

# Ballyfermot FC

D-424675 - Rev 1

Project code: 0400504946

Date: 22-09-2021

Designer: Signify

Description: 350 Lux Average Design  
6x 15m Columns

For Designer Assumptions and Signify Terms and Conditions  
please see "Signify D-424675 - Ballyfermot FC - Rev 1  
Drawing.pdf"

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

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350 Lux Average Design  
6x 15m Columns

Results Overview  
390.4 Lux Average  
0.78 Min/Ave  
0.54 Min/Max  
46.8 Max Glare

### M50 Impact

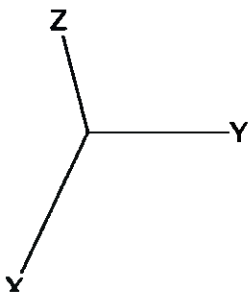
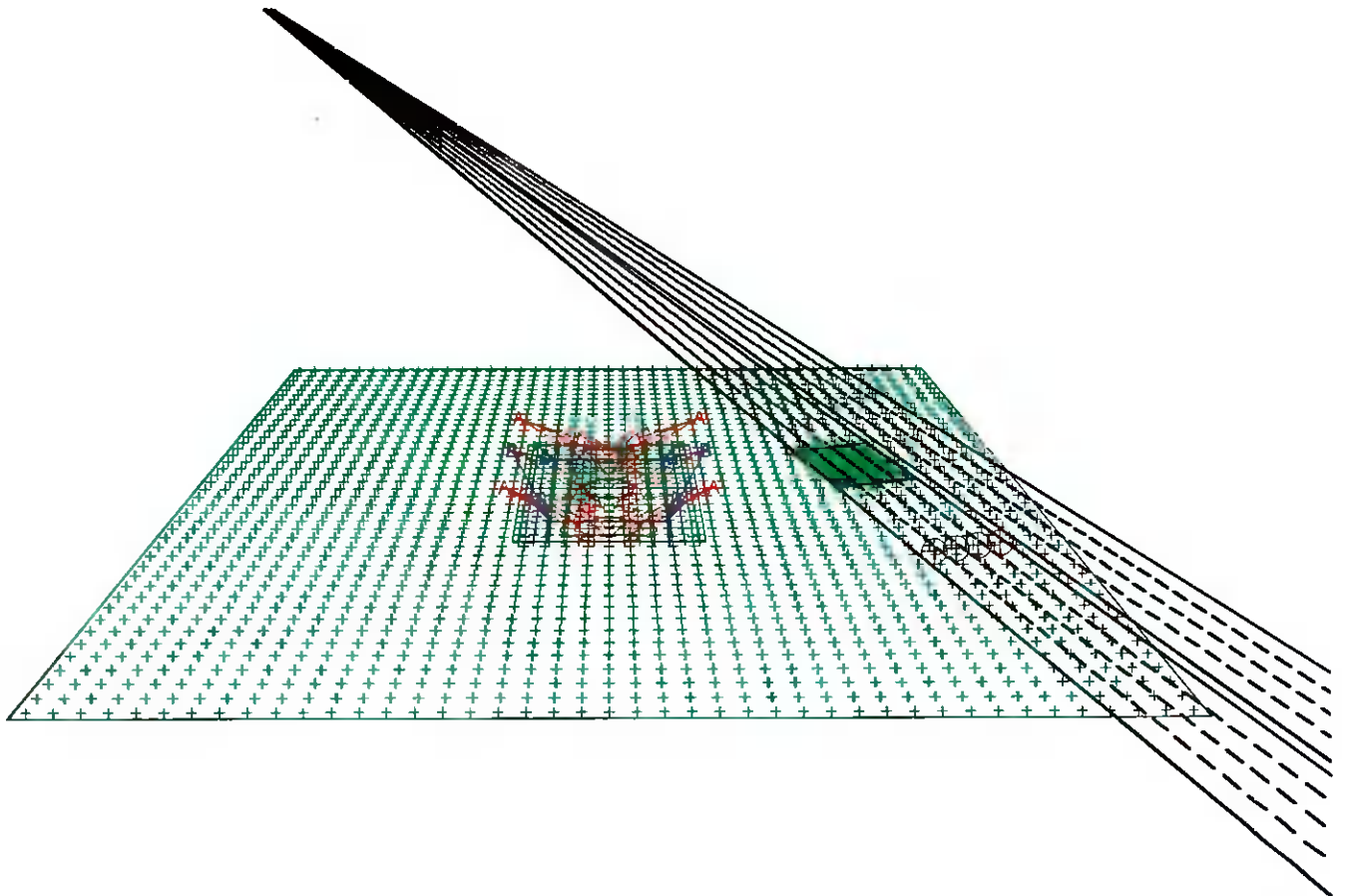
Threshold Increment - based on an Adaption of 5 cd/m<sup>2</sup>, Threshold Increment is 0%  
Maximum Intensity - 3279 cd. Assuming an E4 Environmental Zone, this is below the 25,000 cd maximum required.  
note: figures are based on the assumed locations of the observers.

### Products Used

22x BVP528 1xLED2220/757 OUT T15 50K A55-NB +LO  
4x BVP528 1xLED2220/757 OUT T15 50K A55-MB +LO  
note: on site tilt equals Tilt90 value minus 55 degrees.

### 1.2 3-D Project Overview

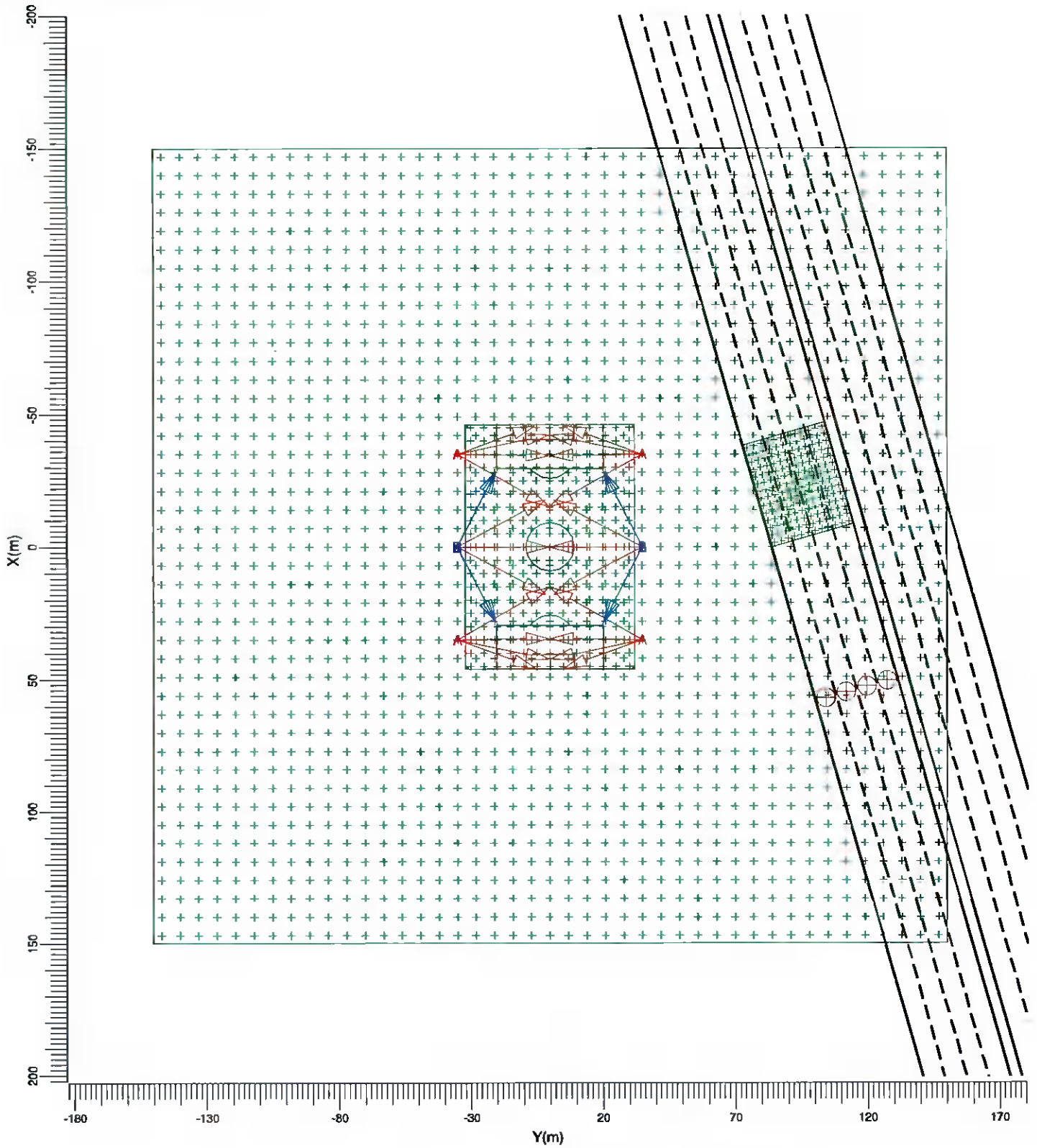
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A  BVP528 A55-NB +LO

B  BVP528 A55-MB +LO

### 1.3 Top Project Overview



A ———▶ BVP528 A55-NB +LO

B ———▶ BVP528 A55-MB +LO

Scale  
1:2000

## 2. Summary

### 2.1 Observer Information

Code	Observer	Position		
		X (m)	Y (m)	Z (m)
Aa	M50 Southbound (O1)	56.83	104.18	1.50
Bb	M50 Southbound (O2)	54.64	111.87	1.50
Cc	M50 Southbound (O3)	52.44	119.56	1.50
Dd	M50 Southbound (O4)	50.25	127.26	1.50

### 2.2 Project Luminaires

Code	Qty	Luminaire Type	Lamp Type	Power (W)	Flux (lm)
A	22	BVP528 A55-NB +LO	1* LED2220/757 OUT T15 50K	1500.0	1* 222600
B	4	BVP528 A55-MB +LO	1* LED2220/757 OUT T15 50K	1500.0	1* 222600

The total installed power: 39.00 (kWatt)

Number of Luminaires Per Switching Mode:

Switching Mode	Luminaire Code		Power (kWatt)
	A	B	
Pitch	22	4	39.00
Spill Light	22	4	39.00

Number of Luminaires Per Arrangement:

Arrangement	Luminaire Code		Power (kWatt)
	A	B	
Corners	16	0	24.00
Middle	6	4	15.00

### 2.3 Calculation Results

Switching Modes:

Code	Switching Mode	Maintenance factor
1	Pitch	0.90
2	Spill Light	1.00

(II) Luminance Calculations:

Calculation	Switching Mode	Type	Unit	Ave Min/AveMin/Max		
Football 10x10	1	Surface Illuminance	lux	390	0.78	0.54
Spill Light	2	Surface Illuminance	lux	37.8	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	46.8

Obtrusive Light Calculations:

Switching Mode	Observer Code	Luminaire Code	Position			Aiming Angles			Maximum Intensity (cd)
			X (m)	Y (m)	Z (m)	Rot.	Tilt90	Tilt0	
2	Aa	A	-35.00	-35.00	15.00	60.37	69.47	0.00	3014
2	Bb	A	-35.00	-35.00	15.00	60.37	69.47	0.00	3213
2	Cc	A	-35.00	-35.00	15.00	60.37	69.47	0.00	3279
2	Dd	A	-35.00	-35.00	15.00	60.37	69.47	0.00	3003

Switching Mode	Observer Code	Adaptation Luminance (cd/m <sup>2</sup> )	Direction	Threshold Increment (%)
2	Aa	5.00	(-0.96, -0.27, 0.00)	0.0
2	Bb	5.00	(-0.96, -0.27, 0.00)	0.0
2	Cc	5.00	(-0.96, -0.27, 0.00)	0.0
2	Dd	5.00	(-0.96, -0.27, 0.00)	0.0

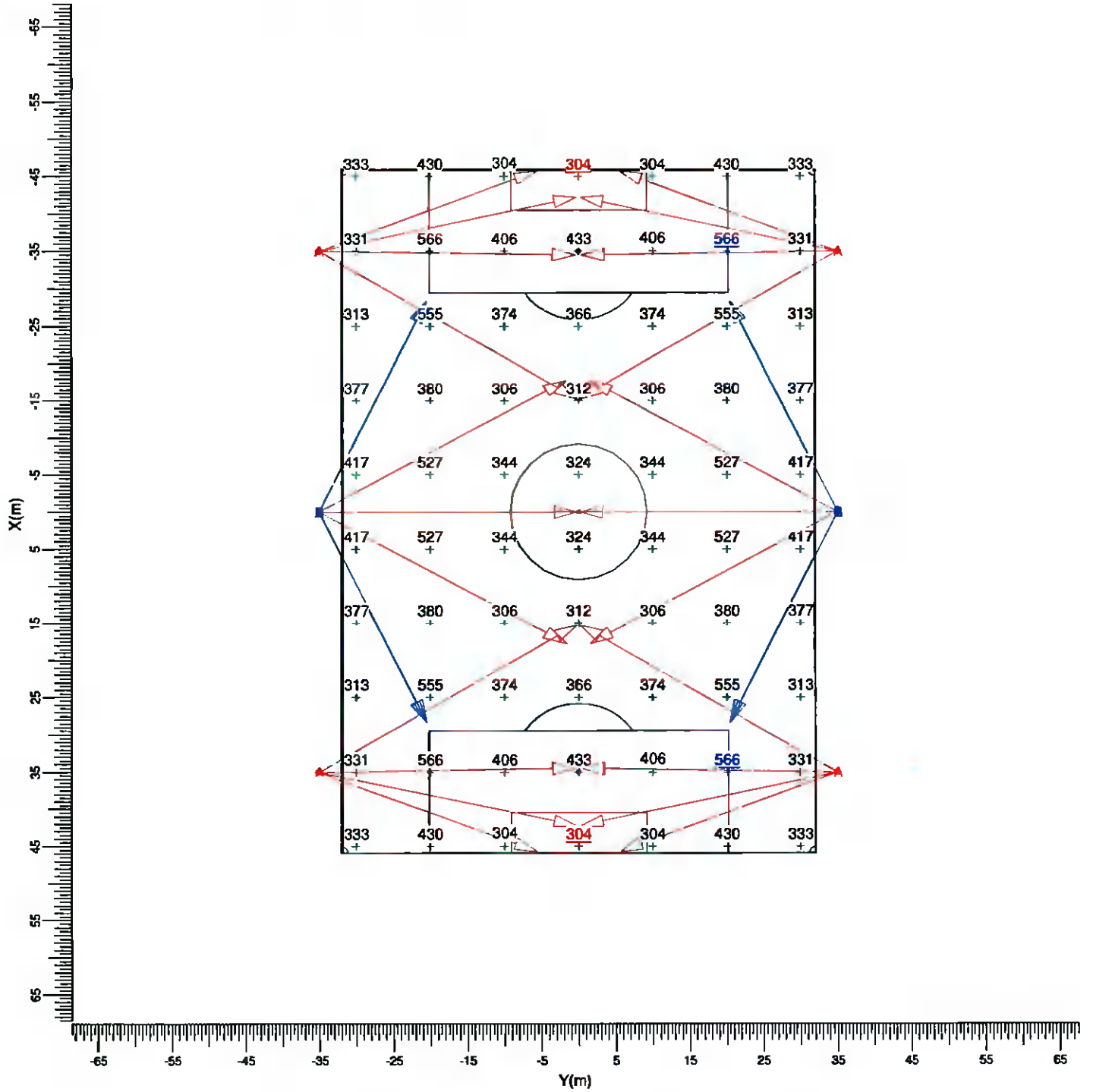
Switching Mode	ULR
1	0.00
2	0.00

### 3. Calculation Results

#### 3.1 Football 10x10: Graphical Table

Pitch

Grid : Football 10x10 at Z = -0.00 m  
Calculation : Surface Illuminance (lux)



