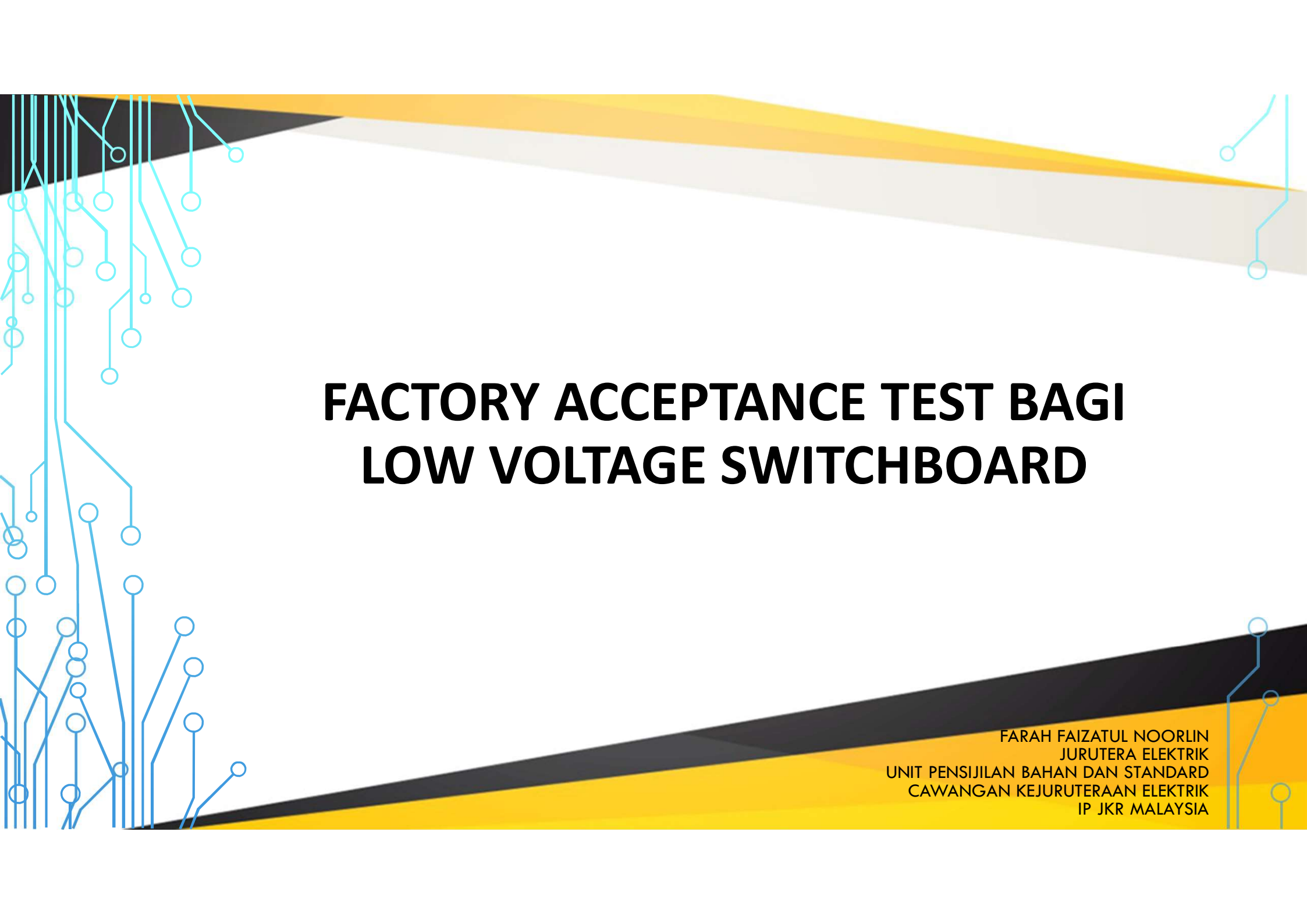




FACTORY ACCEPTANCE TEST BAGI LOW VOLTAGE SWITCHBOARD

FARAH FAIZATUL NOORLIN
JURUTERA ELEKTRIK
UNIT PENSIJILAN BAHAN DAN STANDARD
CAWANGAN KEJURUTERAAN ELEKTRIK
IP JKR MALAYSIA

CARA MENYEMAK KELULUSAN PENGILANG PAPAN SUIS



Pengumuman

Pendaftaran bagi bahan/barangan kipas jenis Ventilating Fan Ceiling Type dan Wall Fan Remote Control Type adalah tidak didaftarkan dalam EMAL/JMAL kerana tiada penggunaan dalam projek JKR.

