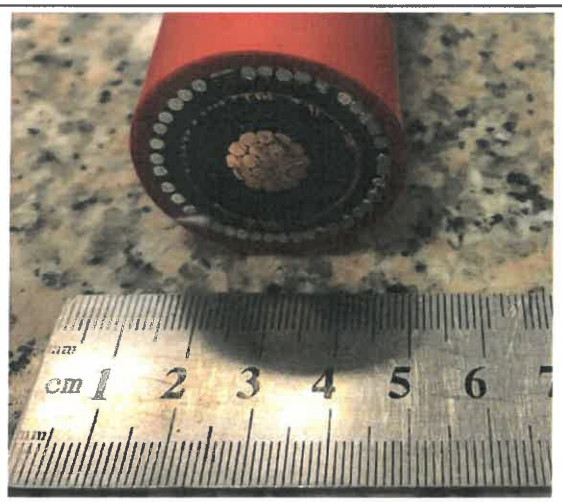
Prüfbericht-Nr.: *Test Report No.:*	**27142497 001**	**Auftrags-Nr.:** *Order No.:*	111672478	Seite 1 von 20 *Page 1 of 20*
Kunden-Referenz-Nr.: *Client Reference No.:*	N/A	**Auftragsdatum:** *Order date:*	13.11.2018	
Auftraggeber: *Client:*	CALEDONIAN CABLES LIMITED Marchans Industrial Centre, Mill Lane Laughton, Lewes, East Sussex, BN8 6AJ, UK			
Prüfgegenstand: *Test item:*	Single Core Power Cable			
Bezeichnung / Typ-Nr.: *Identification / Type No.:*	1x95/25mm2 8,7/15 kV N2XSYR(AL)Y (FGD300 17RVMAV-R), Copper Conductor, XLPE Insulated, PVC Sheathed, Aluminium Wire Armoured Power Cables			
Auftrags-Inhalt: *Order content:*	Type Test Report			
Prüfgrundlage: *Test specification:*	IEC 60502-2 (Third Edition): 2014 Power Cables with extruded insulation and their accessories for rated voltages from *1 kV (Um=1,2 kV) up to 30kV (Um=36 kV) - Part 2: Cables for rated voltages of 6 kV (Um=7,2kV) up to 30 kV (Um=36kV)*			

Wareneingangsdatum: *Date of receipt:*	19.11.2018
Prüfmuster-Nr.: *Test sample No.:*	N/A
Prüfzeitraum: *Testing period:*	19.11.2018 – 21.12.2018
Ort der Prüfung: *Place of testing:*	See other page 2 for details
Prüflaboratorium: *Testing laboratory:*	See other page 2 for details
Prüfergebnis*: *Test result*:*	Pass



geprüft von / *tested by:*			**kontrolliert von** / *reviewed by:*		
26.12.2018	Berk Güney/PE		26.12.2018	Ihsan Dora Uner/TC	
Datum *Date*	**Name / Stellung** *Name / Position*	**Unterschrift** *Signature*	**Datum** *Date*	**Name / Stellung** *Name / Position*	**Unterschrift** *Signature*

Sonstiges / *Other:* See other in page 2

Zustand des Prüfgegenstandes bei Anlieferung: Prüfmuster vollständig und unbeschädigt
Condition of the test item at delivery: *Test item complete and undamaged*

* Legende:	1 = sehr gut P(ass) = entspricht o.g. Prüfgrundlage(n)	2 = gut	3 = befriedigend F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	4 = ausreichend N/A = nicht anwendbar	5 = mangelhaft N/T = nicht getestet
Legend:	*1 = very good* *P(ass) = passed a.m. test specification(s)*	*2 = good*	*3 = satisfactory* *F(ail) = failed a.m. test specification(s)*	*4 = sufficient* *N/A = not applicable*	*5 = poor* *N/T = not tested*

