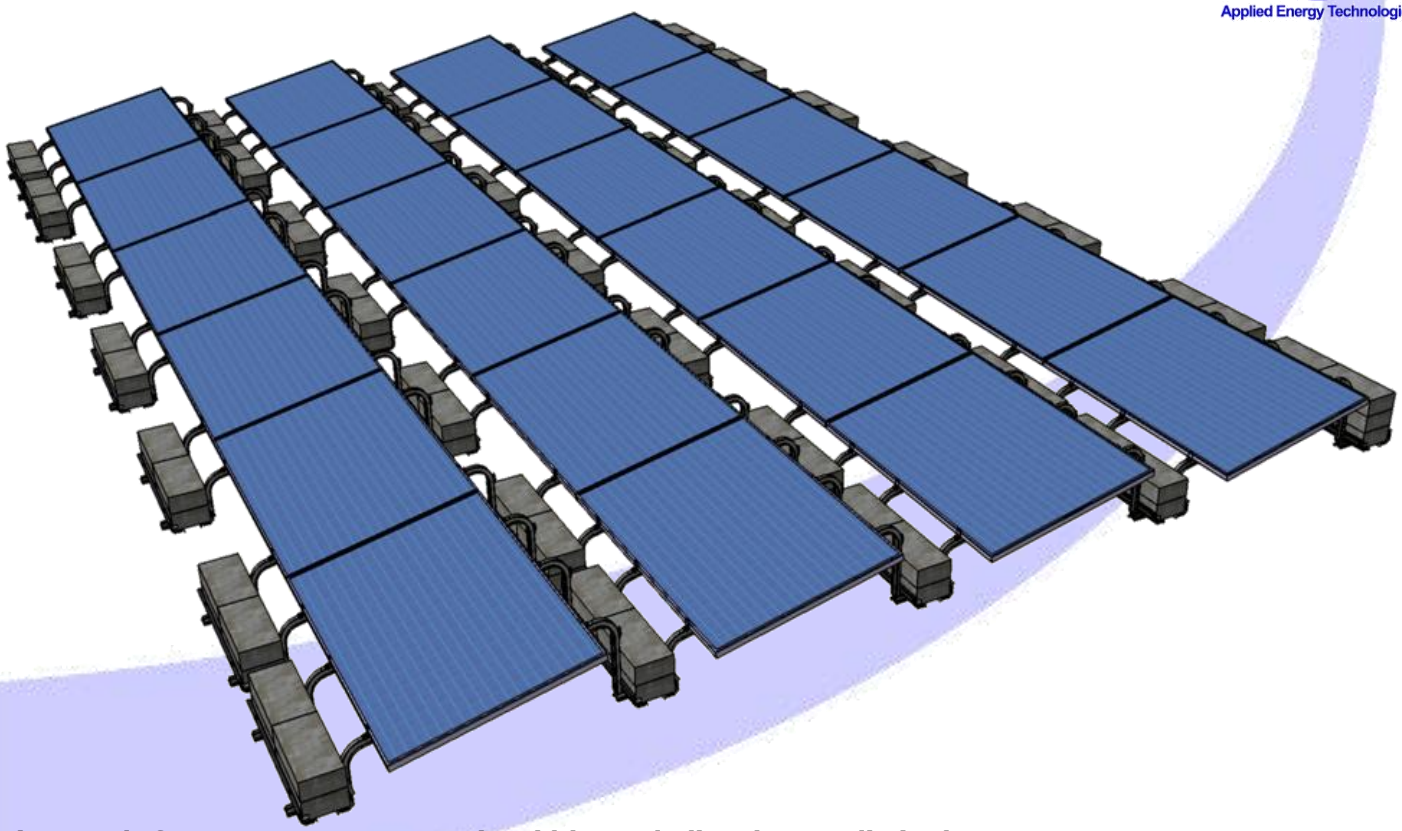
Applied Energy Technologies

Rayport™ Product Specification Sheet

Rayport™ Spec Sheet

Applied Energy Technologies



Fits Panels from 950mm to 994mm in width. Including, but not limited to:

