

Testing, Approval and Certification of Smart Electricity Meters

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Product Certification and Inspection
Department (PCID)
SIRIM QAS International Sdn Bhd

3 May 2019

Outline

- Introduction to SIRIM QAS International Sdn Bhd
- Regulatory Frame Work
- Test, Approval and Certification Processes
- Type Test
- Pattern Approval
- ST Certificate of Approval (COA)
- MCMC Certificate of Conformity (COC)
- Product Certification:
 - Batch Certification (Consignment)
 - Product Certification Scheme
- Labelling and Marking

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About Us

- Established in 1996 as a wholly-owned subsidiary of SIRIM Berhad
- Have been providing conformity assessment services since the 1970s when these services were provided as a division of SIRIM
- Staff strength: 789 (as of 1 May 2019)
- No. of certifications issued: more than 9,000
- Malaysian based, international accreditation and recognition
- Local and international clients in countries such as Thailand, Singapore, Brunei, Indonesia, Vietnam, Myanmar, Korea, Philippines, Taiwan, Japan, India, Sri Lanka, Australia, New Zealand, Germany, UAE, Spain and others.

Our Vision

“Trusted Partner for Growth and Sustainability”

Our Mission

“We provide innovative solutions through Testing, Inspection and Certification Services for our customers to be competitive globally.”



Introduction to SIRIM QAS International Sdn Bhd

Our Services

CERTIFICATION

- Management System Certification
- Product Certification
- Personnel Certification



TESTING

- Product compliance testing to standards, regulatory requirements and specifications



INSPECTION

- Engineering Inspection
- Inspection on behalf of other CBs
- Other 3rd party inspections



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Regulatory Framework

- **Electricity Supply Act 1990;
Section 32: Charge for supply of electricity to
be ascertained by appropriate meter;**
- **Licensee Supply Regulations 1990; Regulation
11 and 12**
- **Distribution Code Chapter 9: Metering Code**
- **Weights and Measure Act 1972; Weight and
Measure (Exemption) Order 1995**

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 - Product Certification Scheme, *and*
- Labelling and Marking

Test, Approval and Certification Process

Main processes

- ☐ Type Test
- ☐ Pattern Approval
- ☐ ST Certificate of Registration (COR) and Certificate of Approval (COA)
- ☐ MCMC Certificate of Conformity (COC)
- ☐ Product Certification:
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Type Test

Test Standards

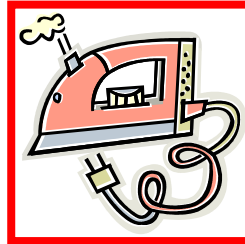
NO	STANDARD	TITLE
1	MS 62052-11:2009	Electricity Metering Equipment (a.c) –General Requirements, Test and Test Conditions – Part 11: Metering Equipment (Second Revision) (IEC 62052-11 :2003, MOD)
2	MS 62053-21:2009	Electricity Metering Equipment (a.c) –Particular Requirements – Part 21: Static Meters for Active Energy (Classes 1 and 2) (Second Revision) (IEC 62053-21:2003, MOD)
3	MS 62053-22:2009	Electricity Metering Equipment (a.c) –Particular Requirements – Part 22: Static Meters for Active Energy (Classes 0,2 S and 0,5 S) (Second Revision) (IEC 62053-22:2003, MOD)
4	MS 62053-23:2009	Electricity Metering Equipment (a.c) –Particular Requirements – Part 23: Static Meters for Reactive Energy (Classes 2 and 3) (Second Revision) (IEC 62053-23:2003, MOD)

Type Test

Application Process for Type Test

*A supplier includes importer, manufacturer and trader.

Application by
*a SUPPLIER



A supplier submit test application to **SIRIM QAS International test lab**

Submit to



SIRIM QAS International test lab performs a type test to a standard (MS / IEC Std + National Deviation(if any))

SIRIM QAS INTL
TEST LAB



SIRIM QAS International test lab shall issue a full type test report

The report shall then be used for submission for a COA application with a regulatory body

Type Test

Test Clauses

No.	Detail of Testing
1	Test of insulation properties Impulse voltage tests (<i>Clause 7.3.2</i>) AC voltage tests (<i>Clause 7.3.3</i>)
2	Tests of accuracy requirements Test of meter constant Test of starting condition Test of no-load condition Test of influence quantities
3	Tests of electrical requirements Test of power consumption Test of influence of supply voltage (<i>Clause 7.1.2</i>) Test of influence of short-time overcurrents Test of influence of self-heating Test of influence of heating (<i>Clause 7.2</i>) Test of immunity to earth fault (<i>Clause 7.4</i>)

No.	Detail of Testing
4	Tests for electromagnetic compatibility (EMC) Radio interference suppression (<i>Clause 7.5.8</i>) Fast transient burst test (<i>Clause 7.5.4</i>) Damped oscillatory waves immunity test (<i>Clause 7.5.7</i>) Test of immunity to electromagnetic RF fields (<i>Clause 7.5.3</i>) Test of immunity to conducted disturbances, induced by radio-frequency fields (<i>Clause 7.5.5</i>) Test of immunity to electrostatic discharges (<i>clause 7.5.2</i>) Surge immunity test (<i>Clause 7.5.6</i>)
5	Tests of the effect of the climatic environments Dry heat test (<i>Clause 6.3.1</i>) Cold test (<i>Clause 6.3.2</i>) Damp heat, cyclic test (<i>Clause 6.3.3</i>) Solar radiation test (<i>Clause 6.3.4</i>)
6	Mechanical tests Vibration test (<i>Clause 5.2.2.3</i>) Shock test (<i>Clause 5.2.2.2</i>) Spring hammer test (<i>Clause 5.2.2.1</i>) Tests of protection against penetration of dust and water (<i>Clause 5.9</i>) Test of resistance to heat and fire (<i>Clause 5.8</i>)

