

A SAFEhouse Guide to the Regulation of Electrical Products in South Africa

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The changes caused some confusion in the market as many entities were, and still are, under the impression – due to years of SABS visibility – that they are protected by the SABS mark of approval. On the other hand, the different (and lesser known) profile of the NRCS is one of policing, funded by fees levied on suppliers.

The NRCS has the mandate to impound, confiscate and destroy non-compliant regulated products, and regularly demonstrates this by displaying these products at designated dumping sites where they are destroyed.

THE ROLES OF THE SABS AND THE NRCS

SABS	NRCS
Provide a product certification scheme – such as the SABS mark scheme.	Manage the National Compulsory Safety Regulations.
Provide ISO listing and auditing facilities.	Collect levies for regulated products.
Provide and manage laboratory facilities, such as NETFA (National Electro-technical Testing Facility and Accreditation).	Develop and implement national safety specifications*.
Manage the standards division and produce national standards.	Issue directives for the removal and disposal of non-compliant products.
Sell standards documentation.	Conduct market surveillance on regulated products.
Report to the DTI via the SABS board.	Report to the DTI via the NRCS board.

*NRCS specifications include reference to standards and administrative requirements.

PRODUCTS THAT ARE REGULATED IN TERMS OF COMPULSORY SPECIFICATIONS

The NRCS has an informative, although not well-known website which, amongst other useful information (dealt with in this guide), lists and publishes Compulsory Specifications under the VC series of documents.

A visit to the NRCS Website is recommended: www.nrscs.org.za. Follow the 'Electrotechnical' selections.

The table overleaf contains a consolidated list of products that are regulated in terms of the Compulsory Specifications. The list has been updated to the latest issued amendments as at June 2016, with the applicable standards referred to in the VC documents.

These specifications are available on the NRCS website and can be downloaded at no charge. Each specification covers the procedural and technical requirements, such as the applicable standard. Affected entities are urged to read these carefully and to purchase the referenced product standard(s) in order that the correct test report is obtained from an accredited test laboratory.

CERTIFICATION SYSTEMS

The *Conformité Européenne* or CE mark is generally a 'self-certification' mark, which was introduced in Europe to serve as a common certification within the European Economic Area.

While every care has been taken in compiling the information contained in this guide, neither the SAFEhouse Association nor the publisher can accept any responsibility for any errors or omissions herein.

Elements of product certification systems	Product certification system types						
	1a	1b	2	3	4	5	6
1 Selection or sampling as applicable	x	x	x	x	x	x	
2 Determination as applicable by: Testing: (ISO/IEC 1725) Inspection, design appraisal or assessment of service: (ISO/IEC 17020)	x	x	x	x	x	x	x
3 Review or evaluation	x	x	x	x	x	x	x
4 Decision on certification, which includes granting, maintaining, suspending and withdrawing	x	x	x	x	x	x	x
5 Licensing or attestation		x	x	x	x	x	x
6 Surveillance: a) Testing or inspection of samples from the open market			x		x	x	
b) Testing or inspection of samples from the factory				x	x	x	
c) Quality system audits combined with random tests or inspections						x	x
d) Assessment of the production process or service				x	x	x	x

Products are listed in EU directives/regulations and these cover the specific requirements of the CE certification process together with the specific duties and responsibilities of manufacturers and distributors of products.

The system is regulated by a process of **market surveillance** – which works very well in Europe, together with the various EU **consumer protection laws** and by **EU Harmonised Standards**, which are vigorously applied by the EU community.



Correct CE mark.



Examples of fake CE marks.

The misuse of this mark is well known in the EU and elsewhere, notably by unscrupulous manufacturers who, by adding the CE mark to electrical products without justification, deliberately intend to dupe unsuspecting users. When challenged with this accusation, some suppliers have been known to deny this intent and claim that it stands for 'China Export'.

It should be noted that, as it is a self-certification scheme, even a genuine CE-marked product does not mean the product has been tested by an *independent entity*, something which is not necessary under this scheme.

The **SABS certification mark** is an example of a Type 5 certification scheme as defined in the ISO/IEC Guide 67 – Clause 6.2: Levels of conformity assessment that can be applied to a product (simplified for this guide).

As can be seen from the table above, the **Type 5** certification scheme includes market surveillance and regular audits of the manufacturer's process and quality management systems, whereas the CE mark, for example, is at best, a Type 2 certification scheme.

It is important to note that some of the latest amendments of VC specifications require that the manufacturer demonstrates compliance to a Type 5 certification scheme as part of the process for an LOA approval, for example, VC8036 – 2015: Circuit breakers.

GOVERNING LEGISLATION FOR ELECTRICAL PRODUCTS AND INSTALLATIONS

The sale and installation of electrical products are governed in South Africa by the following:

THE NATIONAL REGULATOR FOR COMPULSORY SPECIFICATIONS ACT NO 5 OF 2008:

- Refers to product standards and administrative requirements in VC documents relating to electrical products.
- Is managed by the NRCS (National Regulator for Compulsory Specifications), reporting to the Department of Trade and Industry.
- Covers the **sale** of products.
- Applies to electrical products, including those for fixed installations such as sockets, as well as plugs, adaptors and cord extension sets.
- Sets out the process for LOA, RCC and SP approvals.

THE OCCUPATIONAL HEALTH AND SAFETY ACT NO 85 OF 1993:

- Refers to the Electrical Installation Regulations of 2009 and the Code of Practice for Wiring of Premises SANS 10142-1.
- Is managed by the Department of Labour in terms of the Occupational Health and Safety Act.
- Covers the use of products in electrical installations, generally applicable to products for fixed installations such as socket outlets, wall switches, stove isolators and circuit breakers.
- Prescribes the Wiring Code (SANS 10142-1) for the wiring of fixed installations in the work environment.

THE ELECTRICAL INSTALLATION REGULATIONS: GOVERNMENT NOTICE R242 MARCH 2009:

These regulations are in the custody of the Department of Labour.

- Sets out the regulations applicable to domestic, commercial and industrial installations. All the components used therein must comply with the Code of Practice for Wiring of Premises, SANS 10142-1, which also covers the installation approval process for the issuing of **Certificates of Compliance (CoCs)** for new and existing installations. Incidentally, a CoC is required for the sale and registering of properties.

INTRODUCTION – BACKGROUND

The National Regulator for Compulsory Specifications (NRCS) came about in May 2008 with the introduction of the NRCS Act of 2008.

At its inception in 1965, the Regulator was part of the South African Bureau of Standards (SABS) and shared all the skills and expertise that the Bureau had at its disposal. Many aspects of this compulsory regulatory function have changed since 2008, when the NRCS was effectively 'stripped away' from the SABS.

The SABS was then reconstituted as a commercial undertaking with limited funding from Government while the NRCS, on the other hand, became a 'non-profit' Government agency reporting to the DTI, and separate from the SABS.

The following are some of the more visible consequences, as seen from the point of view of clients of these institutions:

OUT	IN
Regular interaction with industry and relatively easy access to the Regulator.	A LOA (Letter of Authority) system with long lead times and more-restricted access to the NRCS.
The Authorisation Committee process.	Web-based applications for approvals.
'In-house' testing of products.	Rejection of the SABS mark as a qualification for compliance with regulations.
Regular inspections at outlets for non-compliant products.	Focus on the ports of entry of goods (and an implication that locally-produced products deserve no – or much less – policing).

Also brought sharply into focus were the following:

- NRCS specifications and regulatory approvals – such as the Letter of Authority (LOA), the Regulatory Certificate of Compliance (RCC) and Sales Permits (SP) – became compulsory, and
- SABS certification, such as the long-standing and ubiquitous SABS mark, became entirely voluntary.

