

## LED L-858 SIGN

### ITEM L-150 INSTALLATION OF LED L-858 SIGNS

#### DESCRIPTION

150-1.1 This item shall consist of furnishing and installing the L-858 guidance signs in accordance with these specifications.

This item shall also include all wire and cable connections, the furnishing and installing of all necessary conduits and fittings and all necessary mounting structures. It shall also include the testing of the installation and all incidentals necessary to place the signs in operation as completed units to the satisfaction of the Engineer.

#### DEFINITION FOR WAIVER

150-1.2 To meet FAA AIP fund requirements for specific type equipment, a waiver may need to be in place to specify the use of LED illuminated L-858 guidance signs, for energy efficiency requirements on a project. In accordance with CFR Title 49 Part 18.36:

(7) Grantees and subgrantees are encouraged to use value engineering clauses in contracts for construction projects of sufficient size to offer reasonable opportunities for cost reductions. Value engineering is a systematic and creative analysis of each contract item or task to ensure that its essential function is provided at the overall lower cost.

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(13) Mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Pub. L. 94-163, 89 Stat. 871).

The initial cost of signs in excess of incandescent illuminated airfield signs is more than recovered over the lifetime of the sign. The power consumption for the LED-L858 represents a 76.4% reduction on average from traditional incandescent illumination. Add to this the replacement cost of incandescent lamps with labor and the reduced VA size requirement for Constant Current Regulators, the LED L-858 signs more than meet the 20% increase in efficiency set forth by the Energy Policy and Conservation Act.

#### EQUIPMENT AND MATERIALS

150-2.1 L-858. The LED L-858 signs shall conform to the requirements of FAA Advisory Circular 150/5345-44 (latest revision) "Specification for Runway and Taxiway Signs" and FAA LED "Engineering Brief No. 67" (current edition), and be certified to these specifications by Intertek ETL (the FAA designated technical review agency.)

150-2.2 EQUIPMENT SUPPLIED. Each LED airfield sign shall consist of one FAA LED L-858 Y, L, R, or B. Each lot shipment of LED L-858 signs shall include one Instruction Manual.

150-2.3 L-858 SIGN. The Type L-858 signs shall be {Size 1 (18" face and 12" legend) Size 2 (24" face and 15" legend) Size 3 (30" face and 18" legend) Size 4 (48" face and 40" legend) Size 5 (30" face and 25" legend)}. To insure reduced energy and maintenance requirements, the L-858 sign light source shall be illuminated by a Light Emitting Diode (LED) assembly. Signs shall be {Style 2 (4.8A-6.6A) Style 3 (2.8A-6.6A) Style 5 (5.5A)}. The LED power supply circuit shall output a regulated DC voltage. To maximize maintenance personnel safety, there shall be no more than 50V DC at any point inside the sign. The LED power supply circuit shall not require field calibration. The LED L-858 sign shall have an input Power Factor >0.9. The VA loading requirements shall not exceed those listed in the table below:

	1 Module	2 Module	3 Module	4 Module
Size 1	45	70	85	95
Size 2	70	95	115	135
Size 3	70	95	115	135
Size 4	70			
Size 5	70			

To insure maximum pilot visibility, the LED L-858 sign shall have illumination uniformity exceeding the FAA specifications. The measured points on the panel are defined in AC 150/5345-44 par. 4.1.1.3. Measurements must be made on a 3 in. grid over the entire face of the sign, with no measurement closer than 3 in. to the sign frame. The average of all measurements must be between 10 and 30 fL. The ratio between maximum and minimum luminance over the whole sign face must not exceed 5:1. Adjacent grid measurements must not exceed a 1.5:1 luminance ratio.

The signs must be accessible using a “no tools required” thumbscrew fastener that secures entry to the top plate of the sign, providing easy field maintenance and reduced repair or refurbishment costs. The signs {Size 1, Size 2 & Size 3} shall be modular in design and be capable of being lengthened or shortened to accommodate legend changes. The signs shall be Mode 2 – able to withstand wind loads of 200 mph (322 kph) minimum. The sign floor flange shall have only two mounting holes to minimize installation cost and to use fewer anchor bolts.

## CONSTRUCTION METHODS

150-3.1 PLACING THE LED L-858 SIGNS. The contractor shall furnish and install each LED L-858 sign as specified in the proposal and shown in the plans. The L-858 shall be mounted on concrete pads at the location shown on the plans.

150-3.2 TESTS. The sign system shall be fully tested by continuous operation for not less than 24 hours as a completed system prior to acceptance.

## METHOD OF MEASUREMENT

150-4.1 MEASUREMENT. The quantity of lights to be paid for under this item shall be for one LED L-858 sign, with one tether per module, and one Instruction Manual (per lot) installed and accepted as completed units, in place, ready for operation.

## BASIS FOR PAYMENT

150-5.1 PAYMENT. Payment will be made at the contract unit price for the completed total quantity of L-858 signs installed, in place by the Contractor, and accepted by the Engineer. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item.

Payment will be made under:

- Item L-150-5.1 LED L-858 Size 4 signs, in Place—per each
- Item L-150-5.2 LED L-858 Size 1 signs, in Place—per each
- Item L-150-5.3 LED L-858 Size 2 signs, in Place—per each
- Item L-150-5.4 LED L-858 Size 3 signs, in Place—per each
- Item L-150-5.5 LED L-858 Size 5 signs, in Place—per each

END OF ITEM L-150