

DATE: 18/11/2022
DESIGNER: James Duffin BA (Hons) IEng MILP
PROJECT No: EVO20011211-AC-101-B
PROJECT NAME: Lower Acre Parcel 1.2, OHH

ENERVEO

Parcel 1.2 - Private Roads
One Horton Heath

Road Lighting Class - P4

Lantern - Urbis Schreder Axia 3.1
Colour Temperature - 3000K
Maintenance Factor - 0.85

Outdoor Lighting Report

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Layout Report

General Data

Dimensions in Metres Angles in Degrees

Calculation Grids

ID	Grid Name	X	Y	X' Length	Y' Length	X' Spacing	Y' Spacing
1	Grid 1 - Private Road 1 - ...	448912.49	116367.84	21.00	60.00	1.50	1.50
2	Grid 2 - Private Road 1 - ...	448911.79	116319.05	54.00	99.00	1.50	1.50
3	Grid 3 - Vertical Plot 312	448903.08	116344.48	10.22	5.00	1.46	1.25
4	Grid 4 - Vertical plot 314	448879.42	116348.46	5.77	5.00	1.44	1.25
5	Grid 5 - Vertical Plot 317...	448851.79	116393.63	14.21	2.50	1.42	1.25
6	Grid 6 - Vertical Plot 352	448921.01	116377.35	6.41	5.00	1.28	1.25
7	Grid 7 - Private Road 3 - ...	448814.43	116414.18	45.00	72.00	1.50	1.50
8	Grid 8 - Private Road 3 - ...	448844.62	116463.37	108.00	27.00	1.50	1.50
9	Grid 9 - Vertical Plot 365	448843.91	116434.71	6.35	5.00	1.27	1.25
10	Grid 10 - Vertical Plot 36...	448818.16	116446.85	14.41	2.50	1.44	1.25
11	Grid 11 - Vertical Plots 3...	448867.73	116468.64	16.28	5.00	1.48	1.25
12	Grid 12 - Vertical Plots 3...	448894.54	116457.25	16.24	5.00	1.48	1.25
13	Grid 13 - Vertical Plots 3...	448938.98	116439.65	19.45	5.00	1.50	1.25
14	Grid 14 - Vertical Plot 34...	448921.09	116447.27	11.50	5.00	1.44	1.25
15	Grid 15 - Vertical Plot 35...	448901.91	116441.63	11.55	5.00	1.44	1.25
16	Grid 16 - Private Road 4 - ...	448832.78	116422.34	57.00	12.00	1.50	1.50
17	Grid 17 - Vertical Plot 36...	448851.26	116424.67	10.82	5.00	1.35	1.25
18	Grid 18 - Vertical Plot 33...	448857.39	116413.56	10.91	5.00	1.36	1.25
19	Grid 19 - Vertical Plot 36...	448862.86	116421.43	13.98	2.50	1.40	0.62
20	Grid 20 - Vertical Plots 3...	448813.16	116434.31	11.56	5.00	1.44	1.25

Luminaires

Luminaire A Data

Supplier	Urbis Schreder
Type	AXIA 3.1 5295 Integrated lenses Rear louvers 8 OSLO SQUARE G
Lamp(s)	8 OSLO SQUARE GIANT@850mA WW 730 230V 00-53-394
LampFlux(klm)/Colour	1.94 WW 3000K/70
File Name	AXIA 3.1 5295 8 OSLO SQUARE GIANT 850mA WW 730 22.8W 457592 Integrated...
Maintenance Factor	0.85
Imax70,80,90(cd/klm)	842.8, 11.9, 0.0
No. in Project	4

Luminaire B Data

Supplier	Urbis Schreder
Type	AXIA 3.1 5295 Integrated lenses Rear louvers 16 OSLO SQUARE
Lamp(s)	16 OSLO SQUARE GIANT@300mA WW 730 230V 01-37-041
LampFlux(klm)/Colour	1.59 WW 3000K/70
File Name	AXIA 3.1 5295 16 OSLO SQUARE GIANT 300mA WW 730 16.1W 457592 Integrated...
Maintenance Factor	0.85
Imax70,80,90(cd/klm)	842.8, 11.9, 0.0
No. in Project	8

Luminaire C Data

Supplier	Urbis Schreder
Type	AXIA 3.1 5295 Integrated lenses Rear louvers 16 OSLO SQUARE
Lamp(s)	16 OSLO SQUARE GIANT@200mA WW 730 230V 01-37-041
LampFlux(klm)/Colour	1.09 WW 3000K/70
File Name	AXIA 3.1 5295 16 OSLO SQUARE GIANT 200mA WW 730 11.2W 457592 Integrated...
Maintenance Factor	0.85
Imax70,80,90(cd/klm)	842.8, 11.9, 0.0
No. in Project	4

Luminaire P Data

Supplier	Urbis Schreder
Type	AXIA 3.1 5295 Integrated lenses Rear louvers 16 OSLO SQUARE
Lamp(s)	16 OSLO SQUARE GIANT@200mA WW 730 230V 01-37-041
LampFlux(klm)/Colour	1.09 WW 3000K/70
File Name	AXIA 3.1 5295 16 OSLO SQUARE GIANT 200mA WW 730 11.2W 457592 Integrated...
Maintenance Factor	0.85
Imax70,80,90(cd/klm)	842.8, 11.9, 0.0
No. in Project	2

Luminaires**Luminaire Q Data**

Supplier	Urbis Schreder
Type	AXIA 3.2 5279 Integrated lenses - 24 OSLO N SQUARE GIANT@700m
Lamp(s)	24 OSLO N SQUARE GIANT@700mA WW 730 230V 00-49-490
LampFlux(klm)/Colour	6.53 WW 3000K/70
File Name	AXIA 3.2 5279 24 OSLO N SQUARE GIAN T 700mA WW 730 52.5W 430122 Integrat...
Maintenance Factor	0.85
Imax70,80,90(cd/klm)	758.9, 149.6, 0.0
No. in Project	1

Luminaire S Data

Supplier	Urbis Schreder
Type	AXIA 3.1 5267 Integrated lenses Rear loun ers 16 OSLO N SQUARE
Lamp(s)	16 OSLO N SQUARE GIANT@700mA WW 730 230V 00-53-397
LampFlux(klm)/Colour	3.14 WW 3000K/70
File Name	AXIA 3.1 5267 16 OSLO N SQUARE GIAN T 700mA WW 730 35.6W 457672 Integrat...
Maintenance Factor	0.85
Imax70,80,90(cd/klm)	1281.8, 174.5, 0.0
No. in Project	7

Luminaire T Data

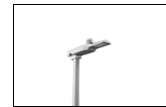
Supplier	Urbis Schreder
Type	AXIA 3.1 5270 Integrated lenses - 16 OSLO N SQUARE GIANT@480m
Lamp(s)	16 OSLO N SQUARE GIANT@480mA WW 730 230V 00-56-615
LampFlux(klm)/Colour	3.23 WW 3000K/70
File Name	AXIA 3.1 5270 16 OSLO N SQUARE GIAN T 480mA WW 730 25.1W 429112 Integrat...
Maintenance Factor	0.85
Imax70,80,90(cd/klm)	1022.0, 99.2, 0.0
No. in Project	4

Luminaire U Data

Supplier	Urbis Schreder
Type	AXIA 3.1 5296 Integrated lenses Rear loun ers 8 OSLO N SQUARE G
Lamp(s)	8 OSLO N SQUARE GIANT@300mA WW 730 230V 01-37-041
LampFlux(klm)/Colour	0.82 WW 3000K/70
File Name	AXIA 3.1 5296 8 OSLO N SQUARE GIANT 300mA WW 730 8.4W 457602 Integrated ...
Maintenance Factor	0.85
Imax70,80,90(cd/klm)	1285.9, 28.2, 0.0
No. in Project	5

Luminaire V Data

Supplier	Urbis Schreder
Type	AXIA 3.1 5295 Integrated lenses Rear loun ers 8 OSLO N SQUARE G
Lamp(s)	8 OSLO N SQUARE GIANT@850mA WW 730 230V 00-53-394
LampFlux(klm)/Colour	1.94 WW 3000K/70
File Name	AXIA 3.1 5295 8 OSLO N SQUARE GIANT 850mA WW 730 22.8W 457592 Integrated...
Maintenance Factor	0.85
Imax70,80,90(cd/klm)	842.8, 11.9, 0.0
No. in Project	2

Luminaire W Data

Supplier	Urbis Schreder
Type	AXIA 3.2 5279 Integrated lenses - 24 OSLO N SQUARE GIANT@1000
Lamp(s)	24 OSLO N SQUARE GIANT@1000mA W 730 230V 00-49-490
LampFlux(klm)/Colour	8.49 WW 3000K/70
File Name	AXIA 3.2 5279 24 OSLO N SQUARE GIAN T 1000mA WW 730 76W 430122 Integrat...
Maintenance Factor	0.85
Imax70,80,90(cd/klm)	758.9, 149.6, 0.0
No. in Project	1

Luminaire X Data

Supplier	Urbis Schreder
Type	AXIA 3.1 5266 Integrated lenses Rear loun ers 8 OSLO N SQUARE G
Lamp(s)	8 OSLO N SQUARE GIANT@700mA WW 730 230V 01-37-041
LampFlux(klm)/Colour	1.74 WW 3000K/70
File Name	AXIA 3.1 5266 8 OSLO N SQUARE GIANT 700mA WW 730 19.4W 457662 Integrated...
Maintenance Factor	0.85
Imax70,80,90(cd/klm)	1216.3, 169.4, 0.0
No. in Project	4

Luminaire Y Data

Supplier	Urbis Schreder
Type	AXIA 3.2 5267 Integrated lenses - 32 OSLO N SQUARE GIANT@800m
Lamp(s)	32 OSLO N SQUARE GIANT@800mA WW 730 230V 00-49-490
LampFlux(klm)/Colour	9.61 WW 3000K/70
File Name	AXIA 3.2 5267 32 OSLO N SQUARE GIAN T 800mA WW 730 78W 430092 Integrated...
Maintenance Factor	0.85
Imax70,80,90(cd/klm)	1001.2, 151.3, 0.0
No. in Project	1

Luminaires



Luminaire Z Data

Supplier	Urbis Schreder
Type	AXIA 3.2 5295 Integrated lenses Rear louvers 32 OSLOM SQUARE
Lamp(s)	32 OSLOM SQUARE GIANT@800mA WW 730 230V 01-50-748
LampFlux(klm)/Colour	7.96 WW 3000K/70
File Name	AXIA 3.2 5295 32 OSLOM SQUARE GIANT 800mA WW 730 78W 479062 Integrated...
Maintenance Factor	0.85
Imax70,80,90(cd/klm)	723.7, 21.7, 0.0
No. in Project	2

Layout

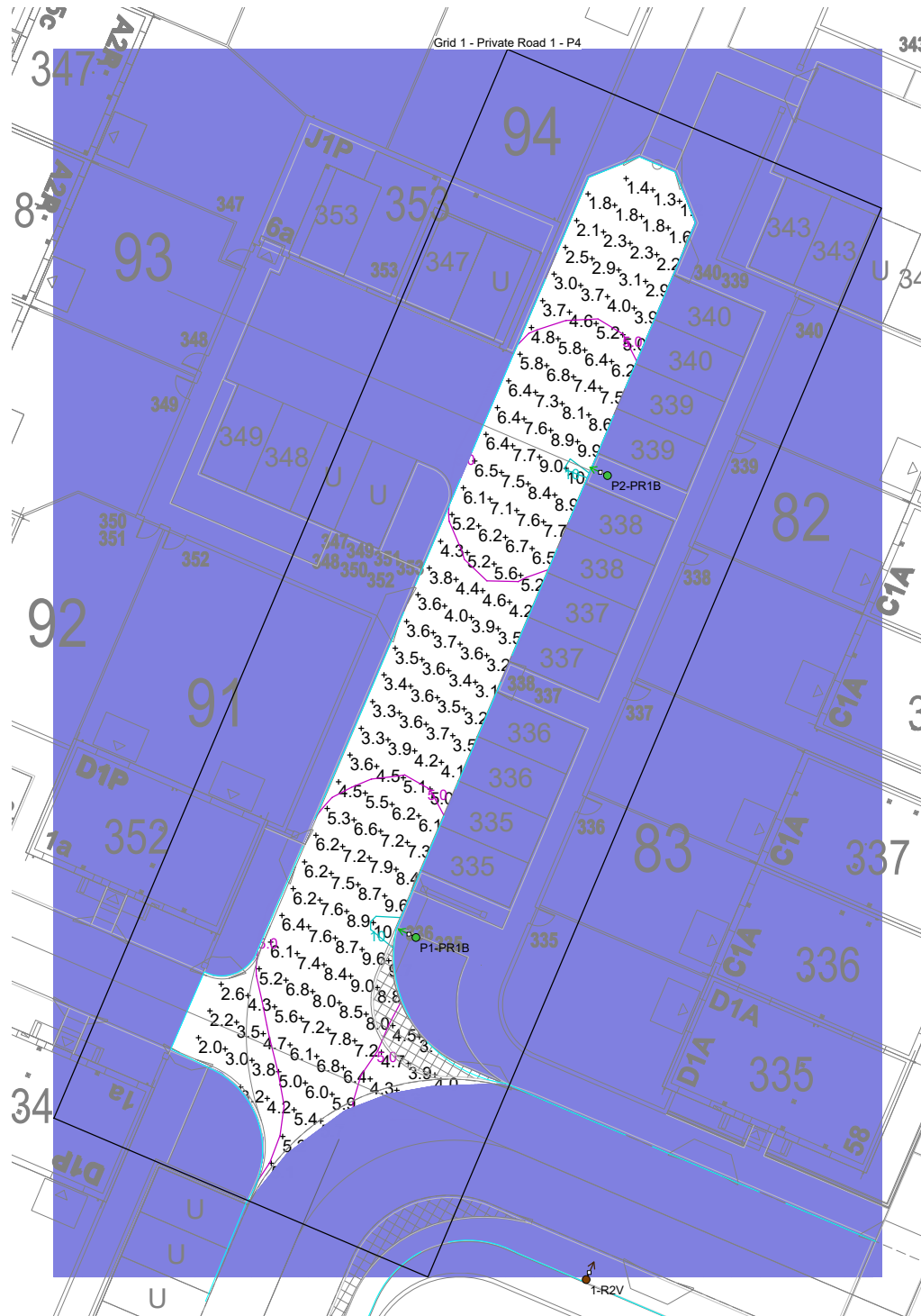
ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
10_S3(CONT)	Z	448847.56	116261.65	8.00	164.00	0.00	0.00	0.40			
11_S3(CONT)	X	448825.24	116268.39	6.00	339.00	0.00	0.00	0.40			
12_S3(CONT)	Z	448836.56	116288.36	8.00	13.00	0.00	0.00	0.40			
13_S3(CONT)	X	448848.62	116317.82	6.00	204.00	0.00	0.00	0.40			
14_S3(CONT)	W	448829.79	116309.23	8.00	14.00	0.00	0.00	0.40			
1-SR(CONT)	Y	448855.80	116295.81	8.00	279.00	0.00	0.00	0.40			
3-SR(CONT)	S	448878.64	116292.06	6.00	106.00	0.00	0.00	0.40			
4-SR(CONT)	T	448903.59	116309.03	6.00	287.00	0.00	0.00	0.40			
5-SR(CONT)	T	448924.82	116314.98	6.00	284.00	0.00	0.00	0.40			
6-SR(CONT)	T	448942.55	116321.25	6.00	310.00	0.00	0.00	0.40			
8-SR(CONT)	S	448961.35	116331.62	6.00	150.00	0.00	0.00	0.40			
10-SR(CONT)	S	448971.99	116354.64	6.00	159.00	0.00	0.00	0.40			
12-SR(CONT)	T	448973.73	116383.68	6.00	344.00	0.00	0.00	0.40			
13-SR(CONT)	S	448988.56	116402.20	6.00	168.00	0.00	0.00	0.40			
15-SR(CONT)	S	448997.71	116428.32	6.00	158.00	0.00	0.00	0.40			
16-SR(CONT)	S	448996.17	116452.69	6.00	337.00	0.00	0.00	0.40			
17-SR(CONT)	S	449016.83	116471.05	6.00	156.00	0.00	0.00	0.40			
7-SR(CONT)	U	448944.90	116337.59	6.00	341.00	0.00	0.00	0.40			
9-SR(CONT)	U	448951.34	116352.87	6.00	339.00	0.00	0.00	0.40			
11-SR(CONT)	U	448964.16	116382.96	6.00	336.00	0.00	0.00	0.40			
14-SR(CONT)	U	448978.53	116416.85	6.00	344.00	0.00	0.00	0.40			
2-SR(CONT)	U	448862.36	116308.51	6.00	246.00	0.00	0.00	0.40			
1-R2	V	448940.00	116359.50	6.00	66.00	0.00	0.00	0.40			
2-R2(CONT)	V	448928.01	116356.22	6.00	158.00	0.00	0.00	0.40			
1_SR2(CONT)	X	448805.24	116410.66	6.00	293.00	0.00	0.00	0.40			
19-S3(CONT)	X	448816.53	116388.88	6.00	199.00	0.00	0.00	0.40			
2-R1	P	448824.09	116417.09	6.00	287.00	0.00	0.00	0.40			
3-R1(CONT)	P	448836.64	116409.91	6.00	19.00	0.00	0.00	0.40			
20-S3(CONT)	Q	448793.09	116401.08	8.00	14.00	0.00	0.00	0.40			
P1-PR2	A	448909.15	116336.72	6.00	106.00	0.00	0.00	0.40			
P2-PR2	A	448875.87	116337.71	6.00	68.00	0.00	0.00	0.40			
P3-PR2	B	448856.52	116357.28	6.00	21.00	0.00	0.00	0.40			
P4-PR2	B	448847.71	116381.40	6.00	21.00	0.00	0.00	0.40			
P1-PR1	B	448931.20	116377.18	6.00	155.00	0.00	0.00	0.40			
P2-PR1	B	448941.10	116401.05	6.00	155.00	0.00	0.00	0.40			
P1-PR3	A	448838.58	116430.26	6.00	194.00	0.00	0.00	0.40			

Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
P2-PR3	C	448825.26	116441.78	6.00	106.00	0.00	0.00	0.40			
P3-PR3	A	448837.71	116466.89	6.00	339.00	0.00	0.00	0.40			
P4-PR3	B	448864.27	116480.07	6.00	248.00	0.00	0.00	0.40			
P5-PR3	B	448889.96	116469.25	6.00	247.00	0.00	0.00	0.40			
P6-PR3	B	448916.03	116459.24	6.00	248.00	0.00	0.00	0.40			
P7-PR3	C	448935.80	116449.59	6.00	248.00	0.00	0.00	0.40			
P8-PR3	C	448913.53	116437.81	6.00	154.00	0.00	0.00	0.40			
P1-PR4	C	448853.41	116415.97	6.00	66.00	0.00	0.00	0.40			
P2-PR4	B	448877.17	116413.41	6.00	246.00	0.00	0.00	0.40			

Horizontal Illuminance (lux)

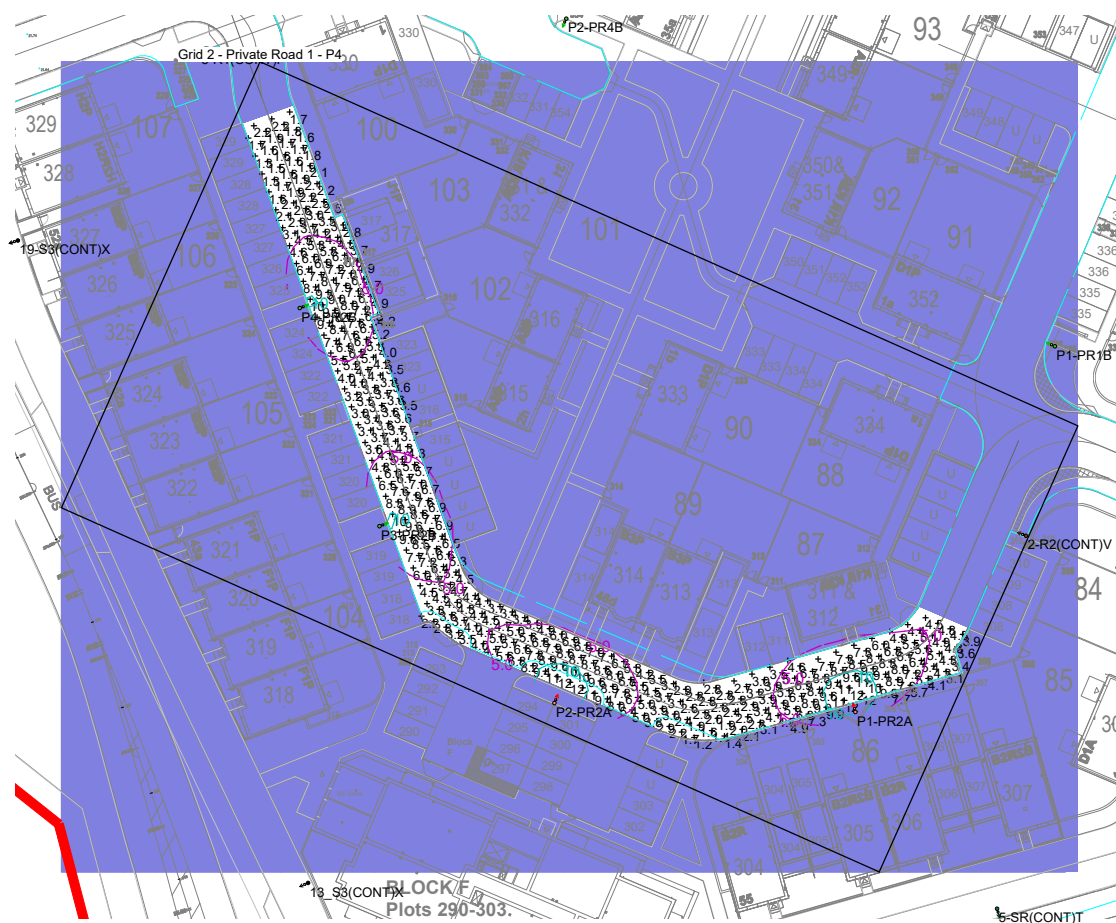
Grid 1 - Private Road 1 - P4

**Results**

Eav	5.39
Emin	1.16
Emax	10.12
Emin/Emax	0.11
Emin/Eav	0.22

Horizontal Illuminance (lux)

Grid 2 - Private Road 1 - P4



Results

Eav	5.37
Emin	1.22
Emax	12.49
Emin/Emax	0.10
Emin/Eav	0.23

Illuminance (lux)

Grid 3 - Vertical Plot 312

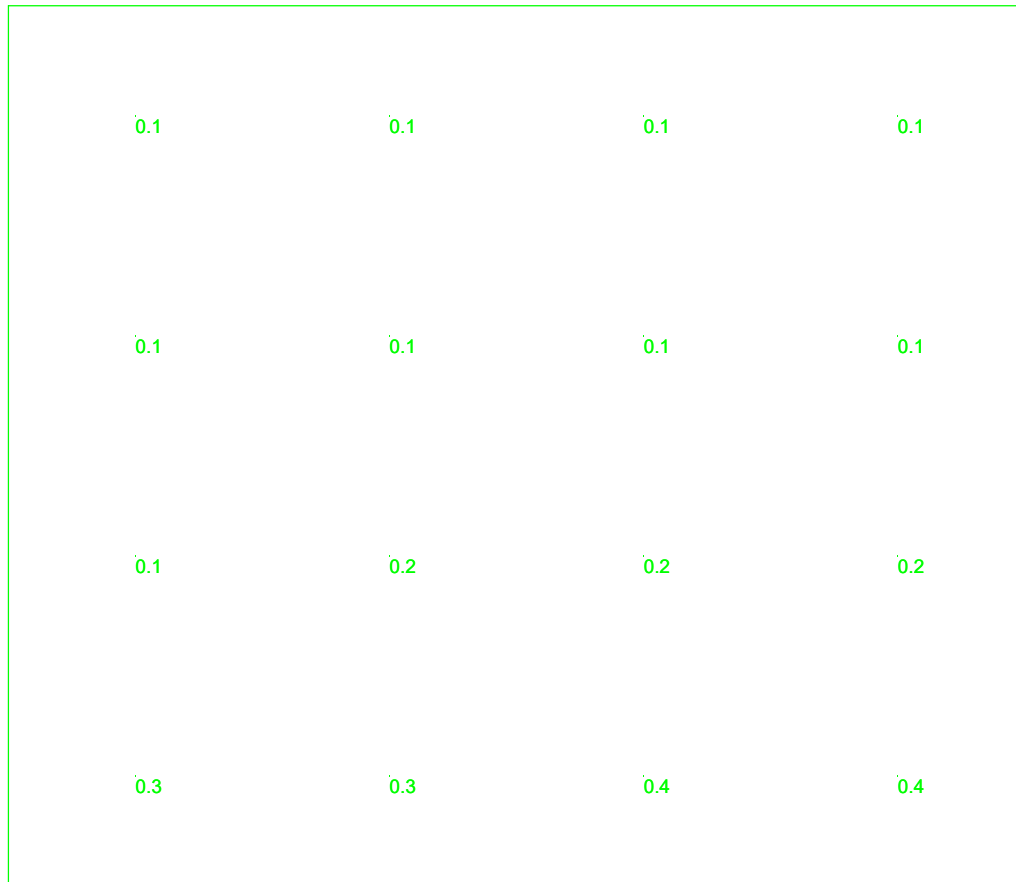
0.1	0.1	0.1	0.1	0.1	0.1	0.0
0.1	0.1	0.1	0.1	0.1	0.1	0.1
0.4	0.4	0.3	0.4	0.4	0.5	0.4
1.1	1.2	0.7	1.2	1.2	1.9	1.7

Results

Eav	0.47
Emin	0.04
E _{max}	1.92
Emin/E _{max}	0.02
Emin/Eav	0.09

Illuminance (lux)

Grid 4 - Vertical plot 314



Results

Eav	0.17
Emin	0.07
Emax	0.39
Emin/Emax	0.18
Emin/Eav	0.41

Illuminance (lux)

Grid 5 - Vertical Plot 317 (1st floor only)

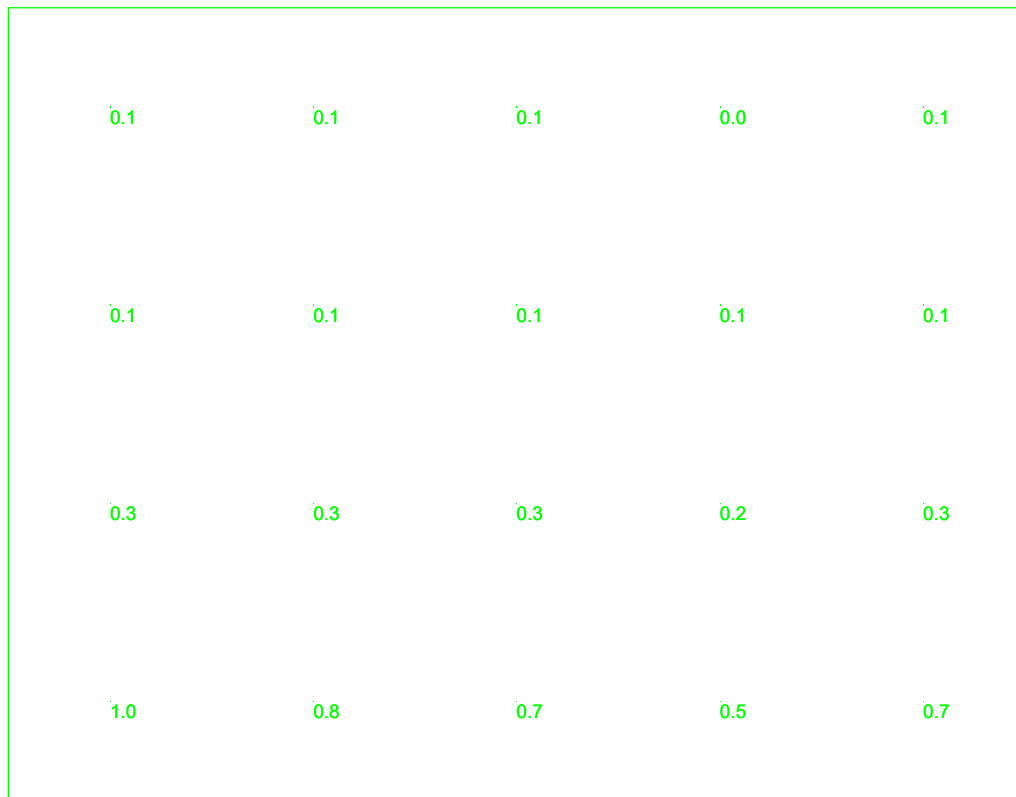
0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2

Results

Eav	0.10
Emin	0.03
Emax	0.18
Emin/Emax	0.14
Emin/Eav	0.27

Illuminance (lux)

Grid 6 - Vertical Plot 352

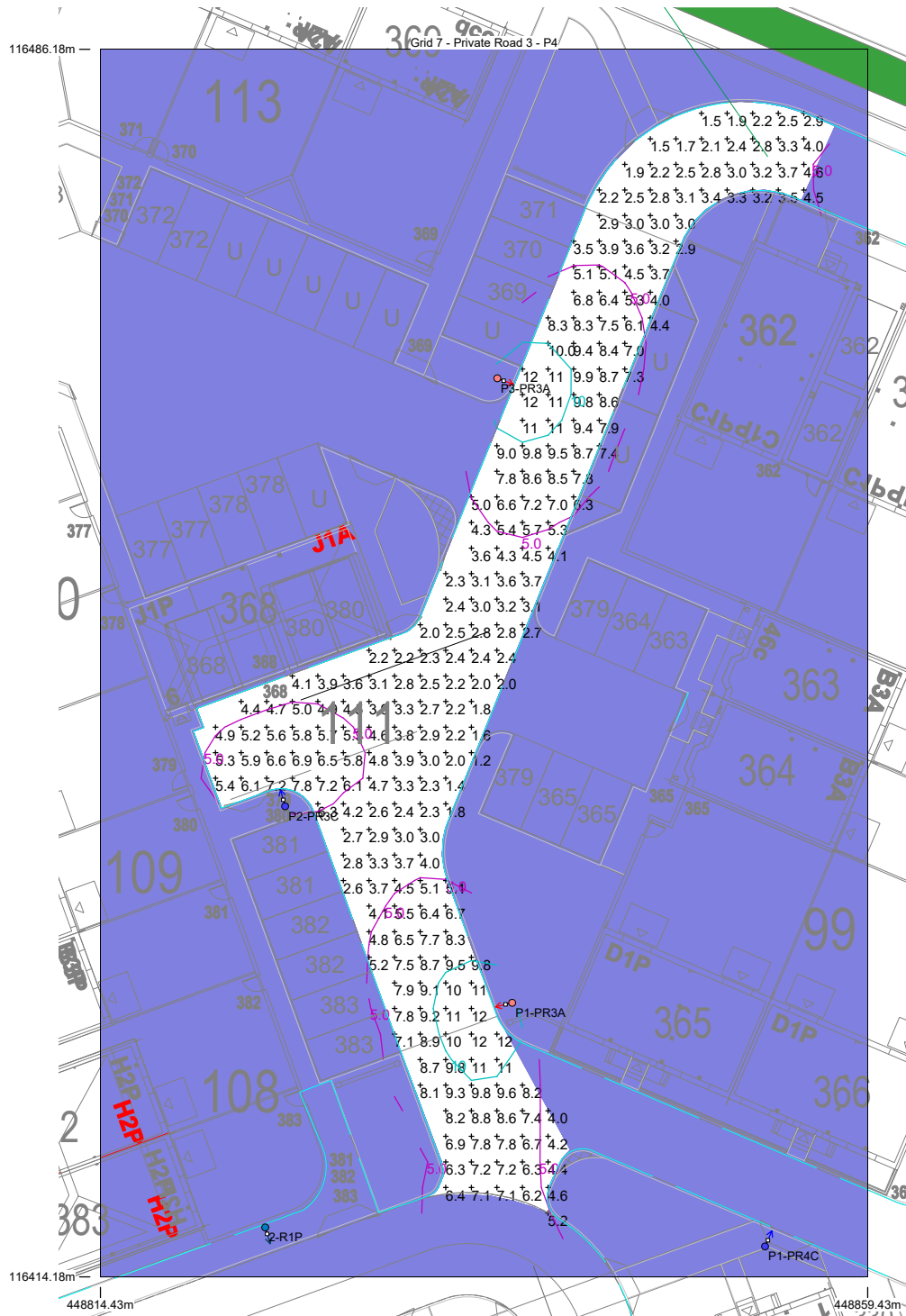


Results

Eav	0.30
Emin	0.05
Emax	1.02
Emin/Emax	0.04
Emin/Eav	0.15

Horizontal Illuminance (lux)

Grid 7 - Private Road 3 - P4

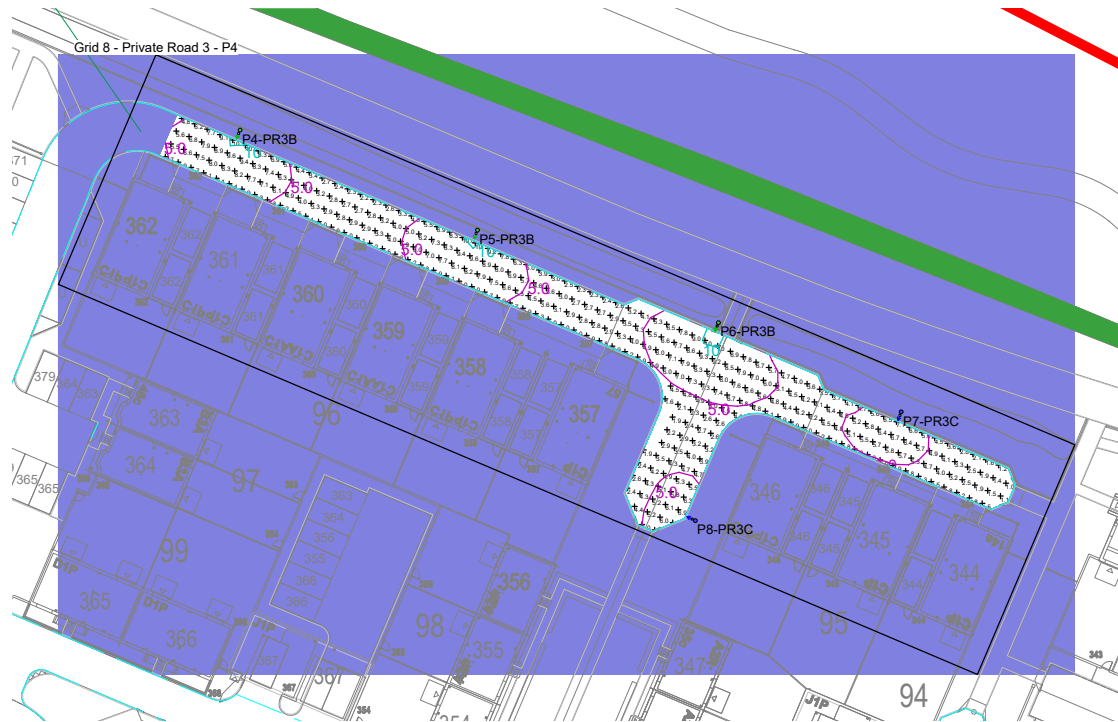


Results

Eav	5.41
Emin	1.21
Emax	12.46
Emin/Emax	0.10
Emin/Eav	0.22

Horizontal Illuminance (lux)

Grid 8 - Private Road 3 - P4

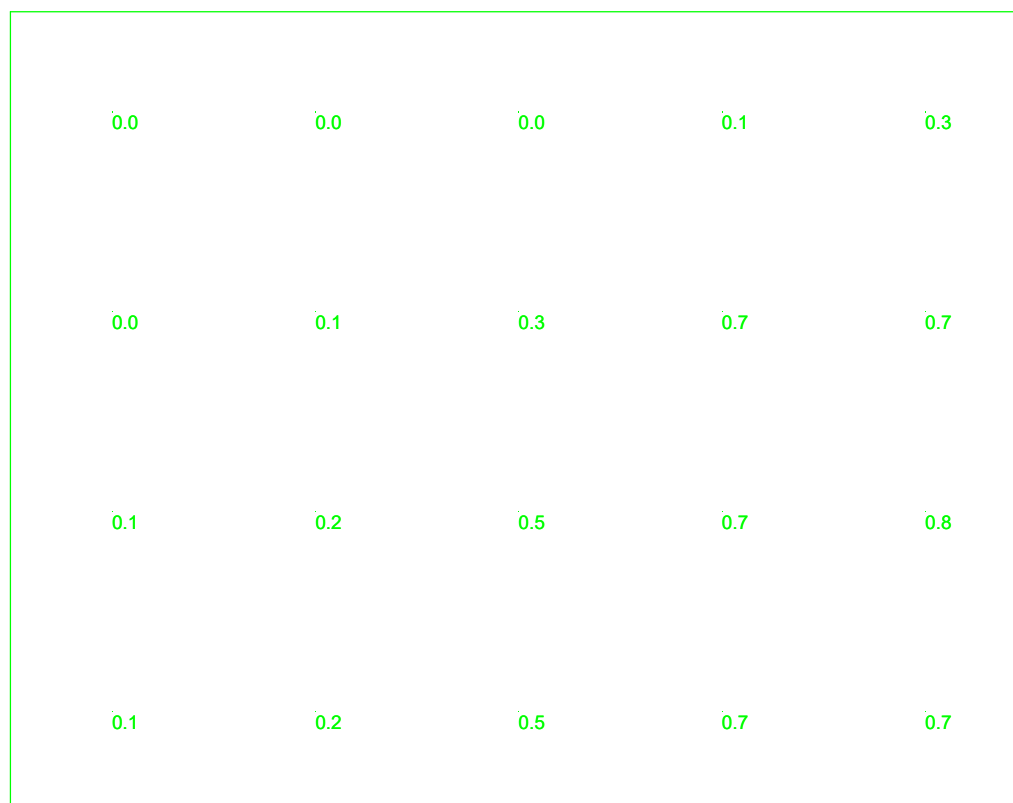


Results

Eav	5.02
Emin	1.04
Emax	10.30
Emin/Emax	0.10
Emin/Eav	0.21

Illuminance (lux)

Grid 9 - Vertical Plot 365



Results

Eav	0.34
Emin	0.02
Emax	0.80
Emin/Emax	0.03
Emin/Eav	0.07

Illuminance (lux)

Grid 10 - Vertical Plot 368 (1st Floor Only)

0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1

Results

Eav	0.12
Emin	0.03
Emax	0.31
Emin/Emax	0.08
Emin/Eav	0.22

Illuminance (lux)

Grid 11 - Vertical Plots 361-362

0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2
0.7	1.3	1.2	0.9	0.8	0.7	0.9	1.2	1.6	1.0	1.1

Results

Eav	0.36
Emin	0.01
E _{max}	1.57
Emin/E _{max}	0.01
Emin/Eav	0.04

Illuminance (lux)