*** Patent Pending**

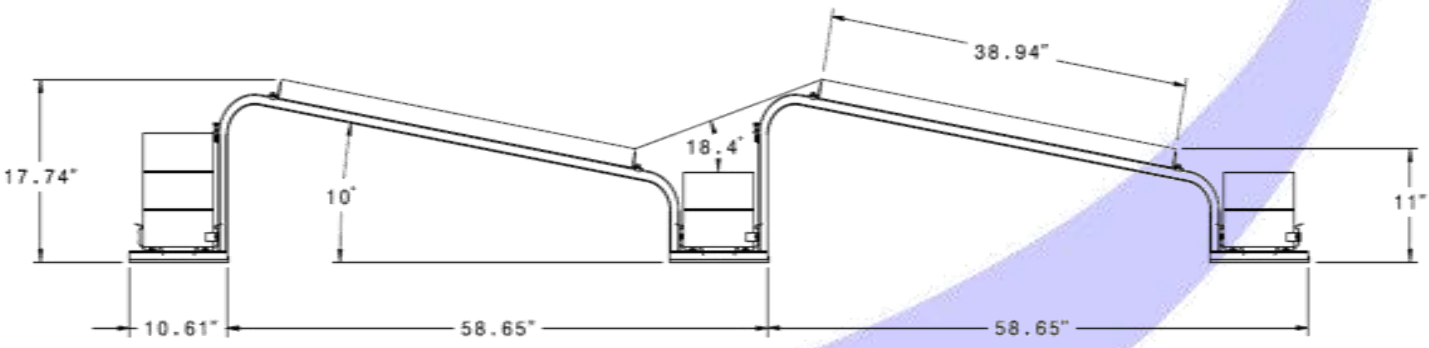
Manufacturer	Model Number	Watts	Length	Width	Height
REC Solar	PREMIUM 205	205	1665	991	43
	PREM. or SCM 210 / 215	210 / 215	1665	991	43
	PREM. or SCM 220 / 225	220 / 25	1665	991	43
	PREM. or SCM 230	230	1665	991	43
	PREMIUM 235	235	1665	991	43
Evergreen Solar	ES-180 / 190 / 195	180 / 190 / 195	1570	953	41
	ES-A-200 / 205 / 210	200 / 205 / 210	1651	953	46
Canadian Solar Inc.	CS6A-160 / 170 / 180	160 / 170 / 180	1324	982	40
	CS6P-170 / 180 / 190	170 / 180 / 190	1638	982	40
	CS6P-200 / 210 / 220	200 / 210 / 220	1638	982	40
	CS6P-230 / 240	230 / 240	1638	982	40
Kyocera	KC175GT	175	1290	990	36
	KC200GT	200	1425	990	36
	KD180GX-LP	180	1341	990	36
	KD205 / 210GX-LP	205 / 210	1500	990	36
Day4Energy	48MC 160 / 165 / 170	160 / 165 / 170	1307	991	35
	48MC 175 / 180 / 185	175 / 180 / 175	1307	991	35
	48MC 190	190	1307	991	35

Manufacturer	Model Number	Watts	Length	Width	Height
Suntech	STP190 / S -18/Ub-1	190	1482	992	35
	STP200 / S -18/Ub-1	200	1482	992	35
	STP210 / S -18/Ub-1	210	1482	992	35
GE Energy	GEPVp - 200 5 - M	200 / 5	1485	981	35
Sharp	ND-N2ECUF	142	1165	990	46
	ND-176U1Y	176	1328	994	57.5
	ND-198U1F	198	1491	994	57.5
	ND-216U1F / 216U2	216	1640	994	46
	ND-220U1F / 220U2	220	1640	994	46
	ND-224U1F / 224U2	224	1640	994	46
	ND-V230A1	230	1640	994	46
Kaneka	G-EA060	60	990	960	40
	G-SA060	60	990	960	40
	P-LE055	55	990	990	40
	T-EC120	120	1918.8	990	46
	T-ED120	120	1978.8	960	46
	T-SC120	120	1918.8	990	46
	T-SD120	120	1978.8	960	46

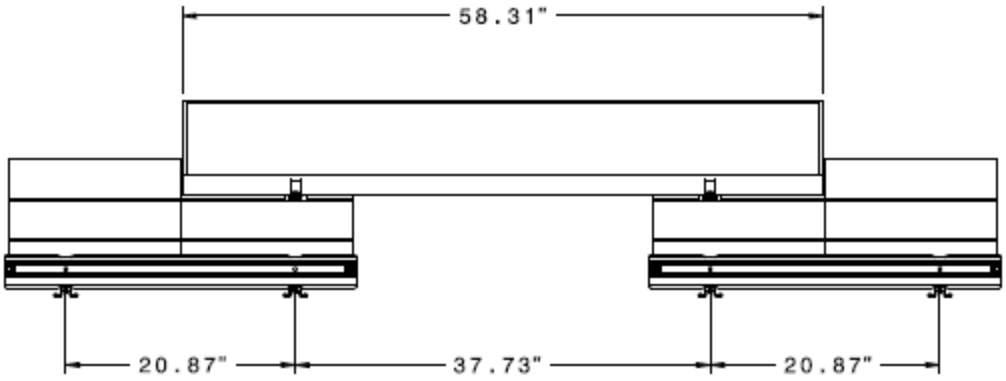
Rayport™ Spec Sheet (con't)

Curb weight (per panel):	**10.6 lbs (rack)**
Panel angle:	**10 deg fixed**
Panel Layout:	**Landscape**
Panel height from roof:	**232 mm (9.1in)**
Installation rate:	**1.5 kW / man-hour**
Panel-to-panel length:	**1489 mm (58.65in)**
System load:	**Specific to building height, panel type, and exposure category.**
Corrosion performance:	**Stainless Steel - 10 years, see warranty for more details.**
Performance rating:	**Cat.B, 120 mph**
Grounding (panel):	**Integrated Weeb clip on each support grounds panels to rails.**
Grounding (racking):	**1 grounding lug per tray to be installed at the rear support rail. Only required every 20 rows. Lugs not included.**
Contact surface:	**Protective rubber pads included on each ballast tray.**