V04

Produktbeschreibung
Product description

1	**Produktdetails** *Product details*	See coverpage
2	**Maße / Gewicht** *Dimensions / Weight*	See pages 10 and 11
3	**Bedienelemente** *Operating elements*	N/A
4	**Ausstattung / Zubehör** *Equipment / Accessories*	N/A
5	**Verwendete Materialien** *Used materials*	Conductor: Copper, Compacted, Class 2 Conductor screen: Semiconductive XLPE Insulation: XLPE Insulation screen: Semiconductive XLPE Filler: - Metallic screen: Copper wire and tape Metal armour: Aluminium round wire Separation sheath: PVC, ST2 Oversheath: PVC, ST2
6	**Sonstiges** *Other*	Full type tests have been conducted on 1x95/25 mm^2 8,7/15 kV N2XSYR(AL)Y power cables according to IEC 60502-2 standard. Sample amount provided by the client are 1x95/25 mm^2 8,7/15 kV N2XSYR(AL)Y 35 meter outer sheath color red. The results are found to be in compliance with IEC 60502-2 standard. This report contains 20 pages. Testing Laboratory: TÜV Rheinland Türkiye Uluslararası Standartlar ve Sertifikasyon Denetim A.Ş. Place of testing: CALEDONIAN CABLES LIMITED

List of Attachments (including a total number of pages in each attachment): N/A

Test Report issued under the responsibility of:

TÜVRheinland®

TEST REPORT
IEC 60502-2
Power cables with extruded insulation and their accessories for rated voltages from 1kV(U_m=1,2kV) up to 30kV(U_m=36kV) Part 2: cables for rated voltages from 6kV(U_m=7,2kV) up to 30kV(U_m=36kV)

Report Number. ..... :	**27142497 001**
Date of issue ..... :	**26.12.2018**
Total number of pages ..... :	**20**
Name of Testing Laboratory preparing the Report..... :	TÜV Rheinland Türkiye Uluslararası Standartlar ve Sertifikasyon Denetim A.Ş.
Applicant's name ..... :	Caledonian Cables Limited
Address ..... :	Marchans Industrial Centre, Mill Lane Laughton, Lewes, East Sussex, BN8 6AJ, UK
Test specification:	
Standard ..... :	IEC 60502-2:2014
Test procedure ..... :	Type test
Non-standard test method ..... :	N/A
Test Report Form No. ..... :	IEC60502_2B
Test Report Form(s) Originator .... :	CQC
Master TRF..... :	Dated 2018-06-22

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.

General disclaimer:

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 CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test item description ..... :	8,7/15 kV XLPE insulated copper wire and tape screened PVC inner sheathed round aluminium wire armoured PVC overall sheathed single core power cable with copper conductor	
Trade Mark ..... :	Caledonian Electric Cable	
Manufacturer ..... :	CALEDONIAN CABLES LIMITED	
Model/Type reference ..... :	1x95/25 mm^2 N2XSYR(AL)Y	
Ratings ..... :	8,7/15 (17,5) kV	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
☐ **CB Testing Laboratory:**		
~~**Testing location/ address.....:**~~		
~~**Tested by (name, function, signature).....:**~~		
~~**Approved by (name, function, signature)...:**~~		
☒ ~~**Testing procedure: CTF Stage 1:**~~		
~~**Testing location/ address.....:**~~		
~~**Tested by (name, function, signature).....:**~~		
~~**Approved by (name, function, signature)...:**~~		
☒ ~~**Testing procedure: CTF Stage 2:**~~		
~~**Testing location/ address.....:**~~		
~~**Tested by (name + signature) .....:**~~		
~~**Witnessed by (name, function, signature) .:**~~		
~~**Approved by (name, function, signature)...:**~~		
☒ ~~**Testing procedure: CTF Stage 3:**~~		
☒ ~~**Testing procedure: CTF Stage 4:**~~		
~~**Testing location/ address.....:**~~		
~~**Tested by (name, function, signature).....:**~~		
~~**Witnessed by (name, function, signature) .:**~~		
~~**Approved by (name, function, signature)...:**~~		
~~**Supervised by (name, function, signature) :**~~		

The test procedure is not implemented as CB Scheme,so above procedure is unavailable.