Grid 12 - Vertical Plots 358-359

0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0
0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.2
0.9	0.8	1.3	1.1	0.9	0.7	0.7	0.9	1.1	1.3	0.8

Results

Eav	0.33
Emin	0.02
E _{max}	1.33
E _{min} /E _{max}	0.01
E _{min} /E _{av}	0.05

Illuminance (lux)

Grid 13 - Vertical Plots 345-346

0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
0.4	0.5	0.5	0.5	0.3	0.6	0.7	0.7	0.5	0.7	0.5	0.4	0.5
1.9	2.3	2.6	3.0	2.5	3.2	3.0	2.7	2.5	2.5	2.3	2.4	2.4

Results

Eav	0.81
Emin	0.01
E _{max}	3.22
Emin/E _{max}	0.00
Emin/Eav	0.02

Illuminance (lux)

Grid 14 - Vertical Plot 346

0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.4
0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.4
0.7	0.2	0.1	0.1	0.2	0.2	0.3	0.4

Results

Eav	0.16
Emin	0.02
E _{max}	0.68
Emin/E _{max}	0.03
Emin/Eav	0.11

Illuminance (lux)

Grid 15 - Vertical Plot 357

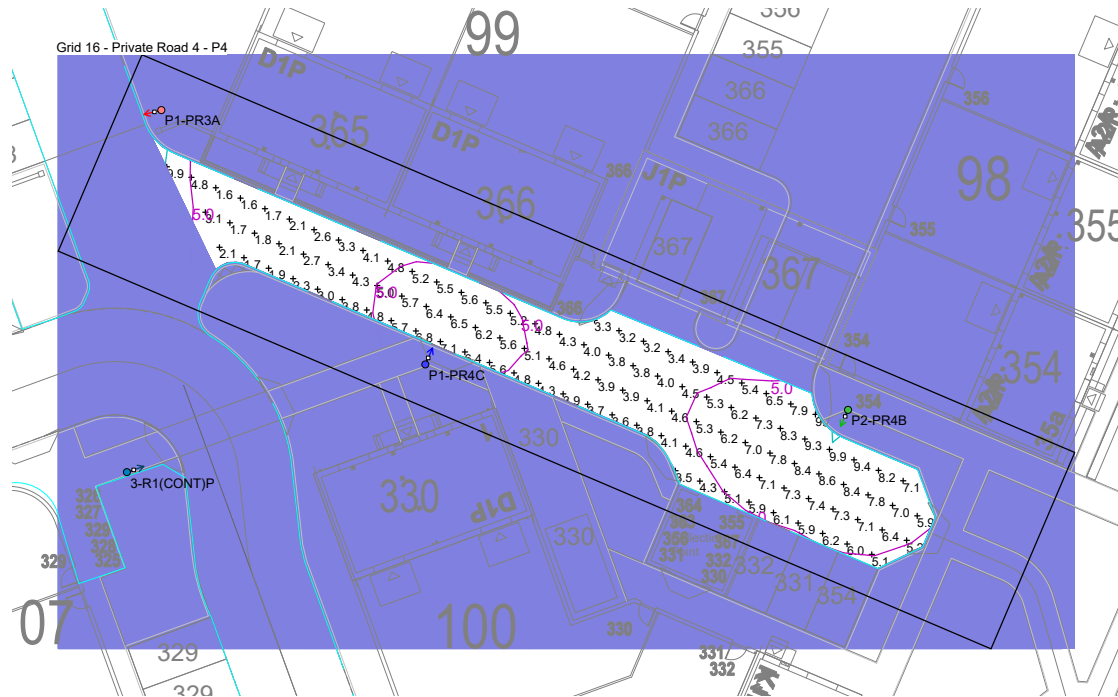
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1
0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3

Results

Eav	0.06
Emin	0.02
E _{max}	0.25
E _{min} /E _{max}	0.06
E _{min} /E _{av}	0.28

Horizontal Illuminance (lux)

Grid 16 - Private Road 4 - P4



Results

Eav	5.16
Emin	1.57
Emax	9.90
Emin/Emax	0.16
Emin/Eav	0.30

Illuminance (lux)

Grid 17 - Vertical Plot 366

0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0
0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.1
1.3	1.8	1.1	1.0	0.9	1.0	1.5	1.1
3.6	4.3	5.0	4.8	4.7	4.8	4.1	3.4

Results

Eav	1.46
Emin	0.04
E _{max}	4.98
Emin/E _{max}	0.01
Emin/Eav	0.03

Illuminance (lux)

Grid 18 - Vertical Plot 330

1.4	0.3	0.2	0.0	0.0	0.0	0.0	0.0
0.5	0.5	0.3	0.2	0.1	0.0	0.0	0.0
0.4	0.6	0.4	0.3	0.3	0.1	0.1	0.1
0.5	0.4	0.4	0.3	0.3	0.2	0.1	0.2

Results

Eav	0.26
Emin	0.02
E _{max}	1.38
Emin/E _{max}	0.01
Emin/Eav	0.08

Illuminance (lux)

Grid 19 - Vertical Plot 36 (1st Floor Only)

0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2
0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.4	0.3
0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.4	0.3	0.5
0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.3	0.6

Results

Eav	0.14
Emin	0.02
E _{max}	0.56
Emin/E _{max}	0.03
Emin/Eav	0.12

Illuminance (lux)

Grid 20 - Vertical Plots 379-380

0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0
0.1	0.2	0.3	0.4	0.5	0.5	0.4	0.3
0.2	0.4	0.8	1.4	1.7	1.8	2.0	1.9

Results

Eav	0.42
Emin	0.01
E _{max}	2.00
E _{min} /E _{max}	0.01
E _{min} /E _{av}	0.03