

Hanover Harps FC Carlow

D-520889 - Rev 0

Project code: 0400891084
Date: 28-07-2023

Designer: Signify

Description: 100m x 60m Football Pitch
6x 15m columns

The nominal values shown in this report are the result of precision calculations, based upon precisely positioned luminaires in a fixed relationship to each other and to the area under examination. In practice the values may vary due to tolerances on luminaires, luminaire positioning, reflection properties and electrical supply.

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1. Project Description

1.1 Description

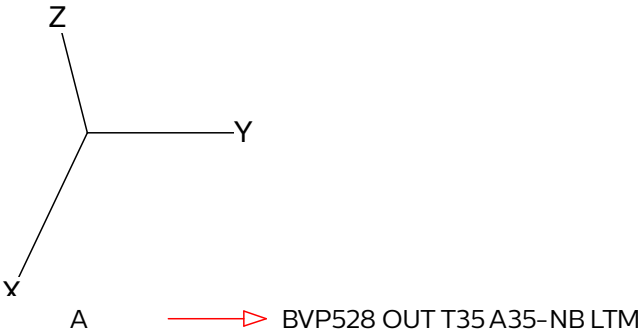
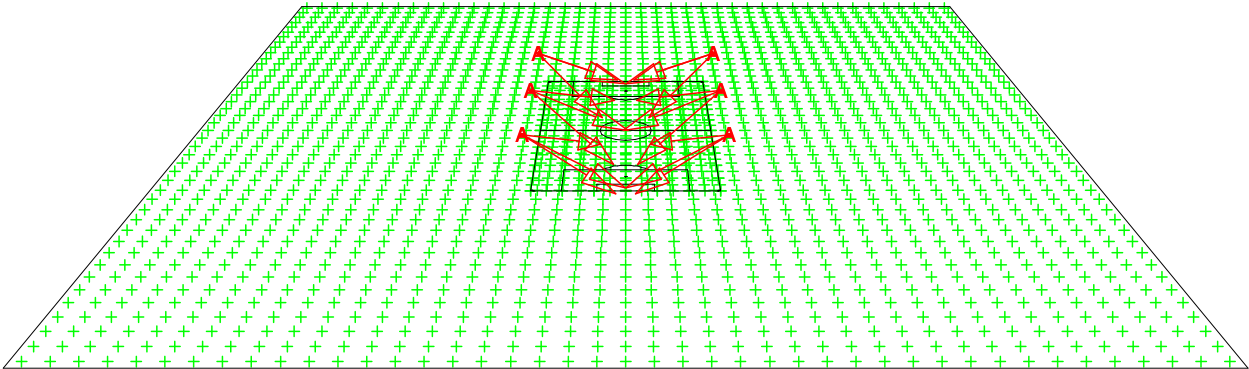
Proposal based on: Philips OptiVisionLED Gen3.5 Floodlight.
Maximum output 5700k

There are 6 No 15m columns with 3 No Floodlights on each (18 No in total)
to a maintained average of 362.7 lux 0.7 Uo, 0.48 Min/Max.
GR Max calculation is below 50 GR Max requirement (45.1).

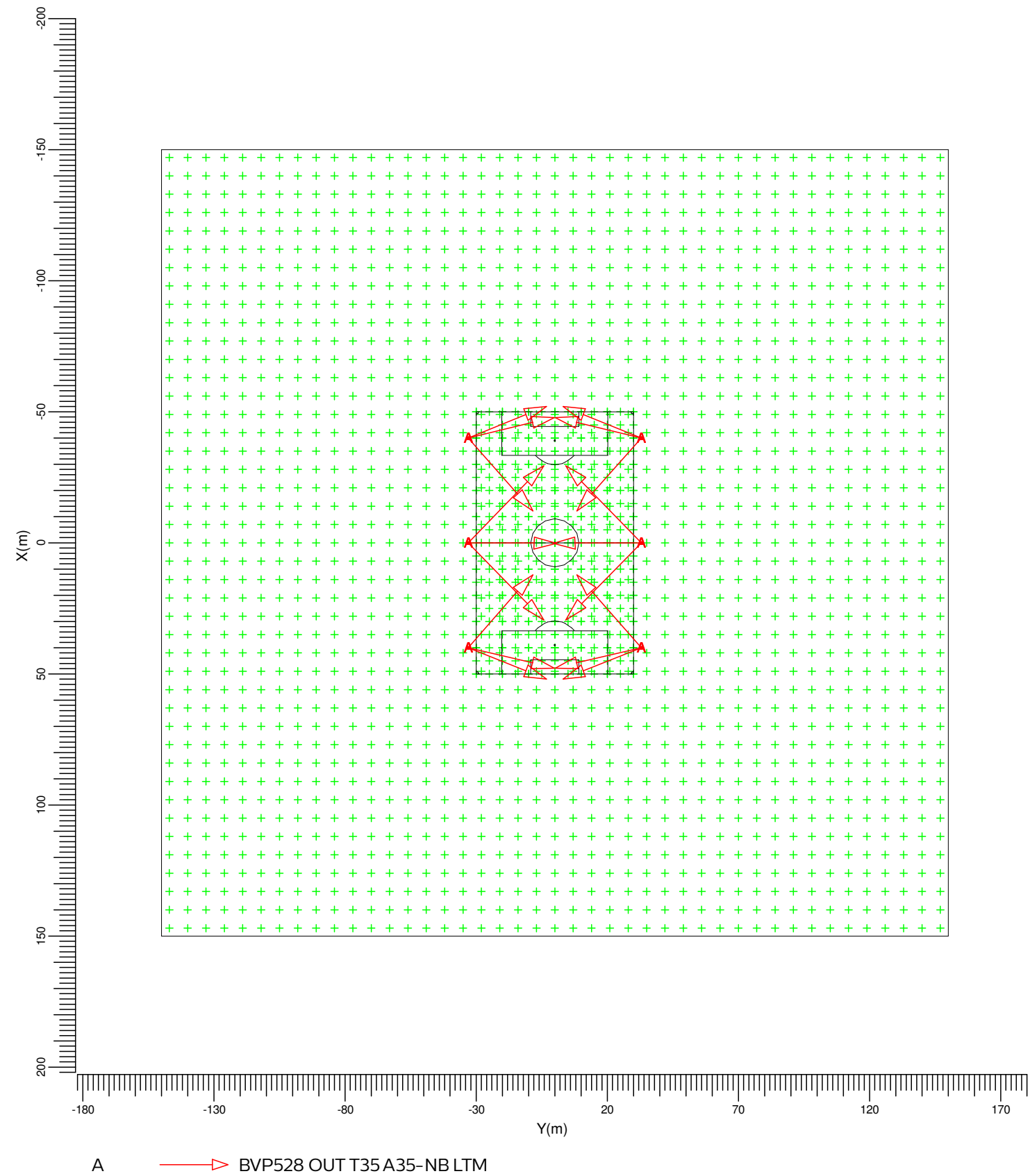
Performance Floodlights use MF 0.95
Spill Light calculations use MF 1.0

