Certificate No:
TAE00004R9

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Data transmission cables and systems

with type designation(s)
DataMarin EC200 CAT 5e SF/UTP HFFR,
DataMarin EC400 CAT 6 SF/UTP HFFR,
DataMarin EC900 CAT 7 S/FTP HFFR,
DataMarin EC600 Flex CAT 7 S/FTP HFFR

Issued to
Untel Kablolari San. ve Tic. A.S.
Dilovası, **Türkiye**

is found to comply with
DNV rules for classification – Ships, offshore units, and high speed and light craft

Application :

Data communication cables, cat. 5e, 6 and 7. Installation / Horizontal cable.
Products approved by this certificate are accepted for installation on all vessels classed by DNV.

Issued at **Høvik** on **2023-05-31**
This Certificate is valid until **2028-05-30**.
DNV local unit: **Istanbul**

for **DNV**

Approval Engineer: **Ivar Bull**

Frederik Tore Elter
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.

Product description

Types :
DataMarin EC200 CAT 5e SF/UTP HFFR,
DataMarin EC400 CAT 6 SF/UTP HFFR,
DataMarin EC900 CAT 7 S/FTP HFFR,
DataMarin EC600 Flex CAT 7 S/FTP HFFR

Cable types	Design standards	Cross section	Conductor type	Shielding
Cat 5e	IEC 61156-5	24 AWG	Copper (class 1)	SF/UTP
Cat 6	IEC 61156-5	23 AWG	Copper (class 1)	SF/UTP
Cat 7	IEC 61156-5	23 AWG	Copper (class 1)	S/FTP
Cat7 Flex	IEC 61156-5	7x 0,22mm	Copper (class 2)	S/FTP

Construction

Conductor	Bare copper class 1 or 2
Insulation	Solid or cellular PE insulation
Individual screen	*/**F**TP cables have individual foil screen
Common screen	S/*TP cables have a common tinned copper braid screen
	SF/*TP cables have a common foil screen and a braid screen
Outer sheath	SHF1 according to EN 50290-2-27

Electrical characteristics at 20°C

	Cat 5e		Cat 6		Cat 7 flex		Cat 7	
Frequency MHz	Att dB /100m	NEXT dB	Att dB /100m	NEXT dB	Att dB /100m	NEXT dB	Att dB /100m	NEXT dB
1	2.0	70	2	83	2.0	104	2.0	104
4	3.6	62	3.6	73	3.4	104	3.4	104
10	5.7	55	6	73	4.9	101	4.9	101
16	7.7	55						
31.25	11.2	48						
62.5	16.4	48						
100	20.9	40	19.5	55	17.3	100	17.3	100
150								
200	27.3	35	28.5	50				
250			32	45	28.2	95	28.2	95
300			33	40				
400			39	40				
500					42.0	95	42.0	95
600					44.0	88	44.0	88
700							53.5	84
800							55.5	83
900							57.3	80

Max. Conductor Resistance 9.5 Ω / 100m
Operating voltage 125V.

Manufactured by

DNV Id: 10746655

Application/Limitation

Temperature window
Operation: - 20°C to +70°C
Installation: 0 °C to +50°C

Type Approval documentation

Tests carried out

Standard	Release	General description	Limitation
DNV-CP-0403	2021-09	DNV Type Approval Programme Data communication cables - category cables	
IEC 61156-5	2020-04	Multicore and symmetrical pair/quad cables for digital communications - Part 5: Symmetrical pair/quad cables with transmission characteristics up to 1 000 MHz - Horizontal floor wiring - Sectional specification	Reference to requirement for category cable: Cat 5e (100MHz) Cat 6 (250 MHz) Cat 7 (600MHz)
ISO/IEC 11801	2017-11	Information technology – Generic cabling for customer premises, including Amd 1 and 2.	Reference to requirement for category cable: Cat 5e (100MHz) Cat 6 (250MHz) Cat 7 (600MHz)
NEK EN 50173-1	2020-07	Information technology – Generic cabling systems – Part 1. General requirements.	
EN 50288-4-1	2013-06	Multi-element metallic cables used in analogue and digital communication and control - Part 4-1: Sectional specification for screened cables characterised up to 600MHz – Horizontal and building backbone cables	
IEC 60332-1-2	2015-07	Tests on electric and optical fibre cables under fire conditions. Part 1-2. Test for vertical flame propagation for a single insulated wire or cable. Procedure for 1 kW pre-mixed flame	
IEC 60332-3-24	2018-07	Tests on electric and optical fibre cables under fire conditions - Part 3-24: Test for vertical flame spread of vertically mounted bunched wires or cables - Category C	Charred portion of sample does not exceed 2,5m above bottom edge of burner.
IEC 60754-1	2019-11	Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content	Low Halogen: <0,5% Halogen
IEC 60754-2	2019-11	Test on gases evolved during combustion of materials from cables - Part 2: Determination of acidity (by pH measurement) and conductivity	Halogen free: pH $\geq$ 4,3 Conductivity $\leq$ 10µS/mm
IEC 61034-1/2	2019-11	Measurement of smoke density of cables burning under defined conditions – Test apparatus, procedure and requirements	Low smoke Light transmittance $\geq$60%

Marking of product

Untel – Cat 5e or Cat 6 or Cat.7 or Cat 7 Flex - IEC 61156-5 – IEC 60332-3-24 - Lot no - date – meter marking

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine tests (RT) and selected type tests (ref. to applicable class programs) checked (if not available these tests shall be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Periodical assessment is to be performed after 2 years and after 3.5 years.
A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE