



Test Report issued under the responsibility of:



**TEST REPORT**  
**IEC 60947-4-1**  
**Contactors and motor-starters**  
**Electromechanical contactors and motor-starters**

**Report Number** .....: CB2014CQC-058116-M1  
**Date of issue** .....: 2017-04-19  
**Total number of pages**.....: 25



**Applicant's name**.....: Schneider Shanghai Industrial Control Co.,Ltd.  
**Address** .....: 629 Sui De Road, Pu Tuo District, Shanghai, P. R. China

**Test specification:**

**Standard** .....: IEC 60947-4-1:2009 (Third Edition) + A1:2012  
IEC 60947-1:2007 (Ed5)+A1:2010  
**Test procedure** .....: CB Scheme  
**Non-standard test method**.....: N/A

**Test Report Form No.**.....: IEC60947\_4\_1B  
**Test Report Form(s) Originator**.....: DEKRA Certification B.V.  
**Master TRF**.....: Dated 2013-07

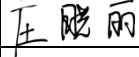
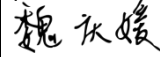
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**This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.**

**Test item description** .....: AC Contactor  
**Trade Mark** .....: Schneider Electric  
**Manufacturer**.....: Schneider Shanghai Industrial Control Co.,Ltd.  
**Model/Type reference** .....: LC1E40004...N, LC1E65004...N, LC1E40008...N,  
LC1E65008...N, LC1N40004...N, LC1N65004...N, LC1N40008...N,  
LC1N65008...N, LC1E40004..., LC1E65004..., LC1E40008...,  
LC1E65008...  
**Ratings** .....: See page 7

Testing procedure and testing location:		
<input checked="" type="checkbox"/>	<b>CB Testing Laboratory:</b>	Shanghai Testing & Inspection Institute for Electrical Equipment (STIEE)
<b>Testing location/ address .....</b>		505 Wu Ning Road Shanghai P. R. China
<input type="checkbox"/>	<b>Associated CB Laboratory:</b>	
<b>Testing location/ address .....</b>		
<b>Tested by (name + signature) ..:</b>		Zhuang Xiaoli 
<b>Approved by (+ signature).....:</b>		Wei Qingyuan 
<input type="checkbox"/>	<b>Testing procedure: TMP</b>	
<b>Testing location/ address .....</b>		
<b>Tested by (name + signature) ..:</b>		
<b>Approved by (+ signature).....:</b>		
<input type="checkbox"/>	<b>Testing procedure: WMT</b>	
<b>Testing location/ address .....</b>		
<b>Tested by (name + signature) ..:</b>		
<b>Witnessed by (+ signature) .....</b>		
<b>Approved by (+ signature).....:</b>		
<input type="checkbox"/>	<b>Testing procedure: SMT</b>	
<b>Testing location/ address .....</b>		
<b>Tested by (name + signature) ..:</b>		
<b>Approved by (+ signature).....:</b>		
<b>Supervised by (+ signature).....:</b>		

**List of Attachments (including a total number of pages in each attachment):/****Summary of testing:**

This report compliance to IEC60947-4-1: 2012 (Ed.3.1) and IEC 60947-1: 2011 (Ed.5.1).

**Tests performed (name of test and test clause):**

Main Testing (IEC 60947-4-1)

Test Sequence III:	LC1E65008M7	Us: AC220V 50/60Hz “r” (#01)
	LC1E40004M7N	Us: AC220V 50/60Hz “Iq” (#02)
Glow wire test	LC1E65008M7	Us: AC220V 50/60Hz (#03)
Glow wire test	LC1E40004M7N	Us: AC220V 50/60Hz (#04)

**Testing location:**

Shanghai  
Testing &  
Inspection  
Institute for  
Electrical  
Equipment  
(STIEE)/ 505  
Wu Ning  
Road  
Shanghai  
P. R. China