Products Used
18x BVP528 OUT T35 1xLED2590-4S/757 E3/D4I A35-NB LTM
note: on site tilt equals Tilt90 value minus 35 degrees.

1.2 3-D Project Overview



1.3 Top Project Overview



Scale
1:2000

2. Summary

2.1 Project Luminaires

Code	Qty	Luminaire Type	Lamp Type	Power (W)	Flux (lm)
A	18	BVP528 OUT T35 A35-NB LTM	1 * LED2590-4S/757	1505.9	1 * 259000

The total installed power: 27.11 (kWatt)

Number of Luminaires Per Switching Mode:

Switching Mode	Luminaire Code	Power (kWatt)
	A	
Pitch	18	27.11
Spill Light	18	27.11

Number of Luminaires Per Arrangement:

Arrangement	Luminaire Code	Power (kWatt)
	A	
Centre	6	9.04
Corners	12	18.07

2.2 Calculation Results

Switching Modes:

Code	Switching Mode	Maintenance factor
1	Pitch	0.95
2	Spill Light	1.00

(Il)luminance Calculations:

Calculation	Switching Mode	Type	Unit	Ave Min/AveMin/Max		
Football 10x10	1	Surface Illuminance	lux	363	0.70	0.48
Spill Light	1	Surface Illuminance	lux	34.4	0.00	0.00

Glare Rating for Grid of Observers:

Calculation	Switching Mode	Observer Grid	Reference Grid	Reflectance	GR-Max
Football 10x10 Glare	1	Football 10x10	Football 10x10	0.25	45.1

Obtrusive Light Calculations:

Switching Mode	ULR
1	0.00
2	0.00

3. Calculation Results

3.1 Football 10x10: Graphical Table

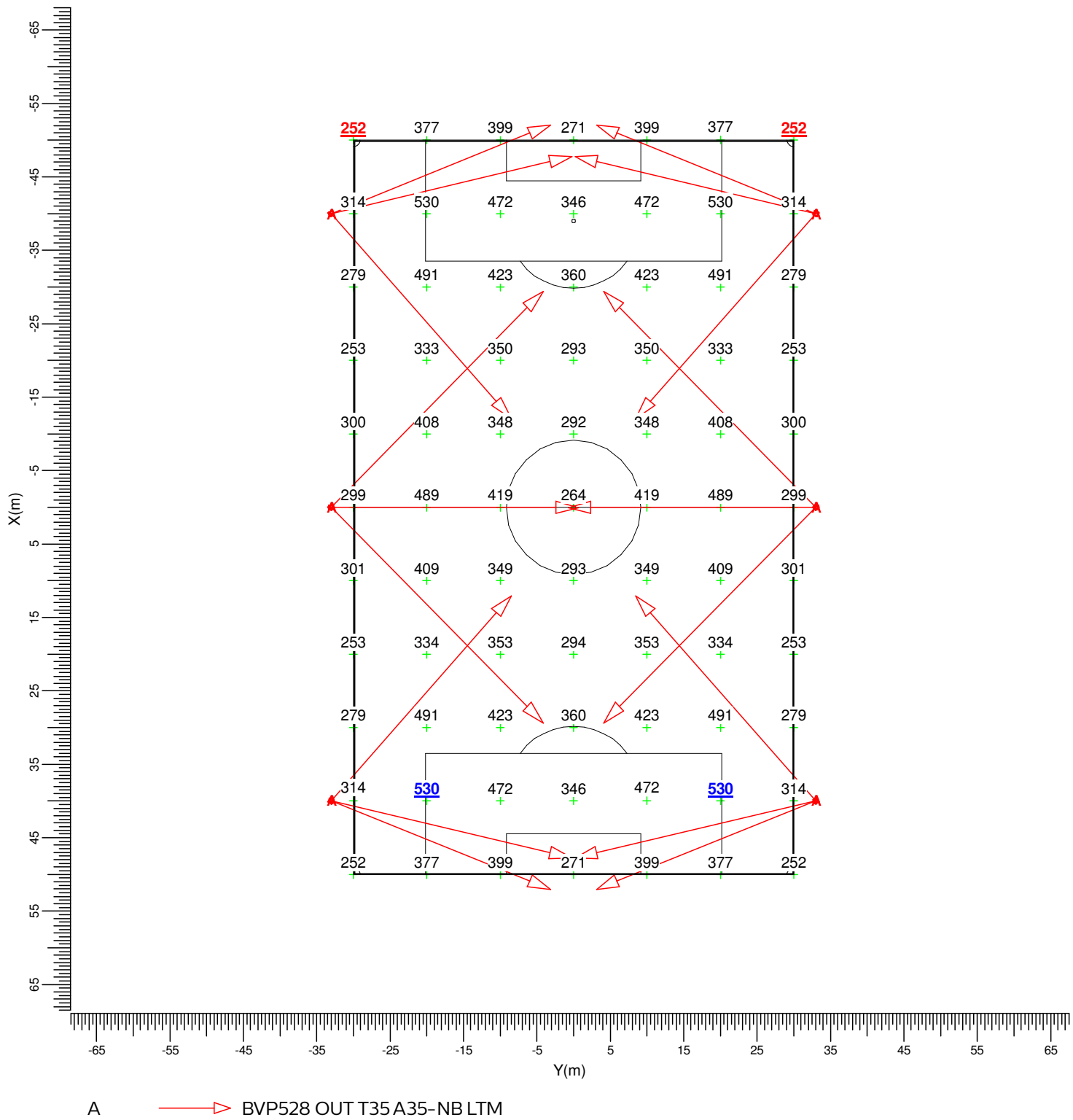
Pitch

Grid

: Football 10x10 at Z = -0.00 m

Calculation

: Surface Illuminance (lux)



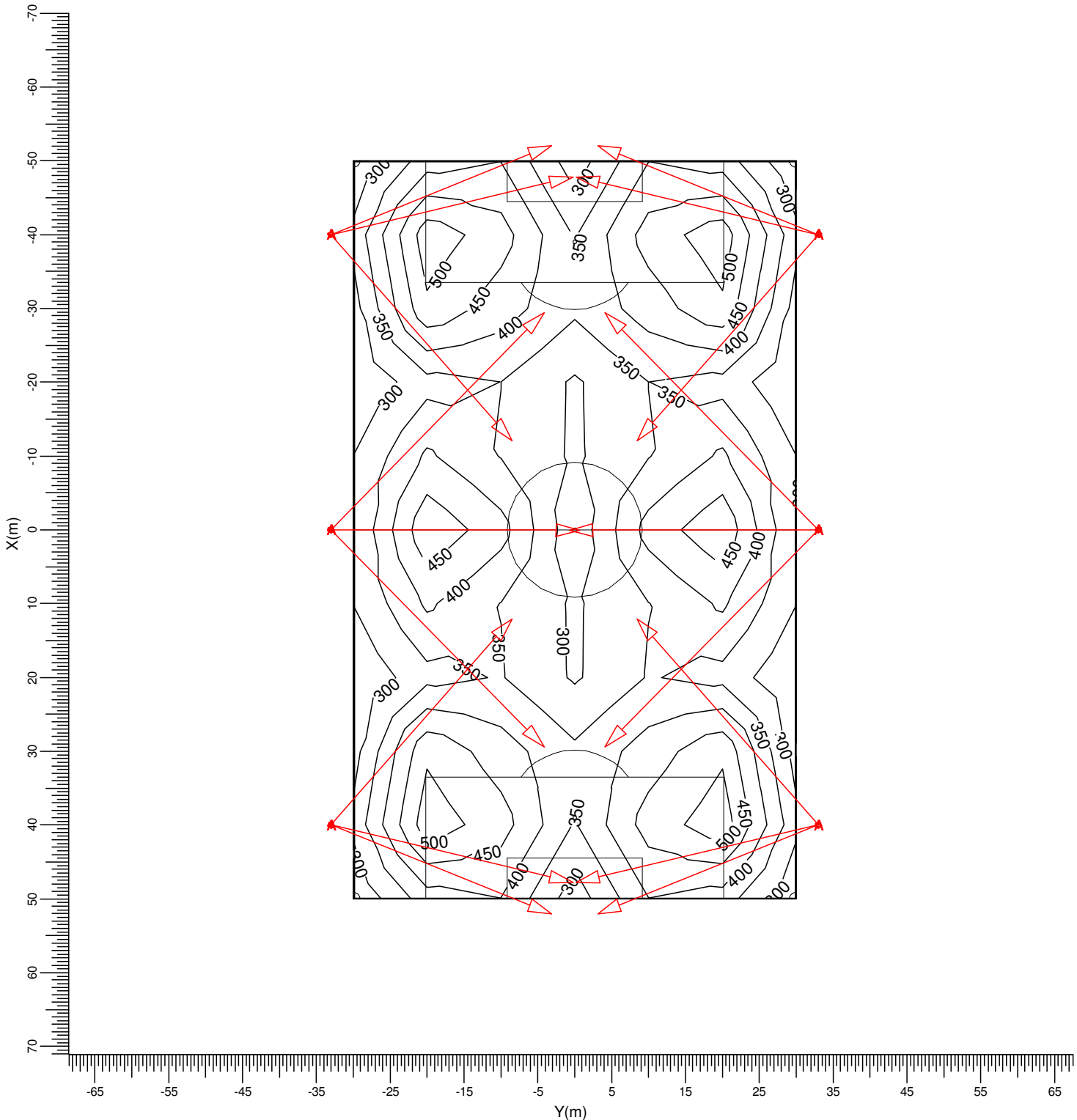
Average	Min/Ave	Min/Max	Project maintenance factor	Scale
363	0.70	0.48	0.95	1:750