Type Test

Accepted Test Laboratories

ACCEPTANCE OF TEST REPORT

Test Reports shall be issued by any of the following laboratories:-

- 1) SIRIM QAS International Sdn. Bhd. (SIRIM), Malaysia; or
- 2) Laboratories under the IECEE CB Scheme. The list of the laboratories is available from the website <http://www.cbscheme.org>. The CB test report needs to be accompanied by a CB test certificate; or
- 3) Laboratories (in the scope of its accreditation) which are accredited by the accreditation body that have signed the Asia Pacific Laboratory Accreditation Cooperation (APLAC) MRA – <http://www.aplac.org>; or
- 4) Laboratories (in the scope of its accreditation) which are accredited by the accreditation body that have signed the International Laboratory Accreditation Cooperation (ILAC) MRA – <http://www.ilac.org>; or

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Pattern Approval

Pattern Approval by National Metrology Institute of Malaysia (NMIM)

The Weight And Measures Act 1972 provides the legal basis for examining and approving patterns/designs of measuring instruments suitable for use for trade and other legal purposes

Pattern Approval

Pattern Approval Examination Processes

- a. Assessment of the documentation
- b. Assessment of the operation of the instrument against requirements (which are usually based on international recommendations published by OIML)
- c. Performance testing to ensure that the instrument performs as intended (i.e. to within allowable maximum permissible errors) over a range of environmental and usage conditions specified in the requirements

Pattern Approval

Pattern Approval Document

	<small>MAKMAL STANDARD PENGUKURAN KEBANGSAAN (NATIONAL MEASUREMENT STANDARDS LABORATORY) Lot PT 4803, Bandar Baru Salak Tinggi 43900 Sepang, Selangor, MALAYSIA Tel: +6 03 87783600 Fax: +6 03 87783663</small>	
JADUAL		
AKTA TIMBANG DAN SUKAT 1972		
PERATURAN PERATURAN TIMBANG DAN SUKAT (KEWAJIPAN DAN KUASA PENYIMPAN) 1981		
(Peraturan 11)		
No. Kelulusan: ATS 33/16		
PERAKUAN KELULUSAN TIMBANG/SUKAT/ALAT TIMBANG/ALAT SUKAT		
Perihal	:	Meter elektrik statik satu fasa berjenama HOLLEY (kelas 1)
Pembuat	:	<div style="border: 1px solid black; height: 100px; width: 240px; margin: 0 auto;"></div>
Jenama	:	
Model	:	
Tahun pembuatan	:	2016
Penentuan teknikal	:	Lihat Laporan Penilaian ATS 33/16
Catatan	:	Lihat nota
<p>Adalah diperakakan bahawa meter elektrik statik satu fasa berjenama HOLLEY (kelas 1), model DDSQ285 di atas telah diluluskan sebagai sesuai bagi kegunaan perdagangan tertakluk kepada syarat-syarat yang berikut:</p> <p>Syarat-syarat kelulusan: Sebarang pengubahsuaian alat di atas wajib dimaklumkan kepada Penyimpan Timbang dan Sukat dan ianya tertakluk kepada kelulusan seterusnya.</p>		
TARIKH:	<div style="text-align: right;"> (Penyimpan Timbang dan Sukat) MAKMAL STANDARD PENGUKURAN KEBANGSAAN</div>	
Nota:	<div style="text-align: right;">DR OSMAN HJ ZAKARIA <small>Senior Director National Metrology Institute of Malaysia NMIM Berhad</small></div>	
<ol style="list-style-type: none">1. Perakuan ini berkaitan dengan kesesuaian meter elektrik di atas bagi kegunaan perdagangan sahaja berkenaan ciri-ciri metrologiannya. Ia tidak boleh dijadikan atau membayangkan apa-apa jaminan mengenai keselamatanannya dalam penggunaan bagi perdagangan atau selanjutnya.2. Kelulusan ini adalah sah bagi tempoh 10 tahun.		

NMIM adalah badan dan agensi dan salah satu Institut Metrologi Kebangsaan Malaysia, SIRIM Ltd.

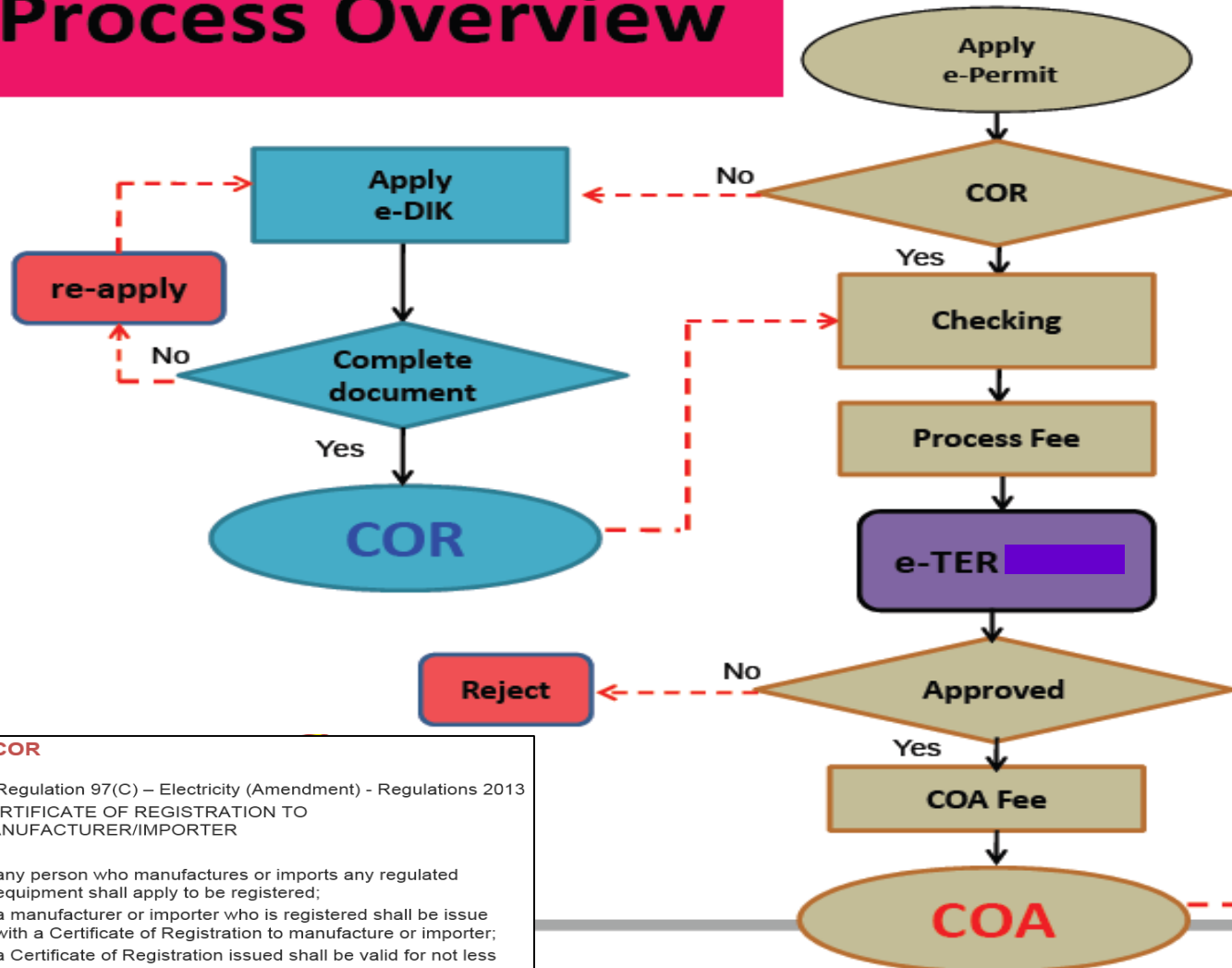
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ST Certificate of Approval (COA)

