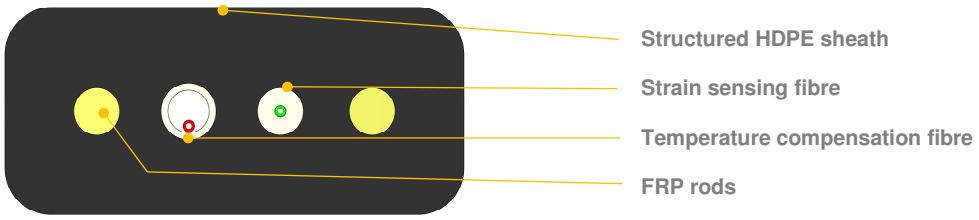
Type:	Distributed strain sensing DSST-01	REV: 0
Issued:	27/05/2020	PB
Modified:		
Project:	045-2020	
Status:	DRAFT. All values are subject to change.	

Distributed strain sensing cable with temperature compensation
DSST-01



*schematic drawing, not to scale

DESIGN:

Double FRP rods
Single strain sensing tubing with SMF optical fibre
Single PA tube with SMF temperature compensation fibre
Structured HDPE outer jacket

Variant	Quantity [pcs]				Ø nominal (±0,4mm)	Nominal weight (±5 %)	Max installation tension	Max long term tension
	Fibres (total)	Strain sensing fibre	Temperature compensation fibre	Fibres per tube	[mm]	[kg/km]	[N]	[N]
2F (1+1)	2	1	1	1	10 x 4,3	~30	500	100

APPLICATION:

Temperature range — IEC 60794-1-2-F1, Δα≤0,1 dB/km

Installation:	-5... +55 [℃]
Operation:	-30… +70 [℃]
Transport & Storage:	-30… +70 [℃]

Strain range

Up to 0,8% (8 000 µstrain)

MAIN MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS

Test	Specification	Method	Requirements
Tensile strength	IEC60794-1-21 Method E1	**Sustained load**: as provided in table above	$\Delta\varepsilon_f \leq 0.1\%$(during test) Δα ≤ 0.05 dB/km @ 1550 nm (during test) No significant damage to fibre unit
		Extended load: as provided in table above	$\Delta\varepsilon_f \leq 0.5\%$(during test) Δα ≤ 0.05 dB/km @ 1550 nm (after test) No significant damage to fibre unit
Crush resistance	IEC60794-1-21 Method E3	**Load:** 3000 N / 10 cm / 5 min	Δα ≤ 0.1 dB @ 1550 nm (after test) No jacket cracking and fibre breakage
Impact resistance	IEC60794-1-21 Method E4	**Impact energy**: 20 J	Δα ≤ 0.1 dB @ 1550 nm (after test) No jacket cracking and fibre breakage
Torsion	IEC60794-1-21 Method E7	**Cable length to be twisted:** 2 m **No. of cycles:** 10 / 50N **Twist angle:** ±180°	Δα ≤ 0.1 dB @ 1550 nm (after test) No jacket cracking and fibre breakage
Repeated bending	IEC60794-1-21 Method E6	**Sheave Radius:** 140	Δα ≤ 0.1 dB @ 1550 nm (after test) No jacket cracking and fibre breakage
Temperature Cycling	IEC 60794-1-22 Method F1	**1st cycle:** **+23 ℃ → -30 ℃(Ta1) → +70 ℃(Tb1)** **2nd cycle:** **-30 ℃(Ta2) → +70 ℃(Tb2) → 23℃** **Time at temperature: 6h**	Δα ≤ 0.1 dB/km for Ta1 and Tb1@ 1550 nm

OPTICAL FIBRE AND LOOSE TUBES COLOUR IDENTIFICATION
According to customer requirements

FIBRE PARAMETERS (attenuation)
AU < 0,5 dB/km at 1310 nm
AU < 0,4 dB/km at 1550 nm
AU < 0,5 dB/km at 1625 nm

FIBRE TYPE
Typically Corning® SMF-28® Ultra, other types available upon request

MARKING
According to customer requirements. Every marking pattern shall have or will be supplemented with batch number

The accuracy of marking is ±0,5%. Remarking is in accordance with Bellcore GR 20 and supersedes earlier markings. Occasional loss of marking is possible. Cables can be supplied with a range of single mode or multimode fibres and customized print.

PACKING
Cables will be shipped on disposable wooden, treated wooden or plywood/plastic drums. Both ends of the cable will be capped and at least one accessible for testing. Identification information label will be placed on the drum.

DELIVERY LENGTH
2000 – 4000 meters ± 5%, with possibility of supplying up to 5% of total contract quantity as short length cables which should be above 1000 meters long. Tolerance of 5 % of order quantity shall be allowed.