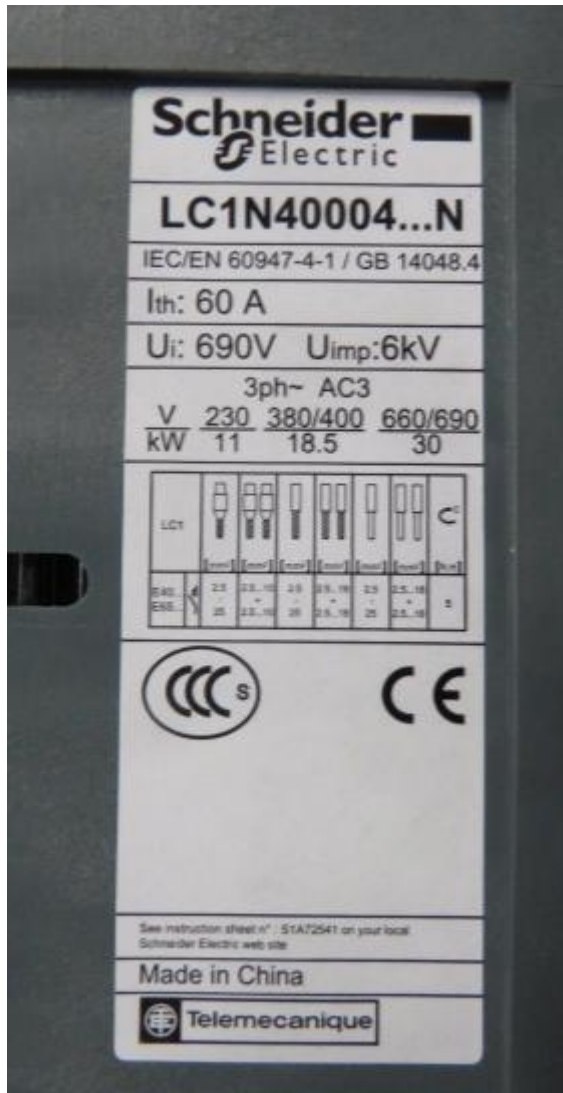
**Summary of compliance with National Differences****List of countries addressed:/**

The product fulfills the requirements of \_\_\_\_\_ (insert standard number and edition and delete the text in parenthesis or delete the whole sentence if not applicable)

Copy of marking plate



Copy of marking plate



<b>Test item particulars</b> ..... : -			
<b>Classification of installation and use</b> ..... : -			
<b>Supply Connection</b> ..... : -			
..... :			
<b>Possible test case verdicts:</b>			
- test case does not apply to the test object..... : N/A			
- test object does meet the requirement ..... : P (Pass)			
- test object does not meet the requirement..... : F (Fail)			
<b>Testing</b> .....			
<b>Date of receipt of test item</b> ..... : 2017-03			
<b>Date (s) of performance of tests</b> ..... : 2017-03-06~2017-03-27			
<b>General remarks:</b>			
The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory. "(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.			
<b>Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.</b>			
<b>Remarks:</b>			
This test report must be read in conjunction with test report NO. 00901- CB2014CQC-058116 The original CB certificate No. is CN30476 The original test Report Ref. No. 00901- CB2014CQC-058116, dated 2014-05 was modified on 2017-03 to include the following changes.			
Serial No.	Item	Before change	After change
1	Model type	LC1E40004...N, LC1E65004...N,LC1E40008...N, LC1E65008...N,LC1E40004..., LC1E65004..., LC1E40008..., LC1E65008...	LC1E40004...N, LC1E65004...N,LC1E40008...N, LC1E65008...N,LC1N40004...N, LC1N65004...N, LC1N40008...N,LC1N65008...N,LC 1E40004..., LC1E65004..., LC1E40008..., LC1E65008...
2	General assembly drawing	EAV51086, EAV51086	EAV51086, EAV51086, EAV87167, EAV 87173
3	Type/Model Serial number of Enclosure	Latamid 66H2G25V0KB3 Ultramid A3X3G5	Latamid 66H2G25V0KB3 Ultramid A3X3G5 STARFLAM AFR450X2
4	Material of base	PA66	phenolic resin

**Manufacturer's Declaration per Sub-clause 4.2.5 of IEC 60947-4-1:**

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided ..... :  Yes  Not applicable

**When differences exist; they shall be identified in the General Product Information section.**

**Name and address of factory (ies).....:** Schneider Shanghai Industrial Control Co.,Ltd./ 629 Sui De Road, Pu Tuo District, Shanghai, P. R. China

**General product information:**

LC1E40004...N, LC1E65004...N, LC1E40008...N, LC1E65008...N, LC1N40004...N, LC1N65004...N, LC1N40008...N, LC1N65008...N, LC1E40004..., LC1E65004..., LC1E40008..., LC1E65008...

Ui:690V;

LC1E40004..., LC1N40004...N, LC1E40004...N:

Ith=60A;

AC-1: Ue/Ie: 220V/230V/380V/400V/415V/440V/660V/690V/60A;

AC-3: Ue/Ie: 220V/230V/380V/400V/415V/440V/40A, 660V/690V/33.3A;

AC-4: Ue/Ie: 220V/230V/380V/400V/415V/440V/33.4A, 660V/690V/27.8A;

LC1E40008..., LC1N40008...N, LC1E40008...N:

Ith=60A;

AC-1: Ue/Ie: 220V/230V/380V/400V/415V/440V/660V/690V/60A;

AC-3: Ue/Ie: 220V/230V/380V/400V/415V/440V/40A, 660V/690V/33.3A;

LC1E65004..., LC1N65004...N, LC1E65004...N:

Ith=80A;

AC-1: Ue/Ie: 220V/230V/380V/400V/415V/440V/660V/690V/80A;