A BVP528 A55-NB +LO      B BVP528 A55-MB +LO

Average  
390

Min/Ave  
0.78

Min/Max  
0.54

Project maintenance factor  
0.90

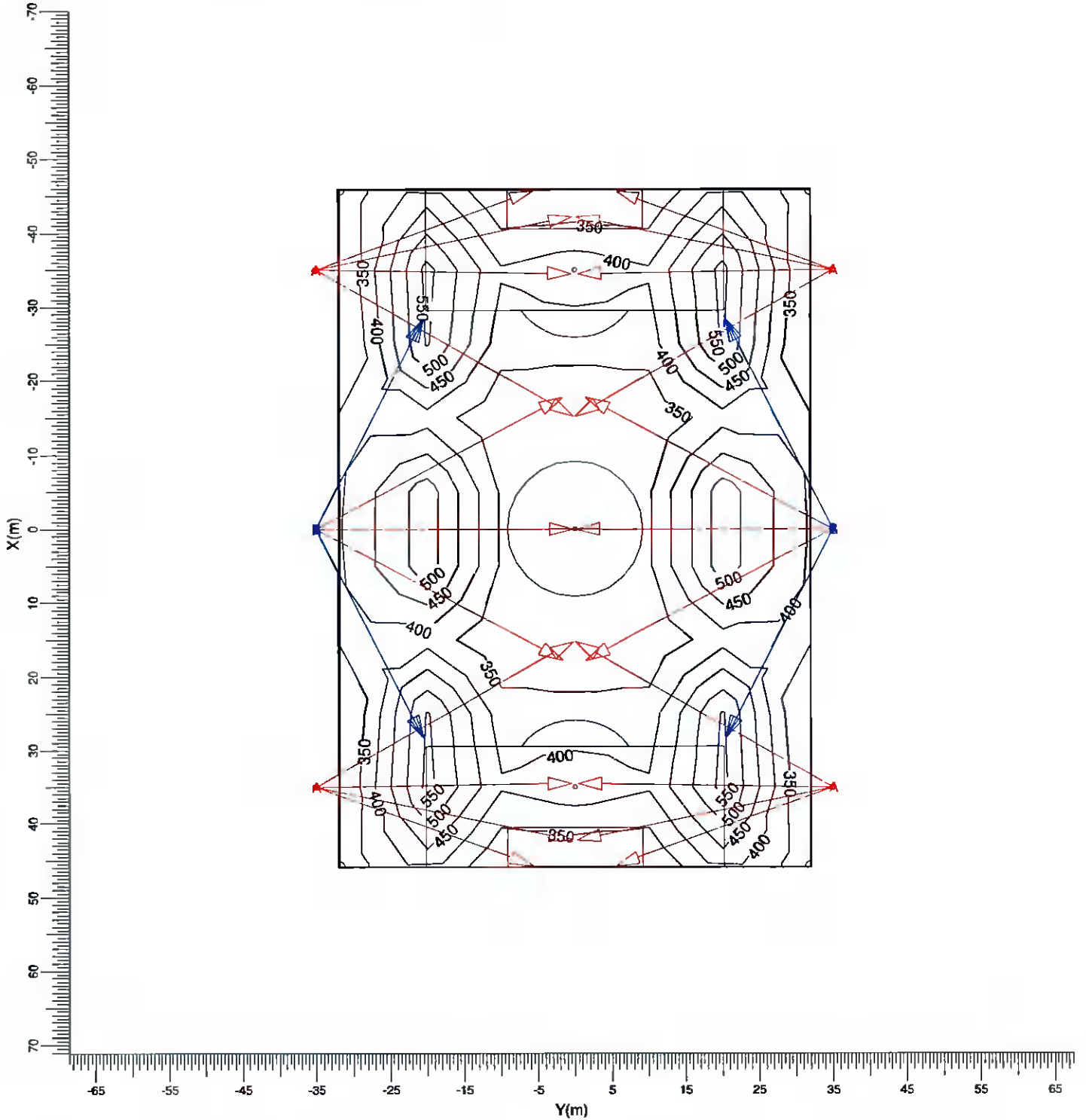
Scale  
1:750



3.2 Football 10x10: Iso Contour

Pitch

Grid : Football 10x10 at Z = -0.00 m  
Calculation : Surface Illuminance (lux)



A BVP528 A55-NB +LO

B BVP528 A55-MB +LO

Average  
390

Min/Ave  
0.78

Min/Max  
0.54

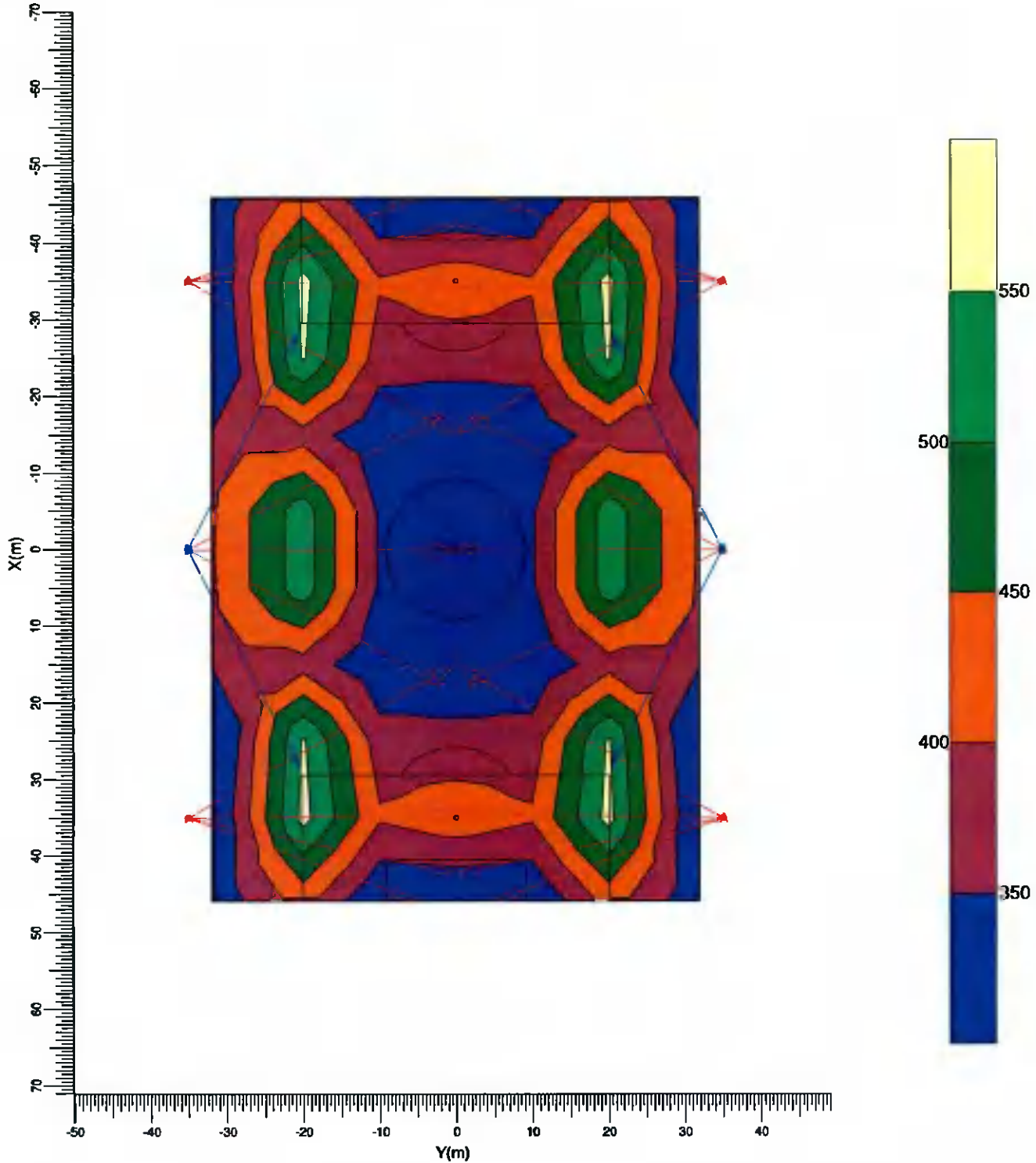
Project maintenance factor  
0.90

Scale  
1:750

3.3 Football 10x10: Filled Iso Contour

Pitch

Grid : Football 10x10 at Z = -0.00 m  
Calculation : Surface Illuminance (lux)



A BVP528 A55-NB +LO      B BVP528 A55-MB +LO

Average  
390

Min/Ave  
0.78

Min/Max  
0.54

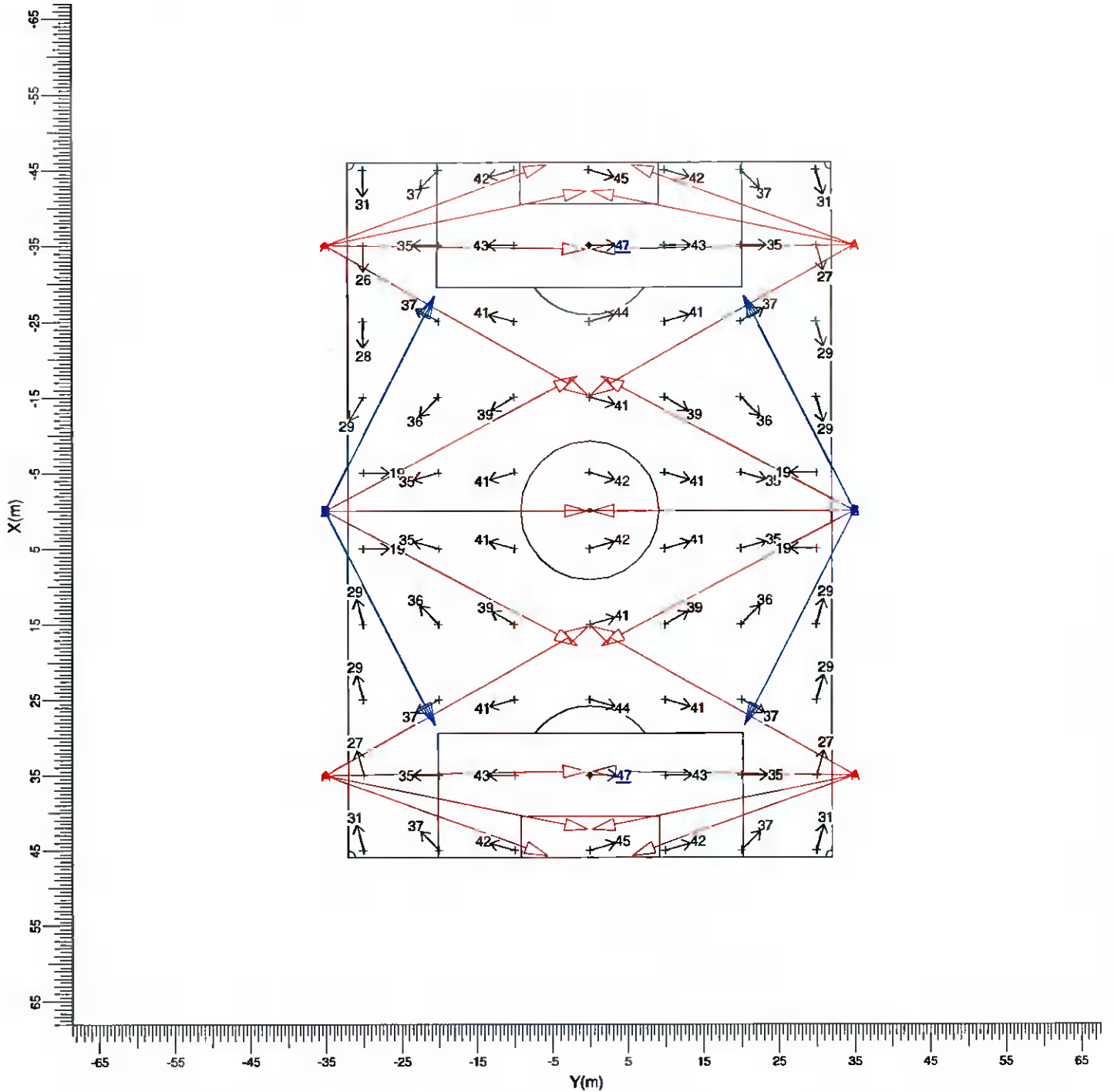
Project maintenance factor  
0.90

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 A55-NB +LO      B BVP528 A55-MB +LO