Menu Utama

[Muka Depan](#)

Pengenalan



EMAL adalah laman web yang memaparkan senarai bahan/barangan elektrik yang diluluskan oleh Jawatankuasa Kelulusan Bahan, Cawangan Kejuruteraan Elektrik JKR Malaysia. Senarai bahan/barangan elektrik tersebut adalah digunakan oleh Cawangan Kejuruteraan Elektrik JKR sahaja dan tidak boleh digunakan untuk apa jua pengiklanan atau apa jua tujuan lain.

SENARAI KATEGORI

Displaying 1-26 of 26 results.

No	Kumpulan	Nama Kategori	Nama Sub kumpulan
1	EE01100	CABLES	KABEL DAN AKSESORI PENDAWAIAAN
2	EE01110	G.S CONDUITS & HIGH IMPACT PVC CONDUITS	KABEL DAN AKSESORI PENDAWAIAAN
3	EE01120	BUSDUCT TRUNKING SYSTEM / CABLE MANAGEMENT SYSTEM	KABEL DAN AKSESORI PENDAWAIAAN
4	EE01130	SWITCHES	KABEL DAN AKSESORI PENDAWAIAAN
5	EE01160	EARTHING SYSTEM & ACCESSORIES	KABEL DAN AKSESORI PENDAWAIAAN
6	EE01170	LIGHTNING PROTECTION SYSTEM	KABEL DAN AKSESORI PENDAWAIAAN
7	EE01171	SOCKET OUTLETS	KABEL DAN AKSESORI PENDAWAIAAN
8	EE02160	FLUORESCENT LUMINAIRES	KELENGKAPAN ELEKTRIK
9	EE02170	EMERGENCY LIGHT & LUMINOUS SIGN	KELENGKAPAN ELEKTRIK
10	EE02180	FANS	KELENGKAPAN ELEKTRIK
11	EE02200	OUTDOOR LUMINAIRES	KELENGKAPAN ELEKTRIK
12	EE02210	INDOOR LUMINAIRES (LED)	KELENGKAPAN ELEKTRIK
13	EE02212	TRAFFIC LIGHT SYSTEM	KELENGKAPAN ELEKTRIK
14	EE03100	L.V. SWITCHBOARD/CONSUMER UNIT	SUIS GEAR DAN PAPAN SUIS
15	EE03110	SURGE PROTECTIVE DEVICE (SPD)	SUIS GEAR DAN PAPAN SUIS
16	EE03120	PROTECTION RELAYS	SUIS GEAR DAN PAPAN SUIS
17	EE03130	POWER FACTOR CORRECTION	SUIS GEAR DAN PAPAN SUIS
18	EE03140	CIRCUIT BREAKER (ACB, MCCB & MCB)	SUIS GEAR DAN PAPAN SUIS
19	EE03150	RESIDUAL CURRENT DEVICE (RCD)	SUIS GEAR DAN PAPAN SUIS
20	EE03160	FUSE SWITCHGEARS	SUIS GEAR DAN PAPAN SUIS
21	EE03170	ISOLATORS	SUIS GEAR DAN PAPAN SUIS
22	EE03180	CONTACTORS	SUIS GEAR DAN PAPAN SUIS
23	EE03190	11KV METAL-ENCLOSED SWITCHGEAR	SUIS GEAR DAN PAPAN SUIS
24	EE04100	GENERATORS SETS	PERALATAN MESIN ELEKTRIK



Pengumuman

Mesyuarat Jawatankuasa Kelulusan Bahan, Cawangan Kejuruteraan Elektrik Bil. 7/2018 bertarikh 27 Julai 2018 telah memutuskan bahan/barangan Ceiling Fan Jenama Mistral (Model : MCF 605A) digantung selama Enam (6) bermula pada tarikh mesyuarat kerana didapati mempunyai masalah berkaitan kapasitor yang dipasang pada

SENARAI BAHAN/BARANGAN YANG DILULUSKAN

Displaying 1-4 of 4 results.

No	Kod Barang	Nama Barang	Status Barang
1	EE031001	LOW VOLTAGE SWITCHBOARD (KATEGORI I)	MANDATORI
2	EE031002	LOW VOLTAGE SWITCHBOARD (KATEGORI II)	MANDATORI
3	EE031003	LOW VOLTAGE SWITCHBOARD (KATEGORI III)	MANDATORI
4	EE031005	ALL INSULATED DISTRIBUTION BOARD (CONSUMER UNIT)	MANDATORI

PENDAFTARAN PENGILANG PAPAN SUIS DALAM EMAL

Klausa 2.1.4 – Type testing for switchboard as per categorization shall be as per Table 2A below

Category	Current Rating	Registration & Type Test Report
I	$I \leq 600A$	Suruhanjaya Tenaga
II	$600A < I \leq 2000A$	Suruhanjaya Tenaga & Partial Type Test in accordance with MS IEC 60439-1 (i) Short Circuit Test (Clause:8.2.3) (ii) Temperature Rise Test (Clause:8.2.1)
III	$I > 2000A$	Suruhanjaya Tenaga & Full Type Test in accordance with MS IEC 60439-1

Table 2A : Type testing for switchboard as per categorization

MS IEC 60439-1
WITHDRAWN & REPLACE
IEC 61439-1

MAKA Kelulusan EMAL bagi pengilang papan suis dibahagikan kepada 3 kategori

SENARAI BAHAN/BARANGAN YANG DILULUSKAN

Displaying 1-4 of 4 results.

No	Kod Barang	Nama Barang	Status Barang	
1	EE031001	LOW VOLTAGE SWITCHBOARD (KATEGORI I)	MANDATORI	
2	EE031002	LOW VOLTAGE SWITCHBOARD (KATEGORI II)	MANDATORI	
3	EE031003	LOW VOLTAGE SWITCHBOARD (KATEGORI III)	MANDATORI	
4	EE031005	ALL INSULATED DISTRIBUTION BOARD (CONSUMER UNIT)	MANDATORI	

MAKLUMAT PENTING DALAM LAMAN WEB EMAL

MAKLUMAT BAHAN/BARANGAN YANG DILULUSKAN

Nama Syarikat

Alamat Syarikat

Kategori



Standard

Keterangan Barangan	LOW VOLTAGE SWITCHBOARD (KATEGORI III)
Kod Barangan	EE031003.ME103.A7
Nama Syarikat	STARLITE ELECTRICAL INDUSTRIES SDN. BHD.
Status Syarikat	PENGILANG
Alamat	LOT 11174, KAWASAN PERINDUSTRIAN TAMAN TUANKU JAAFAR, JALAN SUNGAI GADUT, 70450 SEREMBAN NEGERI SEMBILAN
No Telefon	066781366
No Fax	06-6781268
Email	inquiry@starliteelectrical.com.my
Website	WWW.STARLITEELECTRICAL.COM
Jenama	PENGILANG PAPAN SUIS
No Laporan	PERAKUAN ST: 2019/02239; SIJIL ASTA : 16816, 20071, 20089, 20922, 20923, 20924 & 20925
Tarikh Tamat	15-10-2020
Rujukan	ST(MLK)MLK/C/PPS/00010/2015, IEC 60439-1:2004 & IEC 61439-2 Edition 2.0 2011-08
Catatan	LAPORAN UJIAN BAGI KADARAN ARUS 1250A, 1600A, 2000A, 3000A, 3200A, 4000A & 5000A
Negara	MALAYSIA -

Bil	Model	KADARAN VOLTAN(V)	Gambar
1	PENGILANG PAPAN SUIS	0.600 KILOVOLT	

FACTORY ACCEPTANCE TEST BAGI PAPAN SUIS

Klausa 2.1.5

2.1.5 Routine tests on the switchboard shall be carried out before delivery to site. The main circuits and the auxiliary circuits shall be tested to verify dielectric properties with power-frequency test voltage of 2500Vac for 1 minute and insulation resistance under test voltage of 1000V. Routine tests shall include inspection and checking of wiring, electrical continuity of the protective circuits, connections and effectiveness of mechanical actuating elements and interlock. Test Results or Certificate duly certified by Competent Person as in Electricity Regulations 1994 shall be issued for every switchboard supplied and installed.