AC-3: Ue/Ie: 220V/230V/380V/400V/415V/440V/63.6A, 660V/690V/40A;

AC-4: Ue/Ie: 220V/230V/380V/400V/415V/440V/53A, 660V/690V/33.4A;

LC1E65008..., LC1N65008...N, LC1E65008...N:

Ith=80A;

AC-1: Ue/Ie: 220V/230V/380V/400V/415V/440V/660V/690V/80A;

AC-3: Ue/Ie: 220V/230V/380V/400V/415V/440V/63.6A, 660V/690V/40A;

Us: AC50/60Hz: 24V, 48V, 110V, 220V, 230V, 240V, 380V, 400V, 415V;

AC50Hz(70%~130%Us): 220V, 415V

4P;

IP20

- kind of equipment.....	: AC Contactor
- number of poles.....	: 4P
- kind of current (a.c. or d.c.) .....	: Power: a.c.;Control Circuit: a.c
- interrupting medium .....	: Air
- method of operation .....	: Electromagnetic
- method of control.....	: independent motor driven operation
- method of change-over for particular types of starters.....	:
- method of connecting for particular types of starters .....	:
- rated frequency.....	: 50Hz
- rated duties .....	: Uninterrupted duty
-Utilization category .....	: AC-1, AC-3, AC-4
<b>Rated and limiting values, main circuit</b>	
Rated voltages	
- rated operational voltage $U_e$ (V) .....	: 220V/230V/380V/400V/415V/440V/660V/690 V
- rated stator operational voltage $U_{es}$ (V) .....	:
- rated rotor operational voltage $U_{er}$ (V) .....	:
- rated insulation voltage $U_i$ (V) .....	: 690V
- rated stator insulation voltage $U_{is}$ (V) .....	:
- rated rotor insulation voltage $U_{ir}$ (V) .....	:
- rated impulse withstand voltage $U_{imp}$ (kV) .....	: 6kV
- rated starting voltage of an auto-transformer starter .....	:
Currents or powers	
- conventional free air thermal current $I_{th}$ (A) .....	: 60A(LC1E40004..., LC1N40004...N,LC1E40004...N, LC1E40008..., LC1N40008...N, LC1E40008...N) 80A(LC1E65004..., LC1N65004...N, LC1E65004...N, LC1E65008..., LC1N65008...N, LC1E65008...N)
- conventional enclosed thermal current $I_{the}$ (A) .....	:
- conventional stator thermal current $I_{ths}$ (A) .....	:
- conventional rotor thermal current $I_{thr}$ (A) .....	:



- rated operational current  $I_e$  (A) or rated operational powers : LC1E40004...,  
 LC1N40004...N,LC1E40004...N:  
 AC-1:  $U_e/I_e$ :  
 220V/230V/380V/400V/415V/440V/660V/690  
 V/60A;  
 AC-3:  $U_e/I_e$ :  
 220V/230V/380V/400V/415V/440V/40A,  
 660V/690V/33.3A;  
 AC-4:  $U_e/I_e$ :  
 220V/230V/380V/400V/415V/440V/33.4A,  
 660V/690V/27.8A;  
 LC1E40008..., LC1N40008...N,  
 LC1E40008...N:  
 AC-1:  $U_e/I_e$ :  
 220V/230V/380V/400V/415V/440V/660V/690  
 V/60A;  
 AC-3:  $U_e/I_e$ :  
 220V/230V/380V/400V/415V/440V/40A,  
 660V/690V/33.3A;  
 LC1E65004..., LC1N65004...N,  
 LC1E65004...N:  
 AC-1:  $U_e/I_e$ :  
 220V/230V/380V/400V/415V/440V/660V/690  
 V/80A;  
 AC-3:  $U_e/I_e$ :  
 220V/230V/380V/400V/415V/440V/63.6A,  
 660V/690V/40A;  
 AC-4:  $U_e/I_e$ :  
 220V/230V/380V/400V/415V/440V/53A,  
 660V/690V/33.4A;  
 LC1E65008..., LC1N65008...N,  
 LC1E65008...N:  
 AC-1:  $U_e/I_e$ :  
 220V/230V/380V/400V/415V/440V/660V/690  
 V/80A;  
 AC-3:  $U_e/I_e$ :  
 220V/230V/380V/400V/415V/440V/63.6A,  
 660V/690V/40A;

- rated stator operational current  $I_{es}$  (A) or rated stator  
 operational powers ..... :  
 - rated rotor operational current  $I_{er}$  (A) ..... :  
 - rated uninterrupted current  $I_u$  (A)..... :

Normal load and overload characteristics  
 - ability to withstand motor switching overload currents ..... :  
 -rated making capacity ..... :  
 -rated breaking capacity ..... :  
 -conventional operational performance..... :  
 Starting and stopping characteristics of starters  
 -service conditions for starters ..... :

