Greenshine

VOLTA

NSB PRO

Cost Effective Solar Lighting Solutions

VOLTA | GENERAL SPECIFICATIONS

Greenshine

Light Fixture *(GS-LED-NSBP)*

Luminaire Input Voltage	DC 12V | 24V
Power Consumption	30W | 40W
Lumen	3929 | 5288 lumens
Color Temperature	3000-4000 K
IES Lighting Type	Type II | III | V
Material	Die-cast aluminum

Solar Panel *(12 Units)* 40W

Rating Power	40 W
Maximum Power Voltage	18.92 V
Maximum Power Current	2.12 A
Open Circuit Current	23.65 V
Short Circuit Current	2.26 A
Size	65" x 8"
Weight	11 lb

Battery *(2 Units)*

Battery Type	GEL Deep Cycle Lead-Acid
Operating Voltage	12 V
Capacity	150 Ah at 20 hr-rate to 1.75 V per cell at 77°F
Dimensions	16(L)×7(W)×9.2(H) (in)
Expected Life	5 ~ 7 years

Solar Charger

Operating Voltage	12 V/24 V auto recognition
Max. Charge / Load Current	5 A/ 10 A/ 20 A (different models)
Night / Day Detection	2.5 V – 10 V
IP Class	IP68

Pole

Height	20 ft
Diameter	7 7/8" at the bottom, 7 7/8" at the top
Thickness	5/32"
Material	Galvanized Steel
Finishing	Powder Coating

BRIGHTA | GENERAL SPECIFICATIONS

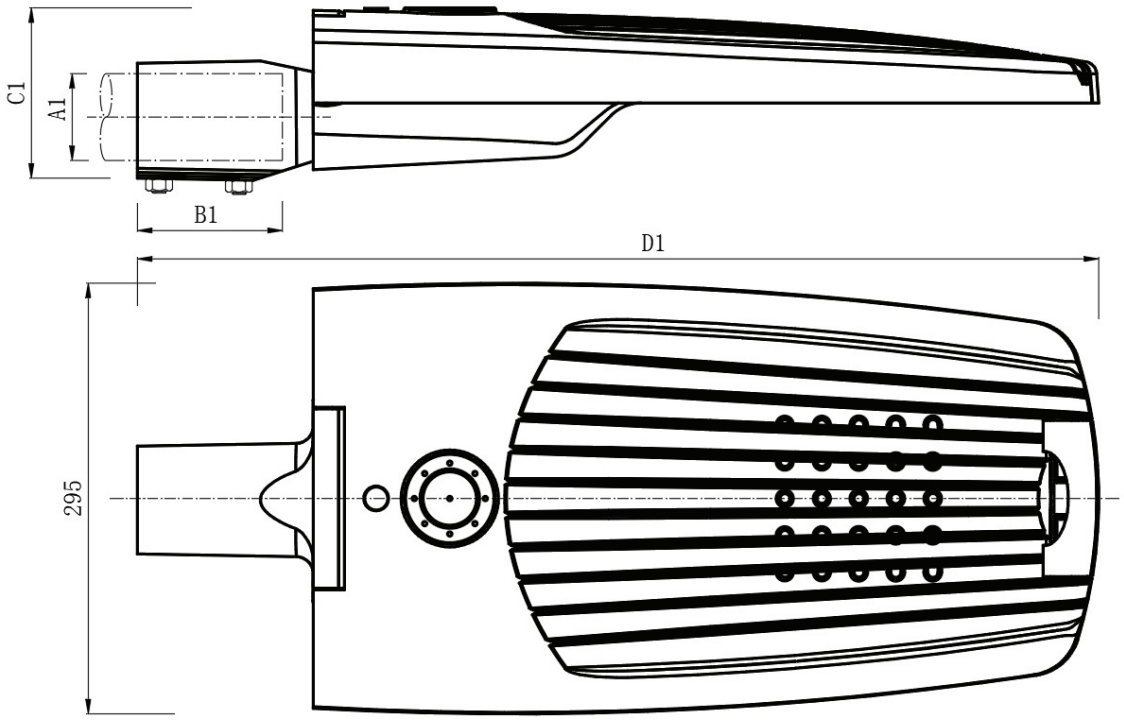
Greenshine

SPECIFICATIONS

Luminaire Input Voltage	DC 12V | 24V
Power Consumption	30W | 40W
Lumen Output	3929 | 5288 lumens
Color Temperature	3000-4000 K
IES Lighting Type	Type II | III | V
Material	High pressure die-cast aluminum
Lens	5mm toughened glass, optical grade PMMA
IP Class	IP 65
Insulation	Class I
Operating Temperature	-30°C ~+50°C/ -22°F ~+122°F
CRI	≥70

Weight: 8.3 kg | 18.3 lb

DIMENSIONS



A1	B1	C1	D1
ϕ60	90	119	663

Solar panel

Greenshine

8 x 40W

Volta solar wrapped pole consists of 8 x 40W solar panel. The solar panel back frame is anodized with black color finish, ideal for all kinds of outdoor weather condition use.

