FREEDOM™ SERIES

COMPETITION & TOURNAMENT COURT LIGHTING SYSTEM

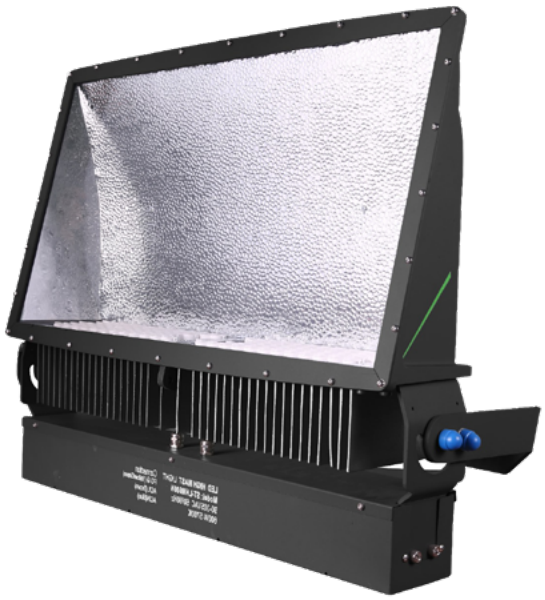
DESIGNED TO SUPPORT ANSI/IES RP-6 PERFORMANCE TARGETS

Intended for use as a Basis of Design lighting system across a range of sports lighting applications.

PROJECT SUBMITTAL	
PROJECT NAME	
TYPE / DESIGNATION	
CATALOG NUMBER	
SUBMITTED BY	DATE
NOTES / REMARKS	

500W | 600W | 800W

SYSTEM CONFIGURATIONS



ETL LISTED • DLC PREMIUM • IP65 • BAA COMPLIANT

SYSTEM ENGINEERING

Lighting system performance is achieved through asymmetric reflector optics designed for multi-fixture pole configurations, enabling precise control of beam distribution, uniformity, and glare in competitive court environments.

KEY SYSTEM ATTRIBUTES

- Indirect asymmetric reflector optics
- Controlled glare through optical distribution and aiming
- Mounting heights: 30–60 ft (application dependent)
- Die-cast aluminum housing for outdoor use

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SYSTEM OVERVIEW & PERFORMANCE SUMMARY

SYSTEM OVERVIEW

The Freedom™ Series is a high-output LED sports luminaire designed for competition-level tennis and pickleball facilities requiring high illumination levels, controlled glare, and consistent photometric performance.

The luminaire utilizes a die-cast aluminum housing with asymmetric reflector optics optimized for multi-fixture pole configurations.

The optical system directs light onto the playing surface while reducing high-angle glare and off-site spill light.

Lighting performance to be verified through project-specific photometric calculations, including illumination levels, uniformity, and aiming geometry.

> LIGHTING PERFORMANCE IS ACHIEVED THROUGH SYSTEM LEVEL COORDINATION—NOT FIXTURE OUTPUT ALONE.

> LIGHTING DESIGNS ARE DEVELOPED IN ACCORDANCE WITH ANSI/IES RP-6 RECOMMENDATIONS.

System design support, photometric layouts, and compliance documentation provided for each project application.

TESTING & COMPLIANCE

Designed to support compliance with:

- IES LM-79
- IES LM-80
- TM-21
- ANSI/IES RP-6
- UL 1598

SYSTEM PERFORMANCE SUMMARY

ATTRIBUTE	PERFORMANCE
Rated Life	L70 ≥ 100,000 hours
Photometric Testing	IES LM-79
LED Lumen Maintenance	IES LM-80 with TM-21 projection
Typical System Efficacy	130–140 lm/W
Color Rendering Index	70 CRI std. (80 & 90 CRI opt.)
TLCI	90 optional for broadcast-riented configurations
Flicker Performance	Flicker-free driver available for high-speed video applications
Power Factor	≥ 0.96 typical
Input Voltage	100–277 V std. (277–480 V opt.)
Operating Temperature	-40°F to 122°F
Ingress Protection	IP65
Surge Protection	10 kV std. (20 kV opt.)
Surge Protection Type	Parallel surge protection
Driver Dimming	0–10 V dimming compatible
Warranty	10 years

APPLICATIONS & DESIGN SERVICES

PRIMARY APPLICATIONS

SPORTS FACILITIES
Competition tennis facilities, large pickleball complexes, multi-court tournament venues, athletic training centers, municipal sports complexes.

Additional applications may include golf driving ranges, outdoor training facilities, and high-performance sports complexes.

TYPICAL MOUNTING CONDITIONS

Typical pole heights: 30–60 ft. Final pole spacing, fixture quantity, and aiming angles shall be determined through project-specific photometric analysis.

ENGINEERING & DESIGN SUPPORT

Duvon provides lighting system design assistance including luminaire selection, optical configuration, and photometric verification.

Duvon engineering services include:

- AGi32 photometric layouts
- Pole height recommendations
- Fixture aiming diagrams
- Illumination uniformity verification
- IES photometric files

These services assist architects, engineers, municipalities, and athletic facilities in evaluating lighting performance prior to installation.

LIGHTING PERFORMANCE STANDARDS

REFERENCE STANDARD

Freedom luminaires are utilized in lighting designs developed in accordance with ANSI/IES RP-6 recommendations.

LIGHTING CLASS	APPLICATION	IES RECOMMENDED AVG	UNIFORMITY (AVG:MIN)
Class III	Training / Recreational Competition	30–50 fc	≤ 2.5:1
Class II	Competitive Club Play	50–75 fc	≤ 2.0:1
Class I	Professional / Tournament Play	75–100 fc	≤ 1.7:1

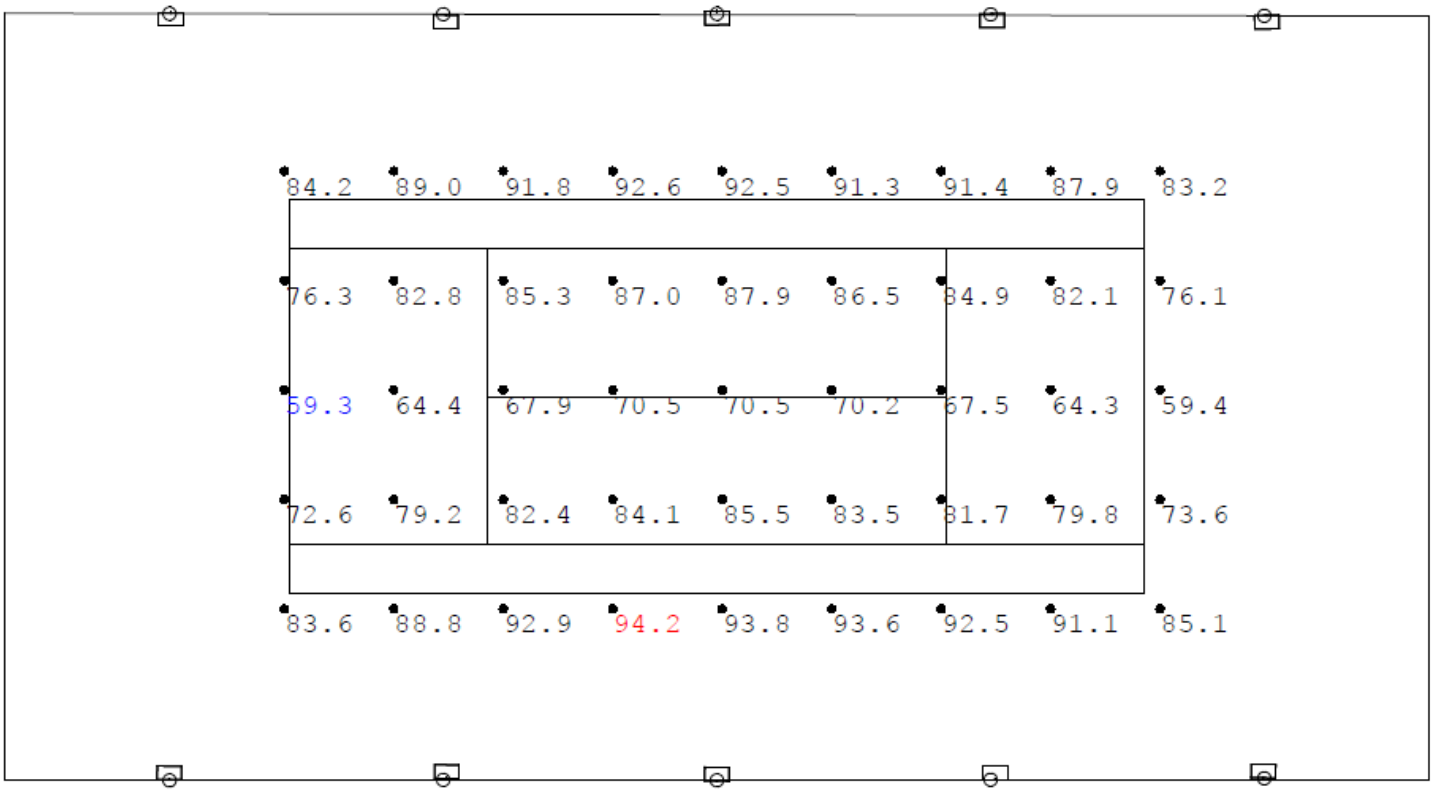
Illumination and uniformity values represent design targets and shall be verified through project-specific photometric calculations. Freedom luminaires are typically used in facilities requiring higher illumination levels, tighter uniformity targets, enhanced glare control, and optional broadcast-oriented performance.

VERTICAL ILLUMINANCE CONSIDERATIONS

Sports lighting systems may also evaluate vertical illumination levels to support player visibility and ball tracking performance. Vertical illumination is particularly important in tennis where players frequently track the ball above the playing surface. Lighting simulations may include both horizontal and vertical illumination calculations in accordance with ANSI / IES RP-6 recommendations.

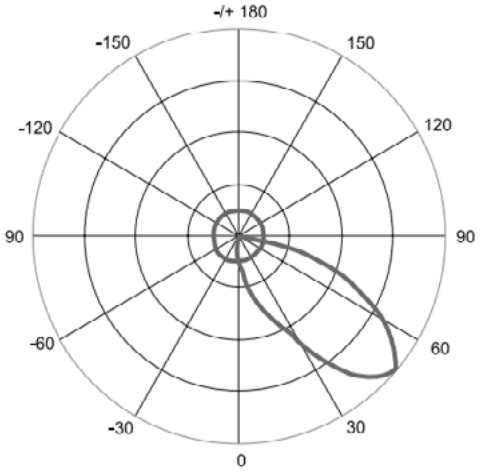
BROADCAST CONSIDERATIONS

Flicker-controlled driver options and broadcast configurations are available for applications requiring high-speed video or television capture.



Sample photometric calculation — Single Tennis Courts 70x130ft, 10x25ft-600W

OPTICAL DISTRIBUTIONS & GLARE CONTROL



OPTICAL TYPE	DISTRIBUTION	TYPICAL APPLICATION
ST	Stadium Asymmetric	Competition tennis courts

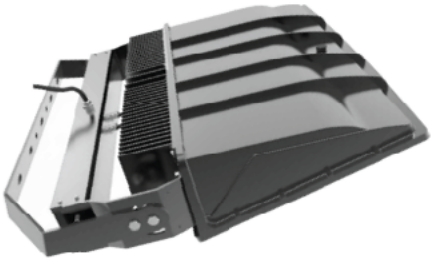
The asymmetric optical system is designed so that the forward-throw distribution aligns with the playing surface when the luminaire is mounted on perimeter poles outside the court boundary.

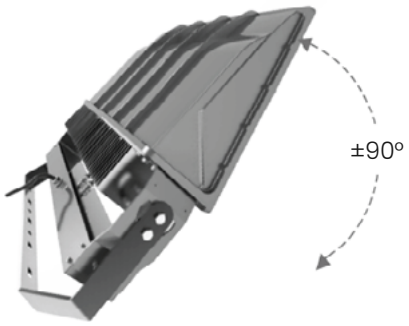
OPTICAL MATERIAL

Precision-formed aluminum reflector system engineered to maintain distribution accuracy and long-term outdoor performance.

ADVANCED SPILL CONTROL

Stadium-cut optics are available to reduce spill light behind the pole and improve optical control for tournament and broadcast-oriented environments.





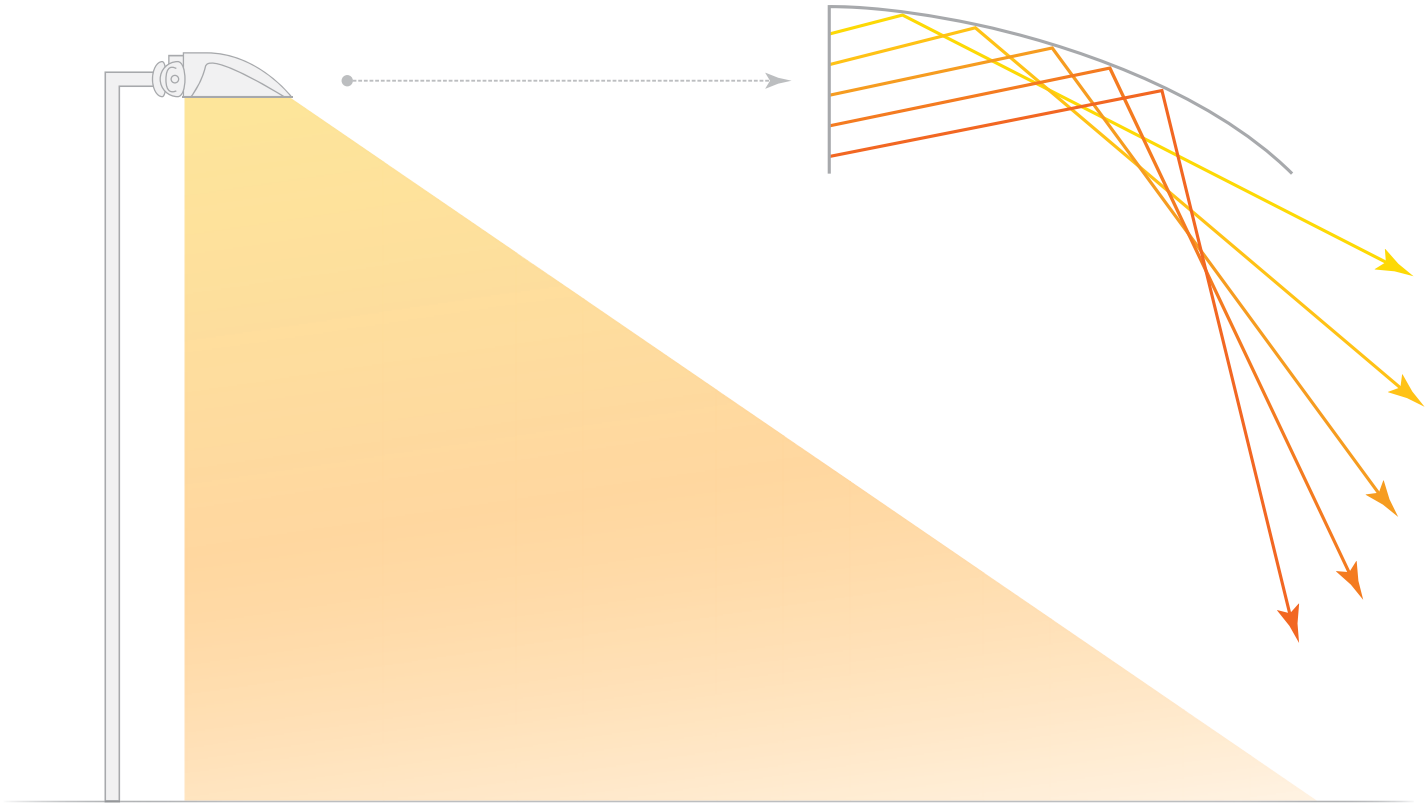
GLARE CONTROL & LIGHT TRESPASS

PRECISION ASYMMETRIC OPTICS

Freedom luminaires utilize precision asymmetric sports optics designed to control glare while maintaining required illumination levels across the playing surface. Internal optical geometries and stadium-cut beam control are used to reduce stray light, minimize high-angle brightness, and improve visual comfort. Lighting designs may be evaluated for property-line illumination levels to help reduce light trespass toward adjacent residential areas.