Rated conditional short-circuit current	
- rated prospective short-circuit current "r" (kA) .....	5 kA
- rated conditional short-circuit current Iq (kA) .....	50 kA(690V)
-type of co-ordination .....	2
-Pole impedance of a contactor (Z)..... :	
<b>Control circuits</b>	
The characteristics of electronic control circuits	
- kind of current.....	a.c
- rated frequency if a.c. ....	50Hz, 50/60Hz
- rated control circuit voltage U <sub>c</sub> (nature: a.c. / d.c.) .....	
- rated control supply voltage U <sub>s</sub> (nature: a.c. / d.c.) .....	
Rated and limiting values of air supply control circuit	
- rated pressure .....	
- volumes of air .....	
<b>Auxiliary circuits:</b>	
- rated operational voltage U <sub>e</sub> (V) .....	
- rated insulation voltage: U <sub>i</sub> (V) .....	
- rated operational current: I <sub>e</sub> (A) .....	
- kind of current.....	
- rated frequency: (Hz).....	
- number of circuits.....	
- number and kind of contact elements.....	
- rated uninterrupted current: I <sub>u</sub> (A).....	
- utilization category: (AC, DC, current and voltage).....	
Short-circuit characteristic	
- Rated conditional short-circuit current (kA) .....	
- kind of protective device.....	
<b>Rated and limiting values of relays and releases</b>	
- types of relay or release .....	<input type="checkbox"/> a) release with shunt coil (shunt trip) <input type="checkbox"/> b) under voltage and under-current opening relay or release <input type="checkbox"/> c) overload time-delay relay the time-lag of which is: <input type="checkbox"/> 1) substantially independent of previous load (e.g. time-delay magnetic overload relay) <input type="checkbox"/> 2) dependent on previous load (e.g. thermal or electronic overload relay) <input type="checkbox"/> 3) dependent on previous load (e.g. thermal or electronic overload relay) and also sensitive to phase loss <input type="checkbox"/> d) instantaneous over-current relay or release (e.g jam sensitive, see 3.2.29) <input type="checkbox"/> e) other relays or releases (e.g., control relay associated with devices for the thermal protection of the motor <input type="checkbox"/> f) Stall relay or release

## characteristic values

a) release with shunt coil, under-voltage (under-current)  
opening relay or release

- rated voltage (current) .....
- rated frequency.....
- operating voltage (current) .....
- operating time.....
- inhibit time.....

## b) Overload relay

- designation and current settings .....
- rated frequency, when necessary ( for example in case of a current transformer operated overload relay) .....
- time-current characteristics (or range of characteristics), when necessary.....
- trip class according to classification in table 2, or the value of maximum tripping time, in seconds, under the conditions specified in 8.2.1.5.1, table 2, column D, when this time exceeds 40 s. ....
- number of poles.....
- nature of the relay: thermal, magnetic, electronic without thermal memory .....

- c) Release with residual current sensing relay
- rated current .....
  - operating current .....
  - operating time or time-current characteristic according to Table T.1 of IEC 60947-1:2007, Amendment 1 .....
  - inhibit time (when applicable) .....
  - type designation (see Annex T of IEC 60947-1: 2007, Amendment 1) .....

**Type and characteristics of automatic change-over devices and automatic acceleration control devices**

**Types**

- a) time delay, e.g. time delay contactor relays (see IEC 60947-5-1) applicable to control-devices or specified-time-or nothing relays (see IEC 61810-1)
- b) under current devices (undercurrent relays)
- c) other devices for automatic control
  - devices dependent on voltage
  - devices on power
  - devices depending on speed

**Characteristics**

- a) the characteristics of time-delay devices are
- the rated time-delay or its range, if adjustable .....
  - for time-delay devices fitted with a coil, the rated voltage, when it differs from the starter line voltage .....
- b) the characteristics of the under voltage devices are
- the rated current ( thermal current and /or rated short-circuit withstand current, according to the indications given by the manufacturer) .....
  - the current setting or its range, if adjustable.....
- c) the characteristics of the other devices shall be determined by agreement between manufacturer and user

**Types and characteristics of auto-transformers for two-step auto-transformer starter**

Account being taken of the starting characteristics (see 5.3.5.5.3), starting auto-transformers shall be characterized by

- rated voltage of auto-transformer ..... :
- the number of taps available for adjusting torque and current..... :
- the starting voltage, i.e. the voltage at the tapping terminals, as a percentage of the rated voltage of auto-transformer ..... :
- the current they can carry for a specified duration ..... :
- the rated duty(see 5.3.4) ..... :
- the method of cooling..... :  air-cooling  
 oil-cooling
- mounting design..... :  built-in  
 or provide separately

**Types and characteristics of starting resistors for**

**rheostatic starters**

Account being taken of the starting characteristics (see 5.3.5.5.1), the starting resistor shall be characterized by .:

- the rated rotor insulation voltage (Uir).....
- their resistor value ..... :
- the mean thermal current, defined by the value of steady current they can carry for specified duration..... :
- the rated duty (see 5.3.4) ..... :
- the method of cooling..... :  free air  
 forced air  
 foil immersion
- mounting design..... :  built-in  
 or provide separately

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
9.2	Compliance with constructional requirements		
8.2.1 Part 1	Materials		
8.2.1.1.1 part 1	Glow wire test (on equipment)		P
	The suitability of materials used is verified by making tests: a) on the equipment; or b) on sections taken from the equipment; or c) on samples of identical material		P
	The suitability shall determined with respect to resistance to abnormal heat and fire		P
	The manufacturer shall indicate which tests, amongst a), b) and c), shall be used	<input checked="" type="checkbox"/> a) <input type="checkbox"/> b) <input type="checkbox"/> c)	P
	As described in IEC 60695-2-10 and -2-11		
	parts retaining current-carrying parts ..... Remark : a protective conductor is not considered as a current-carrying part	<input checked="" type="checkbox"/> 850 ± 15°C or <input type="checkbox"/> 960 ± 15°C 30 s	P
	all other parts .....	<input type="checkbox"/> 650 ± 10°C _____ s	N/A
	No visible flame, no sustained glowing or flames and glowing extinguish within 30 s		P
	For the purpose of this test, a protective conductor is not considered as a current-carrying part.		P
8.2.1.1.2 part 1	Flammability, hot wire ignition and arc ignition tests (on materials)		N/A
	Suitable specimens of material shall be subjected to the following tests: a) flammability tests, in accordance with IEC 60695-11-10 b) Hot wire ignition (HWI) test, as described in Annex M c) Arc ignition (AI) test, as described in Annex M		N/A
	The test c) is required only if the material is located within the 13 mm of arcing parts or live parts which are subject to loosening of connections.		N/A
	Materials located within 13 mm of arcing arts are exempt from this test if the equipment is subjected to make/break testing.		N/A
a)	Flammability tests, in accordance with IEC 60695-11-10		N/A

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Test method	<input type="checkbox"/> A) – Horizontal burning test <input type="checkbox"/> B) – Vertical burning test	N/A
b)	Hot wire ignition (HWI) test, as described in Annex M		N/A
c)	Arc ignition (AI) test, as described in Annex M		N/A

IEC 60947-4-1			
Clause	Requirement + Test	Result - Remark	Verdict

9.3.1.c	<b>TEST SEQUENCE III</b> (Sample No.01 LC1E65008M7 Us:220V 50/60Hz, Sample No.02 LC1E40004M7N Us:220V 50/60Hz)		
	<b>- Performance under short-circuit conditions (Clause 9.3.4)</b>		<b>P</b>
9.3.4	Performance under short-circuit conditions		
	Contactors or starter and the associated SCPD, or combination or protected starter are subjected to tests 9.3.4.2.1 and 9.3.4.2.2.		P
	Maximum Ie and maximum Ue for AC-3 are covered	Ie=63.6 / Ue=AC440V	P
	Sub clause 8.3.4.1.2 of part 1 applies except that, for type "1" co-ordination, the fusible element F and resistor are replaced by a solid 6 mm <sup>2</sup> wire of 1,2 m to 1,8 m length connected to the neutral, or with the agreement of the manufacturer, to one of the phases	<input type="checkbox"/> neutral <input type="checkbox"/> phase ____	N/A
	Rated control supply voltage.....:	220V 50/60Hz	P
9.3.4.2.1	Test at the prospective current "r":		
	type of product .....	LC1E65008M7	
	test circuit, figure 9, 10, 11, 12 .....	figure 11	
	type of SCPD .....	NT00-80	
	ratings of SCPD, co-ordination type 1 .....	-	
	ratings of SCPD, co-ordination type 2 .....	80A	
	rated operational current Ie (A) AC-3 .....	63.6A	
	rated operational voltage (V).....:	440V	
	prospective current "r" (kA) (table 12).....:	5kA	
	Wire size (mm <sup>2</sup> ) type 1	____ mm <sup>2</sup>	N/A
	Wire size (mm <sup>2</sup> ) type 2	16mm <sup>2</sup>	P
	test voltage (V) .....	L1: 484 L2:484 L3: 484	
	r.m.s. test current (kA) .....	L1: 5.03kA L2: 5.04kA L3:5.05kA	