Each solar panel is with MC4 type connectors, easy to connect.

Rating Power	40W
Production Tolerance	± 3%
Maximum Power Voltage	18.92 V
Maximum Power Current	2.12 A
Open Circuit Voltage	23.65 V
Short Circuit Current	2.26 A
Frame	Anodized aluminum, 4mm thickness
Dimensions	1650mm x 200mm x 40mm 65" x 8" x 1.6” 5Kg / 11lb
Test Temperature	25°C / 77°F, 1000w/m², Air Mass 1.5
Junction box / Wiring	IP65 Junction box with 900mm cable with MC4 connectors

GREENSHINE GEL-TYPE BATTERY

Solar Powered LED Lighting System

Greenshine

OVERVIEW

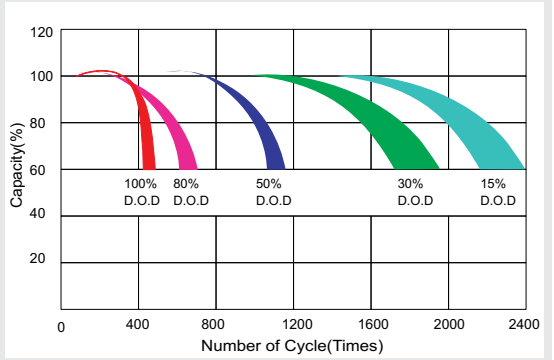
GEL deep cycle battery with a 12 years floating design life is especially designed for frequent cyclic discharge under extreme temperature.

	GS-GEL-H80	GS-GEL-H120	GS-GEL-H150	GS-GEL-H200
Cells per unit	6	6	6	6
Voltage per unit	12V	12V	12V	12V
Capacity	80Ah @ 20hr-rate to 1.75V per cell @ 25°C / 77°F	120Ah @ 20hr-rate to 1.75V per cell @ 25°C / 77°F	150Ah @ 20hr-rate to 1.75V per cell @ 25°C / 77°F	200Ah @ 20hr-rate to 1.75V per cell @ 25°C / 77°F
Weight	26kg / 58lb	38kg / 84lb	46kg / 100lb	59.2kg / 131.5lb
Dimensions L x W x H	330 x 172 x 214(mm) 13" x 7" x 8.5"	406 x 173 x 233(mm) 16" x 7" x 9.2"	483 x 170 x 240(mm) 19" x 6.7" x 9.5"	522 x 240 x 218(mm) 20.5" x 9.44" x 8.7"
Max Discharge Current	800A (5 Sec)	1200A (5 Sec)	1500A (5 Sec)	2000A (5 Sec) [2]
Operating Temp. range	-40°C~60°C | -40°F~140°F			
Flot Charging Voltage	13.6 to 13.8 VDC / unit average at 25°C / 77°F			
Recommended max. charging current	16A	24A	30A	40A
Self-discharge	Valve Regulated Lead Acid can be stored for more than 6 months at 25°C/77°F. Self-discharge ratio less than 3% per month at 25°C/77°F. Please charge batteries before using.			
Equalization and cycle service	14.6 to 14.8 VDC / unit average at 25°C / 77°F			
Terminal type	5ft cooper wire leads from the battery case			

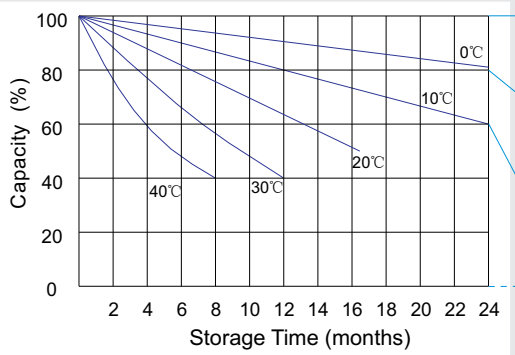
GREENSHINE GEL-TYPE BATTERY

Greenshine

Life characteristics of cyclic use



Storage characteristic



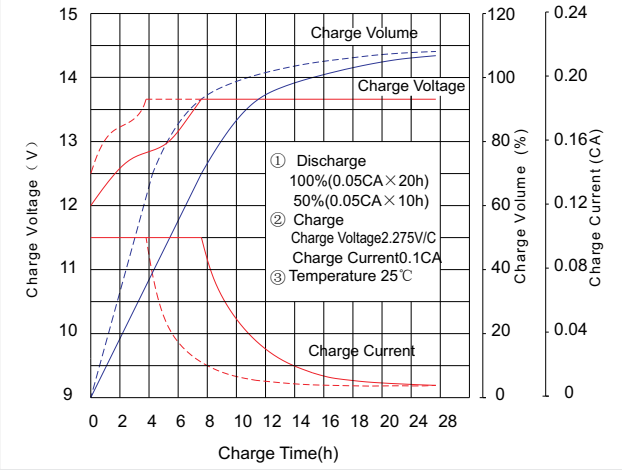
Supplementary charge required (Carry out supplementary charge before use if 100% capacity is requires)