List of Attachments (including a total number of pages in each attachment):

N/A

Summary of testing: The EUT has been tested and found to be in compliance with IEC 60502-2 (Third Edition): 2014-02

Tests performed (name of test and test clause):	**Testing location:**
All test according to IEC 60502-2: 2014 standard in this test report are performed to the complete cable 8,7/15 kV 1x95/25 mm^2 N2XSYR(AL)Y provided by the client with 35 m. Tests were performed in CALEDONIAN CABLES LIMITED's laboratory. .	CALEDONIAN CABLES LIMITED laboratory Yulaflı Köyü Tavşantepe Mevkii 7.Km Çorlu / TEKİRDAĞ – TÜRKİYE

Summary of compliance with National Differences:

List of countries addressed: N/A

☒ **The product fulfils the requirements of with IEC 60502-2 (Third Edition): 2014-02**

Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

CALEDONIAN ELECTRIC CABLE 8,7/15 kV IEC 60502-2 CU/XLPE/AWA/PVC FGD300 17RVMAV-R 1X95 XXXX meter

XXXX: refers to production meter

Test item particulars.....:	Single Core Power Cable
Classification of installation and use.....:	-
Supply Connection.....:	-
.....:	
Possible test case verdicts:	
- 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)
Testing.....:	
Date of receipt of test item .....:	19.11.2018
Date (s) of performance of tests.....:	19.11.2018 – 21.12.2018

General remarks:

"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

Throughout this report a ☒ comma / ☐ point is used as the decimal separator.

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:

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) ..... : CALEDONIAN CABLES LIMITED
Yulaflı Köyü Tavşantepe Mevkii 7.Km Çorlu / TEKİRDAĞ – TÜRKİYE (as OEM)

General product information:

The product covered by this report is XLPE Insulated, PVC overall sheathed and PVC inner sheathed round aluminium wire armoured, copper wire and tape screened, single core power cable with copper conductor.

Rated voltage : 8,7/15 (17,5) kV
Number of cores : 1
Cross-section : 95 mm^2

IEC 60502-2			
Clause	Requirement + Test	Result - Remark	Verdict
5	**Conductors**		
	—material Copper, aluminium or aluminium alloy Plain or metal coated	Plain Copper	P
	—shape Circular or shaped	Circular, compacted	P
6	**Insulation**		
	—material PVC/B,EPR,HEPR or XLPE	XLPE	P
7	**Screening**		
7.2	**Conductor screen**		
	—material extruded semi-conducting compound, or extruded semi-conducting compound applied on semi-conducting tape	extruded semi-conducting compound - XLPE	P
7.3	**Insulation screen**		
	—type semi-conducting layer in combination with a metal layer	semi-conducting layer in combination with a metal layer	P
	—material semi-conducting compound or tape	semi-conducting compound – XLPE	P
8	**Assembly of three-core cables, inner covering and fillers**		
8.2	Inner covering and fillers		
	—type: extruded or lapped		N/A
	—material		N/A
8.3	Cable having a collective metal layer (See Clause 9)		P
8.4	Cable having a metal layer over each individual core (See Clause 10)		N/A
9	Metal layer for single-core and three-core cables		
	—type metal screen, concentric conductor, metal sheath, metal armour	metal screen	P
10	**Metal screen**		
	Collective metal layer		
	—type	Wire and tape	P
	—material	Copper	P
	Individual metal layer		