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Clause	Requirement + Test	Result - Remark	Verdict
	peak current (kA) .....	L1: 7.70kA L2: 7.71 kA L3: 7.73 kA	
	power factor	0.70	P
	1. one breaking operation of SCPD with all the switching devices closed prior to the test $I^2dt$ and $I_p$ (kA <sup>2</sup> s / A) .....	L1: 16.9kA <sup>2</sup> s/3.02kA L2:13.3kA <sup>2</sup> s/3.02kA L3: 15.8kA <sup>2</sup> s/3.90kA	
	2. one breaking operation of SCPD by closing the contactor or starter on to the short-circuit $I^2dt$ and $I_p$ (kA <sup>2</sup> s / A) .....	L1: 9.38kA <sup>2</sup> s/2.51kA L2:16.5kA <sup>2</sup> s/2.61A L3: 17.6kA <sup>2</sup> s/3.85kA	
9.3.4.2.3	Behaviour of the equipment during the test		P
	Both types of co-ordination (all devices):		P
	A - the fault current has been successfully interrupted by the SCPD, the combination starter or the combination switching device and the fuse or fusible element, or solid connection between the enclosure and supply shall not have melted		P
	B - the door or cover of the enclosure has not been blown open and it is possible to open the door or cover. Degree of protection by the enclosure is not less than IP2X		N/A
	C - there is no damage to the conductors or terminals and the conductors have not been separated from the terminals		P
	D – there is no cracking or breaking of an insulating base to the extent that the integrity of mounting of a live part is impaired		P
	Both types of co-ordination (combination starters and protected starters only):		N/A
	E – the circuit breaker or switch is capable of being opened manually by its operating means		N/A
	F - neither end of the SCPD is completely separated from its mounting means to an exposed conductive part		N/A
	G - if a circuit breaker with rated ultimate short-circuit breaking capacity less than the rated conditional short-circuit current assigned to the combination starter, the combination switching device, the protected starter or the protected switching device is employed, the circuit breaker shall be tested to trip as follows:		
	a) circuit breaker with instantaneous trip relays or releases, at 120% of the trip current		N/A
	b) circuit breaker with overload relays or releases, at 250% of the rated current of the circuit breaker		N/A
	Type 1 co-ordination (all devices):		N/A

<b>IEC 60947-4-1</b>			
Clause	Requirement + Test	Result - Remark	Verdict
	H - there has been no discharge of parts beyond the enclosure. Damage to the contactor and the overload relay is acceptable. The starter may be inoperative after each operation. The starter shall there fore be inspected and the contactor and/or the overload relay and the release of the circuit-breaker shall be reset if necessary and, in the case of fuse protection, all fuse-links shall be replaced.		N/A
	Type 1 co-ordination (combination and protected starters only):		N/A
	I - The adequacy of insulation in according with 8.3.3.4.1, item 4), of part 1 is verified after each operation (at currents "r" and "Iq" by a dielectric test on the complete unit under test (SCPD plus contctor/starter but before replacement of parts). The test voltage shall be applied to the incoming supply terminals, with the switch or circuit-breaker in open position, as follows:		
	I - dielectric verification test voltage (2 Ue) for 5 s (V) but not less than 1000V .....	U test: _____ V	
	- between each pole and all other poles connected to the frame of the starter		N/A
	- between all live parts of all poles connected together and the frame of the starter		N/A
	- between the terminals of the line side connected together and terminals of the other side connected together		N/A
	For equipment suitable for isolation, the leakage current shall be measured through each pole, with the contacts in open position, at test voltage of 1,1 Ue and shall not exceed 6 mA	Utest: _____ V L1: _____ mA L2: _____ mA L3: _____ mA	
	Type 2 co-ordination (all devices)		P
	J - no damage to the overload relay or other parts has occurred, except that welding of contactor or starter contacts is permitted, if they are easily separated (e.g. by a screwdriver) without significant deformation, but no replacement of parts is permitted during the test, except that , in case of fuse protection, all fuse shall be replaced.	Contacts welded <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	N/A
	In the case of welded contact as described above, the functionality of the device shall be verified by carrying out 10 operations under the conditions of table 8 for the applicable utilization category.		N/A
	<b>Operational performance capability (9.3.3.6):</b>		
	Type of product :		
	utilization category :		
	rated operational voltage Ue (V) :		

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Clause	Requirement + Test	Result - Remark	Verdict
	rated operational current $I_e$ (A) or power (kW) :		
	Conditions, make/break operations:		
	- test voltage $U/U_e = 1,05$ (V) :		
	- test current (A) $I/I_e = 6$ :		
	- power factor/time constant :		
	- on-time (ms) :		
	- off-time (s) :		
	- number of make/break operations :		
	Characteristic of transient recovery voltage for AC-3 and AC-4 only:		
	oscillatory frequency (kHz) :		N/A
	Measured oscillatory frequency (kHz) :		N/A
	Factor $\gamma$ :		N/A
	Behaviour and condition during and after the test:		
	- no permanent arcing		N/A
	- no flash-over between poles		N/A
	- no blowing of the fusible element in the earth circuit		N/A
	- no welding of the contacts		N/A
	- the contacts shall operate when the contactor or starter is switched by the applicable method of control		N/A
9.3.4.2.3	K The tripping of the overload relay shall be verified at a multiple of the current setting and shall conform to the published tripping characteristics, according to 5.7.5, both before and after the short-circuit test.	Test current: _____A Measured: _____s	N/A
	L The adequacy of insulation in according with 8.3.3.4.1, item 4), of part 1 shall be verified by a dielectric test on the contactor , starter, the combination starter, the combination switching device , the protected starter or protected switching device as follows:		P
	L - dielectric verification test voltage ( $2 U_e$ ) for 5 s (V) but not less than 1000V :	U test: 1000V	P
	- between all the terminals of the main circuit connected together (including the control and auxiliary circuits connected to the main circuit) and the enclosure or mounting plate, with the contacts in all normal positions of operation		P
	- between each pole of the main circuit and the other poles connected together and to the enclosure ore mounting plate with the contacts in all normal positions of operation		P