3.2 Football 10x10: Iso Contour

Pitch

Grid : Football 10x10 at Z = -0.00 m

Calculation : Surface Illuminance (lux)



A

→ BVP528 OUT T35 A35-NB LTM

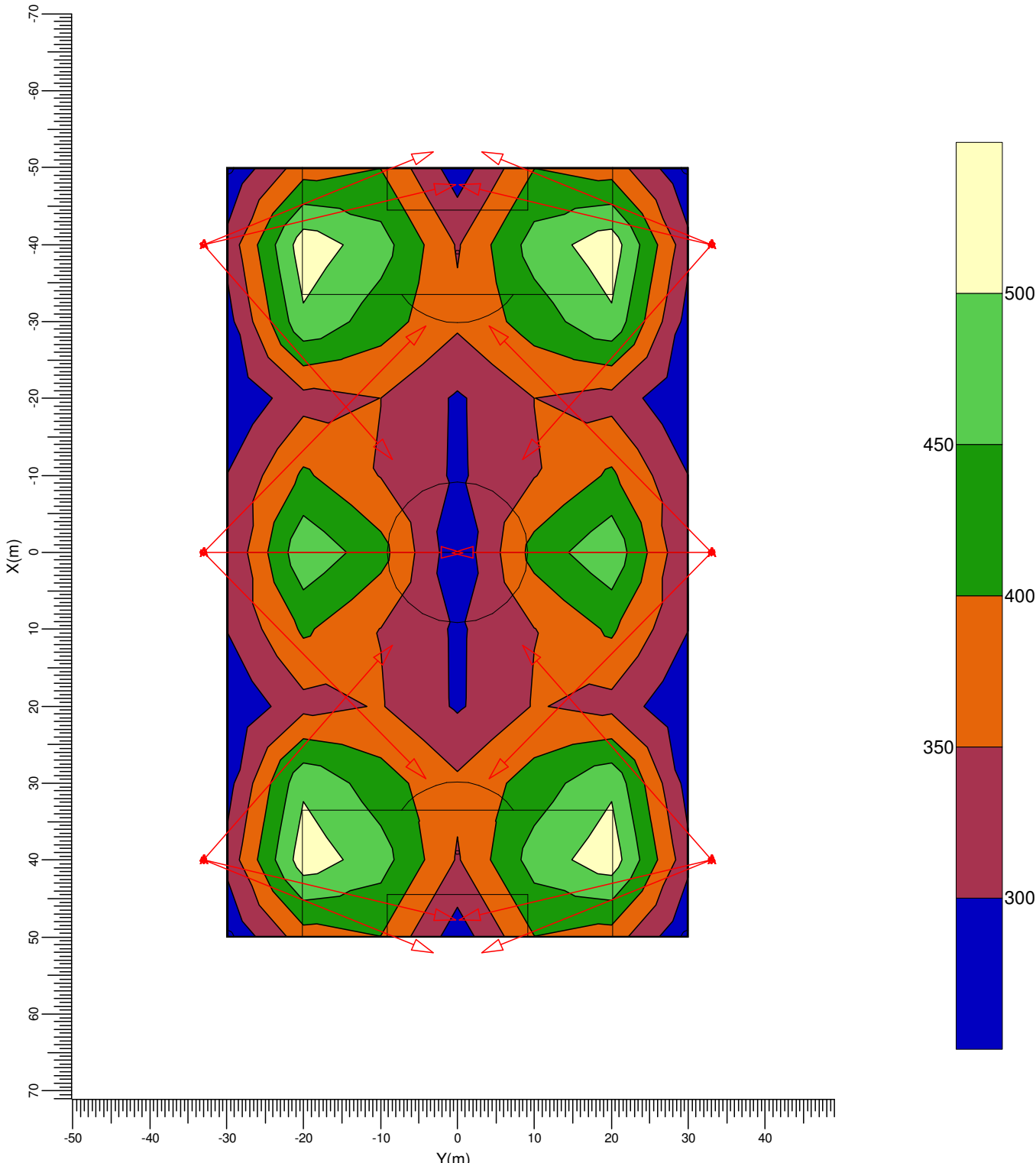
Average	Min/Ave	Min/Max	Project maintenance factor	Scale
363	0.70	0.48	0.95	1:750

3.3 Football 10x10: Filled Iso Contour

Pitch

Grid : Football 10x10 at Z = -0.00 m

Calculation : Surface Illuminance (lux)



A

BVP528 OUT T35 A35-NB LTM

Average
363

Min/Ave
0.70

Min/Max
0.48

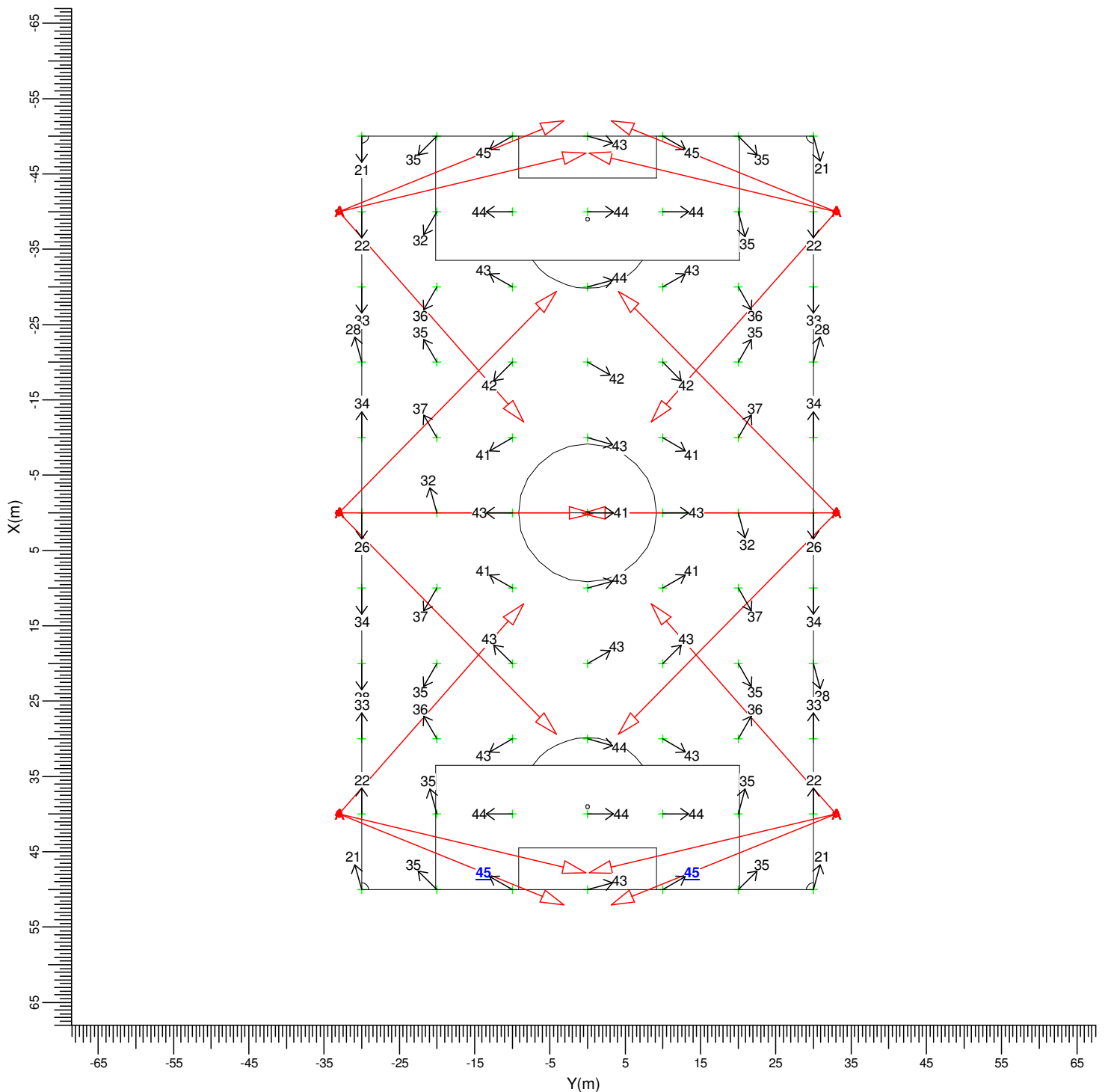
Project maintenance factor
0.95

Scale
1:750

3.4 Football 10x10 Glare: Graphical Table

Pitch

Grid of Observers : Football 10x10
Calculation : Glare Rating
Grid for Background Luminance: Football 10x10 (Reflectance: 0.25)
Vertical Viewing Angle : -2.0 deg



A  BVP528 OUT T35 A35-NB LTM

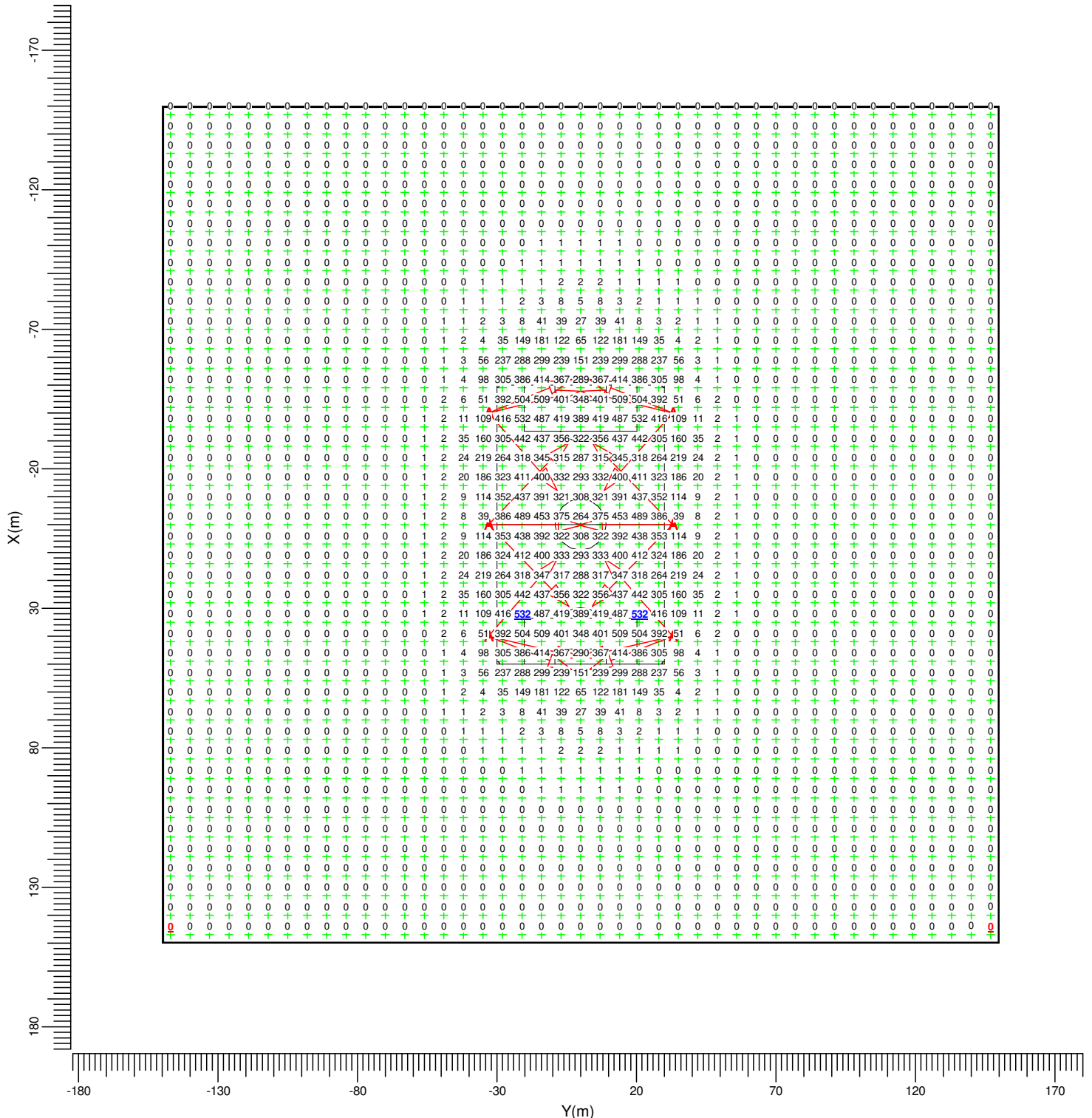
Project maintenance factor
0.95

Scale
1:750

3.5 Spill Light: Graphical Table

Pitch

Grid : Spill Light at Z = -0.00 m
Calculation : Surface Illuminance (lux)



A  BVP528 OUT T35 A35-NB LTM

Average
34.4

Min/Ave
0.00

Min/Max
0.00

Project maintenance factor
0.95

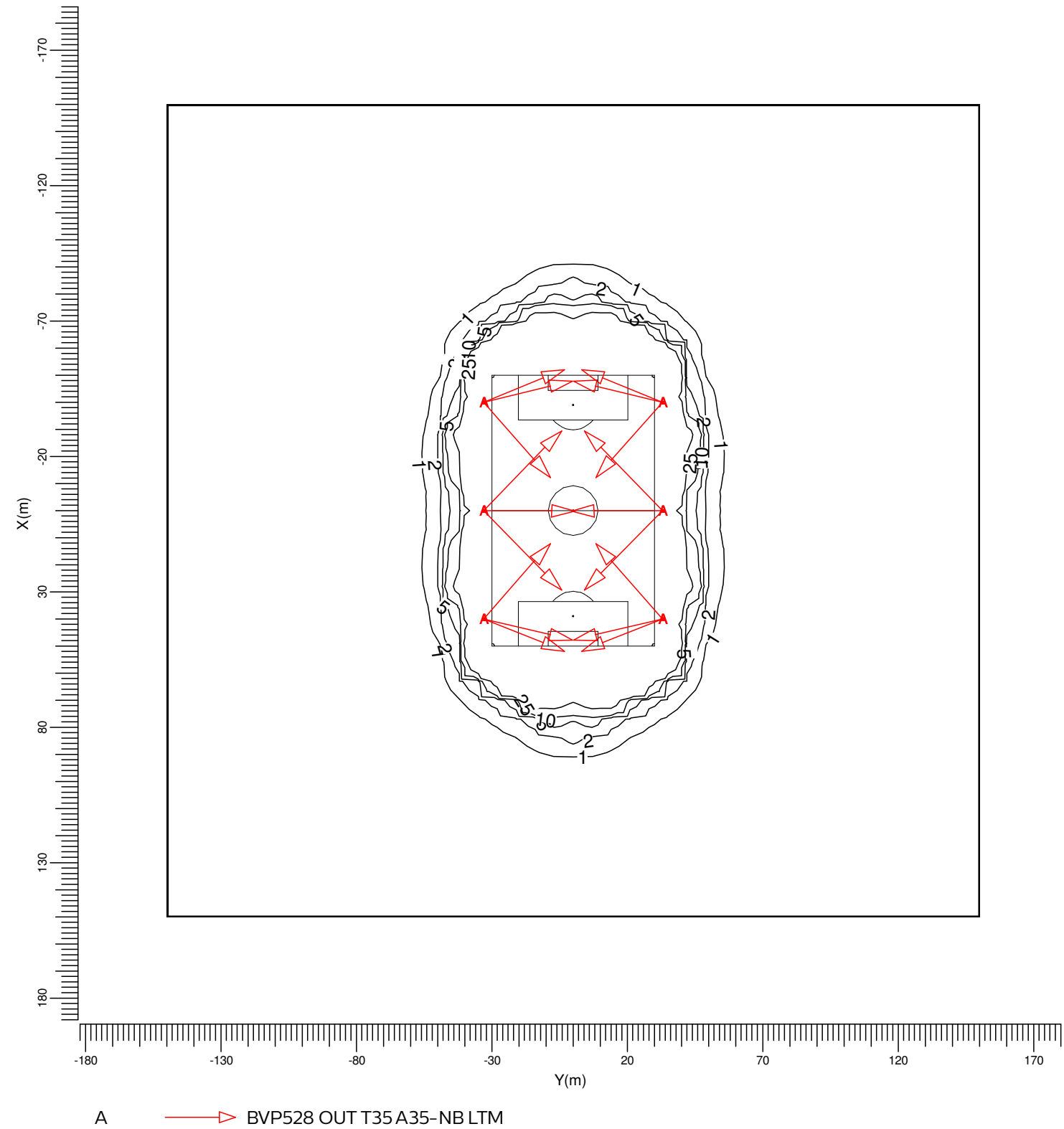
Scale
1:2000

3.6 Spill Light: Iso Contour

Pitch

Grid : Spill Light at Z = -0.00 m

Calculation : Surface Illuminance (lux)



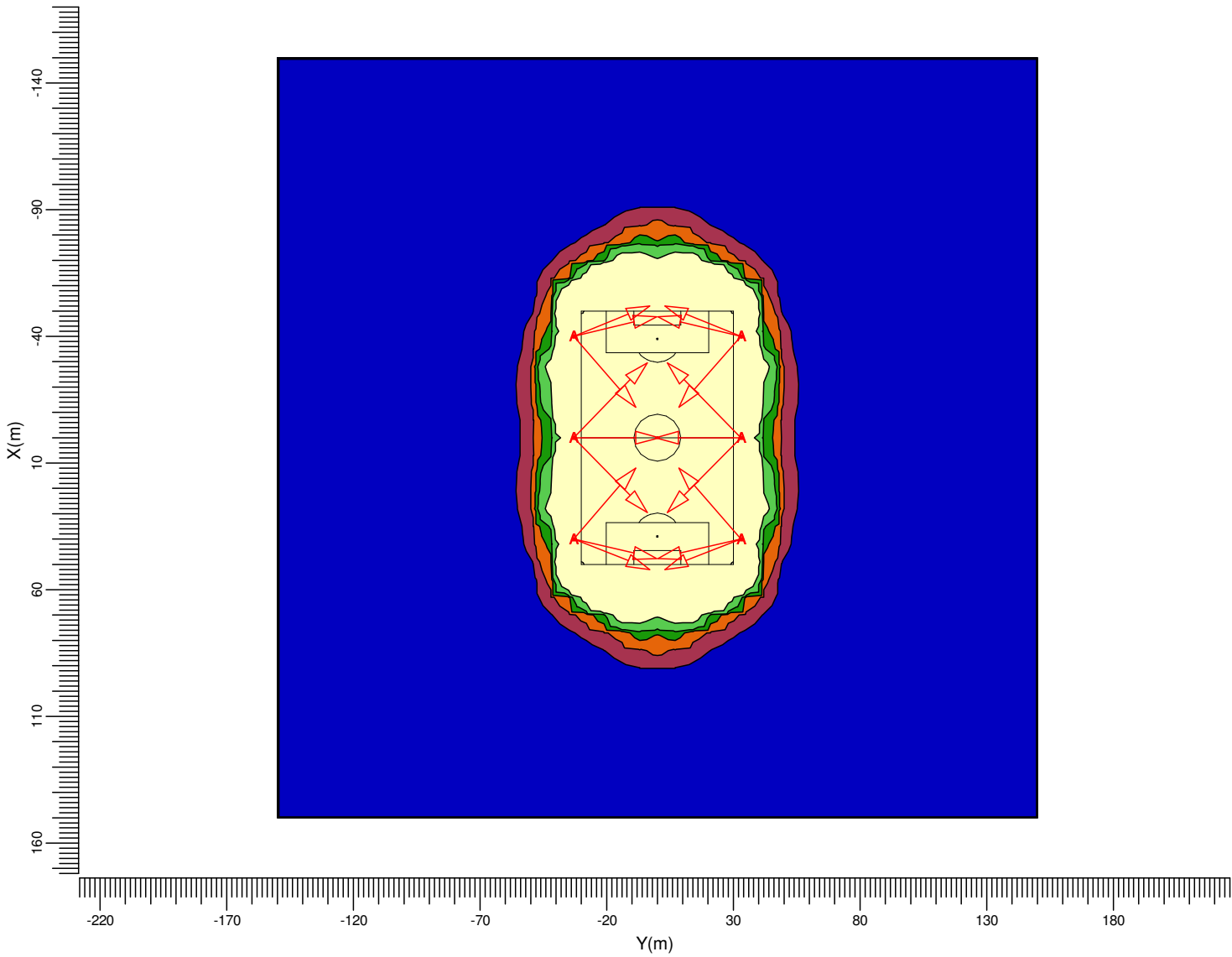
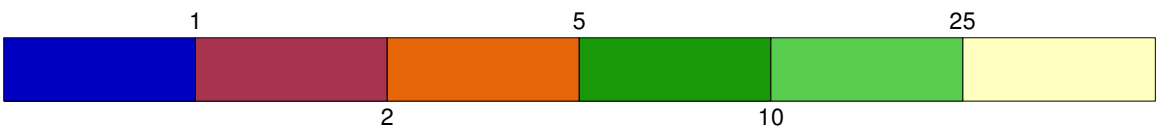
Average	Min/Ave	Min/Max	Project maintenance factor	Scale
34.4	0.00	0.00	0.95	1:2000