Supplementary charge required before use. This supplementary charge will help to recover the capacity and should be made as early as possible.

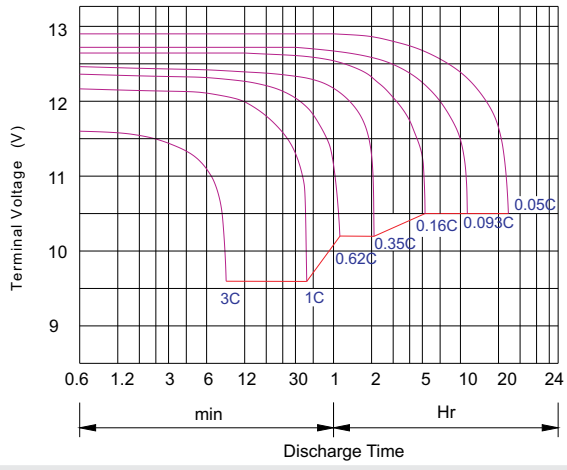
Supplementary charge may often fail to recover the capacity. The battery should never be left standing till this state is reached

Supplementary charge and storage guidelines

Charge characteristic curve for cyclic use



Discharge characteristic curve



Capacity Factors With Different Temperature

Battery Type		-20℃	-10℃	0℃	5℃	10℃	20℃	25℃	30℃	40℃	45℃
GEL Battery	6V&12V	50%	70%	83%	85%	90%	98%	100%	102%	104%	105%
	2V	60%	75%	85%	88%	92%	99%	100%	103%	105%	106%
AGM Battery	6V&12V	46%	66%	76%	83%	90%	98%	100%	103%	107%	109%
	2V	55%	70%	80%	85%	92%	99%	100%	104%	108%	110%

Discharge Current VS. Discharge Voltage

Final Discharge Voltage V /cell	1.75V	1.70V	1.60V
Discharge Current (A)	（A）≤0.2C	0.2C＜（A）＜1.0C	（A）≥1.0C

Charge the batteries at least once every six months, if they are stored at 25℃.

Charging Method:

Constant Voltage	-0.2Cx2h+14.4-14.7Vx24h,Max. Current 0.2C
Constant Current	-0.2Cx2h+0.1Cx12h
Fast	-0.2Cx2h+0.2Cx6h

Bolt	M5	M6	M8
Terminal	F3 F4 F13 F18 T25 T26	F8 F11 F12-1 F15	F5 F9 F10 F12 F14 F16
Torque	6~7N-m	8~10N-m	10~12N-m

Maintenance & Cautions

Cycle service
※ Avoid battery over discharge, especially battery sereis connection use.
※ Charged with recommend voltage, ensure battery can be full recharged.
In general, recharge capacity should be 1.1-1.15 times discharge capacity.
※ Effect of temperature on cycle charge voltage: -4mV/℃/Cell.
※ There are a number of factors that will affect the length of cyclic service.
The most significant are depth of discharge, ambient temperature,
discharge rate, and the manner in which the battery is recharged.
Generally specking, the most important factors is depth of discharge.

GREENSHINE CONTROLLER

Solar Powered LED Lighting System

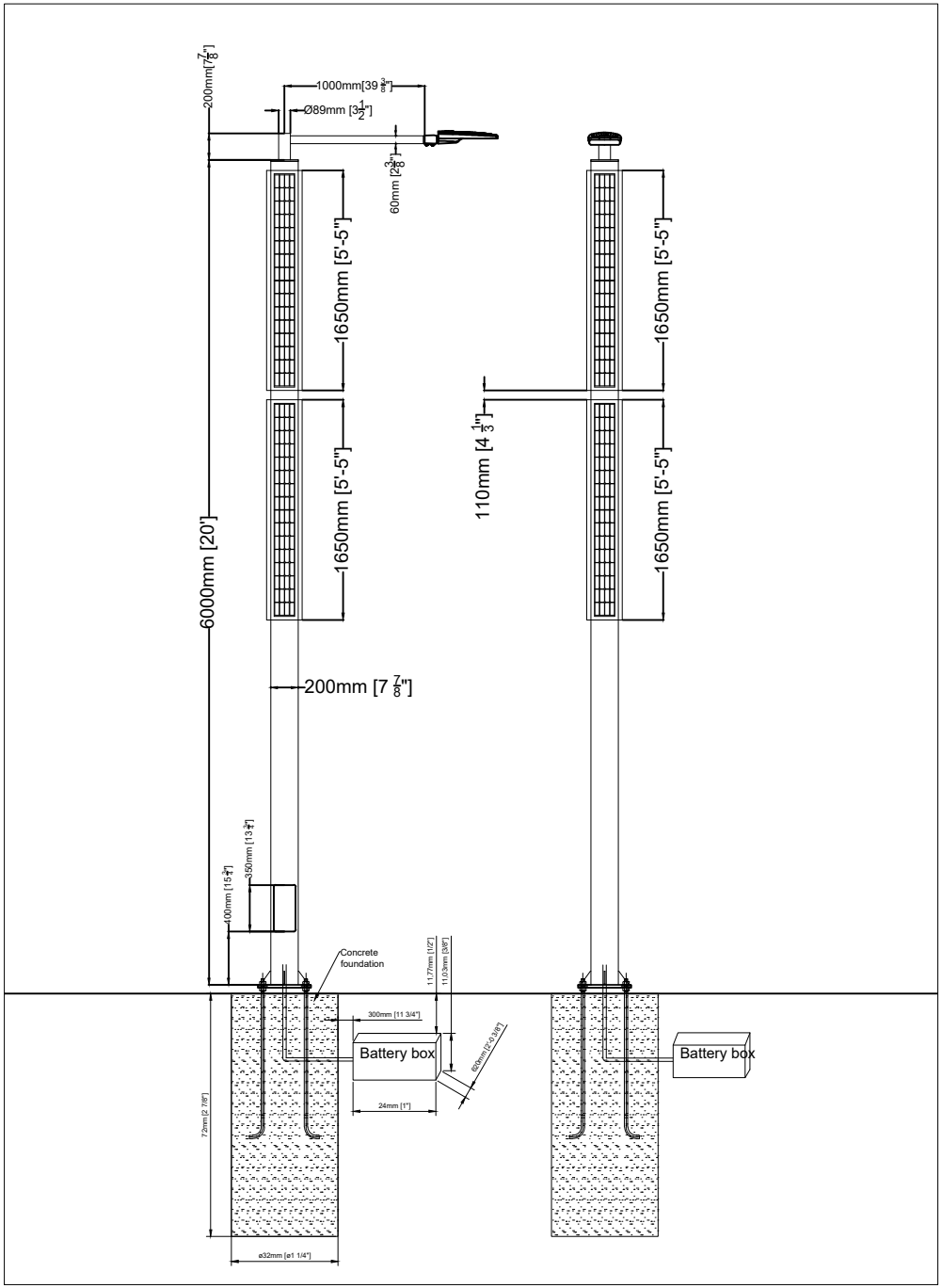
Greenshine

FEATURES

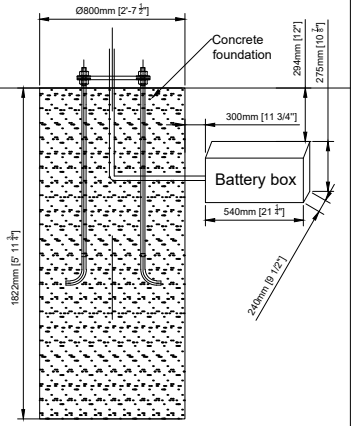
- Corrosion-proof epoxy-encapsulated PCB (IP68)
- Four-stage battery charging (main, float, boost, equalization)
- Temperature compensated
- Automatic system voltage recognition (12V/24V)
- Customized by Greenshine to fit specific needs of clients
- Easy to install