Rayport™ Layout Dimensions



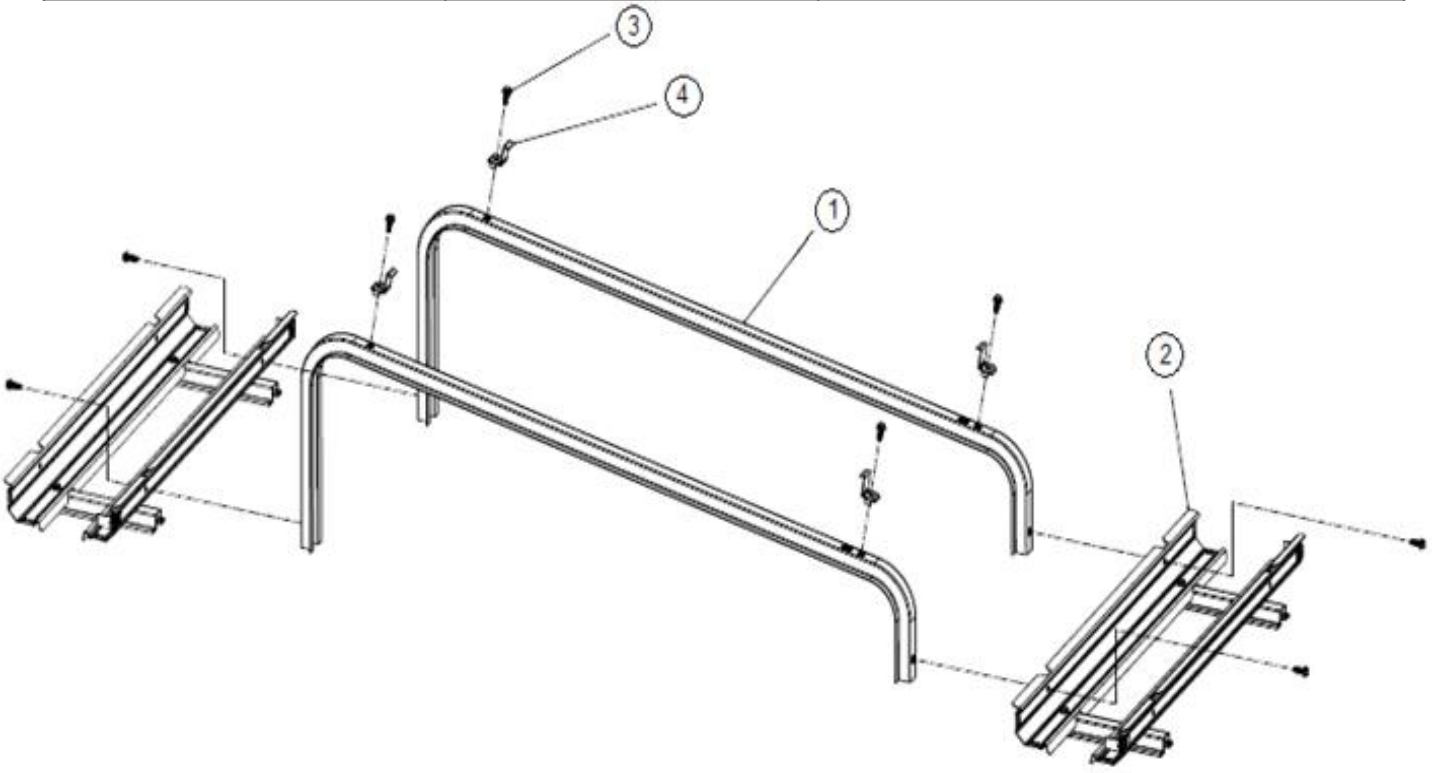
Side view – 58.65” repeating column dimension



Front view – 20.87” repeating dimension.
Overall row length is based on panel length

Rayport™ BOM

	Part	P/N	Panel
1	Support Rail	80001- 953	Evergreen 180-210
		80001- 960	Kaneka 60-120
		80001- 981	GE 200
		80001- 982	Canadian Solar 160-240
		80001- 990	Kyocera 175-210
		80001- 991	REC 205-235
		80001-	Day4Energy 160-190
		80001- 992	Suntech 190-210
		80001- 994	Sharp 176-230
2	Ballast Tray	80009-	---
3	Z-Bracket	80022- 35	Day4Energy 160-190
		80022-	Suntech 190-210
		80022-	GE 200
		80022- 36	Kyocera 175-210
		80022- 40	Canadian Solar 160-240
		80022-	Kaneka 60-55
		80022- 41	Evergreen 180-195
		80022- 43	REC 205-235
		80022- 46	Evergreen 200-210
		80022-	Sharp 216-230
		80022-	Kaneka 120
		80022- 57.5	Sharp 176-198
4	Bolt	80013-	---
n/a	Sizing Tool	n/a	---



Rayport™ 4 x 6 Layout View

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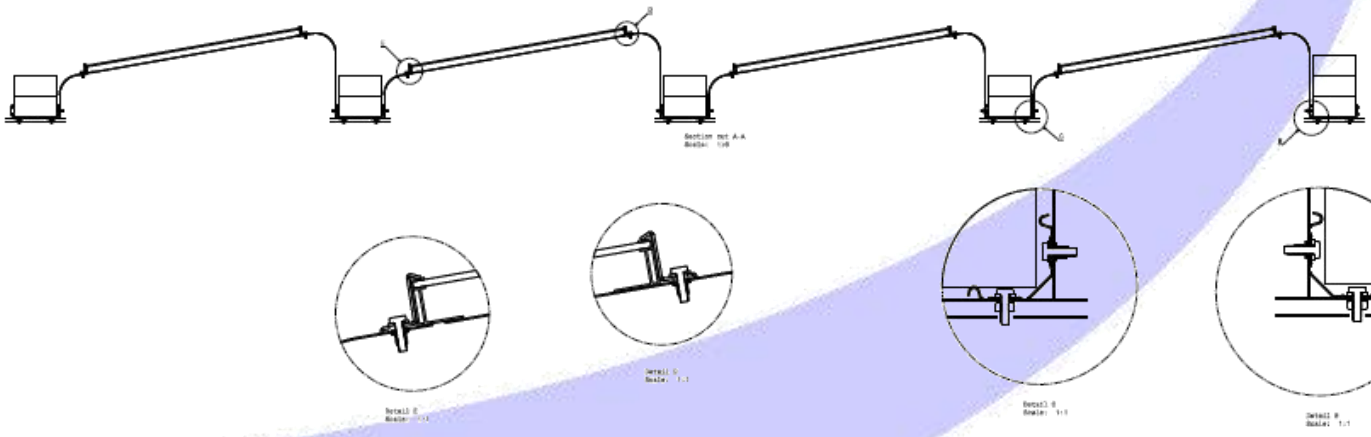
