TAXIWAY LIGHTING

DTS/DTC/DFS

LED Taxiway Centerline, Stop Bar and Holding Position Inset Light

Compliance with Standards

ICAO: Annex 14, Vol. 1, par. 5.3.17, 5.3.20 and 5.3.21

FAA: L– 852(L) Series AC 150/5345-46 and FAA Engineering Brief No. 67

T/C: Transport Canada TP 312, par. 5.3.16, 5.3.18 and 5.3.19

NATO: STANAG 3316

Uses

ICAO & T/C

- DTS/DTC/DFS taxiway lights are used in category I, II & III as:
  - Taxiway Centerline on straight and curved section and on rapid exit taxiways
  - Stop bar
  - Intermediate holding position lights
  - De-/anti-icing facility exit lights
  - Apron lead-in lights

FAA L-852C(L)

- Taxiway Centerline on straight section and clearance bar in category III applications, <1,200 L RVR

FAA L-852K(L)

- Taxiway Centerline on curved secons in category III applicaons, <1,200 L RVR

Features

- The evolution of the most successful LED lights in the world, fully adapted to the characteristics of an LED lighting source
- Very low energy consumption (typically 10 W for a single-plug bidirectional light, and 8 W per side for a dual-plug light, compared to 40 W for tungsten halogen lights)
- Greatly reduced maintenance: calculated MTBF of 56,000 hours at 6.6A
- Increased traffic efficiency and availability of the taxiways thanks to the reduction of maintenance
- Optimum and homogenous light distribuon along the lights installed on the same taxiway
- High discrimination between functions thanks to the saturated colors, their stability at the different brightness steps and under all viewing angles
- Full compability with existing airfield lighting series circuits. No need to replace the CCRs, series transformers, or cables
- Fully dimmable lights, respecting the response curve of tradional halogen lights. Operates on the full range of 2.8 A to 6.6 A.
- Installation on the same bases as 8 inch tungsten-halogen lights for a straightforward replacement.
- Substantial investment reduction for new installations, resulting from a lower installed load
- Very low working temperature, ensuring longer component life
- Rugged lightning protection complies with ANSI/IEEE C62.41-1991 Location Category C2 given in FAA Eng. Brief 67. Category C2 is defined as a 1.2/50µS – 8/20 µS combination wave, with a peak voltage of 10,000 V and a peak current of 5,000 A.
- When turned on, light rise time is low. The light is perfectly adapted for any incursion protection system.
- Optional monitoring function of the individual light source. In case of a defect, the LED light automatically disconnects from the secondary side of the isolation transformer, resulting in an open circuit condition.
- Environment-friendly, precision-cast aluminium alloy top, intermediate and bottom covers
- Corrosion-resistant stainless steel hardware. Use of Torx screws ensures ease of maintenance.

DTS/DTC/DFS lights are part of a complete range of LED in-pavement lights, featuring innovative characteriscs, as a leverage for:

Reliability

- Additional watertightness barriers, protecting both the electronics and the LEDs in case of accidental water ingress, along the prism or the gaskets as well as along the cables
- Prisms of small dimensions installed in a deep optical channel with no negative window slope: optimal protection against rubber deposit, scratches and shocks.

Modularity

- High commonality of components between the various models. Stock management is easier
- Field customization according to the application is straightforward: a light can be transformed into another model by swapping components
- Same tools and same procedures to maintain the whole range, reducing the risk of mistakes and time loss.

DTS/DTC/DFS

Maintenance friendliness

- Maintenance-friendly: components subject to wear or damage like prisms and cables can easily be replaced. Neither sealing compounds nor resin are required
- Innovave design of the cable entry, permitting replacement without the need to open the light. This eliminates the risk of water leakage due to a pinched cable.
- Reduced number of components for maintenance simplicity
- Pressure-release plug for water-tightness testing of fixture after overhaul.

Available version for use in Advanced Power Supply System (APS)

- Further reduction of the power consumption: only 3 W per side
- Simplification of the electronics increases MTBF and reduces maintenance time and cost
- Allows airports to reuse the existing series circuit
- For detailed information on the APS system, please refer to leaflet N° 3010