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Clause	Requirement + Test	Result - Remark	Verdict
	- between each control and auxiliary circuit not normally connected to the main circuit and: - the main circuit - the other circuits - the exposed conductive parts - the enclosure or mounting plate		N/A
	In case of combination starters, combination switching devices, protected starters and protecting switching devices, additional tests according to 8.3.3.4.1, item 3) of part 1 shall be made as follows:		N/A
	Dielectric verification test voltage according table 12A of part 1) for 5 s (V)	U test: _____ V	N/A
	across the main poles of the device with the contacts of the switch or of the circuit- breaker open and the contacts of the starter closed		N/A
	For equipment suitable for isolation, the leakage current shall be measured through each pole, with the contacts in the open position, at a test voltage of 1,1 Ue and shall not exceed 2 mA	U test: _____ V L1: _____ mA L1: _____ mA L1: _____ mA	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

9.3.4.2.2	Test at the rated conditional short-circuit current "Iq"		
	Type of product .....	LC1N40004M7N	
	Test circuit, figure 9, 10, 11, 12.....	Figure11	
	type of SCPD .....	NT00-63A	—
	ratings of SCPD, co-ordination type 1 .....	--	—
	ratings of SCPD, co-ordination type 2 .....	63A	—
	rated operational current Ie (A) AC-3 .....	-	—
	rated operational voltage (V)	690V	—
	prospective current "Iq" (kA) .....	50kA	—
	Wire size (mm <sup>2</sup> ) type 1	_____ mm <sup>2</sup>	N/A
	Wire size (mm <sup>2</sup> ) type 2	10.0 mm <sup>2</sup>	
	test voltage (V) .....	L1: 768V L2: 768V L3: 768V	—
	r.m.s. test current (kA) .....	L1: 50.2kA L2: 50.3kA L3:50.4kA	—
	peak current (kA) .....	L1: 105kA L1: 106kA L1: 106kA	—
	power factor	0.25	
	1. one breaking operation of SCPD with all the switching devices closed prior to the test I <sup>2</sup> t and I <sub>p</sub> (kA <sup>2</sup> s / A) .....	L1:7.36kA <sup>2</sup> s/3.76kA L2:3.75kA <sup>2</sup> s/1.94kA L3: 13.4kA <sup>2</sup> s/5.14kA	—
	2. one breaking operation of SCPD by closing the contactor or starter on to the short-circuit I <sup>2</sup> t and I <sub>p</sub> (kA <sup>2</sup> s / A) .....	L1:564A <sup>2</sup> s/1.31kA L2:6.86kA <sup>2</sup> s/3.96kA L3:10.4kA <sup>2</sup> s/5.16kA	—
	3. one breaking operation of SCPD by closing the switching device on to the short-circuit I <sup>2</sup> t and I <sub>p</sub> (kA <sup>2</sup> s / A) .....	L1: - L2: - L3: -	—
	Behaviour of the equipment during the test		N/A
	Both types of co-ordination (all devices):		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	A - the fault current has been successfully interrupted by the SCPD, the combination starter or the combination switching device and the fuse or fusible element, or solid connection between the enclosure and supply shall not have melted		N/A
	B - the door or cover of the enclosure has not been blown open and it is possible to open the door or cover. Degree of protection by the enclosure is not less than IP2X		N/A
	C - there is no damage to the conductors or terminals and the conductors have not been separated from the terminals		N/A
	D – there is no cracking or breaking of an insulating base to the extent that the integrity of mounting of a live part is impaired		N/A
	Both types of co-ordination (combination starters and protected starters only):		
	E – the circuit breaker or switch is capable of being opened manually by its operating means		N/A
	F - neither end of the SCPD is completely separated from its mounting means to an exposed conductive part		N/A
	G - if a circuit breaker with rated ultimate short-circuit breaking capacity less than the rated conditional short-circuit current assigned to the combination starter, the combination switching device, the protected starter or the protected switching device is employed, the circuit breaker shall be tested to trip as follows:		
	a) circuit breaker with instantaneous trip relays or releases, at 120% of the trip current		N/A
	b) circuit breaker with overload relays or releases, at 250% of the rated current of the circuit breaker		N/A
	Type 1 co-ordination (all devices):		
	H - there has been no discharge of parts beyond the enclosure. Damage to the contactor and the overload relay is acceptable. The starter may be inoperative after each operation. The starter shall there fore be inspected and the contactor and/or the overload relay and the release of the circuit-breaker shall be reset if necessary and, in the case of fuse protection, all fuse-links shall be replaced.		N/A
	Type 1 co-ordination (combination and protected starters only):		
	I - The adequacy of insulation in according with 8.3.3.4.1, item 4), of part 1 is verified after each operation (at currents “r” and “Iq” by a dielectric test on the complete unit under test (SCPD plus contactor/starter but before replacement of parts). The test voltage shall be applied to the incoming supply terminals, with the switch or circuit-breaker in open position, as follows:		

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Clause	Requirement + Test	Result - Remark	Verdict
	I - dielectric verification test voltage (2 Ue) for 5 s (V) but not less than 1000V .....	U test: _____ V	
	- between each pole and all other poles connected to the frame of the starter		N/A
	- between all live parts of all poles connected together and the frame of the starter		N/A
	- between the terminals of the line side connected together and terminals of the other side connected together		N/A
	For equipment suitable for isolation, the leakage current shall be measured through each pole, with the contacts in open position, at test voltage of 1,1 Ue and shall not exceed 6 mA	Utest: _____ V L1: _____ mA L2: _____ mA L3: _____ mA	
	Type 2 co-ordination (all devices)		N/A
	J - no damage to the overload relay or other parts has occurred, except that welding of contactor or starter contacts is permitted, if they are easily separated (e.g. by a screwdriver) without significant deformation, but no replacement of parts is permitted during the test, except that , in case of fuse protection, all fuse shall be replaced.	Contacts welded <input type="checkbox"/> yes <input type="checkbox"/> no	N/A
	In the case of welded contact as described above, the functionality of the device shall be verified by carrying out 10 operations under the conditions of table 8 for the applicable utilization category.		N/A
	<b>Operational performance capability (9.3.3.6):</b>		
	Type of product :		
	utilization category :		
	rated operational voltage Ue (V) :		
	rated operational current Ie (A) or power (kW) :		
	Conditions, make/break operations:		
	- test voltage U/Ue = 1,05 (V) :		
	- test current (A) I/Ie = _____ :		
	- power factor/time constant :		
	- on-time (ms) :		
	- off-time (s) :		
	- number of make/break operations :		
	Characteristic of transient recovery voltage for AC-3 and AC-4 only:		
	oscillatory frequency (kHz) :		N/A
	Measured oscillatory frequency (kHz) :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Factor y :		N/A
	Behaviour and condition during and after the test:		
	- no permanent arcing		N/A
	- no flash-over between poles		N/A
	- no blowing of the fusible element in the earth circuit		N/A
	- no welding of the contacts		N/A
	- the contacts shall operate when the contactor or starter is switched by the applicable method of control		N/A
9.3.4.2.3	K The tripping of the overload relay shall be verified at a multiple of the current setting and shall conform to the published tripping characteristics, according to 5.7.5, both before and after the short-circuit test.	Test current: _____ A Measured: _____ s	N/A
	L The adequacy of insulation in according with 8.3.3.4.1, item 4), of part 1 shall be verified by a dielectric test on the contactor , starter, the combination starter, the combination switching device , the protected starter or protected switching device as follows:		N/A
	L - dielectric verification test voltage (2 Ue) for 5 s (V) but not less than 1000V :	U test: 1380 V	P
	- between all the terminals of the main circuit connected together (including the control and auxiliary circuits connected to the main circuit) and the enclosure or mounting plate, with the contacts in all normal positions of operation		N/A
	- between each pole of the main circuit and the other poles connected together and to the enclosure ore mounting plate with the contacts in all normal positions of operation		N/A
	- between each control and auxiliary circuit not normally connected to the main circuit and: - the main circuit - the other circuits - the exposed conductive parts - the enclosure or mounting plate		N/A
	In case of combination starters, combination switching devices, protected starters and protecting switching devices, additional tests according to 8.3.3.4.1, item 3) of part 1 shall be made as follows:		N/A
	Dielectric verification test voltage according table 12A of part 1) for 5 s (V)	U test: _____ V	N/A
	across the main poles of the device with the contacts of the switch or of the circuit- breaker open and the contacts of the starter closed		N/A
	For equipment suitable for isolation, the leakage current shall be measured through each pole, with the contacts in the open position, at a test	U test: _____ V L1: _____ mA	N/A



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Clause	Requirement + Test	Result - Remark	Verdict
	voltage of 1,1 Ue and shall not exceed 2 mA	L2: _____ mA L3: _____ mA	