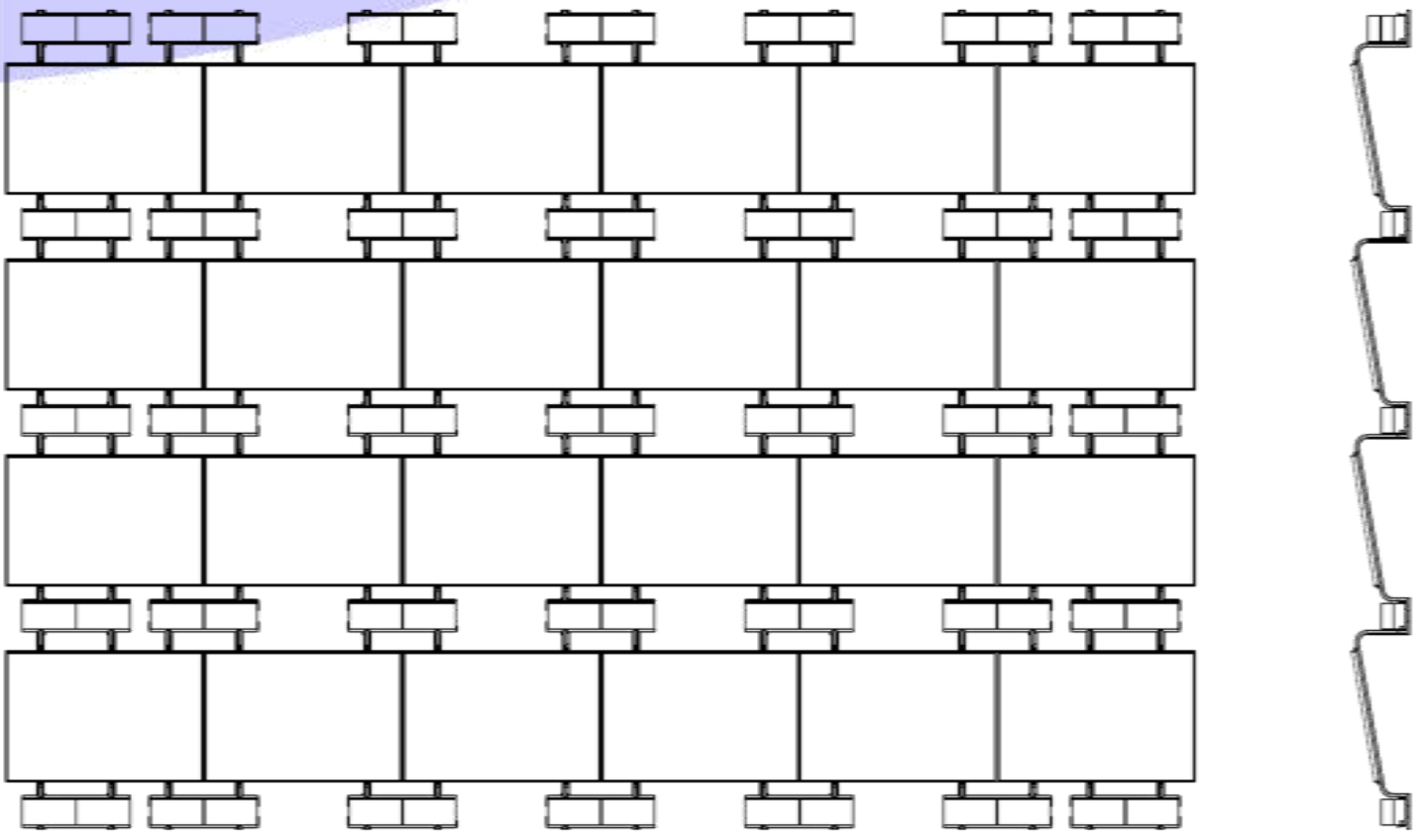
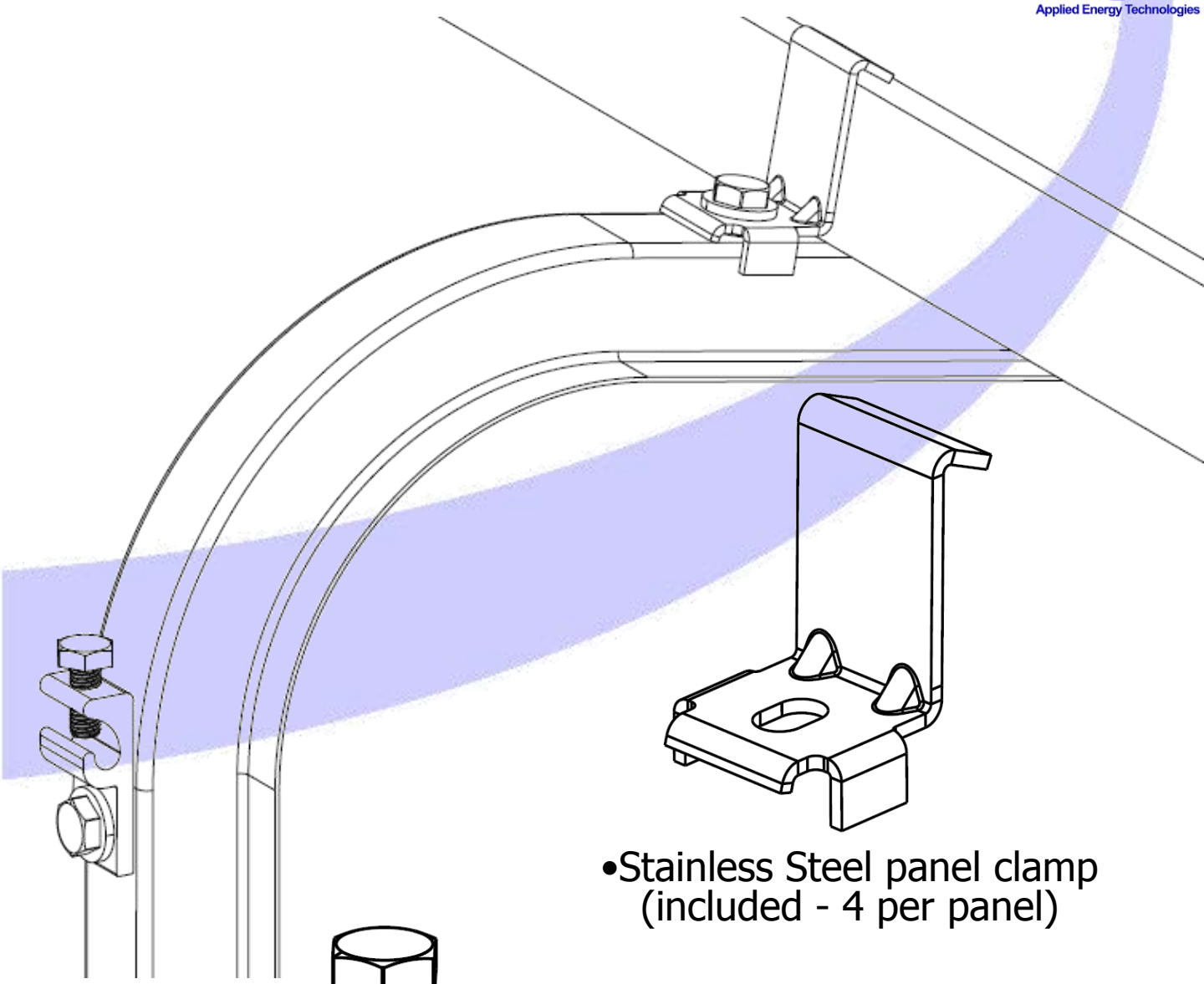
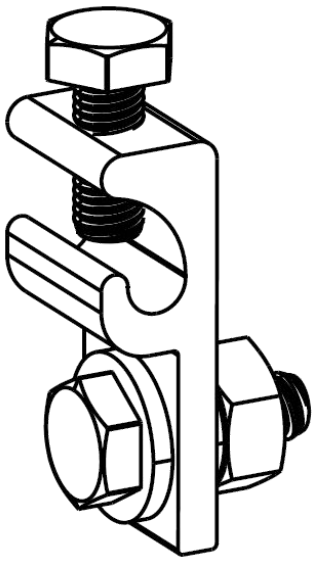