SPECIFICATIONS

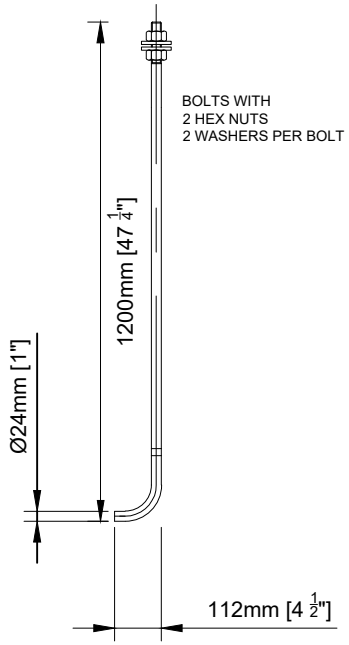
System Voltage	12V | 24 Auto Recognition
Max. charge / load current	5A | 10A | 20A (Different Models)
Deep discharge protection:	
Cut-off Voltage	11V - 12V | 22V - 24V
Reconnect Level	12.8V | 25.6V
Overvoltage Protection	15.5V | 31.0V
Undervoltage Protection	10.5V | 21V
Max. Panel Voltage	U_{BATmin} + 30V (if module and battery are connected with correct polarity)
Temperature compensation	−25mV | K at 12V
(Charge Voltage)	−50mV | K at 24V
Ambient Temperature	−40°C to +60°C, −40°F to +140°F
Max. Altitude	4,000m above sea level
Battery Type	Lead acid (GEL, AGM, flooded)
Adjustment Range:	
Evening / Morning Hours	0 – 15h | 0 – 14h
Night / Day Detection	2.5V – 10V
Wire Cross Section	1.5mm2/ 1.5mm2/ 2.5mm2, 15 (AWG)
Type of Protection	IP68 (1.5 m, 72 h)

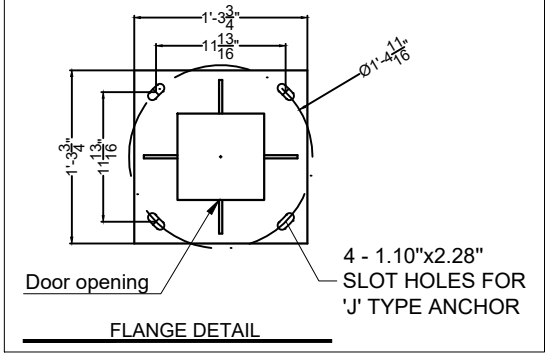


FOUNDATION DETAIL



ANCHOR BOLT DETAIL





FLANGE DETAIL

- Foundation dimensions shall be confirmed by a local engineering company, Greenshine New energy will not be held liable for any defect of the concrete foundation due to improper sizing.
- Drawings are based using hot-dipped galvanized steel, powder coating with a thickness of 5/32" .
- *EPA of the system exclude the EPA of the pole, includes the solar panels, brackets, arm and LED fixture and battery box.
- **Wind resistance of the poles are indicative and further customization can be provided.

Proposal	Greenshine		
System	GS-LED-NSBP - 20' pole - 8 panels		
By	Luis Jimenez	Date	4/19/2019

www.streetlights-solar.com

Greenshine New Energy

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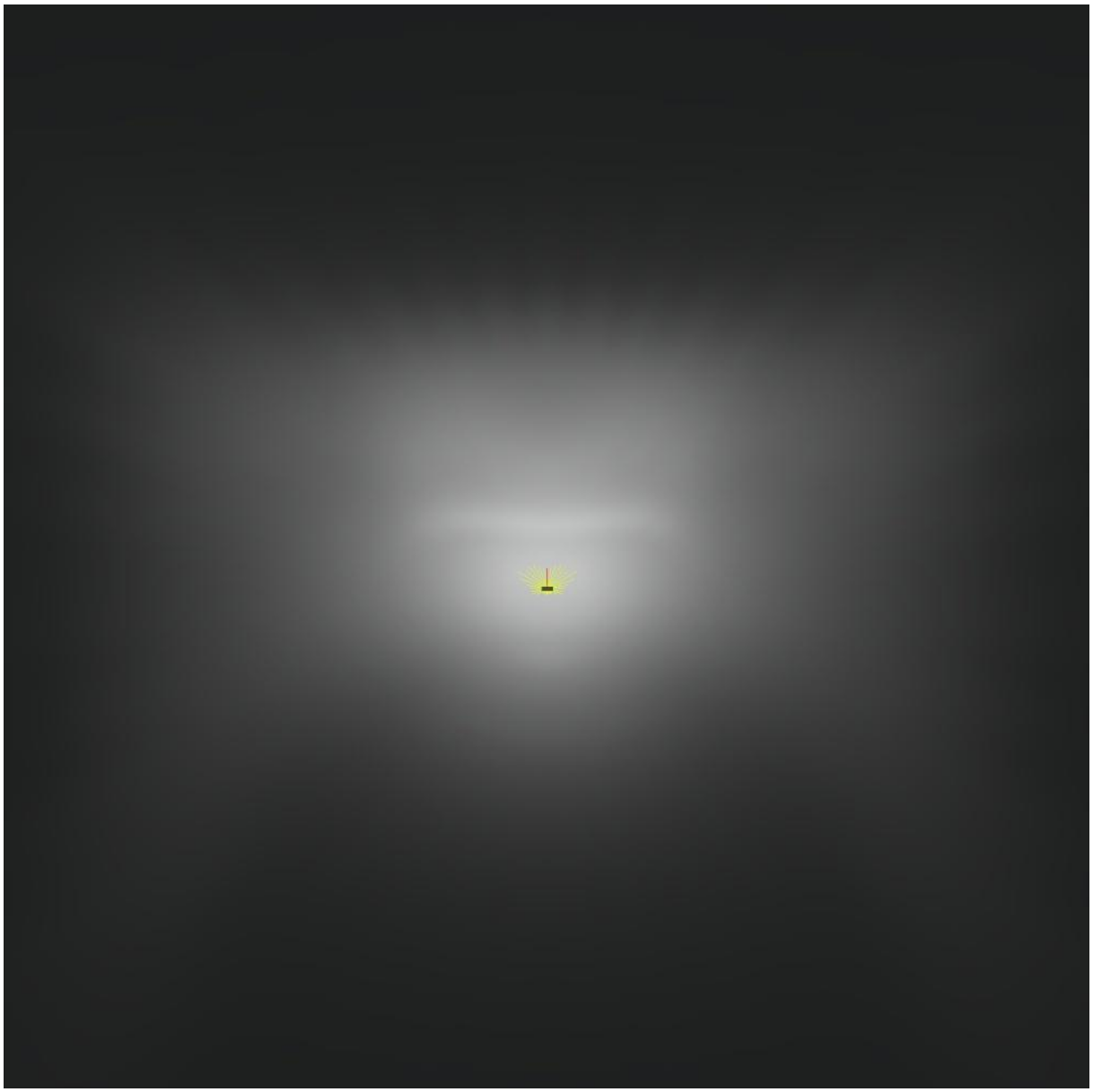
VOLTA 30W - 20' POLE / 3D Rendering



03 / 23 / 2020

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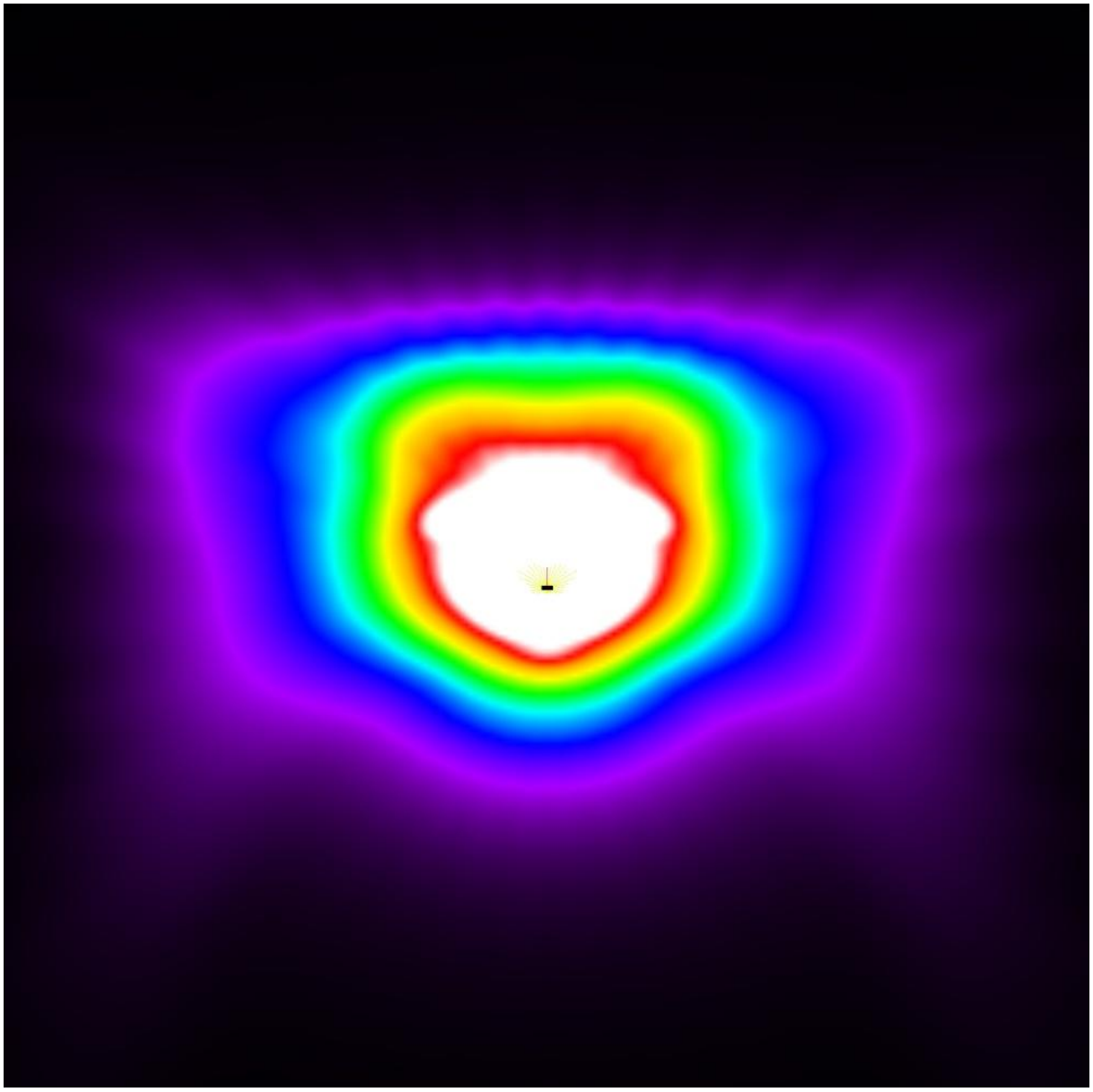
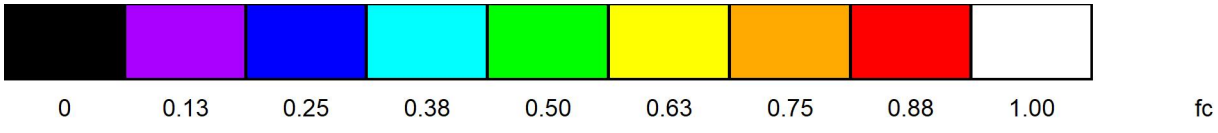
VOLTA 30W - 20' POLE / False Color Rendering