IEC 60502-2			
Clause	Requirement + Test	Result - Remark	Verdict
	—type		N/A
	—material		N/A
11	**Concentric conductor**		
	—type		N/A
	—material		N/A
12	**Metal sheath**		
	—material Lead, lead alloy		N/A
13	**Metal armour**		
	—types Flat wire, round wire or double tape	Round wire	P
	—wire material galvanized steel, copper or tinned copper ,aluminium or aluminium alloy Steel, galvanized steel, aluminium or aluminium alloy	Aluminium	P
	—tape material Steel, galvanized steel, aluminium or aluminium alloy		N/A
13.3	**Separation sheath**		
	—material	PVC – ST2	P
13.3.4	**Lapped bedding under armour for lead sheathed cables**		
	—material impregnated and compounded paper tapes or a combination of two layer of impregnated and compounded paper tapes followed by one or more layers of compounded fibrous material		N/A
14	**Oversheath**		
	—material: ST1,ST2,ST3,ST7 or SE1	ST2	P

	Insulation identification	Black			—

16	**Routine Tests**				
16.2	**Conductor resistance**				
	—at 20 °C: max. 0,193 Ω/km	0,190			P
	Concentric conductor resistance (The requirements be determined by national regulations and/or standards)				N/A
	—at 20 °C: max. - Ω/km	0,700 (for information)			P

IEC 60502-2			
Clause	Requirement + Test	Result - Remark	Verdict

	Insulation identification	Black			—

	Cable dimensions				
17.4	**Conductor**				
	—class: 1,2	2			P
	—number of wires: min.15	19			P
7.2	**Conductor screen**				
	—average thickness: mm	0,6			—
	—minimum thickness: mm	0,50			—
17.5.2	**Insulation**				
	—average thickness:	See Clause 19.2			—
	—minimum thickness:	See Clause 19.2			—
	—$(t_{max}-t_{min})/t_{max}$:	See Clause 19.2			—
7.3	**Insulation screen**				
	—average thickness: mm	0,7			—
	—minimum thickness: mm	0,52			—
17.7	**Metal screen (The requirements be determined by national regulations and/or standards)**				
	—metal tape layer	1			P
	—metal tape thickness: mm	0,10			P
	—overlap of tape: min. %				N/A
	—metal wires number:	72			P
	—metal wires diameter: mm	0,64			P
	—gaps in wires: mm	3,2			P
17.5.3	**Inner covering**				
	—average thickness: mm				N/A
	—minimum thickness: min. mm				N/A
17.6	**Metal sheath**				
	—average thickness: mm				N/A
	—minimum thickness: min. mm				N/A
17.5.3	**Separation sheath**				
	—average thickness:	See Clause 19.3			—
	—minimum thickness:	See Clause 19.3			—
17.7	**Metal Armour**				

IEC 60502-2					
Clause	Requirement + Test		Result - Remark		Verdict
	—armour wires diameter: min. 2,0 mm		2,0		P
	—armour wires number:		41		P
	—armour tape layer :				N/A
	—armour tape width: mm				N/A
	—armour tape thickness: min. mm				N/A
	—the gap between adjacent turns of each tape divided by width of tape: max. 50 %				N/A
17.5.3	**Oversheath**				
	—average thickness: mm		See Clause 19.3		—
	—minimum thickness: mm		See Clause 19.3		—
17.8	**Overall diameter:** mm		38,3		—

	Insulation identification	Black			—

18	**Type tests, electrical**				
18.2	**Cables having conductor screens and insulation screens**				
18.2.4	**Bending test**				
	Treatment				
	—number of cycles :	3			—
	—diameter of mandrel (m) :	1			—
18.2.5	**Partial discharge test**				
	Sensitivity: 5pC or better	5			—
	Partial discharge test at 1,73 U_0 no detectable discharge exceeding the declared sensitivity	1,7			P
18.2.6	**Tan δmeasurement for cables of rated voltage 6/10(12)kV and above**				
	Treatment				
	—temperature (°C) :	95~100			—
	—test voltage (kV) :	2			—
	Results to be obtained: max. $40x10^{-4}$	$7x10^{-4}$			P