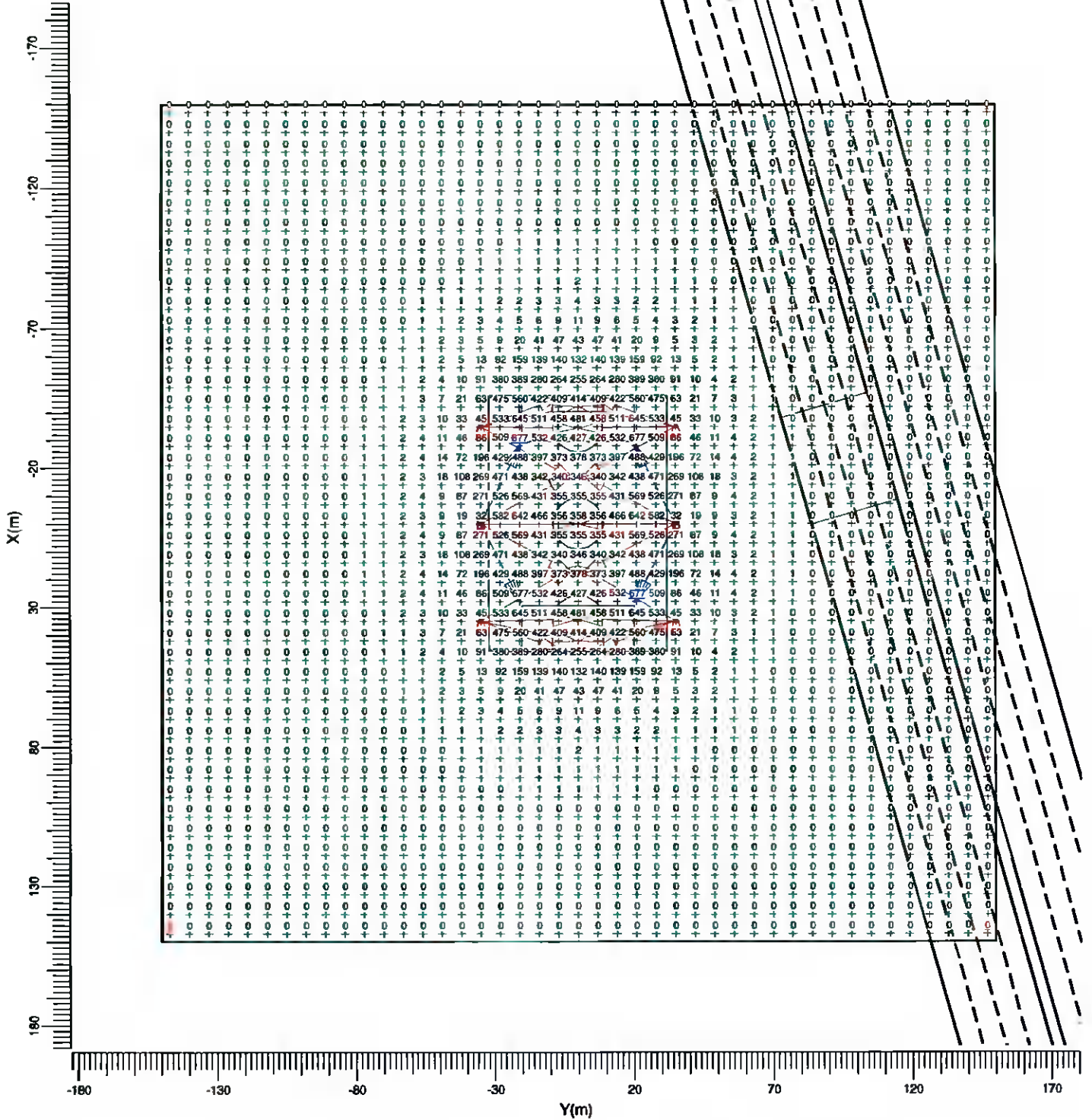
Project maintenance factor  
0.90

Scale  
1:750

3.5 Spill Light: Graphical Table

Spill Light

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



A BVP528 A55-NB +LO

B BVP528 A55-MB +LO

Average  
37.8

Min/Ave  
0.00

Min/Max  
0.00

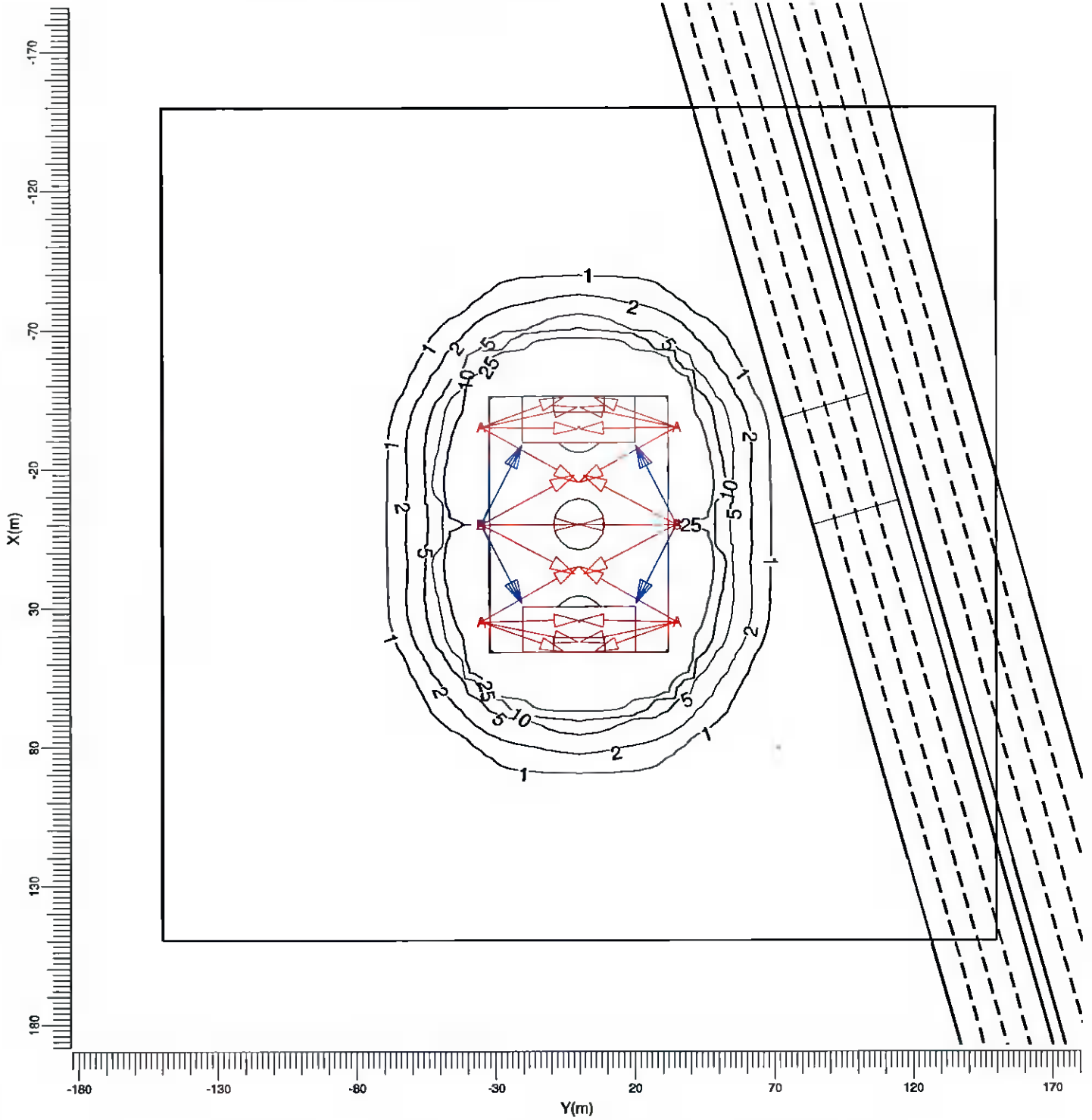
Project maintenance factor  
1.00

Scale  
1:2000