<http://epermit.dagangnet.com>

Process Overview



COR

• Regulation 97(C) – Electricity (Amendment) - Regulations 2013
CERTIFICATE OF REGISTRATION TO
MANUFACTURER/IMPORTER

- any person who manufactures or imports any regulated equipment shall apply to be registered;
- a manufacturer or importer who is registered shall be issue with a Certificate of Registration to manufacture or importer;
- a Certificate of Registration issued shall be valid for not less than **1 year & not exceeding 5 years** from the date of issue or renewal.



ST Certificate of Approval (COA)

Documents required for ST COA application

- 1) Recognized type test report
- 2) Pattern approval
- 3) Authorization letter from owner of test report
(if relevant)
- 4) ID letter (for different brand/model)
- 5) DSM letter (if relevant)
- 6) National Differences (if relevant)

ST Certificate of Approval (COA)

COA (Certificate of Approval)

 Suruhanjaya Tenaga Energy Commission		Salinan Penerima ST(H)15-Pn. 264 SJT161103033382017
No. Resit : 170328INE02556 Tth Resit : 28-Mar-2017	Borang V (Peraturan 97)	App Id : SJT1612017002144 Ruj Kami : K11791/17
SURUHANJAYA TENAGA AKTA BEKALAN ELEKTRIK 1990 PERAKUAN KELULUSAN		
Mengikut peraturan 97 Peraturan-peraturan Elektrik 1994, Perakuan ini dikeluarkan kepada		
<div style="border: 1px solid black; height: 20px; width: 100%;"></div>		
yang beralamat di		
<div style="border: 1px solid black; height: 20px; width: 100%;"></div>		
dan kelulusan diberikan untuk		
MENGIMPORT	MEMPAMER	MENJUAL
MENGIKLAN		
Kelengkapan yang perhalannya dinyatakan di bawah ini, terus daripada, TH - THAILAND (nama dan negara pengilang)		
dan kelengkapan itu mematuhi:		
(a) Standard : Safety IEC 6063-11:2003 IEC 62963-21:2003 IEC 62963-23:2003 (b) Laporan Ujian Jenis No : Safety KEMA,1167-18 (c) Tarikh Ujian : Safety 04-Mai-2018		
bagi tempoh satu tahun dari tarikh dikeluarkan/ diperbaharu* seperti yang ditunjukkan di bawah tertakluk kepada syarat-syarat berikut: - SEPERTI LAMPIRAN A -		
Tarikh dikeluarkan/ diperbaharu* : 10-Mar-2017 Kelulusan No : 3766/17		Tarikh Habis Tempoh : 09-Mar-2018 Fee RM : 220.00
<u>Perihal Kelengkapan</u>		
Kelengkapan : Meter Elektrik Statik Satu Fasa		
Nama Dagangan :		
Jenis / Model :		
<u>Spesifikasi Kelengkapan</u>		
Voltan : 230 Volt. Frekuensi : 50 Hz. Nilai KT :		Kuasa : 0.7 Watt. Arus : 10(100) Amp.
		 Ir. FAIRUS BINTI ABD. MANAF Ketua Unit Kelengkapan Jabatan Keselamatan Elektrik Suruhanjaya Tenaga

1. Kelengkapan yang dikeluarkan adalah disediakan hanya untuk dipamerkan dan bukan untuk dijual, dipasang atau digunakan.
 * Potong yang mana berkenaan.

Printed from : ePermit

[fairus]

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MCMC Certificate of Conformity (COC)

Requirements

All pure communication apparatus or equipment needs to be certified under **CMA 1998** and **Communication and Multimedia (Technical Standards) Regulations 2000 [Reg 14]**.



This also include apparatus or equipment which is **integrated with communication module** for connecting to public communication network or for radio communications utilizing band up to 420 THz, which shall be **subjected to multiple regulations and requirements**.

It is known as **hybrid equipment** such as, but not exhausted to, electrical appliances, computer products, automotive, medical devices and toys.



MCMC Certificate of Conformity (COC)

Type Approval

Approval granted to a specific model of communications product/ module/ card which has shown compliance to MCMC Technical Code/ Specification/ Standard/ Technical Checklist/ Technical Declaration

MCMC Certificate of Conformity (COC)

Type Approval Process Flow

ComM

ation for Communication and Multimedia products

Company registration on e-ComM:

<http://ecomm.sirim.my/>

Preparation of complete application
and submission by applicant



STEP 01

STEP 02



- ✓ Generate File Number for Application
- ✓ Issue Quotation & Schedule

STEP 03



Submission of Sample
& Payment

STEP 04



- ✓ Document & Sample Evaluation
Based on TS/TC/Standard on
Schedule Date

STEP 05



- ✓ Preparation of Certification Report &
Recommendation >> Approval >> Endorsement

STEP 06



- ✓ Issuance of Certificate of
Conformity (CoC)


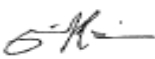
References :

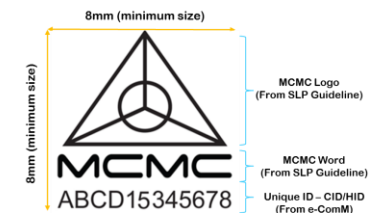
- 1- Certification Agreement
- 2- Information Package
- 3- e-ComM
- 4- Certification Requirements

<http://www.sirim-qas.com.my>
<http://ecomm.sirim.my/>

MCMC Certificate of Conformity (COC)

Certificate of Conformity (COC)

		SIJIL PEMATUHAN <i>Certificate of Conformity</i>	
KOD SYARIKAT <small>Company Code</small>	V00210 <i>(SQASI/TA/17/3509)</i>	NO. SURI <small>Serial No.</small>	E 062766
NAMA SYARIKAT <small>Company Name</small>	<input type="text"/>		
ALAMAT <small>Address</small>	<input type="text"/>		
NO. KELULUSAN <small>Approval No.</small>	RCAD/08A/1117/S(17-3509)		
KATEGORI ALAT <small>Device Category</small>	WIRELESS METER (HYBRID)		
PIAWAIAN <small>Standards</small>	MCMC MTSFB TC T007:2014		
JENAMA <small>Brand</small>	<input type="text"/>		
MODEL <small>Model</small>	<input type="text"/>		
TARIKH KELULUSAN <small>Approval Date</small>	15 November 2017		
TARIKH LUPUT <small>Expiry Date</small>	14 November 2018		
TARIKH DIKELUARKAN <small>Issuance Date</small>	15 November 2017		
<small>Note : Certification of communications product ensures that the product has met the requirements of the above noted standards. The certification of the communications product does not in itself confer a right on the certificate holder to operate the communications product.</small>			
<small>SIRIM QAS International Sdn. Bhd. (Company No. 610336-3) 1, Pandan Cina, Medan Section 2, P.O. Box 7056 46700 Shah Alam Selangor Darul Ehsan MALAYSIA. Tel : 60-3-2544 8949 Fax : 60-3-2544 8912</small>		 Mohd Azanuddin bin Salleh Pengarah Urusan Managing Director SIRIM QAS International Sdn. Bhd.	



Example: CIDF15000001
 Certification mark can be resized proportionally

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Product Certification

ISO/IEC 17067: Conformity Assessment – Fundamentals of Product Certification

- Provides guidance on the different systems of product certification
 - **Batch Certification (Consignment) : Type 1b**
 - **Product Certification Scheme : Type 5**

	ELEMENTS OF PRODUCT CERTIFICATION SYSTEM	PRODUCT CERTIFICATION SYSTEMS							
		1a	1b	2	3	4	5	6	N
1	Selection (Sampling)	x	x	x	x	x	x		
2	Determination of characteristics <ul style="list-style-type: none"> - Testing (17025) - Inspection (17020) - Design Appraisal - Assessment of Services 	x	x	x	x	x	x	x	
3	Review	x	x	x	x	x	x	x	
4	Decision on Certification	x	x	x	x	x	x	x	
5	Licensing (Right to use the Mark)		x	x	x	x	x	x	
6	Surveillance								
	- Testing or inspection of samples from open market			x		x	x		
	- Testing or inspection of samples from the factory				x	x	x		
	- QMS Audits						x	x	
	- Assessment of the production process				x	x	x	x	

Product Certification

ISO/IEC 17067: Conformity Assessment – Fundamentals of Product Certification

Conformity assessment functions and activities ^a within product certification schemes		Types of product certification schemes ^b							
		1a	1b	2	3	4	5	6	N ^{c,d}
I	Selection, including planning and preparation activities, specification of requirements, e.g. normative documents, and sampling, as applicable	x	x	x	x	x	x	x	x
II	Determination of characteristics, as applicable, by: a) testing b) inspection c) design appraisal d) assessment of services or processes e) other determination activities, e.g. verification	x	x	x	x	x	x	x	x
III	Review Examining the evidence of conformity obtained during the determination stage to establish whether the specified requirements have been met	x	x	x	x	x	x	x	x
IV	Decision on certification Granting, maintaining, extending, reducing, suspending, withdrawing certification	x	x	x	x	x	x	x	x
V	Attestation, licensing								
	a) issuing a certificate of conformity or other statement of conformity (attestation)	x	x	x	x	x	x	x	x
	b) granting the right to use certificates or other statements of conformity	x	x	x	x	x	x	x	
	c) issuing a certificate of conformity for a batch of products		x						
	d) granting the right to use marks of conformity (licensing) is based on surveillance (VI) or certification of a batch.		x	x	x	x	x	x	
VI	Surveillance, as applicable (see 5.3.4 to 5.3.8), by:								
	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) assessment of the production, the delivery of the service or the operation of the process				x	x	x	x	
	d) management system audits combined with random tests or inspections						x	x	

Product Certification

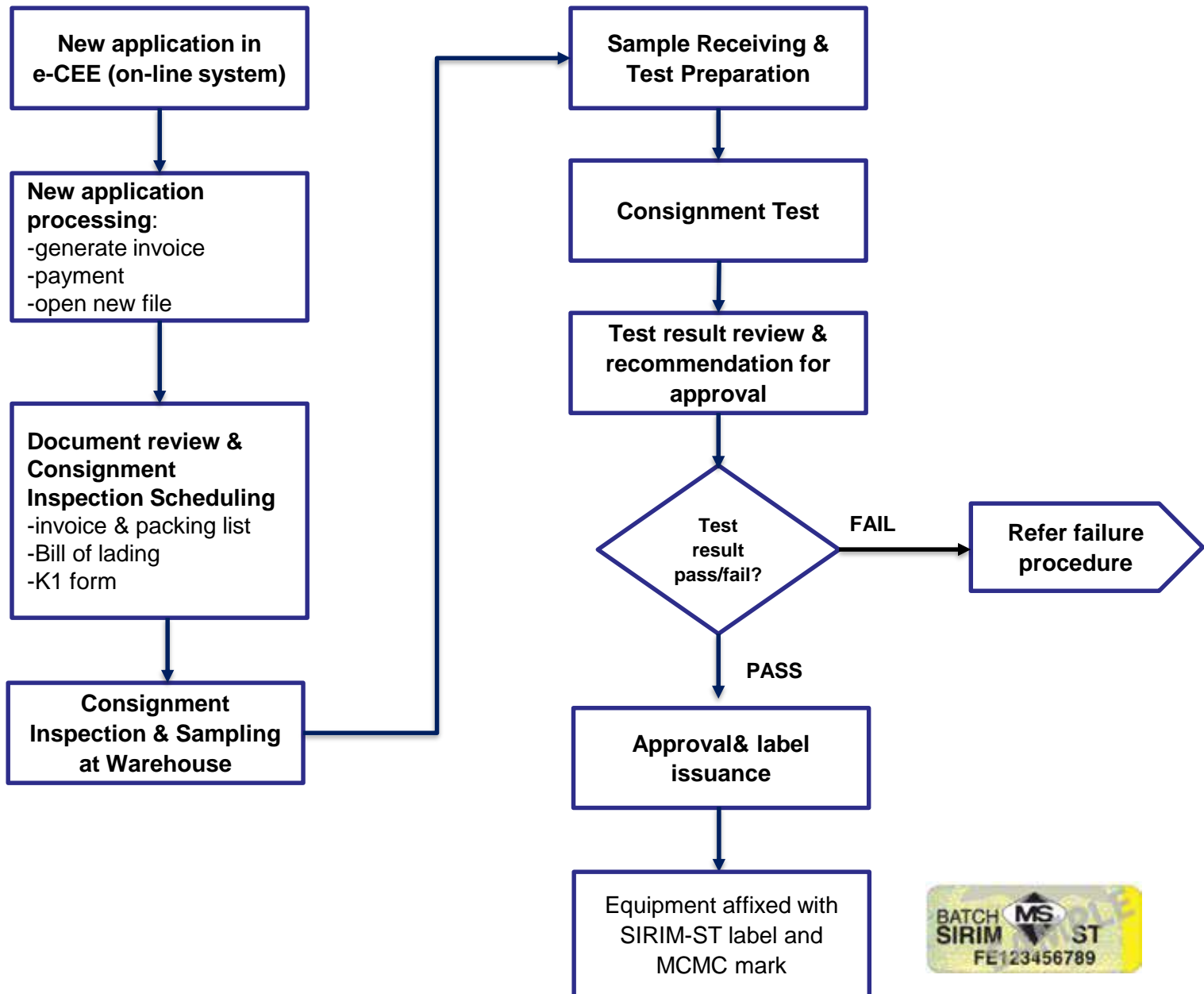
- **Batch Certification (Consignment) (Type 1b)**
- offered to importers only
- **Product Certification Scheme (Type 5)**
- offered to local manufacturers and importers

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Product Certification

Batch Certification (Consignment) process flow



Product Certification

Application Documents for Batch Certification (Consignment)

Required document when submitting application;

- 1. Invoice**
- 2. Packing list**
- 3. Bill of lading**
- 4. Custom K1 form**

Note:

- i. CoA download from e-Kelengkapan**
- ii. Test report download from e-TER**

Product Certification

Confirmatory / Consignment Test Clauses

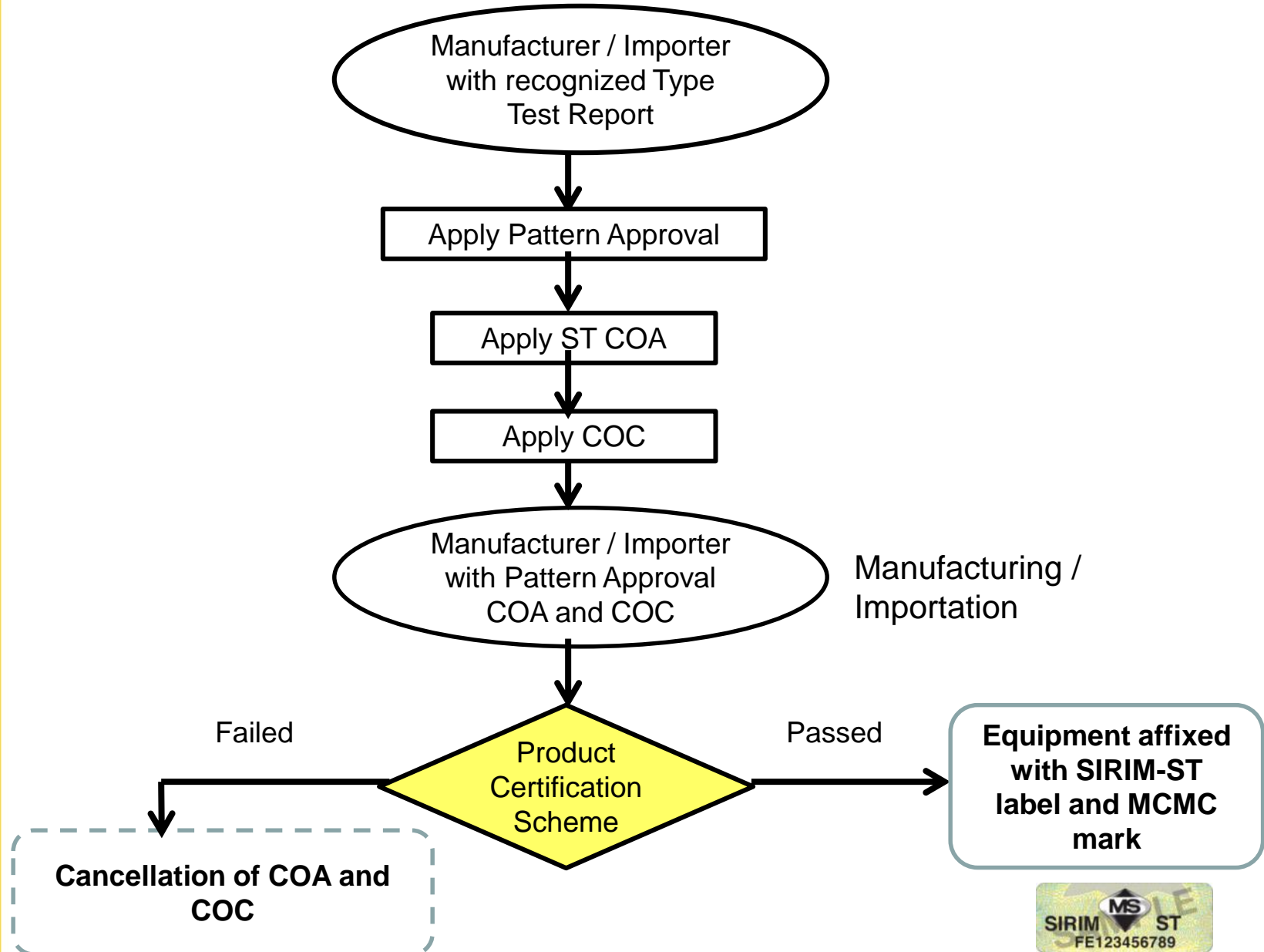
No.	Detail of Testing
1	Test of resistance to heat and fire (Clause 5.8)
2	Spring hammer test (Clause 5.2.2.1)
3	Terminals, terminals blocks and protective earth terminal Tightening Test (Clause 5.4)
4	Test of power consumption (Clause 7.1)
5	Test of influence of short-time overcurrents (Clause 7.2)
6	AC voltage tests (Clause 7.3.3)
7	Tests of accuracy requirements Test of meter constant Test of starting condition Test of no-load condition Test of influence quantities

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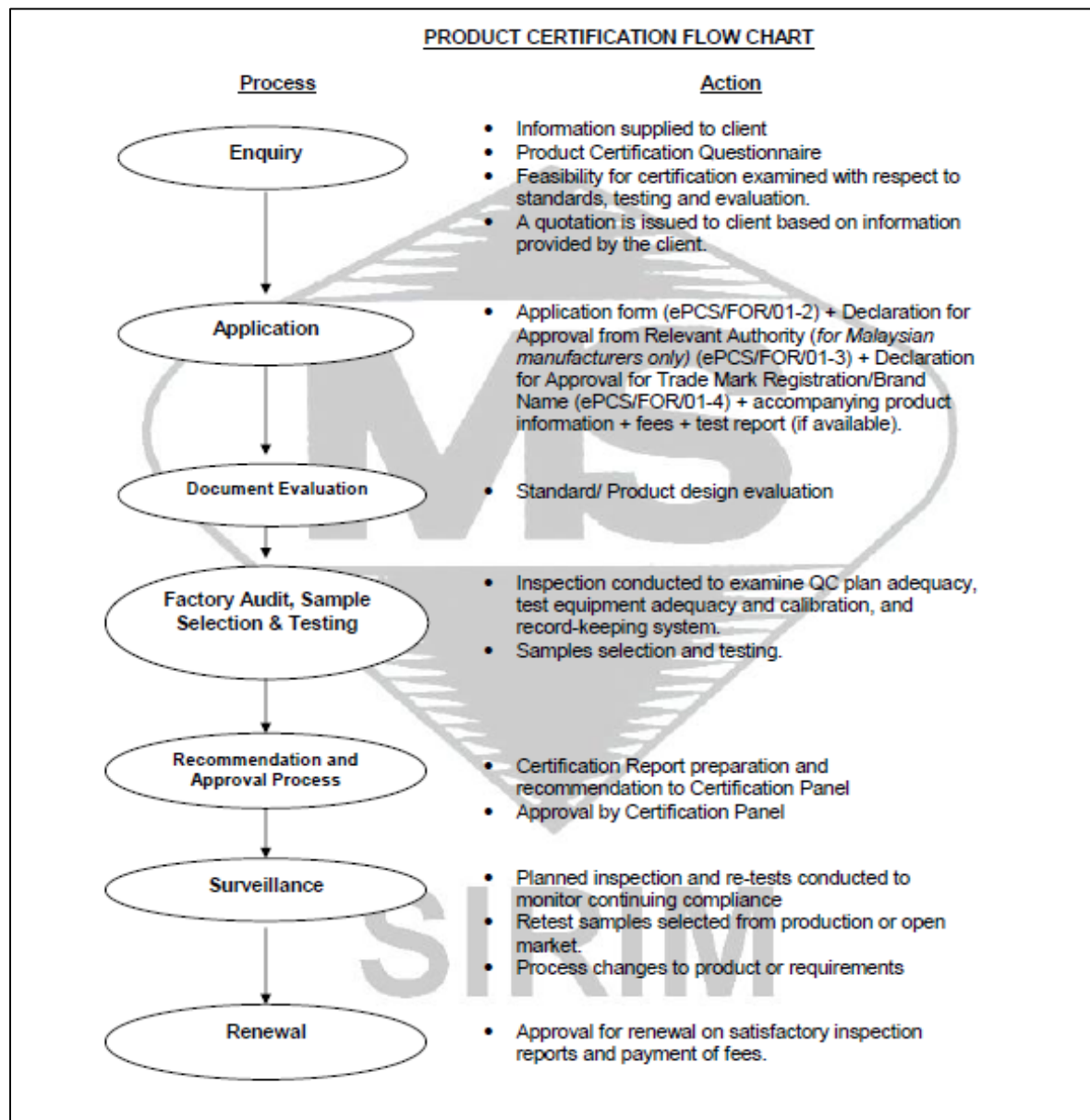
Product Certification

Product Certification Scheme



Product Certification

Product Certification Scheme Flow



Product Certification

Application Documents for Product Certification Scheme

- Questionnaire Form (ePCS/FOR/01-1)
- Application Form (ePCS/FOR/01-2)
- Declaration of Approval from Relevant Authority (ePCS/FOR/01-3)*
- Declaration of Purpose for Obtaining SIRIM License (ePCS/FOR/01-3.1)*
- Declaration of Trade Mark or Brand Name (ePCS/FOR/01-4)*
- Authorization Letter of Trade Mark / Brand Name (ePCS/FOR/01-4.1)*
- Authorization Letter for Use of Test Report (ePCS/FOR/01-4.2)*
- Declaration from Manufacturer (ePCS/FOR/01-5)*
- Type Test Report, Pattern Approval, COA and COC

*Note: * - whenever applicable*

<http://www.sirim-qas.com.my/>

Product Certification Scheme Processes



LESEN PENSIJILAN BARANGAN *Product Certification Licence*

SIRIM QAS International Sdn. Bhd. dengan ini menganugerahkan lesen pensijilan kepada
SIRIM QAS International Sdn. Bhd. hereby grants to

SENAI INDUSTRIAL ESTATE IV
81400 SENAI
JOHOR DARUL TAKZIM

Lesen untuk menggunakan Tanda Pensijilan di atas
a licence to use the Certification Mark on



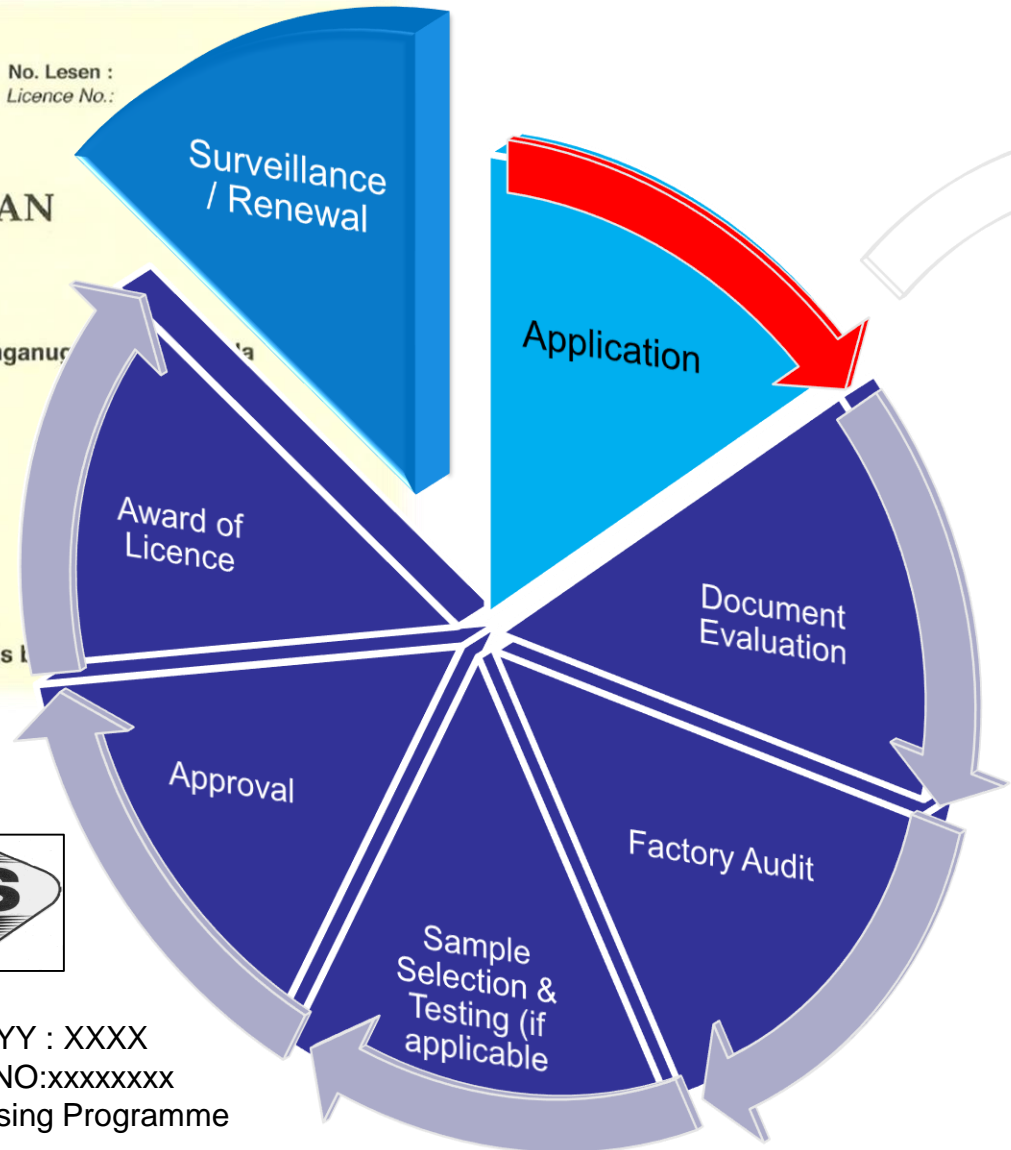
*SIRIM-ST mandatory
certification label*