SENARAI SEMAK VISUAL INSPECTION LV SWITCHBOARD

	FACTORY ACCEPTANCE TEST CHECKLIST FOR VISUAL INSPECTION OF LOW VOLTAGE ELECTRICAL BOARDS	CKE.ITP.01.35.(00).2012
		Date Issued : 16 th January 2012
		Revision : -
		Revision Date : -
		Page : 1 / 5



PROJECT NAME :	
MANUFACTURER NAME :	

Notes:

- This form is to be used as a checklist for **visual inspection acceptance only**. Other acceptance criteria such as dielectric properties test, insulation resistance test and functional test shall use the forms provided by the manufacturer. S.O Rep is advised to begin the FAT with the visual inspection test ahead.
- Prior departure to the factory, SO Representatives (SORs) are recommended to bring together:
 - Documents : Approved Shop Drawing of Switchboard, BQ & Material List as per contract
 - Tools : Digital Caliper, Measuring Tape, Torchlight, Digital Camera
- Upon arrival and prior of any testing, SO Representatives are required to check/ensure:
 - Date of calibration status of the instruments to be used for testing. (Calibration validity: 2 years)
 - Certificate of the manufacturer's competent person who will in charge for the testing. (Min. AO)
 - Brand & Model of the material installed had been approved during construction stage as referred to material approval list (comply to J-MAL and material list as per contract).
 - Inspect thoroughly compliance of the manufactured switchboard with the approved shop drawing particularly on the following criteria:
 - Rating, Number of Poles & Arrangement of **EACH** Switchgear and terminals

☐
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GUIDES AND STANDARDS >
BORANG KHUSUS CKE

<http://ipedia.jkr.gov.my/images/c/cb/CKE.ITP.01.35.00.2012-FAT-LV-Electrical-Boards.pdf>

APA YANG PERLU DI BAWA SEMASA FAT?

DOCUMENTS

- Approved Shop Drawing
- BQ
- Material List as per contract

TOOLS

- Digital Caliper
- Measuring Tape
- Torchlight
- Camera



DOKUMEN PENDAFTARAN YANG PERLU DISEMAK SEBELUM FAT

- Perakuan Pendaftaran Sebagai Pengilang Papan Suis (Borang U) yang masih sah – Akta Bekalan Elektrik 1990



- Orang Kompeten 

- Lesen Pihak Berkuasa Tempatan yang masih sah



- Sijil Kalibrasi yang masih sah & stiker 

- Sijil Kelulusan EMAL 

CARA MENYEMAK ORANG KOMPETEN DI LAMAN WEB ST

- Laman Web Suruhanjaya Tenaga - <https://www.st.gov.my/ms/>
- Online Services > Orang Kompeten
- Senarai Orang Kompeten berdaftar - <https://ecos.st.gov.my//ms/web/guest/senarai-orang-kompeten-berdaftar-elektrik->



POLICIES +
Information about
act, regulation etc.

LESEN

PEPASANGAN

KONTRAKTOR

ORANG KOMPETEN

PEPERIKSAAN

KELENGKAPAN ELEKTRIK

KECEKAPAN TENAGA

KELULUSAN GAS

APPLICATIONS +
electricity, energy efficiency,
gas.



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Learn the efficient use of
electricity etc.



INDUSTRY +
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players.



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[Kelengkapan Elektrik](#)

[Kecekapan Tenaga](#)

[Kelulusan Gas](#)

Orang Kompeten

Permohonan berkaitan Orang Kompeten elektrik dan gas, dan rujukan untuk senarai Orang Kompeten.