Electrical Supply

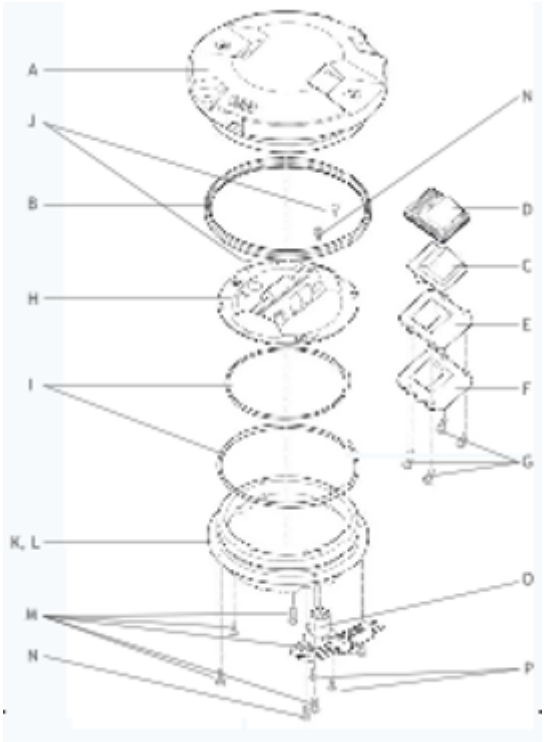
2.8A-6.6 A, through a 20/25 W isolation transformer.

DTS/DTC/DFS lights have been designed to work with any IEC or FAA compliant transformer up to 100 W without affecting the performances or the lifetime of the light or the transformer. However, using a non-matched transformer will reduce its efficiency.

See data sheet A.06.112 or 3033 for more details on recommended isolation transformers.

Fixture Type	Fixture Load	Isolation Transformer	Isol. XF Load	CCR Load
Bidirectional, 1 plug				
DTS / DTC	14 VA	20/25 W	11 VA	25 VA
DFS	16 VA	20/25 W	9 VA	25 VA
Unidirectional or bidirectional, 2 plugs Load per side				
DTS / DTC	11 VA	20/25 W	11 VA	22 VA
DFS	11 VA	20/25 W	10 VA	21 VA

Design



Construction

A	Aluminium alloy upper cover
B	Labyrinth gasket
C	Prism (1 or 2)
D	Prism gasket (1 or 2)
E	Prism protection plate
F	Prism bracket
H	Optical assy, including LEDs
I	O-ring gaskets
K, L	Aluminium alloy inner cover assy, with transformer(s) and printed circuit board
N	Pressure release plug with O-ring
O	Replaceable cable lead with moulded FAA L-823 style 6 plug (1 or 2)

DTS/DTC/DFS

Ordering Code

D XX X X X X A X X X 00 0

AD=light

Application
TS = Taxiway or stop bar straight section
TC = Taxiway or stop bar curved section
FS = Enhanced taxiway light for rapid exit[1]

Cord Set Style and length
A = Standard version (Style 6 plugs), 10" long[2]
G = German Style 1 (2-pin), 10" long[2]
F = French Style 1 (3-pin), 10" long[2]
L = Style 6 (2-pin), 18" long (FAA)[3]

Cable and Connector
2 = 1 plug (2-pin)
3 = 2 plugs (2-pin)
4 = 1 plug (3-pin)
5 = 2 plugs (3-pin)

LED Color 1 – Left
R = Red
G = Green
Y = Yellow3
N = Obscure / Blank (No light)

LED Color 2 – Right
R = Red
G = Green
Y = Yellow3
N = Obscure / Blank (No light)

Toe-in
0 = No toe-in for DTS/DFS
3 = Both Sides for DTC

Dimensions
A = 8" diameter, 1/2" (12.7mm) protrusion

Power Supply and Monitoring
S = 6.6A - 50/60Hz series supply, w/out monitoring
M = 6.6A - 50/60Hz series supply, with monitoring
A = APS system

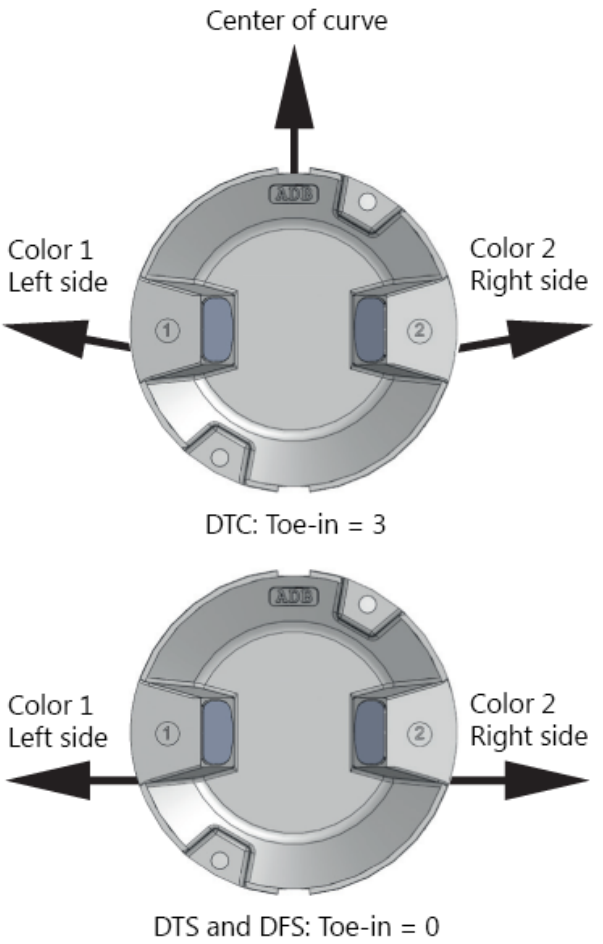
Standards
0 = ICAO, TP 312 and FAA
I = ICAO and TP 312 only[3]
K = Australian (color complaint to MCS 139)

Winter Options
0 = None
2 = Heavy-duty abrasion-resistant lens coating[4]

Fixed Digit
00

Version
1 = 2 LEDs per window

Toe-in Color Coding



Ordering Code Notes

1 Conditions for DFS lights for rapid exit taxiways:
- Color cannot be red
- No toe-in
- No APS power supply
- Standard must be ICAO

2 8" fixtures with 10" cord sets are for installation on shallow bases.

3 Fixtures with 18" cord sets are for installation on deep base cans.

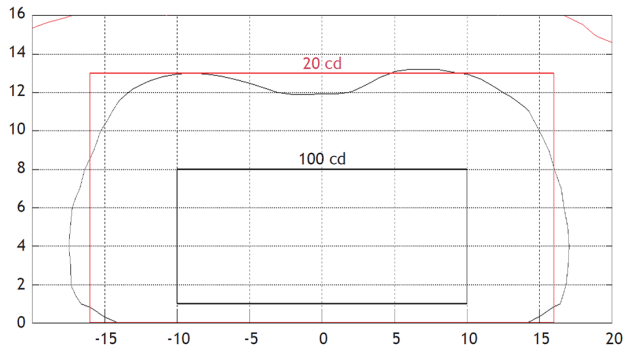
4 Typically used for intensive winter s ervice where sand is applied to runways and rotating brushes are used

DTS/DTC/DFS

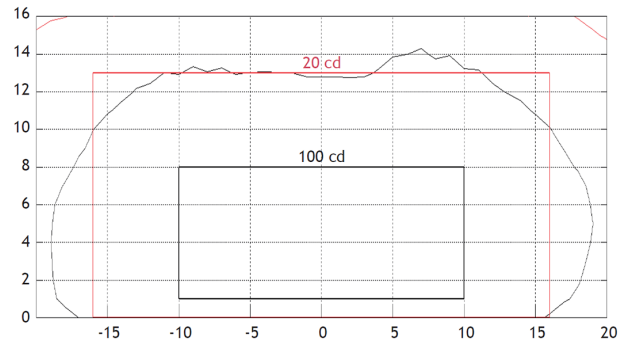
Photometric Performances

Application ICAO	Application FAA	Main beam aperture		Color	ICAO Main beam average intensity (cd) (typical value)	FAA Horizontal / Vertical average intensity (cd) (typical value)
		Horiz. (°)	Vert. (°)			
Straight section, narrow beam	L-852C	-3.5 tot +3.5	1 to 8	Green	318	352 / 322
				Yellow	474	513 / 478
				Red	376	N.A.
Straight section, wide beam	N.A.	-10 tot +10	1 to 8	Green	317	N.A.
				Yellow	469	N.A.
				Red	378	N.A.
Curved section	L-852K	-3.5 to +35	1 to 10	Green	194	208 / 209
				Yellow	188	210 / 190
				Red	160	N.A.
Enhanced light for rapid exit	N.A.	-10 tot +10	1 to 8	Green	1072	N.A.
				Yellow	1189	N.A.

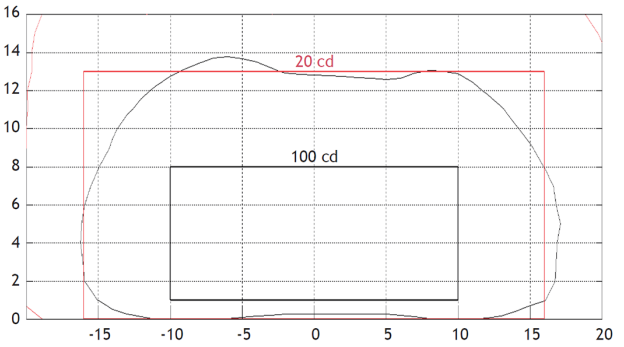
Photometric Curves



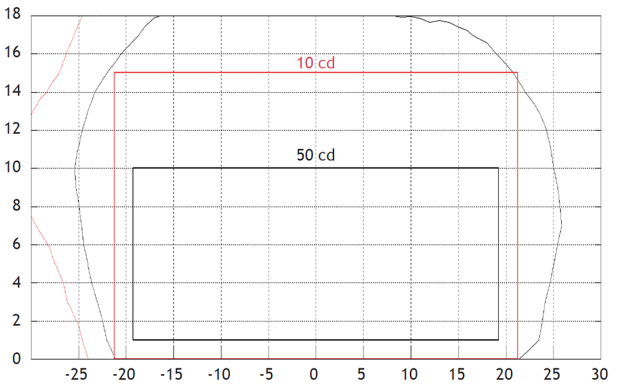
Photometry - ICAO taxiway straight / FAA L-852C (green light)



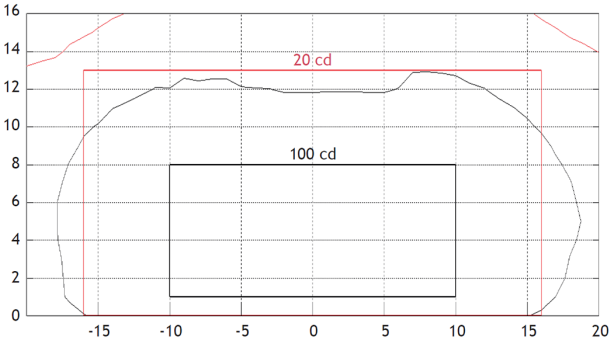
Photometry - ICAO taxiway straight / FAA L-852C (yellow light)



Photometry - ICAO enhanced taxiway for rapid exit (green light)



Photometry - ICAO taxiway curved / FAA L-852K (green light)



Photometry - ICAO stop bar straight (red light)

Additional photometric curves can be found in the Product Center on our website (www.adbsafegate.com) under the "Photometric Data" tab, or by contacting your local ADB SAFEGATE representative.

Dimensions

8" fixture:	
Outside diameter	202 mm (7.97 in)
Overall height	78.4 mm (3.1 in)
8" shallow base:	
Outside diameter	230 mm (9.06 in)
Depth	115 mm (4.53 in)

Packaging

8" fixture:	
In cardboard box	210 × 210 × 100 mm (8.27 × 8.27 × 3.94 in)
Weight with packing	3.9 kg (8.6 lb)
Weight without packing	3.7 kg (8.2 lb)
8" shallow base:	
In cardboard box	230 × 230 × 150 mm (9.06 × 9.06 × 5.91 in)
Weight with packing	2.8 kg (6.2 lb)
Weight without packing	2.6 kg (5.7 lb)

Installation

1) On a shallow base (Fig. 6).

The 8" dia. base is secured in the pavement by means of resin. Correct posioning and leveling are obtained with a jig with sighting telescope. Wires between the light and the series transformer are installed either in saw cuts in the pavement filled with resin or in pipes in the lower concrete layers. Mounting on existing or new, larger diameter bases is made possible by means of dedicated adapter rings.

2) On a FAA L-868B size B steel base (Fig. 7).

The 8" dia. light is mounted in an 8" to 12" dia. snow plow or adapter ring bolted onto the base. The 12" fixture is directly mounted without a separate ring. The bases are interconnected by means of conduits protecting the cables. See FAA AC 150/5340- 30 for additional design guidance on deep base cans. The series transformer is installed under the light or in a separate pit. See data sheet A.05.120 or 2012 for more information on base cans.

Fig. 6: Installation on 8" shallow base

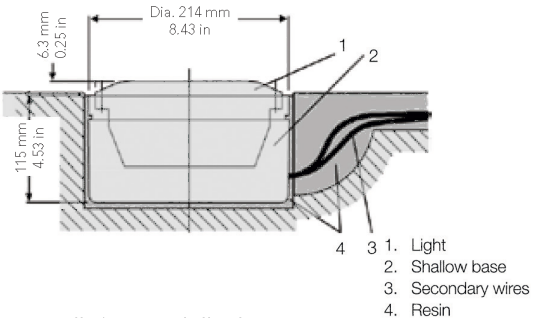


Fig. 7: Installation on FAA L-868 base