SIRIM
CERTIFIED TO YY : XXXX
CERTIFICATION NO:xxxxxxxx
SIRIM-ST Label Licensing Programme

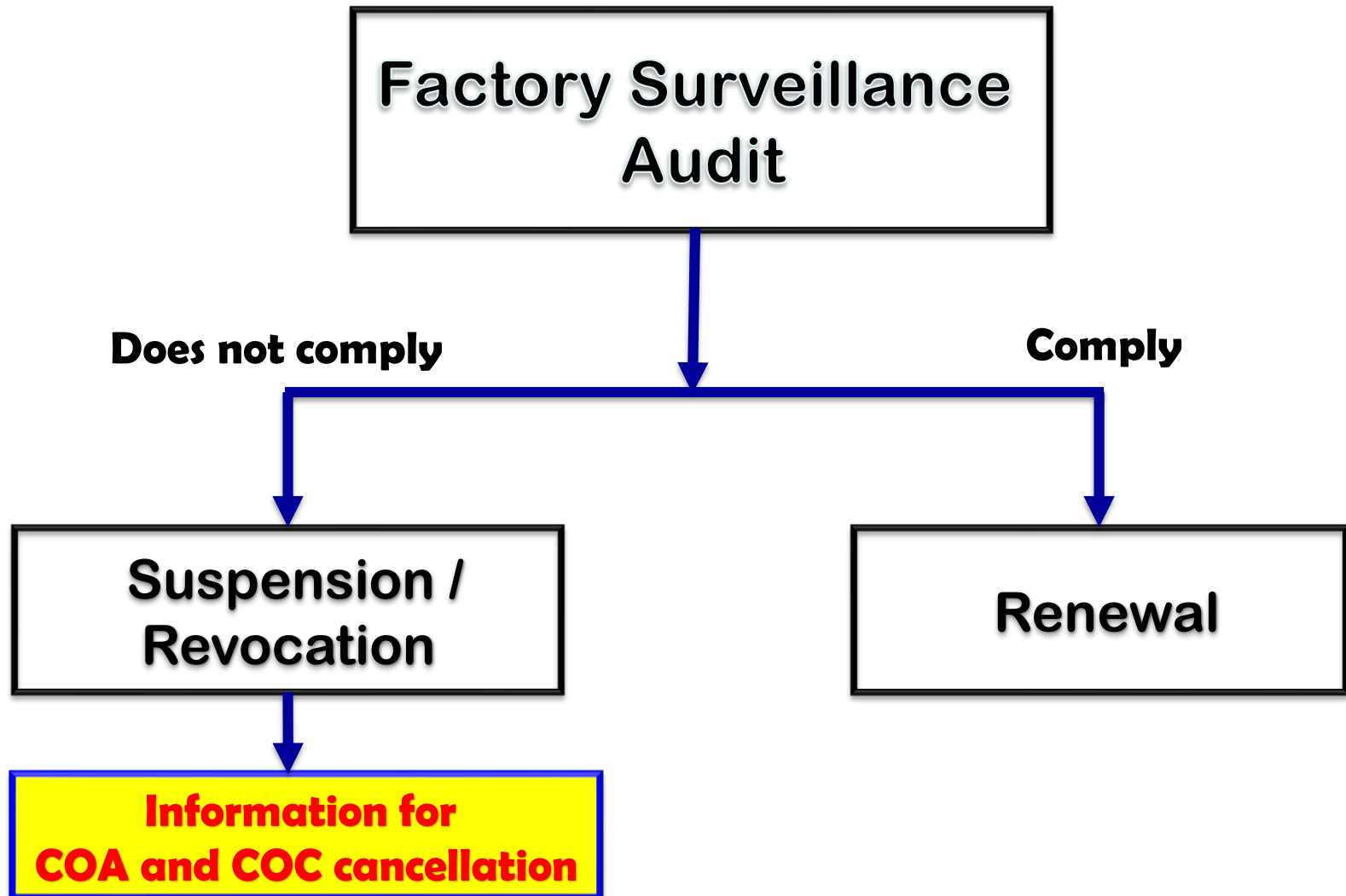
SIRIM-ST Certification Mark

No. Lesen :
Licence No.:



Product Certification

Maintaining Product Certification License



Outline

- Introduction to SIRIM QAS International Sdn Bhd
- Regulatory Framework
- Test, Approval and Certification Processes
- Type Test
- Pattern Approval
- ST Certificate of Approval (COA)
- MCMC Certificate of Conformity (COC)
- Product Certification:
 - Batch Certification (Consignment)
 - Product Certification Scheme
- Labelling and Marking

Product Certification Label

SIRIM – ST Label : Batch Certification (Consignment)

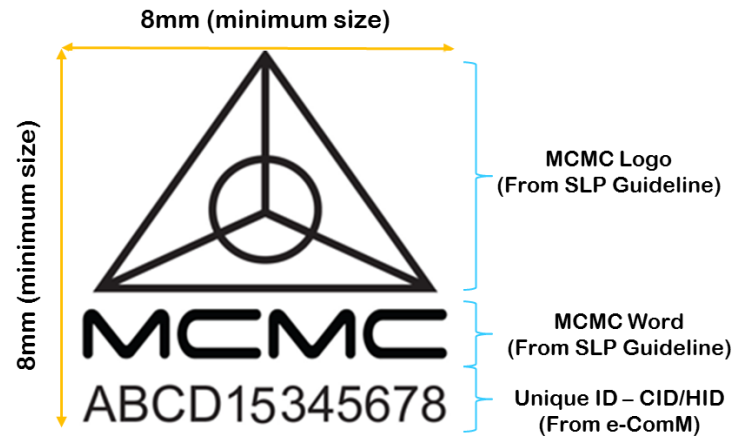


SIRIM – ST Label : Product Certification Scheme



Labelling and Marking

MCMC Mark



Example: CIDF15000001

Certification mark can be resized proportionally



Thank you for your kind attention

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