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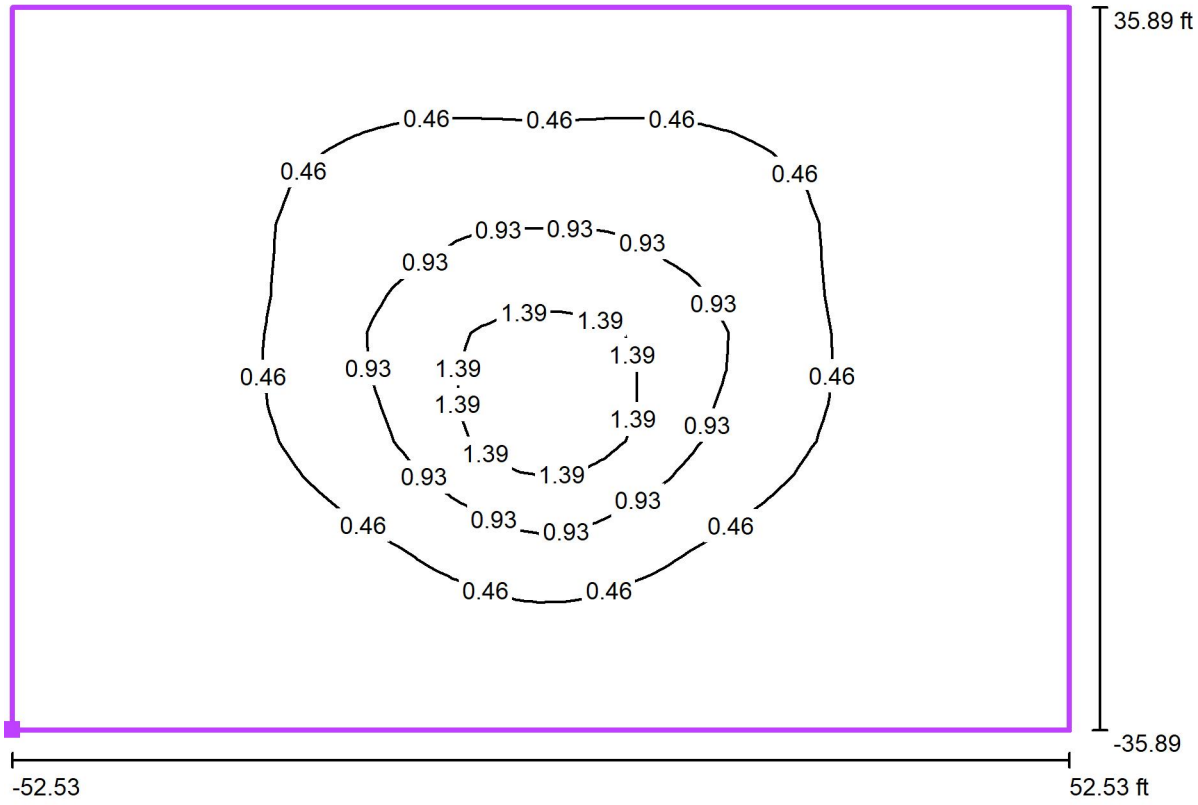
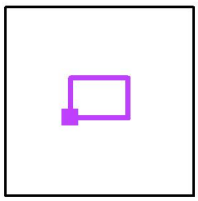
VOLTA 30W - 20' POLE / Calculation Grid 1 / Isolines (E, Perpendicular)



Values in Footcandles, Scale 1 : 229

Position of surface in external scene:
Marked point: (118.535 ft, 142.055 ft, 0.000 ft)



Grid: 50 x 20 Points

E_{av} [fc]	E_{min} [fc]	E_{max} [fc]	u0	E_{min} / E_{max}
0.41	0.05	1.75	0.13	0.03

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VOLTA 30W - 20' POLE / Calculation Grid 1 / Value Chart (E, Perpendicular)

0.06	0.07	0.08	0.09	0.10	0.12	0.14	0.15	0.15	0.14	0.13	0.12	0.12	0.09	0.09	0.07	0.07
0.08	0.11	0.12	0.14	0.17	0.21	0.24	0.25	0.26	0.26	0.24	0.21	0.19	0.16	0.13	0.12	0.10
0.11	0.14	0.17	0.20	0.26	0.33	0.37	0.38	0.39	0.39	0.38	0.35	0.29	0.23	0.18	0.16	0.12
0.13	0.17	0.21	0.26	0.34	0.44	0.51	0.52	0.51	0.52	0.53	0.49	0.40	0.30	0.24	0.19	0.15
0.13	0.19	0.24	0.31	0.41	0.55	0.65	0.67	0.65	0.66	0.67	0.61	0.49	0.35	0.28	0.22	0.16
0.14	0.20	0.26	0.34	0.46	0.64	0.77	0.82	0.82	0.82	0.81	0.72	0.56	0.39	0.30	0.23	0.17
0.14	0.20	0.27	0.34	0.47	0.69	0.85	0.96	1.01	1.00	0.90	0.79	0.58	0.40	0.30	0.24	0.17
0.13	0.19	0.25	0.34	0.47	0.70	0.90	1.06	1.15	1.12	0.99	0.82	0.59	0.40	0.30	0.22	0.16
0.12	0.18	0.25	0.34	0.49	0.75	1.10	1.32	1.42	1.39	1.23	0.95	0.61	0.41	0.29	0.22	0.15
0.12	0.17	0.24	0.35	0.51	0.79	1.13	1.45	1.67	1.60	1.30	1.01	0.63	0.43	0.29	0.21	0.15
0.11	0.16	0.23	0.34	0.50	0.76	1.07	1.44	1.68	1.62	1.27	0.92	0.63	0.42	0.29	0.20	0.13
0.10	0.15	0.22	0.32	0.48	0.71	1.04	1.46	1.74	1.67	1.27	0.88	0.59	0.40	0.27	0.19	0.13
0.10	0.15	0.21	0.30	0.44	0.63	0.92	1.30	1.53	1.47	1.13	0.78	0.53	0.37	0.26	0.18	0.12
0.10	0.14	0.20	0.27	0.36	0.51	0.73	1.01	1.22	1.15	0.88	0.62	0.43	0.32	0.23	0.17	0.12
0.09	0.13	0.17	0.22	0.29	0.39	0.54	0.74	0.96	0.87	0.64	0.46	0.34	0.25	0.20	0.15	0.11
0.09	0.12	0.15	0.18	0.22	0.28	0.39	0.53	0.63	0.60	0.47	0.33	0.25	0.20	0.16	0.13	0.10
0.08	0.10	0.12	0.14	0.16	0.21	0.29	0.38	0.44	0.42	0.34	0.25	0.18	0.15	0.13	0.11	0.09
0.07	0.08	0.09	0.10	0.12	0.16	0.22	0.29	0.32	0.31	0.26	0.19	0.13	0.11	0.10	0.09	0.08
0.06	0.07	0.07	0.08	0.09	0.12	0.16	0.20	0.22	0.21	0.18	0.14	0.10	0.08	0.07	0.07	0.07
0.05	0.06	0.06	0.06	0.07	0.09	0.11	0.14	0.15	0.15	0.13	0.10	0.08	0.06	0.06	0.06	0.06

35.89 ft

-35.89

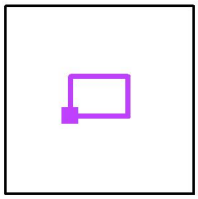
-52.53

52.53 ft

Values in Footcandles, Scale 1 : 229

Not all calculated values could be displayed.

Position of surface in external scene:
Marked point: (118.535 ft, 142.055 ft, 0.000 ft)



Grid: 50 x 20 Points

E_{av} [fc]	E_{min} [fc]	E_{max} [fc]	u0	E_{min} / E_{max}
0.41	0.05	1.75	0.13	0.03