Grounding / Panel Clips



•Stainless Steel panel clamp
(included - 4 per panel)



•Standard grounding lug (not included)

Rayport™ Cross Sections

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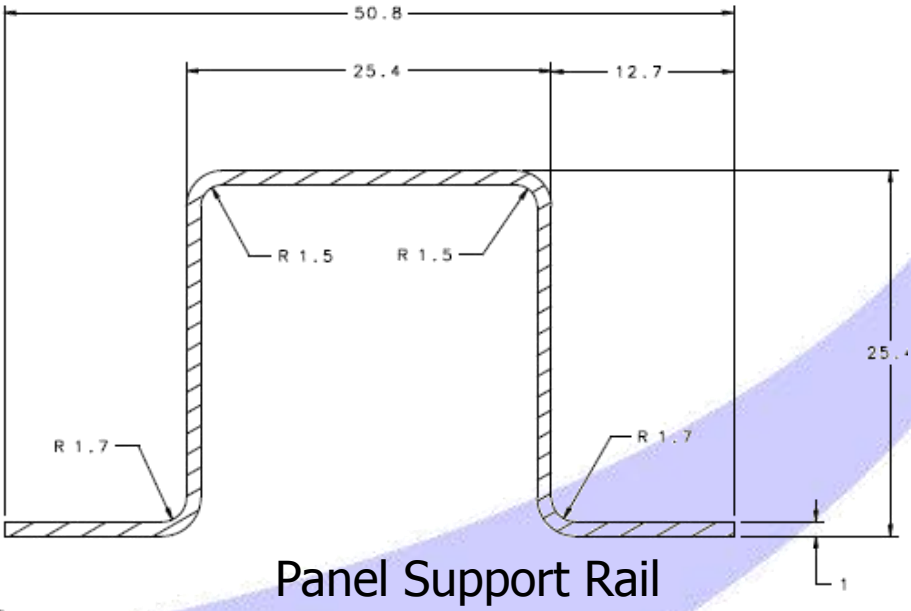
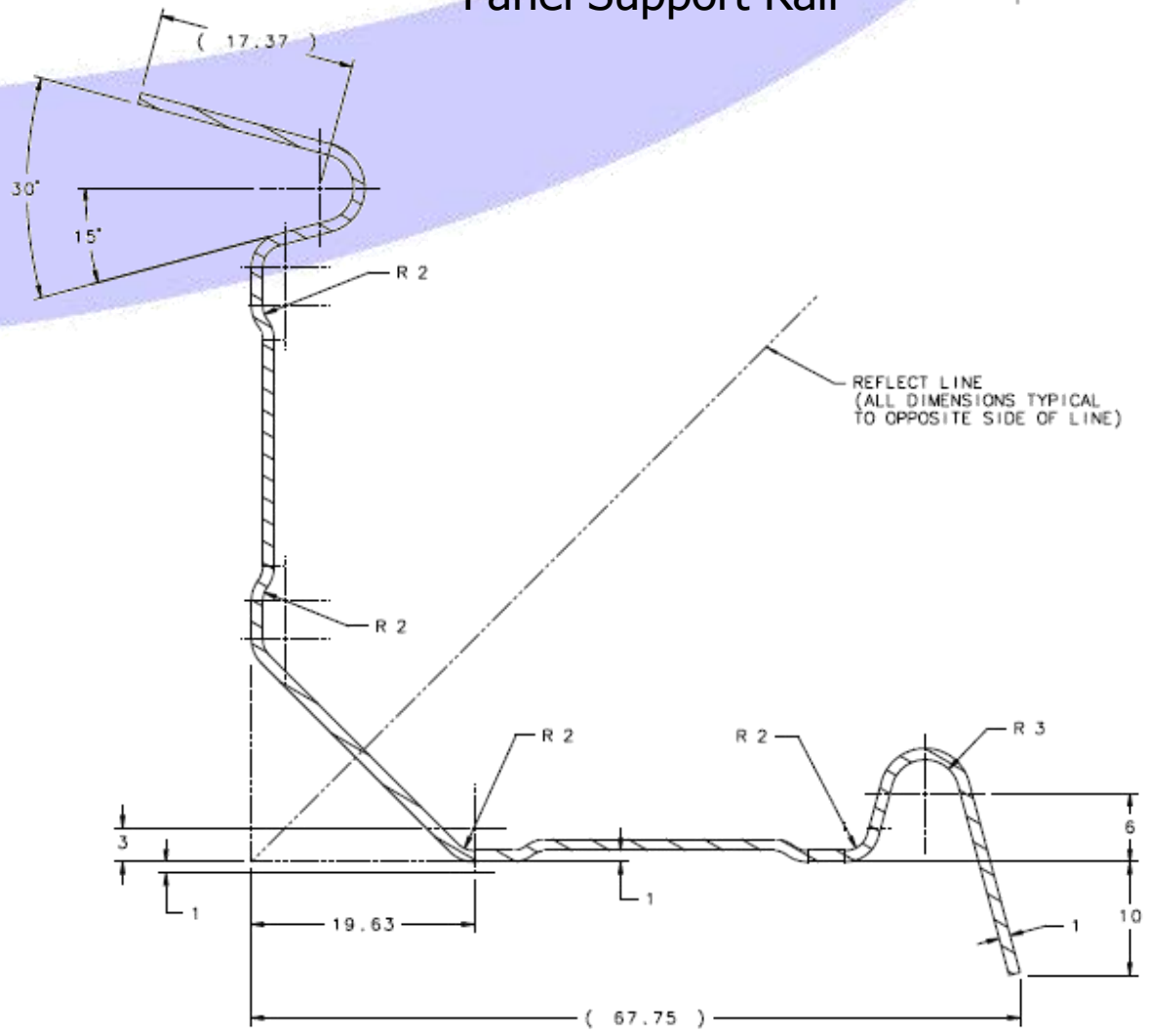


Panel Support Rail



Ballast Tray Rail

Rayport™ Mounting Pads

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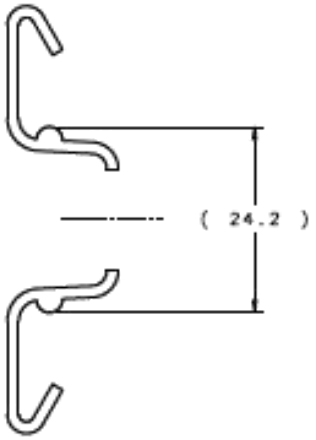
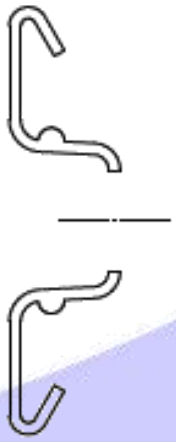
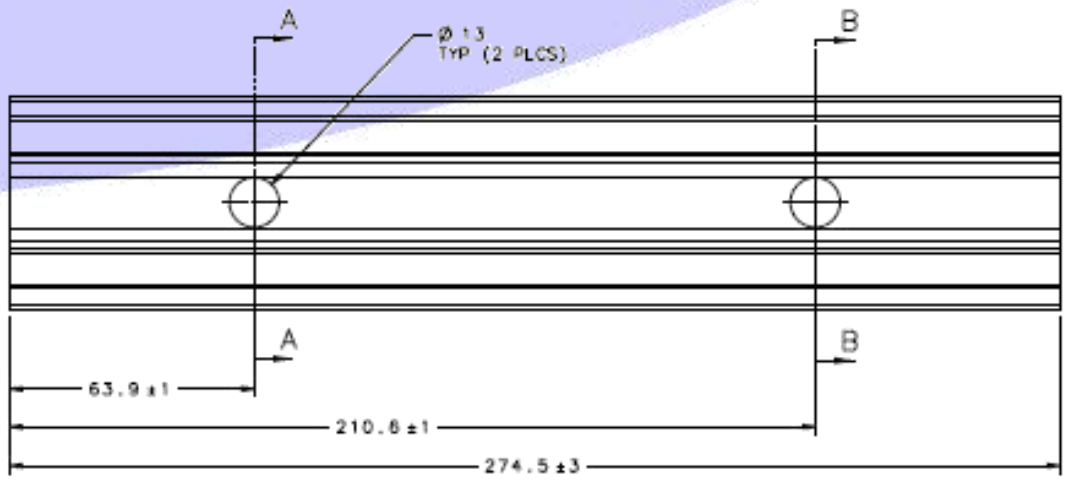
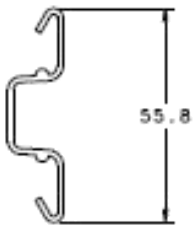


