

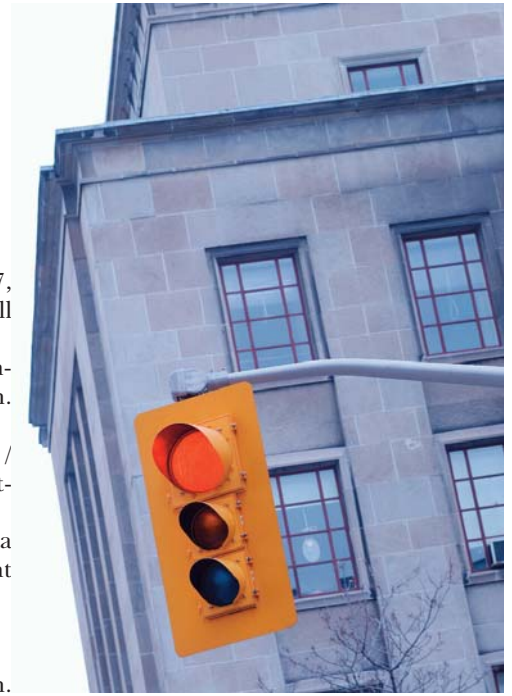


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ITE COMPLIANT PRODUCTS

ITE COMPLIANT LED TRAFFIC SIGNAL MODULE PERFORMANCE SPECIFICATIONS



All LED Ball Signal Modules (8 inch (200mm) and 12 inch (300mm)) shall be fully compliant to the ITE VTCSH LED Circular Supplement specifications dated and adopted June 27, 2005. Compliance to the ITE VTCSH-2 Interim Purchase Specification is not sufficient, and will not substitute for compliance to the ITE VTCSH LED Circular Supplement specifications. Additionally, prior to bid award, the manufacturer shall submit to purchaser, reports from ETL/Intertek, that certify full compliance of all LED ball signal modules to the entire ITE specification. These tests should include but not be limited to the luminous intensity measurements and requirements outlined in the ITE specification sections 6.4.4 through 6.4.4.4.2 (25°C and 74°C / 49°C). Evidence of full compliance to all required testing methods, procedures and sections as outlined in the above ITE document Figure 2, Design Qualification Testing Flow Chart must be included without any exceptions, changes or omissions. The manufacturer must also submit a data sheet showing the exact catalog number of the items submitted on the bid and the Independent Lab report must show full qualification of this catalog number.

To ensure optimal quality of illumination; uniformity; reliability; and appearance, all ball traffic signal modules shall utilize Hi-flux LEDs rated at 1-watt or higher, as their source of illumination. To ensure competency of design and manufacturing, manufacturers of ball, arrow, and pedestrian signal modules shall have a minimum of 7 years of experience in utilizing Hi-flux LEDs rated at 1-watt or higher, as the source of illumination in their ball traffic signal modules. Additionally, manufacturers must have utilized in excess of 20 million Hi-flux LEDs in their LED traffic signal modules during the most recent 10 year period.

All LED 12 inch (300 mm) Arrow Signal Modules shall be fully compliant to the “Omni-directional” specifications of the ITE VTCSH - LED Vehicle Arrow Traffic Signal Supplement adopted July 1, 2007. Additionally, prior to bid award, the manufacturer shall submit to purchaser, reports from ETL/Intertek that certify full compliance of all LED Arrow signal modules. These tests should include but not be limited to the luminous intensity measurements and requirements outlined in the ITE specification sections 6.4.4 through 6.4.4.4.2 (25°C and 74°C / 49°C). Evidence of full compliance to all required testing methods, procedures and sections as outlined in the above ITE document Attachment 1, “Design Qualification Testing Flow Chart” must be included without any exceptions, changes or omissions. The manufacturer must also submit a data sheet showing the exact catalog number of the items submitted on the bid and the Independent Lab report must show full qualification of this catalog number.

All LED Pedestrian Signal Modules shall be fully compliant to the ITE PTCSI Part-2: LED Pedestrian Traffic Signal Modules specifications adopted March 19, 2004 or the latest adopted version as listed on the ITE website at time of bid. Additionally, prior to bid award, the manufacturer shall submit to purchaser, reports from ETL/Intertek that certify full compliance of LED signal modules, to these specifications. Evidence of full compliance to all required testing methods, procedures and sections as outlined in the above ITE document Attachment 2, “Design Qualification Testing Flow Chart” must be included without any exceptions, changes or omissions. The manufacturer must also submit a data sheet showing the exact catalog number of the items submitted on the bid and the Independent Lab report must show full qualification of this catalog number. Combination hand/person pedestrian signal modules shall incorporate separate power supplies for the hand and the person icons.

In addition to, and in excess of the above applicable ITE specification compliance, the on-board circuitry of all LED traffic signal modules shall include voltage surge protection, to withstand high-repetition noise transients and low-repetition high-energy transients as stated in Section 2.1.8, NEMA Standard TS 2-2003. In addition, the module shall comply with the following standards: IEC 1000-4-5 at 3kV with a 2 ohm source impedance, ANSI/IEEE C62, 41-2002; IEC 61000-4-12 (6kV, 200A, 100kHz ring wave).

