

**5 kV, 1/C, TRXLPE Insulated, Tape Shielded Cable****1. Scope**

This standard covers the detailed requirements for 5 kV, tree retardant, cross-linked polyethylene (TRXLPE), single conductor cable used for the distribution of electric energy.

Industry designation: **1/C**

This standard applies to the following Seattle City Light (SCL) stock numbers:

Stock Number	613212	613222
Size	#6 AWG	350 kcmil

**2. Application**

Cable is intended for use on a nominal 4.3 kV, three-phase, 4-wire, solidly-grounded, wye-connected, 60 Hz, power system.

**3. General Requirements**

This detailed material standard is to be used in conjunction with the latest revision of SCL 6015.00, "Medium Voltage Cable – General."

**4. Industry Standards**

Cable shall meet the requirements of the following industry standard:

**ICEA S-97-682-2013**; "Utility Shielded Power Cables Rated 5 Through 46 kV"

See SCL 6015.00 to obtain the appropriate revision date for other referenced industry standards.

**5. Construction****5.1 General**

Unless indicated otherwise, all values cited below should be consistent with industry standards. They are repeated here for the convenience of the reader. The ▲ symbol indicates special City Light requirements, some which are detailed in SCL 6015.00.

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**MATERIAL STANDARD**

5 kV, 1/C, TRXLPE Insulated, Tape Shielded Cable

standard number: **6010.20**

superseding: January 28, 2019

effective date: September 8, 2023

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**5. Construction, continued****5.2 Conductor**

		Requirements		Reference
<b>Stock Number</b>		<b>613212</b>	<b>613222</b>	SCL
<b>Size</b>		#6 AWG	350 kcmil	various
<b>Diameter</b>	minimum	0.174 in	0.648 in	ICEA S-97-682, Section 2.5
	nominal	0.178 in	0.661 in	ASTM B8
	maximum	0.182 in	0.674 in	ICEA S-97-682, Section 2.5
<b>Metal</b>		copper		ASTM B49
<b>Stranding type</b>		concentric-lay		ASTM B8
<b>Class</b>		B		ASTM B8
<b>Stranding subtype</b>		compressed		ASTM B8
<b>Number of strands</b>		7	37	ASTM B8
<b>Temper</b>		soft drawn, annealed prior to stranding		ASTM B3
<b>Lay, outer layer</b>		left hand		ASTM B3, Section 5.5.1
<b>Lay, successive layers</b>		reversed		ASTM B3, Section 5.5.1
<b>Sealant for stranded conductors</b>		not required		ICEA S-97-682, Section 2.2

**5.3 Conductor Shield (Stress Control Layer)**

		Requirements		Reference
<b>Stock Number</b>		<b>613212</b>	<b>613222</b>	SCL
<b>Size</b>		#6 AWG	350 kcmil	various
<b>Thickness, minimum point</b>		12 mil	16 mil	ICEA S-97-682, Part 3, Table 3.1

**5.4 Insulation**

		Requirements		Reference
<b>Stock Number</b>		<b>613212</b>	<b>613222</b>	SCL
<b>Size</b>		#6 AWG	350 kcmil	various
<b>Material</b>		unfilled tree retardant cross-linked polyethylene (TRXLPE)		ICEA S-97-682, Section 4.1
<b>Approved material formulations</b>		specified in general material standard		SCL 6015.00
<b>Thickness</b>	minimum point	85 mil		ICEA S-97-682, Section 4.2, Table 4-11
	nominal	90 mil		ICEA S-97-682, Table 8-1
	maximum point	120 mil		ICEA S-97-682, Section 4.2, Table 4-11
<b>Insulation level</b>		100%		ICEA S-97-682, Section 4.2, Table 4-11
<b>Basic impulse level (BIL)</b>		60 kV crest		ICEA S-97-682, Section 4.3, Table 4-10

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**5. Construction, continued****5.5 Extruded Insulation Shield**

		Requirements		Reference
<b>Stock Number</b>		<b>613212</b>	<b>613222</b>	SCL
<b>Size</b>		#6 AWG	350 kcmil	various
<b>Material</b>		discharge-free (thermosetting material)		ICEA S-97-682, Section 5.1 to 5.5.1.5
<b>Thickness</b>	minimum point	24 mil		ICEA S-97-682, Section 5.2, Table 5-1
	maximum point	60 mil		ICEA S-97-682, Section 5.2, Table 5-1

**5.6 Metallic Shield**

		Requirements		Reference
<b>Stock Number</b>		<b>613212</b>	<b>613222</b>	SCL
<b>Size</b>		#6 AWG	350 kcmil	various
<b>Metal</b>		copper, uncoated		ICEA S-97-682, Section 6.1 to 6.2
<b>Type</b>		helically applied tape ▲		ICEA S-97-682, Section 6.1 to 6.2 and SCL 6015.00
<b>Water blocking components for metallic shield</b>		not required		ICEA S-97-682, Section 6.7

**5.7 Jacket**

		Requirements		Reference
<b>Stock Number</b>		<b>613212</b>	<b>613222</b>	SCL
<b>Size</b>		#6 AWG	350 kcmil	various
<b>Material</b>		linear low density polyethylene (LLDPE)		ICEA S-97-682, Section 7.1.1
<b>Color</b>		black		ICEA S-97-682, Section 7.1.1
<b>Type</b>		overlying		ICEA S-97-682, Section 7.2.1
<b>Thickness</b>	minimum point	55 mil	70 mil	ICEA S-97-682, Section 7.2.1, Table 7-10
	maximum point	90 mil	105 mil	ICEA S-97-682, Section 7.2.1, Table 7-10
<b>Maximum diameter over jacket</b>		0.67 in ▲	1.20 in ▲	SCL preference

**5.8 Sheath (Continuous Metallic Covering)**

Cable shall not be provided with a sheath.

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**5. Construction, continued****5.9 Assembly and Identification**

	Requirements		Reference
	613212	613222	
Stock Number	613212	613222	SCL
Size	#6 AWG	350 kcmil	various
Red stripe identification	required ▲		ICEA S-97-682, Section 8.2.1.1

**6. Packaging**

	Requirements		Reference	
	613212	613222		
Stock Number	613212	613222	SCL	
Size	#6 AWG	350 kcmil	various	
Reel type	steel, fluted		WC 26, Section 2.1.2	
Reel dimension	flange diameter, maximum	78 in ▲	96 in ▲	SCL preference
	outside width, maximum	45 in ▲	54 in ▲	SCL preference
	drum diameter, minimum	28 in ▲	29 in ▲	SCL preference
	length per reel ± 10%	2,000 ft ▲		SCL preference
	gross weight, maximum	17,000 lb ▲		SCL preference

**7. Issuance**

	Requirements	
	613212	613222
Stock Number	613212	613222
Size	#6 AWG	350 kcmil
Stock unit	FT	

**8. Approved Manufacturing Plants**

Manufacturer	Location
Prysmian Group	DuQuoin, IL
	Marshall, TX
	Moose Jaw, SK, Canada
	St. Jerome, QC, Canada
Southwire	Carrollton, GA
	Heflin, AL

**9. References**

SCL Material Standard 6015.00, "Medium Voltage Cable – General"

**10. Sources**

Shipek, John; SCL Standards Supervisor, subject matter expert, and originator of 6010.20