IEC 60502-2					
Clause	Requirement + Test	Result - Remark			Verdict
18.2.7	**Heating cycle test**				
	Treatment				
	—temperature(°C) :	95			—
	—heating duration and heating cycles The duration of the heating cycle at least 8h. The conductor maintained within the state temperature limits for at least 2h of each heating period and followed by at least 3h of natural cooling. The sample subjected to 20 heating cycles.	20x8 h			—
	Followed partial discharge test at 1,73 U_0 no detectable discharge exceeding the declared sensitivity	1,9			P
18.2.8	**Impulse test followed by a voltage test**				
	Treatment				
	—temperature(°C) :	95~100			—
	—impulse voltage,10 positive and 10 negative (kV)	95			—
	Results to be obtained: No breakdown	N.B			P
	Followed voltage test				
	—power frequency voltage(kV) :	30,5			—
	—duration (min) :	15			—
	Results to be obtained: No breakdown	N.B			P
18.2.9	**Voltage test for 4h**				
	—power frequency voltage(kV) :	35			—
	Results to be obtained: No breakdown	N.B			P
18.2.10	**Resistivity of semi-conducting screens**				
	—test temperature (°C) :	90±2			—
	For unaged samples				
	Conductor screen resistivity max.1000 Ω•m	0,9			P
	Insulation screen resistivity max.500 Ω•m	7,4			P
	For samples after additional ageing on pieces of completed cable				
	Treatment				
	—temperature(°C) :	100			—
	—duration(h) :	168			—
	Conductor screen resistivity max.1000 Ω•m	1,0			P
	Insulation screen resistivity max.500 Ω•m	8,4			P

IEC 60502-2			
Clause	Requirement + Test	Result - Remark	Verdict

18.3	**Cables of rated voltage 3,6/6 (7,2)kV having unscreened insulation**		
18.3.2	Insulation resistance constant Ki —at 20℃ min. MΩ.km		N/A
18.3.3	Insulation resistance constant Ki —at maximum conductor temperature in normal operation ℃ min. MΩ.km		N/A
18.3.4	**Voltage test for 4h**		
	—power frequency voltage (kV) :		—
	Results to be obtained: No breakdown		N/A
18.3.5	**Impulse test**		
	—temperature (°C) :		—
	—impulse voltage,10 positive and 10 negative (kV):		—
	Results to be obtained: No breakdown		N/A

	Insulation identification	Black			—

19	**Type tests, non-electrical**				
19.2	**Measurement of thickness of insulation**				
	—average thickness: mm	4,6			—
	—minimum thickness (t_{min}): min. 3,95 mm	4,50			P
	—(t_{max}-t_{min}) / t_{max} : max.0,15	0,04			P
19.3	**Measurement of thickness of non-metal sheaths (including extruded separation sheaths, but excluding inner coverings)**				
	Separation sheath				
	—average thickness: mm	2,2			—
	—minimum thickness: min. 0,76 mm	2,03			P
	Oversheath				
	—average thickness: mm	2,6			—
	—minimum thickness: min. 1,48 mm	2,38			P
19.4	**Measurement of thickness of lead sheath**				
	—average thickness: mm				N/A
	—minimum thickness: min. mm				N/A

IEC 60502-2					
Clause	Requirement + Test	Result - Remark			Verdict
19.5	**Tests for determining the mechanical properties of insulation before and after ageing**				
	Without ageing				
	TS: min. 12,5 N/mm²	18,2			P
	EB: min. 200 %	545			P
	After ageing in air oven				
	Treatment				
	—temperature(°C) :	135			—
	—duration(h) :	168			—
	TS: min. 12,5 N/mm²	19,0			P
	EB: min. 200 %	545			P
	Variation				
	TS: max.± 25 %	4			P
	EB: max.± 25 %	0			P
19.6	**Tests for determining the mechanical properties of non-metal sheaths before and after ageing**				
	Without ageing	**Separation sheath**		**Over sheath**	
	TS: min. 12,5 N/mm²	15,0		15,4	P
	EB: min. 150 %	200		215	P
	After ageing in an air oven				
	Treatment				
	—temperature(°C) :	100			—
	—duration(h) :	168			—
	TS: min. 12,5 N/mm²	15,0		15,0	P
	EB: min. 150 %	205		205	P
	Variation				
	TS: max. .± 25 %	0		-3	P
	EB: max. .± 25 %	3		-5	P
19.7	**Additional ageing test on pieces of completed cables**				
	Treatment				
	—temperature(°C) :	100			—
	—duration(h) :	168			—
	Variation of insulation				
	TS: max. .± 25 %	-1			P
	EB: max. .± 25 %	3			P