Elektrik

- Pendaftaran Orang Kompeten Elektrik
- Pembaharuan Pendaftaran Orang Kompeten Elektrik
- Penggantian Sijil Perakuan Kekompetenan Elektrik
- [Senarai Orang Kompeten Elektrik Berdaftar](#)

Gas

- Perakuan Kompeten dan Pendaftaran Orang Kompeten Gas
- [Senarai Orang Kompeten Gas](#)

SENARAI PERAKUAN

- **Senarai Orang Kompeten Elektrik Berdaftar**
- Senarai Kontraktor Elektrik Berdaftar
- Senarai Pengurus Tenaga Elektrik Berdaftar
- Senarai Pemasangan Berdaftar
- Senarai Pemasangan Persendirian Berlesen

SENARAI ORANG KOMPETEN ELEKTRIK BERDAFTAR

Parameter Carian

Nama Orang Kompeten :

No. Perakuan Kekompetenan :

Jenis Kekompetenan : Sila Pilih

Kategori : Sila Pilih

Pejabat Kawasan : Sila Pilih

Nama Syarikat :

No. ROC :

Cari

Cetak Senarai

SIJIL KALIBRASI

- Definisi Kalibrasi dalam dokumen SPK JKR adalah merupakan ketentukuran bagi sesuatu peralatan mengikut piawaian atau makmal yang diiktiraf mengikut tempoh sah dan julat ketepatan yang dibenarkan.
- Hanya sijil kalibrasi yang dikeluarkan makmal yang diiktiraf dibawah **Skim Akreditasi Makmal Malaysia(SAMM)** di bawah kawalan Jabatan Standards Malaysia di dalam bidang kalibrasi (*field of calibration*) seperti *Electrical, Dimensional, Heat and Temperature*, dll dan di dalam skop berkaitan peralatan pengujian tertentu boleh diterimapakai.

SIJIL KALIBRASI

MS ISO/IEC 17025 :2005 - General Requirements For The Competence of Testing and Calibration Laboratories.

Section 5: Butiran yang perlu ada pada sijil kalibrasi:

- 1. Tajuk:** Sijil Kalibrasi (Calibration Certificate)
- 2. Nama dan alamat makmal** kalibrasi
- 3. Nombor rujukan sijil dan jumlah mukasurat**
- 4. Nama dan alamat pelanggan**
5. Tanda pengenalan dan **deskripsi item** yang dikalibrasi.
6. Deskripsi keadaan peralatan sebelum dan selepas di kalibrasi.
- 7. Tarikh item diterima/dikalibrasi**
8. Metod kalibrasi
9. Reference to any sampling procedure
10. Informasi lain yang perlu dinyatakan

CARA MENYEMAK SIJIL KALIBRASI



Logo SAMM

Certificate Number

Equipment or Serial Number

Calibration Date & Due Date

NOTA Panduan Menyemak Dan Menilai Sijil Kalibrasi Peralatan Pengujian

http://ipedia.jkr.gov.my/images/f/f7/NOTA_PANDUAN_MENILAI_DAN_MENYEMAK_SIJIL_KALIBRASI_PERALATAN_2013.pdf



CERTIFICATE OF CALIBRATION

DATE OF ISSUE : 28 December 2019
ISSUED BY : SIRIM Standards Technology Sdn. Bhd. (Company No.: 292201-P)
Lot 12, 18 & 20, Jalan Beremban 15/12,
Seksyen 15, 40200 Shah Alam,
Selangor Darul Ehsan.
Tel. : 03-5510 9066 Fax. : 03-5510 9077

CERTIFICATE NUMBER : SST/SA/R/2019/L1655
PAGE 1 OF 2 PAGES
APPROVED SIGNATORIES
Muhammad Fahmy Ahmad Ta'adin
Syahrel Shari

Submitted by : Elecol Switchgear Sdn. Bhd.
Lot 6, Jalan 6/2,
Kawasan Perusahaan Seri Kembangan,
43300 Seri Kembangan, Selangor, Malaysia.
Attn. : Mr. Ryan Wong
Job No. : SA2019-8347-2
Date Received : 24 December 2019

Instrument : Withstanding Voltage Tester
Manufacturer : KIKUSUI
Model No. : TOS 5050A
Serial No. : PG000959

Instrument Condition When Received : 1. Good physical condition
Instrument Condition When Returned : 1. Calibrated and tested serviceable.
2. No adjustment done.
3. Calibration Due Date requested by customer.
4. The User should be aware that there are factors that may cause this instrument to drift out of calibration before its specified calibration interval has expired.