SKY GLOW & UPLIGHT CONTROL

Optical system designed to limit high-angle light and reduce uplight through controlled beam distribution and proper aiming.



PROPERTY-LINE CONTROL STATEMENT

Property-line illumination levels and spill-light control should be verified through project-specific photometric simulation based on actual site geometry and aiming conditions.

ELECTRICAL SPECIFICATIONS

LUMEN OUTPUT

MODEL	WATTS	LUMEN OUTPUT
FREEDOM-500	500 W	65,000 lm
FREEDOM-600	600 W	78,000 lm
FREEDOM-800	800 W	104,000 lm

TYPICAL SYSTEM EFFICACY

130–140 lm/W

Depending on wattage, CCT, and driver configuration.

AVAILABLE CCT OPTIONS

4000K | 5000K

INPUT CURRENT (AMPERAGE)

VOLTAGE	500W	600W	800W
120V	4.17 A	5.00 A	6.67 A
208V	2.40 A	2.88 A	3.85 A
240V	2.08 A	2.50 A	3.33 A
277V	1.81 A	2.17 A	2.89 A
480V	1.04 A	1.25 A	1.67 A

Input current values are nominal. Final branch circuit sizing shall be verified in accordance with NEC and project requirements.

ELECTRICAL CHARACTERISTICS

ATTRIBUTE	PERFORMANCE
Driver Type	Constant Current LED Driver
Power Factor	≥ 0.96
THD	< 20%
Input Frequency	50/60 Hz
Dimming	0–10 V

MAINTENANCE CONSIDERATIONS

LED luminaires require minimal routine maintenance compared with traditional HID sports lighting systems. Typical maintenance consists of periodic inspection of mounting hardware and cleaning of optical surfaces where required.

MECHANICAL CONSTRUCTION

COMPONENT	SPECIFICATION
Housing	Die-cast aluminum
Optical System	Precision asymmetric sports reflector
Hardware	Stainless steel external fasteners
Mounting	Adjustable yoke bracket
Tilt Adjustment	±90°
Finish	Powder coating, 1,000-hour salt-spray tested

FINISH COLORS

- Black (std.)
- Bronze
- Gray
- Green

OPTIONAL MOUNTING ACCESSORIES

- 2-3/8 in round slip-fitter adapter
- Rectangular pole slip-fitter adapter

FIXTURE WEIGHT (LUMINAIRE ONLY)

MODEL	WEIGHT
FREEDOM-500	68.1 lbs
FREEDOM-600	70.1 lbs
FREEDOM-800	72.1 lbs

EFFECTIVE PROJECTED AREA (EPA)

1.32 ft²

STRUCTURAL CONSIDERATIONS

Pole structures shall be designed for the complete installed assembly, including luminaires, mounting hardware, and local wind load requirements. Final structural design shall be verified by a licensed engineer.

STRUCTURAL STATEMENT

Pole structures shall be designed for the complete installed assembly, including luminaires, brackets, adapters, and local wind load requirements.

SMART CONTROL SYSTEM

Duvon sports lighting systems support wireless lighting control platforms.

Supports wireless lighting control with:

- Remote on/off control
- Scheduled operation
- Energy monitoring
- Remote diagnostics