IEC 60502-2				
Clause	Requirement + Test	Result - Remark		Verdict
	Variation of sheath	**Separation sheath**	**Over sheath**	—
	TS: max. .± 25 %	-1	-8	P
	EB: max. .± 25 %	-3	-3	P
19.8	**Loss of mass test on PVC sheaths of type ST2**			
	Treatment			
	—temperature(°C) :	100		—
	—duration(h) :	168		—
	Sheath	**Separation sheath**	**Over sheath**	—
	Maximum loss of mass: max.1,5 mg/cm^2	0,83	0,65	P
19.9	**Pressure test at high temperature on insulations and non-metal sheaths**			
	Insulation			
	Treatment			
	—temperature (°C) :			—
	—force (N) :			—
	—duration (h) :			—
	Indentation : max.50 %			N/A
	Sheath	**Separation sheath**	**Over sheath**	
	Treatment			
	—temperature (°C) :	90	90	—
	—force (N) :	7,0	9,5	—
	—duration (h) :	6	6	—
	Indentation : max.50 %	23	21	P
19.10	**Test on PVC insulation and sheaths at low temperature**			
	Insulation			
	Cold bending test			
	Treatment			
	—temperature(°C) :	-5		—
	—cooling time (h) :			—
	—number of turns :			—
	—diameter of mandrel (mm) :			—
	Results to be obtained: No cracks			N/A

IEC 60502-2				
Clause	Requirement + Test	Result - Remark		Verdict
	Cold elongation test			
	Treatment			
	—temperature(°C) :	-5		—
	—cooling time (h) :			—
	Elongation at break : min.20 %			N/A
	Sheath			
	Cold bending test			
	Treatment			
	—temperature(°C) :	-15		—
	—cooling time (h) :			—
	—number of turns :			—
	—diameter of mandrel (mm) :			—
	Results to be obtained: No cracks			N/A
	Cold elongation test	**Separation sheath**	**Over sheath**	
	Treatment			
	—temperature(°C) :	-15		—
	—cooling time (h) :	16		—
	Elongation at break: min. 20 %	82	96	P
	Cold impact test			
	Treatment			
	—temperature(°C) :	-15		—
	—cooling time (h) :	16		—
	—mass of hammer (g) :	1000		—
	Result to be obtained: No cracks	No cracks		P
19.11	**Test for resistance of PVC insulation and sheaths to cracking**			
	Insulation			
	Treatment			
	—temperature(°C) :	150		—
	—duration(h) :	1		—
	—Number of turns :			—
	—Diameter of mandrel (mm) :			—
	Results to be obtained: No cracks			N/A
	Sheath	**Separation sheath**	**Over sheath**	

IEC 60502-2					
Clause	Requirement + Test		Result - Remark		Verdict
	Treatment				
	—temperature(°C)	:	150		—
	—duration(h)	:	1		—
	—Number of turns	:	6	6	—
	—Diameter of mandrel(mm)	:	4	6	—
	Results to be obtained: No cracks		No cracks	No cracks	P
19.12	**Ozone resistance test for EPR and HEPR insulations**				
	Treatment				
	—ozone concentration (%)	:	0,025 to 0,030		—
	—temperature(°C)	:	25		—
	—duration(h)	:	24		—
	Result to be obtained:	No cracks			N/A
19.13	**Hot set test for EPR,HEPR and XLPE insulations and elastomeric sheaths**				
	Insulation				
	Treatment				
	—temperature(°C)	:	200		—
	—time under load (min)	:	15		—
	—mechanical stress (N/cm²)	:	20		—
	Elongation under load:	max. 175 %	105		P
	Permanent elongation after cooling:	max.15 %	0		P
	Sheath				
	Treatment				
	—temperature(°C)	:			—
	—time under load (min)	:	15		—
	—mechanical stress (N/cm²)	:	20		—
	Elongation under load:	max. 175 %			N/A
	Permanent elongation after cooling:	max.15 %			N/A
19.14	**Oil immersion test for elastomeric sheaths**				
	Treatment				
	—oil temperature(°C)	:	100		—
	—duration(h)	:	24		—
	Variation				
	TS:	max. ±40%			N/A
	EB:	max. ±40%			N/A

IEC 60502-2			
Clause	Requirement + Test	Result - Remark	Verdict
19.15	**Water absorption test on insulation**		
	PVC (Electrical method)		
	Treatment		
	—temperature(°C) :	70	—
	—duration(h) :	240	—
	—voltage(V) :		—
	Results to be obtained: No breakdown		N/A
	EPR,HEPR,XLPE(Gravimetric method)		
	Treatment		
	—temperature(°C) :	85	—
	—duration(h) :	336	—
	Increase of mass: max. 1 mg/cm^2	0,03	P
19.16	**Flame spread test on single cables**		
	—flame applied time (s) :		—
	The distance between the lower edge of the top support and the onset of charring: great than 50 mm		N/A
	Charring extends downwards to a point from the lower edge of the top support: not great than 540 mm		N/A
19.17	**Measurement of carbon black content of black PE oversheaths**		
	Carbon black content: 2,5±0,5%		N/A
19.18	**Shrinkage test for XLPE insulation**		
	Treatment		
	—temperature(°C) :	130	—
	—duration(h) :	1	—
	Shrinkage: max. 4 %	1	P
19.19	**Thermal stability test for PVC insulation**		
	—temperature(°C) :	200 ± 0,5 °C	—
	—minimum time: min.100min		N/A
19.20	**Determination of hardness of HEPR insulation**		
	IRHD: min. 80		N/A
19.21	**Determination of elastic modulus of HEPR insulation**		
	Modulus at 150% elongation: min.4.5 N/mm^2		N/A
19.22	**Shrinkage test for PE sheaths**		
	Treatment		

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Clause	Requirement + Test	Result - Remark	Verdict
	—temperature(°C) :	80	—
	—duration(h) :	5	—
	—cycles :	5	—
	Shrinkage: max. 3 %		N/A
19.23	**Strippability test for insulation screen (when the manufacturer claims that the extruded semiconducting insulation screen is strippable)**		
	For unaged samples		
	The stripping force value: 4~45 N		N/A
	The insulation surface: Not damaged and no trace of the semiconducting screen remain on the insulation		N/A
	For additional ageing samples		
	Treatment		
	—temperature(°C) :	100	—
	—duration(h) :	168	—
	The stripping force value: 4~45 N		N/A
	The insulation surface: Not damaged and no trace of the semiconducting screen remain on the insulation		N/A
19.24	**Water penetration test (when the manufacturer claims that barriers to longitudinal water penetration have been included)**		
	—barrier prevent longitudinal water penetration in the region of the metal layers or along the conductor		—
	—water head (m) :	1	—
	—temperature(°C) :	95～100	—
	—heating duration and heating cycles The duration of the heating cycle at least 8h. The conductor maintained within the state temperature limits for at least 2h of each heating period and followed by at least 3h of natural cooling. The sample subjected to 10 heating cycles.		—
	Results to be obtained : During the period of testing no water emerge from the ends of the test piece.		N/A

Photo Document:

1x95/25mm2 8,7/15 kV N2XSYR(AL)Y (FGD400 17RVMAV-R) cable general view: