphasis on continual improvement. Certification to ISO 9001: 2000 is evidence that an organisation is managing its processes in order to meet its customers' needs.

Certification of Environmental Management Systems (ISO 14001)

In 1996, the ISO 14000 series of environmental management standards was published. These standards cover a range of environmental issues, including environmental labelling (ISO 14024). The standard **ISO 14001** deals specifically with environmental management systems. The principles are similar to ISO 9001:2000, with emphasis on continual improvement, but the standard also addresses technical issues relating to environmental effects. Certification to ISO 14001 is evidence that the business is making a serious effort to manage and reduce its impact on the environment.

New Zealand Association of Certification Bodies

The New Zealand Association of Certification Bodies (NZACB) is a non-profit organisation for certification bodies operating within New Zealand. NZACB members are accredited to certify quality management systems to ISO 9001: 2000 and/or environmental management systems to ISO 14001. Some members of NZACB also operate accredited laboratories or accredited inspection services.

All NZACB members are accredited by JAS-ANZ or IANZ as competent to undertake specific audits and issue certificates of compliance within their Scope of Accreditation. Some certification bodies operating in New Zealand are also accredited by overseas accreditation bodies.

The NZACB Secretariat is managed by the New Zealand Organisation for Quality. The association may be contacted via The Secretary, NZACB, P.O. Box 622, Palmerston North; telephone 06 350 5825; facsimile 06 350 5820; e-mail <Quality@NZOQ.org.nz>. Contact addresses for members of the NZACB are available from the secretariat or the NZOQ website at www.nzoq.org.nz.

Note: NZACB groups commercial providers of certification services. It does not form part of New Zealand's standards and conformance infrastructure, but is included as a source of information for business.

Personnel Certification

Personnel certification is the process of determining that an individual has the appropriate knowledge and skills to undertake assessments against specified requirements.

Professional auditors are required to have in-depth knowledge of the industries they are auditing. They must undertake a formal training course on the standard they are to audit against and demonstrate that they have the right personal skills to be an auditor. They must also serve a period of practical training supervised by an experienced auditor.

There are several levels of registration, from Provisional to Lead Auditor. Auditors are registered as competent to audit only those industries where they have prior work experience. Registration certificates specify the standard industry codes covered by the individual's registration. Auditors must perform a minimum number of audits per year to maintain registration.

A list of certification bodies accredited to undertake personnel certification is on the JAS-ANZ website (see page 38).

Product Certification

Product certification is the process of licensing manufacturers to apply a product certification marking to a line of products that comply with specified product standards and other technical requirements, e.g. labelling.

Product certification is commonly used for products with specific safety requirements. In New Zealand, the "S" mark is recognised as evidence that products such as windscreens, bicycles or toasters have passed a safety check. (NB: the "S" mark programme now operates commercially and is not currently accredited to the international standard for product certification).

Product certifiers require that a sample of the product be submitted, together with design details and other documentation. This usually includes accredited test or inspection reports. The manufacturer may also be required to have a certified quality management system in place. If all requirements are met, the manufacturer will be licensed to apply the product certification mark to all products made identical to the original design.

A list of certification bodies accredited to undertake product certification is on the JAS-ANZ website (see page 38).

V FOR FURTHER INFORMATION

I Policy and Regulation

Ministry of Economic Development

The Manager (Standards and Conformance)
Competition and Enterprise Branch
Ministry of Economic Development
33 Bowen Street
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WELLINGTON

Telephone: 64 4 472 0030
Facsimile: 64 4 499 1791
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Ministry of Foreign Affairs and Trade

The Director
Trade Negotiations Division
Ministry of Foreign Affairs and Trade
40 The Terrace
(Private Bag 18 901)
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Telephone: 64 4 494 8500
Facsimile: 64 4 494 8518
Website: www.mfat.govt.nz
Email: tnd@mfat.govt.nz

Ministry of Agriculture and Forestry

The Director General
Ministry of Agriculture and Forestry
ASB House
101-103 The Terrace
(PO Box 2526)
WELLINGTON

Telephone: 64 4 474 4100
Facsimile: 64 4 474 4244
Website: www.maf.govt.nz
Email: info@maf.govt.nz

Occupational Safety and Health

The General Manager
Occupational Safety and Health
Department of Labour
56 The Terrace
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Telephone: 64 4 915 4444
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Website: www.osh.dol.govt.nz

Ministry of Health

The Chief Advisor, Services
Ministry of Health
133 Molesworth Street
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WELLINGTON

Telephone: 64 4 496 2286
Facsimile: 64 4 496 2450
Website: www.moh.govt.nz

Energy Safety Service

The Group Manager
Energy Safety Service
Ministry of Consumer Affairs
33 Bowen Street
(PO Box 1473)
WELLINGTON

Telephone: 64 4 472 0030
Facsimile: 64 4 460 1365
Website: www.ess.med.govt.nz
Email: safe.energy@med.govt.nz

II Standards

Standards New Zealand

The Chief Executive
Standards New Zealand
155 The Terrace
(Private Bag 2439)
WELLINGTON 6001

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Facsimile: 64 4 499 6457
Website: www.standards.co.nz
Email: snz@standards.co.nz

III Measurement

Measurement Standards Laboratory of New Zealand

The Director
Measurement Standards Laboratory of New Zealand
Industrial Research Limited
Gracefield Road
(PO Box 31 310)
LOWER HUTT

Telephone: 64 4 569 0000
Facsimile: 64 4 569 0117
Website: www.irl.cri.nz/msl
Email: msl@irl.cri.nz

Trading Standards Service

The Manager, Trade Measurement
Trading Standards Service
Ministry of Consumer Affairs
33 Bowen Street
(PO Box 1473)
WELLINGTON

Telephone: 64 4 474 2750
Facsimile: 64 4 473 9400
Website: www.consumer-ministry.govt.nz
Email: mcainfo@mca.govt.nz

IV Conformance – Accreditation Bodies

International Accreditation New Zealand

The Chief Executive
International Accreditation New Zealand (IANZ)
626 Great South Road, Greenlane
(Private Bag 28 908, Remuera)
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Telephone: 64 9 525 6655
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Email: info@ianz.govt.nz

Joint Accreditation System of Australia and New Zealand

The Resident Manager
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22 The Terrace
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Website: www.jas-anz.com.au
Email: slowes@jas-anz.co.nz

Feedback

- We welcome your feedback on this booklet.
- Comments on New Zealand's standards and conformance infrastructure or on technical requirements for trade would also be appreciated.
- **Contact:**
  Competition and Enterprise Branch
  Ministry of Economic Development
  PO Box 1473
  WELLINGTON

Glossary of Selected Terms

APEC	Asia Pacific Economic Cooperation
AS/NZS	Joint Australian and New Zealand Standard
ASEAN	Association of South East Asian Nations
CE marking	European safety mark required on many products before they can be sold in Europe
CEP	Agreement between New Zealand and Singapore on a Closer Economic Partnership
CER	Agreement on Closer Economic Relations between Australia and New Zealand
GLP	OECD Good Laboratory Practice - required for research laboratories supplying test data
HACCP	Hazard Analysis Critical Control Point
IANZ	International Accreditation New Zealand
IEC	International Electro-technical Commission
ISO	International Organisation for Standardisation
JAS-ANZ	Joint Accreditation System of Australia and New Zealand
MAF	Ministry of Agriculture and Forestry
MED	Ministry of Economic Development
MFAT	Ministry of Foreign Affairs and Trade
MRA	Mutual Recognition Agreement or Arrangement
MSL	Measurement Standards Laboratory of New Zealand
NZ/EU MRA	Agreement between New Zealand and the European Community for Mutual Recognition of Conformity Assessment
NZACB	New Zealand Association of Certification Bodies
OECD	Organisation for Economic Cooperation and Development
OSH	Occupational Safety and Health (a division of the Department of Labour)
SI	Le Système International d'Unités - International System of Units (for measurement)
SNZ	Standards New Zealand
SPS	WTO Agreement on Sanitary and Phytosanitary Measures
TBT	WTO Agreement on Technical Barriers to Trade
TSS	Trading Standards Service (a division of the Ministry of Consumer Affairs)
TTMRA	Trans-Tasman Mutual Recognition Arrangement (New Zealand and Australia)
WTO	World Trade Organisation

International and Regional Standards and Conformance Bodies

Activity	International Organisation	Asia/Pacific Regional Organisation *	New Zealand National Authority **
Documentary Standards Development	International Organisation for Standardisation (ISO); International Electro-technical Commission (IEC)	Pacific Area Standards Congress (PASC)	Standards New Zealand (SNZ)
National Measurement Standards	Bureau international Poids et Mésures (BIPM); Conférence Genérale Poids et Mésures (CGPM)	Asia Pacific Metrology Programme (APMP)	Measurement Standards Laboratory of New Zealand (MSL)
Trade Measurement (Legal Metrology)	Organisation International de Métrologie Legale (OIML); Comité International de Métrologie Legale (CIML)	Asia Pacific Legal Metrology Forum (APLMF)	Trading Standards Service (TSS - a division of the Ministry of Consumer Affairs)
Accreditation of Laboratories and Inspection Bodies	International Laboratory Accreditation Cooperation (ILAC)	Asia Pacific Laboratory Accreditation Cooperation (APLAC)	International Accreditation New Zealand (IANZ)
Accreditation of Certification Bodies (for systems, products and personnel)	International Accreditation Forum (IAF); International Auditor and Training Certification Association (IATCA)	Pacific Accreditation Cooperation (PAC)	Joint Accreditation System of Australia and New Zealand (JAS-ANZ)

*** These bodies are recognised as "Specialist Regional Bodies" in the context of the APEC Committee on Trade and Investment, Sub-Committee on Standards and Conformance (SCSC)**

**** These are New Zealand's technical infrastructure bodies. The Ministry of Economic Development is responsible for standards and conformance policy and for liaison with and coordination of the infrastructure bodies.**


Ministry of Economic Development
Manatū Ōhanga


STANDARDS
NEW ZEALAND


INDUSTRIAL
RESEARCH
LIMITED


international
accreditation
new zealand


JAS-ANZ