TYPICAL LIGHTING SCENES

Practice Mode
Recreational Play
Tournament Play
Maintenance Lighting
Event Mode

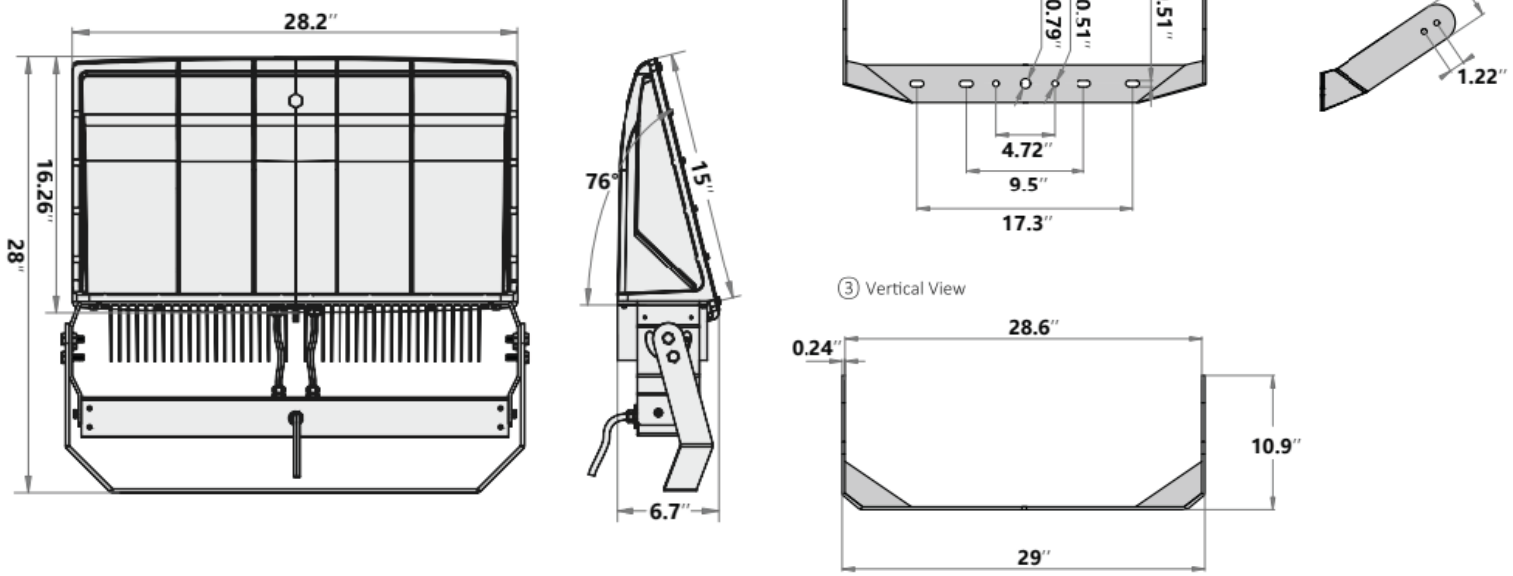
Control architecture:
Integrated wireless nodes at the luminaire level, central gateway controller, and mobile/web-based interface.

SYSTEM PERFORMANCE VERIFICATION

Lighting systems utilizing Duvon sports luminaires include project documentation such as:

- Photometric reports verifying illumination levels & uniformity
- Pole layout drawings
- Fixture aiming diagrams
- IES photometric files
- Electrical load information
- Structural data including fixture weight and EPA values

DIMENSIONAL DATA



ORDERING INFORMATION & SUBMITTAL SCHEDULE

MODEL SELECTION BUILDER

MODEL	WATTS	CCT	CRI	VOLTAGE	MOUNT	OPTIC	FINISH	CONTROLS	OPTIONS
FREEDOM	500 600 800	40K **50K**	**70** 80 90	**STD** HV	**YK**	ST	**BLK** BRZ GRY GRN	WL	SPD20 BC

Bold values indicate standard configuration.

CATALOG NUMBER EXAMPLE FREEDOM-600-50K-70-STD-YK-ST-BLK-WL-SPD20

CONFIGURATION CODES

CCT

40K = 4000K
50K = 5000K

VOLTAGE

STD = 100-277V
HV = 277-480V

MOUNT

YK = YOKE BRACKET

OPTICS

ST = STADIUM ASYMMETRIC

FINISH

BLK = BLACK
BRZ = BRONZE
GRY = GRAY
GRN = GREEN

CONTROL

WL = WIRELESS MESH

OPTIONS

SPD20 = 20 KV SURGE PROTECTION
BC = BROADCAST CONFIG

FIXTURE SCHEDULE

TYPE	CATALOG NUMBER	QTY

Final configuration shall be verified against project-specific electrical and photometric requirements.

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