3.6 Spill Light: Iso Contour

Spill Light

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



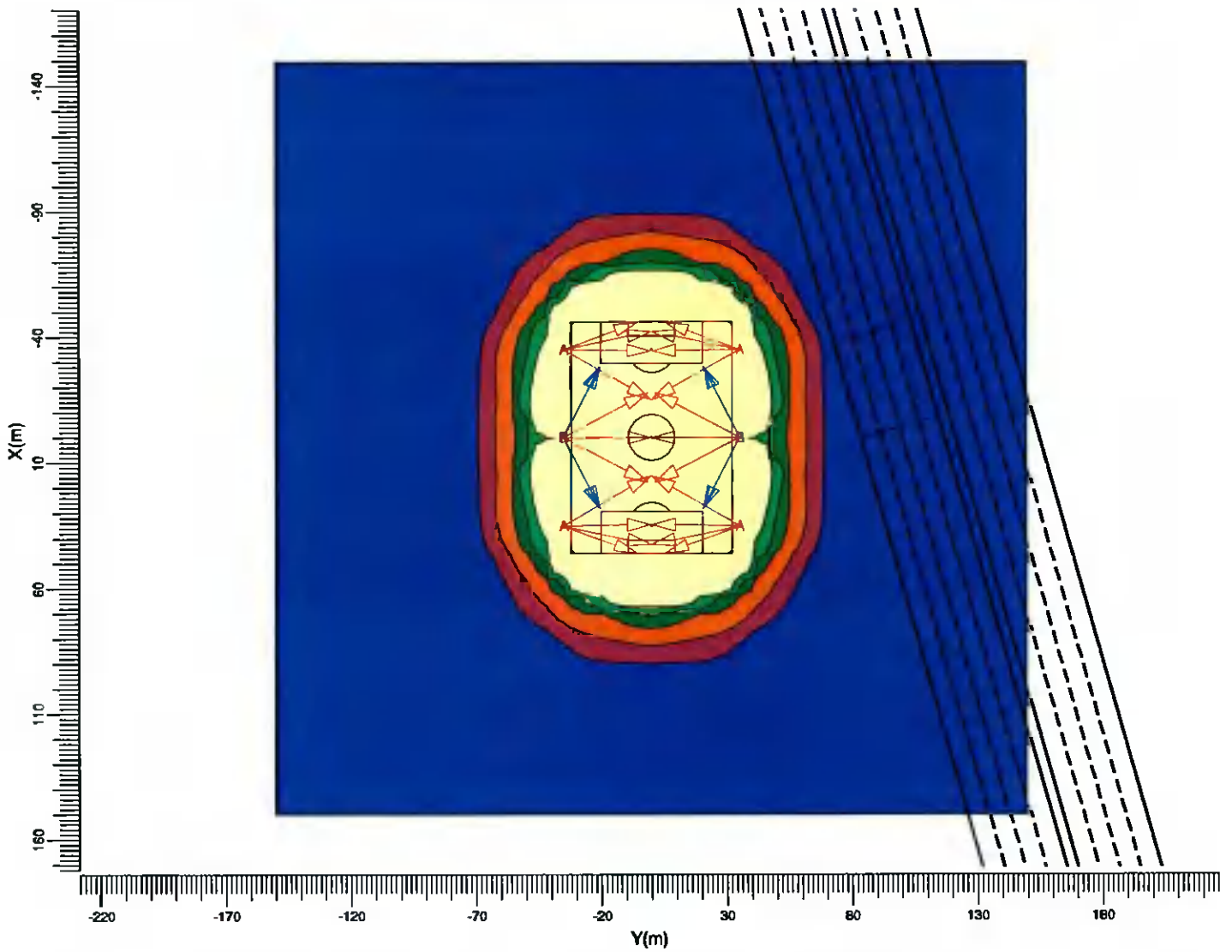
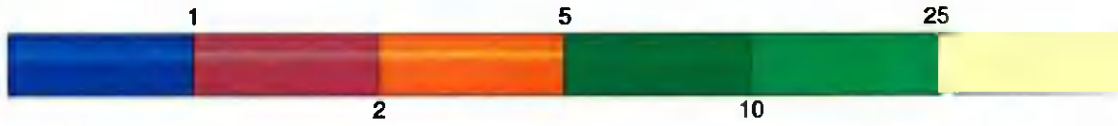
A ▶ BVP528 A55-NB +LO      B ▶ BVP528 A55-MB +LO

Average 37.8	Min/Ave 0.00	Min/Max 0.00	Project maintenance factor 1.00	Scale 1:2000
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3.7 Spill Light: Filled Iso Contour

