

**15 kV, 3/C, TRXLPE Insulated, Tape Shielded Cable****1. Scope**

This standard covers the detailed requirements for 15 kV, tree retardant, cross-linked polyethylene (TRXLPE), three conductor cable used for the distribution of electric energy.

Industry designation: **3/C**

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

Stock Number	613523	613526	613530
Size	#1 AWG	3/0 AWG	350 kcmil

**2. Application**

Cable is intended for use on a nominal 13.8 kV, three-phase, three-wire, delta, 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 standards:

**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**

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**5. Construction, continued**

**5.2 Conductor**

		Requirements			Reference
Stock Number		613523	613526	613530	SCL
Size		#1 AWG	3/0 AWG	350 kcmil	various
Diameter	minimum	0.316 in	0.447 in		ICEA S-97-682, Part 2
	nominal	0.322 in	0.456 in		ASTM B8
	maximum	0.328 in	0.465 in		ICEA S-97-682, Part 2
Metal		copper			ASTM B49
Stranding type		concentric-lay			ASTM B8
Class		B			ASTM B8
Stranding subtype		compressed			ASTM B8
Number of strands		19			ASTM B8
Temper		soft drawn, annealed prior to stranding			ASTM B3
Lay, outer layer		left hand			ASTM B3, Section 5.5.1
Lay, successive layers		reversed			ASTM B3, Section 5.5.1
Sealant for stranded conductors		required ▲			ICEA S-97-682, Part 2
Diameter	minimum			0.604 in	ICEA S-97-682, Part 2
	nominal			0.616 in	ASTM B496
	maximum			0.628 in	ICEA S-97-682, Part 2
Metal				copper	ASTM B49
Stranding type				concentric-lay	ASTM B496
Class				none	none
Stranding subtype				compact	ASTM B496
Number of strands				35-37	ASTM B496, Table 1
Temper				soft drawn, annealed prior to stranding	ASTM B3
Lay, outer layer				left hand	ASTM B496, Section 5
Lay, successive layers				reversed	ASTM B496, Section 5
Sealant for stranded conductors				required ▲	ICEA S-97-682, Part 2

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**5. Construction, continued****5.3 Conductor Shield (Stress Control Layer)**

	Requirements			Reference
<b>Stock Number</b>	<b>613523</b>	<b>613526</b>	<b>613530</b>	SCL
<b>Size</b>	#1 AWG	3/0 AWG	350 kcmil	various
<b>Thickness, minimum point</b>	12 mil	12 mil	16 mil	ICEA S-97-682, Part 3, Table 3-1

**5.4 Insulation**

	Requirements			Reference
<b>Stock Number</b>	<b>613523</b>	<b>613526</b>	<b>613530</b>	SCL
<b>Size</b>	#1 AWG	3/0 AWG	350 kcmil	various
<b>Material</b>	unfilled tree retardant cross-linked polyethylene (TRXLPE)			ICEA S-97-682, Part 4
<b>Approved material formulations</b>	specified in general material standard			SCL 6015.00
<b>Thickness</b>	minimum point	165 mil		ICEA S-97-682, Part 4, Table 4-7
	nominal	175 mil		ICEA S-97-682, Part 8, Table 8-1
	maximum point	205 mil		ICEA S-97-682, Part 4, Table 4-7
<b>Insulation level</b>	100%			ICEA S-97-682, Part 4, Table 4-7
<b>Basic impulse level (BIL)</b>	110 kV crest			ICEA S-97-682, Part 4, Table 4-6

**5.5 Extruded Insulation Shield**

	Requirements			Reference
<b>Stock Number</b>	<b>613523</b>	<b>613526</b>	<b>613530</b>	SCL
<b>Size</b>	#1 AWG	3/0 AWG	350 kcmil	various
<b>Material</b>	discharge-free (thermosetting material)			ICEA S-97-682, Part 5
<b>Thickness</b>	minimum point	24 mil		ICEA S-97-682, Part 5, Table 5-1
	maximum point	60 mil		ICEA S-97-682, Part 5, Table 5-1

**5.6 Metallic Shield**

	Requirements			Reference
<b>Stock Number</b>	<b>613523</b>	<b>613526</b>	<b>613530</b>	SCL
<b>Size</b>	#1 AWG	3/0 AWG	350 kcmil	various
<b>Metal</b>	copper, uncoated			ICEA S-97-682, Part 6
<b>Type</b>	helically applied tape ▲			ICEA S-97-682, Part 6 and SCL 6015.00
<b>Water blocking components for metallic shield</b>	not required			ICEA S-97-682, Part 6

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**5. Construction, continued****5.7 Jacket (Non-Metallic Covering)**

Jacket shall be applied over three conductor assembly.

		Requirements			Reference
<b>Stock Number</b>		<b>613523</b>	<b>613526</b>	<b>613530</b>	SCL
<b>Size</b>		#1 AWG	3/0 AWG	350 kcmil	various
<b>Material</b>		linear low density polyethylene (LLDPE)			ICEA S-97-682, Part 7
<b>Color</b>		black			ICEA S-97-682, Part 7
<b>Type</b>		overlying			ICEA S-97-682, Part 7
<b>Thickness</b>	minimum point	100 mil ▲			ICEA S-97-682, Part 7, Table 7-10
	maximum point	150 mil ▲			ICEA S-97-682, Part 7, Table 7-10
<b>Maximum diameter over jacket</b>		2.25 in ▲	2.45 in ▲	2.85 in ▲	SCL preference

**5.8 Sheath (Continuous Metallic Covering)**

Cable shall not be provided with a sheath.

**5.9 Assembly and Identification**

		Requirements			Reference
<b>Stock Number</b>		<b>613523</b>	<b>613526</b>	<b>613530</b>	SCL
<b>Size</b>		#1 AWG	3/0 AWG	350 kcmil	various
<b>Red stripe identification</b>		not required			ICEA S-97-682, Part 8

**6. Packaging**

		Requirements			Reference
<b>Stock Number</b>		<b>613523</b>	<b>613526</b>	<b>613530</b>	SCL
<b>Size</b>		#1 AWG	3/0 AWG	350 kcmil	various
<b>Reel type</b>		steel, fluted			WC 26, Section 2
<b>Reel dimension</b>	flange diameter, maximum	96 in ▲			SCL preference
	outside width, maximum	56 in ▲	56 in ▲	60 in ▲	SCL preference
	drum diameter, minimum	32 in ▲	36 in ▲	40 in ▲	SCL preference
	length per reel ± 10%	3,000 ft ▲	2,500 ft ▲	-	SCL preference
	length per reel ± 15%	-	-	2,200 ft ▲	SCL preference
	gross weight, maximum	17,000 lb ▲			SCL preference

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**7. Issuance**

Stock Number	Requirements		
	613523	613526	613530
Size	#1 AWG	3/0 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
	Starkville, MS

**9. References**

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

**10. Sources**

Shipek, John; SCL Standards Supervisor, subject matter expert, and originator of 6020.01