Environmental Condition :-
Average Temperature : 24 ± 1 °C
Calibration Date : 28 December 2019
Average Relative Humidity : 62 ± 1 %
Requested Calibration Due Date : 28 December 2020

Calibration Method :
This instrument was calibrated using the Calibration Procedure No. ESD/0345 Rev. 3.0

Calibration Standard(s) Used :

Instrument Type	Serial No.	Cal. Due Date	Cal. Cert. No.	Traceability
Vitrek 4700	019317	24 July 2020	EL007959	NMC SPORE
FLUKE 87 IV	74500654	09 July 2020	SST/SA/IR/2019G/7	NPL U.K
TLC-501B	13138	15 April 2020	SST/SA/IR/2019D/20	NPL U.K
SST 1	SJ001	11 March 2020	SST/SA/IR/2019C/4	NMIM

The standard instruments used in this calibration are traceable to either the National Standards maintained at the National Metrology Institute of Malaysia or other recognised International Standard Laboratories.

Calibration Sticker No. : SA - 12 - 1655
Measurement Uncertainty : Refer to calibration results.
Coverage Factor : k = 2
Reference(s) : Manufacturer's Specification.

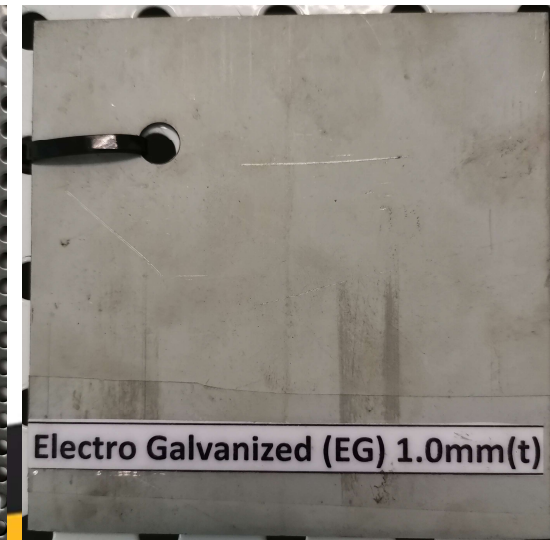
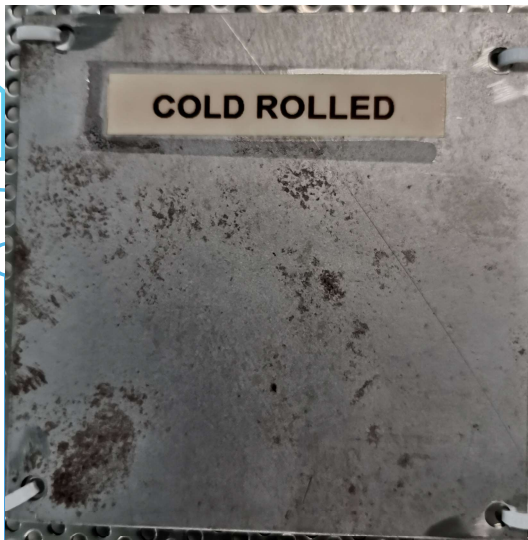
[Signature]
Approved Signatory

The uncertainties are for a confidence probability of approximately 95%

This certificate is issued in accordance with the conditions of accreditation granted by the SAMM which has assessed the measurement capability of the laboratory and its traceability to recognised national standards and to the units of measurement realised at the corresponding national standards laboratory. Copyright of this certificate is owned by the issuing laboratory and may not be reproduced other than in full except with the prior written approval of the Head of the issuing laboratory.

CARA MENYEMAK BAHAN BINAAN PAPAN SUIS

1. Klausula 2.1.1 L-S1 – Metalclad
2. Klausula 17.2 L-S1 - Stainless Steel
3. Drawing & BQ - Electrogalvanized sheet steel





**SEKIAN
TERIMA KASIH**