Note: The MUNI implemented in November 2018 replaces OPSS 2409 COMMON, November 2014 with no technical content changes.

MATERIAL SPECIFICATION FOR TRAFFIC SIGNAL CABLE

TABLE OF CONTENTS

2409.01 SCOPE

This specification covers the requirements for traffic signal runner cable and traffic signal riser cable.

2409.01.01 Specification Significance and Use

This specification has been developed for use in municipal-oriented Contracts. The administration, testing, and payment policies, procedures, and practices reflected in this specification correspond to those used by many municipalities and the Ontario Ministry of Transportation.

Use of this specification or any other specification shall be according to the Contract Documents.

2409.01.02 Appendices Significance and Use

Appendices are not for use in provincial contracts as they are developed for municipal use, and then, only when invoked by the Owner.

Appendices are developed for the Owner's use only.

Inclusion of an appendix as part of the Contract Documents is solely at the discretion of the Owner. Appendices are not a mandatory part of this specification and only become part of the Contract Documents as the Owner invokes them.

Invoking a particular appendix does not obligate an Owner to use all available appendices. Only invoked appendices form part of the Contract Documents.

The decision to use any appendix is determined by an Owner after considering their contract requirements and their administrative, payment, and testing procedures, policies, and practices. Depending on these considerations, an Owner may not wish to invoke some or any of the available appendices.

2409.02 REFERENCES

When the Contract Documents indicate that municipal-oriented specifications are to be used and there is a municipal-oriented specification of the same number as those listed below, references within this specification to an OPSS shall be deemed to mean OPSS.MUNI, unless use of a provincial-oriented specification is specified in the Contract Documents. When there is not a corresponding municipal-oriented specification, the references below shall be considered to be the OPSS listed, unless use of a provincial-oriented specification is specified in the Contract Documents.

This specification refers to the following standards, specifications, or publications:

CSA Standards

C22.2 No. 239-09 Control and Instrumentation Cables

2409.03 DEFINITIONS

For the purposes of this specification, the following definitions apply:

Traffic Signal Runner Cable means the polyethylene insulated polyvinyl chloride jacketed multi-conductor cable, for use in traffic signal systems, suitable for direct burial or aerial installation and rated at 600 volts.

Traffic Signal Riser Cable means the polyethylene insulated polyethylene jacketed multi-conductor cable, for use in traffic signal systems, suitable for use on traffic signal pole installation and rated at 600 volts.

2409.05 MATERIALS

2409.05.01 Cable

Traffic signal cable shall be according to CSA C22.2 No. 239, rated 600 volts.

Conductors of the traffic signal runner cable shall be #14 AWG solid copper.

Conductors of the traffic signal riser cable shall be #14 AWG, minimum of 19 strands or #14 AWG solid copper.

2409.05.02 Insulation

Insulation of the conductors shall be according to CSA C22.2 No. 239.

2409.05.03 Jacket

Outside jacket of the traffic signal runner cable shall be as shown in Table 1 and the polyvinyl chloride shall be according to CSA C22.2 No. 239.

2409.05.04 Conductor Identification

Conductor identification shall be according to CSA C22.2 No. 239.

Colour coding and printing of the conductors shall be as shown in Table 2 to 7.

2409.07 PRODUCTION

2409.07.01 General

Traffic signal runner cable and traffic signal riser cable shall be according to CSA C22.2 No. 239.

2409.07.02 Marking

Cable shall be permanently marked according CSA C22.2 No. 239.

2409.09 OWNER PURCHASE OF MATERIAL

2409.09.01 Packaging and Shipment

Traffic signal runner cable and the traffic riser cable shall be shipped on returnable reels, in continuous lengths specified in the purchasing order. Each reel of cable shall be tagged or marked according to CSA C22.2 No. 239.

The supplier shall advise the Owner of the shipping date 3 Business Days prior to delivery.

2409.09.02 Measurement and Payment

Measurement of traffic signal runner cable and traffic signal riser cable shall be by length in metres along the cable.

Payment at the price specified in the purchasing order shall be for the supply of the traffic signal runner cable and the traffic signal riser cable delivered to the destination on the date and time specified.

The cost of all testing, except that performed in the Owner's laboratory, shall be included in the price.

TABLE 1
Traffic Signal Runner Cable Outside Jacket Thickness

Diameter of Completed Conductor Assembly mm	Average Jacket Thickness mm	Minimum Jacket Thickness mm
0 - 10.9	2.0	1.6
11 - 17.9	2.4	2.0
18 - 26.9	2.8	2.2
27 - 38.9	3.2	2.6
39 - 50.9	3.6	3.0
51 - 75.9	4.0	3.2
76 and over	4.8	4.0

TABLE 2
4 Conductor Runner Cable

Conductor	Insulation Colour
#1	White
#2	Red
#3	Yellow
#4	Blue

TABLE 3
7 Conductor Runner Cable

Conductor	Insulation Colour	Lettering
#1	White	-
#2	Red	Red one
#3	Red	Red two
#4	Yellow	Amber one
#5	Yellow	Amber two
#6	Blue	Green one
#7	Blue	Green two

TABLE 4
12 Conductor Runner Cable

Conductor	Insulation Colour	Lettering
#1	White	-
#2	Black	-
#3	Orange	-
#4	Red	Red one
#5	Red	Red two
#6	Red	Red three
#7	Yellow	Amber one
#8	Yellow	Amber two
#9	Yellow	Amber three
#10	Blue	Green one
#11	Blue	Green two
#12	Blue	Green three

TABLE 5
19 Conductor Runner Cable

Conductor	Insulation Colour	Lettering
#1	White	White one
#2	White	White two
#3	Black	-
#4	Orange	-
#5	Red	Red one
#6	Red	Red two
#7	Red	Red three
#8	Red	Red four
#9	Red	Red five
#10	Yellow	Amber one
#11	Yellow	Amber two
#12	Yellow	Amber three
#13	Yellow	Amber four
#14	Yellow	Amber five
#15	Blue	Green one
#16	Blue	Green two
#17	Blue	Green three
#18	Blue	Green four
#19	Blue	Green five

TABLE 6
5 Conductor Riser Cable

Conductor	Insulation Colour
#1	White
#2	Red
#3	Yellow
#4	Blue
#5	Green with Yellow Tracer

TABLE 7
7 Conductor Riser Cable

Conductor	Insulation Colour	Lettering
#1	White	-
#2	Red	-
#3	Yellow	Amber one
#4	Yellow	Amber two
#5	Blue	Green one
#6	Blue	Green two
#7	Green with Yellow Tracer	-

Appendix 2409-A, November 2018
FOR USE WHILE DESIGNING MUNICIPAL CONTRACTS

Note: This is a non-mandatory Commentary Appendix intended to provide information to a designer, during the design stage of a contract, on the use of the OPS specification in a municipal contract. This appendix does not form part of the standard specification. Actions and considerations discussed in this appendix are for information purposes only and do not supersede an Owner's design decisions and methodology.

Designer Action/Considerations

For Owner purchase of material, the following information should be given to the supplier in the purchasing order:

a) Number of conductors.

b) Colour of conductors.

c) Length of cable.

d) Length per reel.

The designer should ensure that the General Conditions of Contract and the 100 Series General Specifications are included in the Contract Documents.

Related Ontario Provincial Standard Drawings

No information provided here.