3.7 Spill Light: Filled Iso Contour

Pitch

Grid : Spill Light at Z = -0.00 m

Calculation : Surface Illuminance (lux)



A

 BVP528 OUT T35 A35-NB LTM

Average	Min/Ave	Min/Max	Project maintenance factor	Scale
34.4	0.00	0.00	0.95	1:2500

4. Luminaire Details

4.1 Project Luminaires

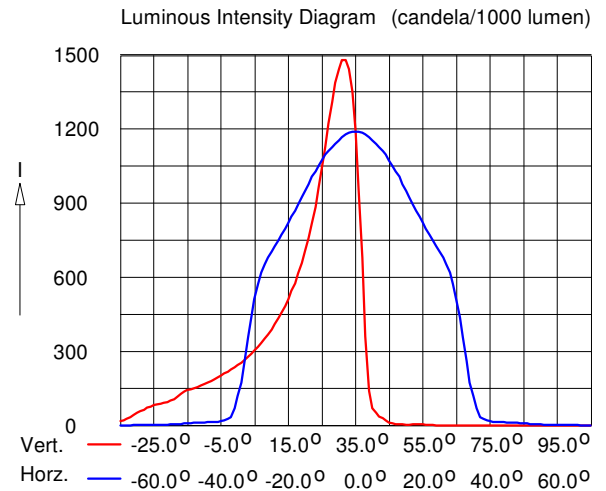
OptiVision LED gen3.5 2022

BVP528 OUT T35 1xLED2590-4S/757/757 E3/D4I A35-NB LTM

Light output ratios

DLOR	: 0.71
ULOR	: 0.00
TLOR	: 0.71
ULR	: 0.000
Ballast	: E3/D4I
Lamp flux	: 259000 lm
Luminaire wattage	: 1505.9 W
Measurement code	: LVM2047600
CIE Code	: 87 99 100 100 71

Note: Luminaire data not from database.



5. Installation Data

5.1 Legends

Project Luminaires:

Code	Qty	Luminaire Type	Lamp Type	Flux (lm)
A	18	BVP528 OUT T35 A35-NB LTM	1 * LED2590-4S/757	1 * 259000

Arrangements:

Code	Arrangement
1	Centre
2	Corners

Switching Modes:

Code	Switching Mode
1	Pitch
2	Spill Light

5.2 Luminaire Positioning and Orientation

Qty and Code	Position			Aiming Points			Aiming Angles			ULR	Arr.	Switching Modes	
	X (m)	Y (m)	Z (m)	X (m)	Y (m)	Z (m)	Rot.	Tilt90	Tilt0			1	2
1 * A	-0.00	-33.00	15.00	0.10	0.69	0.00	89.8	66.0	-0.0	0.002	1	+	+
1 * A	-0.00	-33.00	15.00	-29.39	-4.11	0.00	135.5	70.0	-0.0	0.002	1	+	+
1 * A	-0.00	-33.00	15.00	29.39	-4.11	0.00	44.5	70.0	0.0	0.002	1	+	+
1 * A	-0.00	33.00	15.00	0.10	-0.69	0.00	-89.8	66.0	0.0	0.002	1	+	+
1 * A	-0.00	33.00	15.00	-29.39	4.11	0.00	-135.5	70.0	0.0	0.002	1	+	+
1 * A	-0.00	33.00	15.00	29.39	4.11	0.00	-44.5	70.0	-0.0	0.002	1	+	+
1 * A	-40.00	-33.00	15.00	-47.77	-0.22	0.00	103.3	66.0	0.0	0.002	2	+	+
1 * A	-40.00	-33.00	15.00	-12.11	-8.49	0.00	41.3	68.0	0.0	0.002	2	+	+
1 * A	-40.00	-33.00	15.00	-52.03	-3.12	0.00	111.9	65.0	0.0	0.001	2	+	+
1 * A	-40.00	33.00	15.00	-47.77	0.22	0.00	-103.3	66.0	-0.0	0.002	2	+	+
1 * A	-40.00	33.00	15.00	-12.11	8.49	0.00	-41.3	68.0	-0.0	0.002	2	+	+
1 * A	-40.00	33.00	15.00	-52.03	3.12	0.00	-111.9	65.0	-0.0	0.001	2	+	+
1 * A	40.00	-33.00	15.00	47.77	-0.22	0.00	76.7	66.0	-0.0	0.002	2	+	+
1 * A	40.00	-33.00	15.00	12.11	-8.49	0.00	138.7	68.0	-0.0	0.002	2	+	+
1 * A	40.00	-33.00	15.00	52.03	-3.12	0.00	68.1	65.0	-0.0	0.001	2	+	+
1 * A	40.00	33.00	15.00	47.77	0.22	0.00	-76.7	66.0	0.0	0.002	2	+	+
1 * A	40.00	33.00	15.00	12.11	8.49	0.00	-138.7	68.0	0.0	0.002	2	+	+
1 * A	40.00	33.00	15.00	52.03	3.12	0.00	-68.1	65.0	0.0	0.001	2	+	+