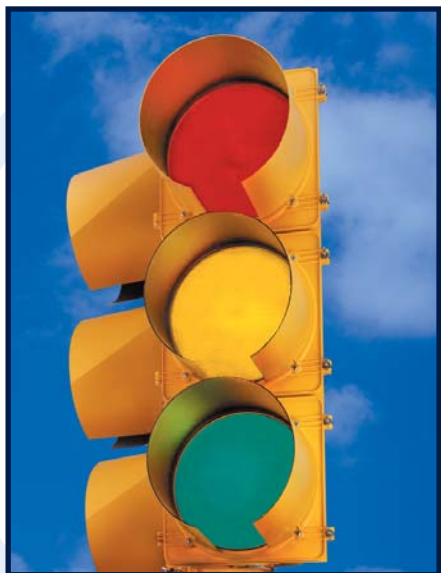
Warranty- Manufacturer shall provide at time of bid, a written warranty which provides for repair or replacement of modules that fail to function as intended due to workmanship or material defects within the first 60 months from date of delivery. Modules which exhibit luminous intensities less than the minimum as specified in the ITE specifications as indicated above, within the first 60 months from date of delivery shall be replaced or repaired.

Notes:

- * CSA approved to the following applicable requirements:
 - CSA Standard C22.2 No. 9.0-96 General Requirements for Luminaires
 - CSA Std. No. C22.2 No. 250.0-04 Luminaires
 - UL Std. No. 1598-2004 (May 2006) Luminaires

rev E - 7/07/08

UNIFORM APPEARANCE LED TRAFFIC SIGNAL MODULES

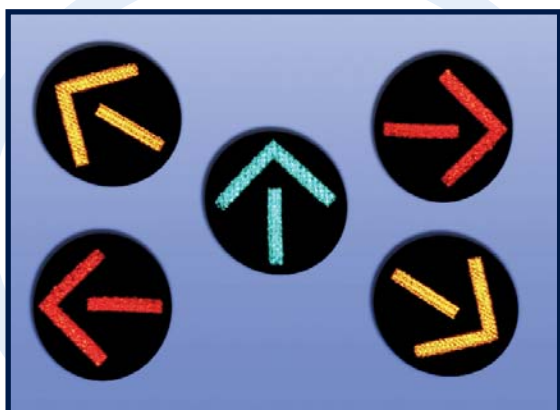


- ▲ **Fully compliant to ITE VTCSH-LED Circular Signal Supplement dated 6/27/2005
- ▲ Industry's lowest power for all colors
- ▲ Meets or exceeds ITE intensity, color and uniformity specification, including 49°C / 74°C requirements
- ▲ State-of-the-art LED technology utilized
- ▲ Temperature compensated power supplies for longer LED life
- ▲ Uniform appearance
- ▲ Expanded view radiation pattern suitable for span wire and steep grade applications
- ▲ Transient suppression exceeds ITE and NEMA specifications (Up to 6KV)
- ▲ Meets or exceeds ITE moisture resistance testing per MIL-STD-810F, method 506.4, I for rain & blowing rain
- ▲ Meets or exceeds ITE failed state impedance specifications, > 250K ohm within 300ms
- ▲ Abrasion resistance lens coating
- ▲ EPACT 2005 compliant
- ▲ Patent No. 7,281,818 and other patents pending
- ▲ 3rd party qualification testing

Part Number	Color	Lens Type	Dominant Wavelength (nm)	Typical Wattage at 25°C	Peak Minimum Maintained Luminous Intensity (cd)	**Meets ITE VTCSH LED Circular Signal Supplement	*CSA Approved	Size (in)
433-1110-003XL	Red	Tinted	625	6	165	✓	✓	8
433-3130-001XL	Yellow	Tinted	590	11	410	✓	✓	8
433-3130-901XL	Yellow	Tinted	590	7	410	✓		8
433-3170-901XL	Yellow	Clear	590	7	410	✓		8
433-2120-001XL	Green	Tinted	500	8	215	✓	✓	8
433-2170-001XL	Green	Clear	500	8	215	✓	✓	8
433-1210-003XL	Red	Tinted	625	8	365	✓	✓	12
433-3230-001XL	Yellow	Tinted	590	19	910	✓	✓	12
433-3230-901XL	Yellow	Tinted	590	12	910	✓		12
433-3270-901XL	Yellow	Clear	590	12	910	✓		12
433-2220-001XL	Green	Tinted	500	9	475	✓	✓	12
433-2270-001XL	Green	Clear	500	9	475	✓	✓	12

Red modules also available with clear lens. Insert "7" into the 6th position of the part number to designate clear lens. Ex: 433-1170-003XL