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VC SPECIFICATION TABLE

VC SPEC.	ISSUE	PRODUCT	STANDARDS	LOA/RCC	
VC 8003	6 Feb 2015	Manually operated switches for fixed installations including: • Switches having facilities for the outlet and retention of flexible cables • Combinations of switches and other functions (with the exception of switches combined with fuses) • Switches that incorporate pilot lights	SANS 60669-1	LOA	
			• Electronic switches including dimmers • Electronic remote control switches		SANS 60669-2-1
			• Electromagnetic remote control switches		SANS 60669-2-2
			• Switches incorporating a time-delay device		SANS 60669-2-3
			• Switches and related accessories for use in home and building electronic systems (HBES)		SANS 60669-2-5
VC 8006	19 Nov 2010	Flexible cords for electrical appliances	SANS 1574 SANS 60227-5	LOA	
VC 8008	19 Nov 2010	Plugs, socket outlets and socket outlet adaptors	SANS 164-0 SANS 164-1 to -6	LOA	
VC 8011	2 Jul 1999	Lamp holders: Edison screw type Bayonet type	SANS 60238 SANS 61184	RCC	
VC 8012	19 Nov 2010	Appliance couplers	SANS 60320-1	LOA	
VC 8029	3 Feb 2012	Cord sets, interconnection cord sets and cord extension sets	SANS 60884-2-7 SANS 164-0 SANS 1661	LOA	
VC 8035	16 Oct 1987	Earth leakage protection units	Complete VC8035 standard	RCC	
VC 8036	23 Oct 2015	Circuit breakers	SANS 556-1 SANS 60947-1 SANS 60947-2	LOA	
VC 8039	14 Jul 1989	Starters for tubular fluorescent lamps	Complete VC8039 standard	RCC	
VC 8043	7 Feb 2014	Incandescent lamps Tungsten filament lamps	SANS 60432-1 SANS 60064	LOA	
		Tungsten halogen lamps	SANS 60432-2 SANS 60432-3 SANS 60357		
VC 8052	15 May 1998	Manually operated switches for appliances	SANS 61058-1	RCC	
VC 8055	6 Feb 2009 & 31 Oct 2014	Electrical and electronic apparatus Household electrical appliances	SANS 60335-1 SANS 60335-2	LOA	
		Audio, video and similar electronic apparatus	SANS 60065		
		IT equipment including power transformers power supplies and reactors	SANS 60950-1 SANS 60950-2		
		Luminaires (including LED light sources – amendment) Power factor requirements Emergency lighting Electrical supply track luminaires	SANS 60598 -1 SANS 60598-2 SANS 475 SANS 1464-22 SANS 60670		
		Handheld motor or magnetically operated electrical tools	SANS 60745-1 SANS 60745-2		
		Transportable motor operated electric tools	SANS 61029-1 SANS 61029-2		
		Electrical equipment for test, measurement and laboratory use	SANS 61010-1 SANS 61010-2		
VC 8075	15 Aug 2003	Multicore electric cables – for fixed installations 300/500 V to 1 900/3 300 V	SANS 1507	RCC	
VC 8077	15 Aug 2003	Medium voltage electric cables 3.3 kV to 33 kV	SANS 97 SANS 1339	LOA	
VC 8079	10 Oct 2003	Gaming devices and related apparatus	SANS 1718	RCC	
VC 9006	16 May 2014	Hot water storage tanks	SANS 151 (part)	LOA	
VC 9008	28 Nov 2014	Energy efficiency and labelling of electrical and electronic apparatus Air conditioners; audio and video equipment; large electric ovens; small and medium electric ovens; refrigerators; freezers; dishwashers; washing machines; washer dryer combinations; tumble dryers	SANS 941	LOA	
VC 9087	6 Feb 2009	Lamp controlgear	SANS 61347-1 SANS 61347-2	LOA	
VC 9091	7 May 2014	Compact fluorescent lamps	SANS 61199 SANS 60968 SANS 60901 SANS 60969	LOA	

THE ELECTRICAL INSTALLATION REGULATIONS CONTINUED

- This regulation also sets out the **Registration of Electrical Contractors**. This registration was, for many years, in the hands of the Electrical Contractors' Board (ECB), which no longer exists in its original form. Consequently, some of the previous control functions are now significantly reduced.
- This regulation also includes the **Notice of Commencement of Installation Work** provision, whereby all electrical installations are registered at Department of Labour with particulars such as location, type of installation and the identity of the registered contractor.
- It also has provisions for the appointment of **Approved Inspection Authorities (AIAs)** whose tasks are not unlike the original municipal 'electrical inspectors' but more complex now in terms of their function and duties under the Department of Labour.

THE CONSUMER PROTECTION ACT NO. 68 OF 2008 (CPA):

- This deals with consumer products** and states, under Section 55 (d) regarding consumers' rights to safe, good-quality goods: "... every consumer has the right to receive goods that ... comply with any applicable standards set under the Standards Act, 1993 (Act No. 29 of 1993), or any other public regulation".

INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA (ICASA):

- Electro-magnetic interference (EMI) and electro-magnetic compatibility (EMC) are applicable to a number of electrical products such as certain lighting products and electronic switches, dimmers and sensors.
- Such products require compliance with certain standards in respect of electromagnetic emissions and compatibility which, if left without any control and suppression, could interfere with specific broadcasting and essential signalling systems, such as in air traffic control, security-communication systems and pacemakers in healthcare applications.
- These standards are in accordance with international standards under the CISPR series of documents and broadly within the jurisdiction of ICASA.

LOA, RCC AND SP APPLICATIONS

All applications for NRCS approvals are made on-line and require the following steps:

Step 1 – Application for registration: The LOA administration procedure, downloaded from the NRCS website, explains the registration process and first time applicants are required to complete the form under Annexure 2.

This application must be submitted by fax or email under a covering letter where a 'username' is proposed for the responsible person acting on behalf of the applying entity.

Step 2 – Applicant on-line registration: After about three days, the account is activated, on-line applications are available to the newly registered client, and a password is issued online. To make this easier, it is recommended that this is done at the NRCS in Pretoria, in the recently established client centre.

Step 3 – Register the product: By selecting the appropriate tab, the product is registered. One should include every possible version of the product in terms of 'model numbers' and descriptions. Failing this, subsequent variants of the product will necessitate additional approval applications.

Step 4 – Application: As a general guide, all listed products require an LOA. There are, however, some exceptions (see table on left).

RCC (Regulatory Certificate of Compliance): This applies to those VC specifications that have not been amended to include the LOA process and products not entirely covered by a single standard (such as new and innovative product types).