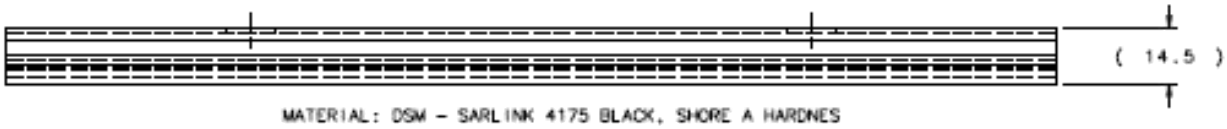
SECTION A–A
SCALE 2:1



SECTION B–B
SCALE 2:1

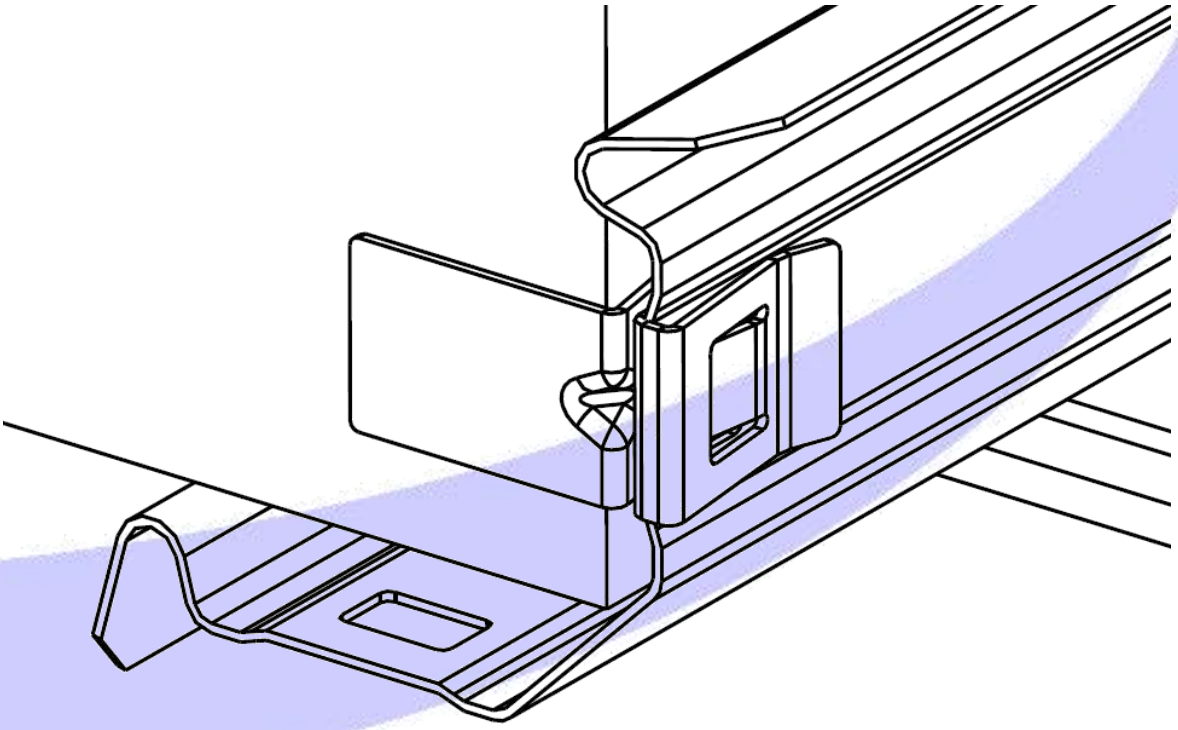




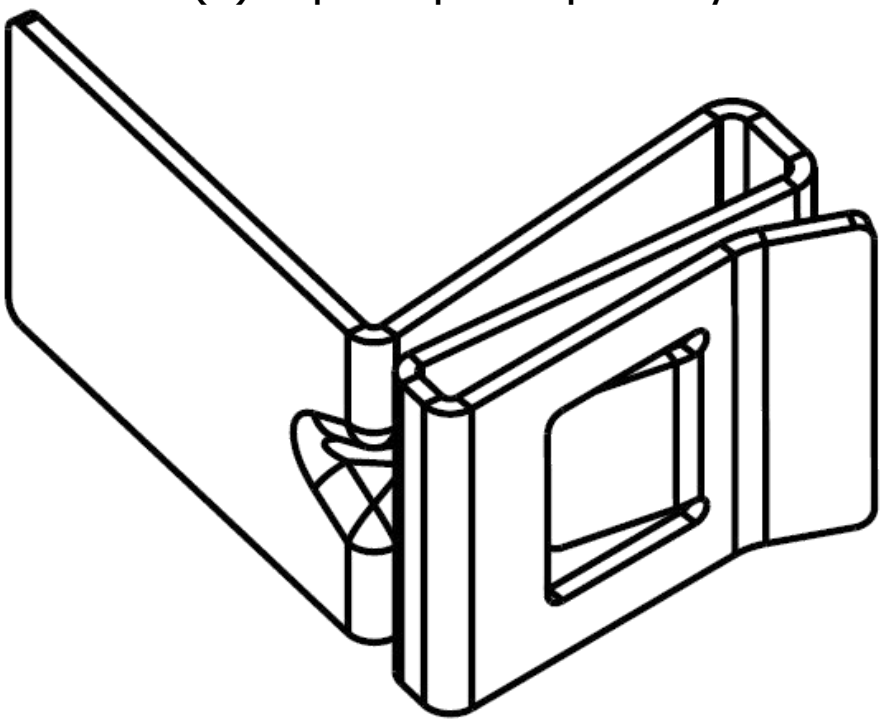


MATERIAL: DSM – SARLINK 4175 BLACK, SHORE A HARDNES

Rayport™ Seismic Clip



Optional Stainless Steel clip
attaches to ends of ballast tray.
(2) clips required per tray.



Rayport™ Grounding Analysis

Applied Energy Technologies

1001 Madison Avenue
Toledo, OH 43604
419.255.3830 T
419.255.6101 F

www.ssoe.com

ISO 9001 certified

May 6, 2009

Mr. John Harberts
Vice President - Product Development
Applied Energy Technologies
1722 Indian Wood Circle Suite A
Maumee, OH 43537

RE: PhotoVoltaic System Frame Grounding
Project No. 009-00781-00

Dear Mr. Harberts:

SSOE Inc. has worked with Applied Energy Technologies to test the resistance of the assembled stainless steel photovoltaic system support frame for roof mounting. We have evaluated the results of these tests and find that the assembled system provides an adequate ground path.

The system resistance of five (5) panels connected together is less than 30 m-ohms over the length. This is not an excellent ground path, but it is sufficient to provide a continuous ground path for non-current carrying metal parts.

The system should be installed with at least one ground connection per 20 continuously connected frames. The installer should install the systems following all requirements of the applicable version of the NEC, all pertinent local codes, and the photovoltaic panel installation requirements.

Sincerely,

SSOE, Inc.

Edward A. McConnell

Edward A. McConnell Jr., P.E.
Master Engineer,
Sr. Associate
Electrical Power

cc: J. Carter, Z. Platsis - SSOE Inc.

SSOE, INC.

Rayport™ Structural Analysis

Applied Energy Technologies

PALMER
ASSOCIATES
INC

Machine Engineering
& Systems Design

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Toledo, OH 43612
(419) 478-7151
FAX: (419) 478-3947
www.palmerassoc.com

To Whom It May Concern:

July 20, 2009

Our review and testing of the Applied Energy Technologies Rayport 430 10 Degree Solar Panel Mounting system concludes the system exceeds the requirements of the minimum design loads specified in ASCE/SEI 7-05 for panels up to 20.5 square feet in area, wind speeds up to 120 mph and snow loads up to 50 psf.

Tests were performed to validate the wind and snow loads specified in 7-05 (including wind tunnel tests up to 120 mph).

The design tool developed by AET following ASCE/SEI 7-05 and provided to Palmer Associates was also validated.

These conclusions are based on information provided by Applied Energy Technologies, physical testing done in our facilities and, observation of tests performed at other facilities.

By:

STATE OF OHIO
MARVIN
K.
HIMMELEIN
E-71571
REGISTERED
PROFESSIONAL ENGINEER

Marvin K. Himmelein, P.E.

Principal