OMNI-DIRECTIONAL, UNIFORM APPEARANCE LED ARROWS



- ▲ **Fully compliant to ITE VTCSH-LED Vehicle Arrow Supplement dated 7/01/2007
- ▲ Allows for mounting in any orientation in the signal head
- ▲ Industry's lowest power for all colors
- ▲ Meets or exceeds ITE intensity, color and uniformity specification, including 49°C / 74°C requirements
- ▲ Temperature compensated power supplies for longer LED life
- ▲ Uniform appearance
- ▲ Transient suppression exceeds ITE and NEMA specifications (Up to 6KV)
- ▲ Meets or exceeds ITE moisture resistance testing per MIL-STD-810F, method 506.4, I for rain & blowing rain
- ▲ Meets or exceeds ITE failed state impedance specifications, > 250K ohm within 300ms
- ▲ Abrasion resistance lens coating
- ▲ EPACT 2005 compliant
- ▲ Clear and tinted lenses available
- ▲ 3rd party qualification testing

Part Number	Color	Lens Type	Typical Wattage at 25°C	Dominant Wavelength (nm)	Peak Minimum Maintained Luminous Intensity (cd)	**Meets ITE Spec	*CSA Approved
432-1314-001XOD	Red	Tinted	6	628	56.8	✓	✓
431-3334-001XOD	Yellow	Tinted	9	590	141.6	✓	✓
431-3334-901XOD	Yellow	Tinted	6	590	141.6	✓	
432-2324-001XOD	Green	Tinted	6	500	73.9	✓	✓
432-2374-001XOD	Green	Clear	6	500	73.9	✓	✓

Red & yellow modules also available with clear lens. Insert "7" into the 6th position of the part number to designate clear lens. Ex: 432-1374-001XOD

UNIFORM APPEARANCE HAND and PERSON PEDESTRIAN SIGNALS



- ▲ **Fully compliant to ITE PTCSI Part 2 LED Pedestrian Traffic Signal Module Specification adopted 3/9/04
- ▲ Meets / exceeds ITE uniformity ratio of not more than 1 to 5 between the max and min luminance values as measured in (.5") dia spots
- ▲ Meets or exceeds ITE moisture resistance testing per MIL-STD-810F, method 506.4, I for rain & blowing rain
- ▲ Fuse and transient suppressor incorporated for superior line and load protection
- ▲ Modules fully meet maintained luminous requirements of the ITE Specification sections (6.4.4 - 6.4.4.3.1)
- ▲ Fully meets ITE chromaticity and color uniformity specifications (6.4.4.4 - 6.4.4.6)
- ▲ Independent dedicated power supplies
- ▲ EPACT 2005 compliant
- ▲ 3rd party qualification testing

Part Number	Size	Description	Typical Wattage @ 25°C		Min. Luminance (cd/m ²)		**Meets ITE Spec	*CSA Approved
			Hand	Person	Hand	Person		
430-6450-001X	16 x 18	Side-by-side Hand and Person	8	7	1,400	2,200	✓	✓
430-6472-001X	16 x 18	Overlay Hand and Person	8	6	1,400	2,200	✓	✓
430-5770-001X	12 x 12	Hand only	8	N/A	1,400	N/A	✓	✓
430-7771-001X	12 x 12	Person only	N/A	7	N/A	2,200	✓	✓
430-6772-001X	12 x 12	Overlay Hand and Person	8	6	1,400	2,200	✓	✓
430-5570-001X	9 x 9	Hand only	6	N/A	1,400	N/A	✓	
430-7570-001X	9 x 9	Person only	N/A	6	N/A	2,200	✓	

UNIFORM APPEARANCE COUNTDOWN PEDESTRIAN SIGNALS



- ▲ **Uniform appearance hand and man symbols fully compliant to ITE PTCSI Part 2 LED Pedestrian Traffic Signal Module Specification adopted 3/19/04
- ▲ 9" high 2-row countdown digits are MUTCD compliant for crosswalks over 100 ft
- ▲ Standard part numbers below comply with MUTCD recommendations to countdown clearance interval only
- ▲ Full preemption compatibility... In the cycle following a truncated timing such as preemption call, the countdown shall be capable of displaying the correct time and not be affected by the reduced previous cycle
- ▲ Up to 4 units can be connected in parallel without affecting of the monitoring of the Hand/Person
- ▲ Meets or exceeds ITE moisture resistance testing per MIL-STD-810F, method 506.4, I for rain & blowing rain
- ▲ Independent dedicated power supplies
- ▲ EPACT 2005 compliant
- ▲ 3rd party qualification testing

Part Number	Housing Size	Symbol Color			Typical Wattage @ 25°C			Min. Luminance (cd/m ²)			**Meets ITE Spec	*CSA Approved
		Count-down	Hand	Person	Count-down	Hand	Person	Count-down	Hand	Person		
430-6479-001X	16 x 18	Portland Orange	Portland Orange	Lunar White	5	9	7	1,400	1,400	2,200	✓	✓
430-7773-001X	12 x 12	Portland Orange	N/A	N/A	5	N/A	N/A	1,400	N/A	N/A		✓

Special Applications: Upon customer request, above units are available with option to countdown the clearance mode and the walk mode. Add suffix "W" to above part numbers.

IMPORTANT NOTE: MUTCD DOES NOT recommend the use of a countdown timer in the "walk" mode