SP (sales permit): Where there are products that deviate from one or more standards, it would be necessary to apply for a SP. This may or may not be granted at the discretion of the NRCS, depending on the seriousness of the non-compliance.

The type of **service request (SR)** is selected on the applicable tab and the following documents are uploaded:

- Completed application form Annexure 1 of the LOA procedure.**
- Test report(s).**
- Proof of payment of application fees.**

Step 5 – Application approval and lead time: Until April 2016 the LOA process time was stated as 120 working days. At an information forum in April 2016 the NRCS announced that this would change to 120 calendar days. The actual experience of many organisations is that it could take longer.

One way to reduce the risk of lengthy delays is to understand the process and to ensure that all requirements to support the application are properly completed and submitted.

Amongst other measures, the current NRCS strategy is to concentrate its limited resources on the ports of entry, so containers will be held up by the Department of Customs if there is no LOA or other approval included with import documents.

Another aspect of the NRCS strategy is to profile suppliers into risk categories in terms of their knowledge of the regulations and their record of adherence to them. Understanding the regulations and building up a record of compliance would thus be helpful.

The fact that current NRCS resources are limited along with a move to more electronic automation of the approval process, makes personal intervention in the process much more difficult, if not impossible.

There is currently much lobbying to reduce the application processing time but it is recommended that ample time be allowed for the approval process.

TEST REPORT REQUIREMENTS BY NRCS

Without exception, the approval process requires a full test report to the referenced standard for the regulated product and there are some specific clauses covering this aspect, these are:

- Accredited laboratories:** The laboratory must be appropriately accredited and internationally recognised by an accreditation body, which is a member of the IAF/ILAC/IECEE mutual recognition scheme.



- Test reports:** A full test report, in the IEC format, is usually about a 30-page document covering every clause of the standard and, in some cases, covering more than one standard. For example, cord extension sets are covered under VC 8029, SANS 60884-2-7, SANS 1661 and SANS 164-0. It also requires photographs of the product.
 - On first application, the test report may not be older than three years.
 - On renewal of the LOA, the test report may not be older than five years.
- Product families:** In certain products, characteristics may be grouped together and tested as a 'family' provided that the structure and design is consistent across the group. For example, miniature circuit breakers (MCBs) may, under the same design and characteristics, have several nominal current ratings (6, 10, 16, 20, 25, 32, 40, 50 and 63 A). The test report may encompass all these ratings.

The applicant must ensure that the test report reflects all the 'type

numbers' for each of these ratings, which may then be transferred to the LOA application. Check that the issued LOA reflects all the types listed.

'CHEAP' ELECTRICAL PRODUCTS

Electrical products are required to meet strict safety standards for the simple reason that, without extensive safety precautions, they may injure or kill users. Assets, such as buildings and other possessions, are also at risk but the purpose of the regulations is to protect users.

These precautions are embodied in the various clauses of Technical Standards and conforming to these standards often requires specialised materials: specially selected metals and metal coatings; strict manufacturing processes including testing; and ongoing proof of conformance. All in all, these measures add to the cost, even for a relatively simple product, such as a plug, for example.

Significant differences between prices of products offered should be a warning sign. Low prices might mean compromised quality and reduced safety and this has often proved to be the case. The location where the products are sold, combined with low prices may also be a warning of possible sub-standard quality.

WHAT CAN END-USERS DO?

- Buy known and trusted brands.
- Buy from reputable suppliers and outlets.
- Beware of copies of prominent brands.
- Be suspicious of prices substantially lower than other, similar products or services on offer.
- Try to make contact with the seller's supplier and judge responses critically.
- Be suspicious of lack of information on or with the product packaging and on the product itself. Specifications require certain minimum markings and packaging should describe the electrical capacities and the correct application of the product. Look out for contradictions between data provided, for example, different voltage ratings for the same product.
- If the purchase is substantial enough, ask the supplier for references to other users and contact them.
- When dealing with an electrical contractor, ask about membership of the ECA(SA) (Electrical Contractors' Association of South Africa) and/or call the ECA(SA) in your region to check credentials.
- Be wary of suspect installations or of Certificates of Compliance (CoCs) that are issued too easily.
- Ask the supplier to prove compliance with regulations and NRCS approval.
- Look for certification marks such as SABS, VDE and UL.
- Beware of fraudulent use of well-known marks, such as the SABS mark.
- A CE mark in its own is not proof of conformity or of independent testing – be careful.
- Report any electrical product failure to the dealer, manufacturer, the NRCS and, if applicable, the National Consumer Commission.
- If in doubt, check with the SAFEhouse Association for possible information it may have to help you.

For a list of reputable local suppliers or for technical information on these products, please contact:



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www.safehousesa.co.za