Spill Light

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



A BVP528 A55-NB +LO

B BVP528 A55-MB +LO

Average  
37.8

Min/Ave  
0.00

Min/Max  
0.00

Project maintenance factor  
1.00

Scale  
1:2500

## 4. Luminaire Details

### 4.1 Project Luminaires

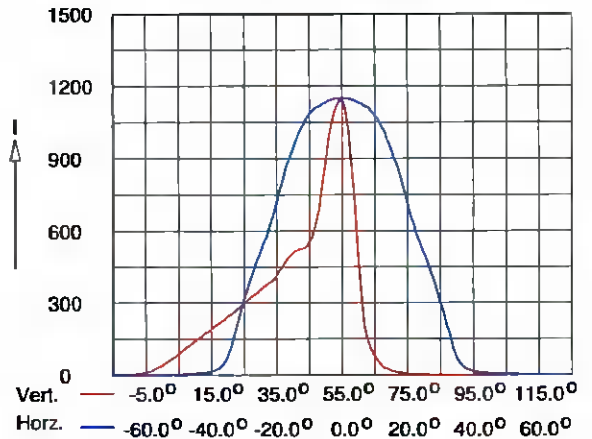
OptiVision LED  
BVP528 1xLED2220/757 OUT T15 50K A55-NB +LO

Light output ratios

DLOR	: 0.59
ULOR	: 0.00
TLOR	: 0.59
Ballast	: N/A
Lamp flux	: 222600 lm
Luminaire wattage	: 1500.0 W
Measurement code	: LVM2048200

Note: Luminaire data not from database.

Luminous Intensity Diagram (candela/1000 lumen)



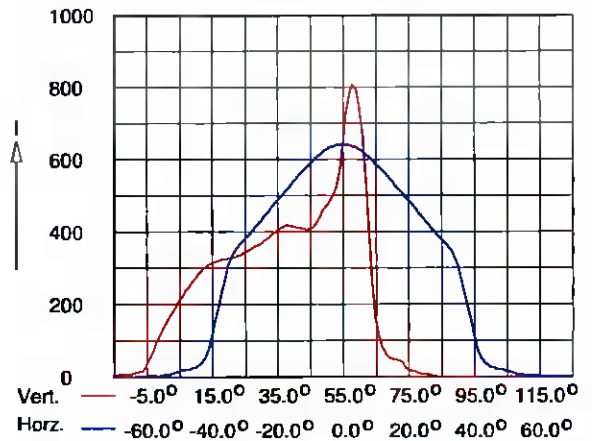
OptiVision LED  
BVP528 1xLED2220/757 OUT T15 50K A55-MB +LO

Light output ratios

DLOR	: 0.59
ULOR	: 0.00
TLOR	: 0.59
Ballast	: N/A
Lamp flux	: 222600 lm
Luminaire wattage	: 1500.0 W
Measurement code	: LVM21005A0

Note: Luminaire data not from database.

Luminous Intensity Diagram (candela/1000 lumen)



## 5. Installation Data

### 5.1 Legends

Project Luminaires:

Code	Qty	Luminaire Type	Lamp Type	Flux (lm)
A	22	BVP528 A55-NB +LO	1 * LED2220/757 OUT T15 50K	1 * 222600
B	4	BVP528 A55-MB +LO	1 * LED2220/757 OUT T15 50K	1 * 222600

Arrangements:

Code	Arrangement
1	Middle
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	-35.00	15.00	-0.00	-0.20	-0.00	90.0	66.7	0.0	0.00	1	+	+
1*A	-0.00	-35.00	15.00	17.74	-1.58	0.00	62.0	68.4	-0.0	0.00	1	+	+
1*A	-0.00	-35.00	15.00	-17.74	-1.58	0.00	118.0	68.4	0.0	0.00	1	+	+
1*B	-0.00	-35.00	15.00	28.36	-20.44	0.00	27.2	64.8	-0.0	0.00	1	+	+
1*B	-0.00	-35.00	15.00	-28.36	-20.44	0.00	152.8	64.8	0.0	0.00	1	+	+
1*A	-0.00	35.00	15.00	-0.00	0.20	-0.00	-90.0	66.7	0.0	0.00	1	+	+
1*A	-0.00	35.00	15.00	17.74	1.58	0.00	-62.0	68.4	0.0	0.00	1	+	+
1*A	-0.00	35.00	15.00	-17.74	1.58	0.00	-118.0	68.4	-0.0	0.00	1	+	+
1*B	-0.00	35.00	15.00	28.36	20.44	0.00	-27.2	64.8	0.0	0.00	1	+	+
1*B	-0.00	35.00	15.00	-28.36	20.44	0.00	-152.8	64.8	-0.0	0.00	1	+	+
1*A	-35.00	-35.00	15.00	-42.19	-0.31	-0.00	101.7	67.1	0.0	0.00	2	+	+
1*A	-35.00	-35.00	15.00	-45.67	-5.63	-0.00	110.0	64.4	0.0	0.00	2	+	+
1*A	-35.00	-35.00	15.00	-34.47	-0.42	0.00	89.1	66.6	0.0	0.00	2	+	+
1*A	-35.00	-35.00	15.00	-15.19	-0.18	-0.00	60.4	69.5	0.0	0.00	2	+	+
1*A	-35.00	35.00	15.00	-42.19	0.31	-0.00	-101.7	67.1	0.0	0.00	2	+	+
1*A	-35.00	35.00	15.00	-45.67	5.63	-0.00	-110.0	64.4	0.0	0.00	2	+	+
1*A	-35.00	35.00	15.00	-34.47	0.42	0.00	-89.1	66.6	-0.0	0.00	2	+	+
1*A	-35.00	35.00	15.00	-15.19	0.18	-0.00	-60.4	69.5	-0.0	0.00	2	+	+
1*A	35.00	-35.00	15.00	42.19	-0.31	-0.00	78.3	67.1	0.0	0.00	2	+	+
1*A	35.00	-35.00	15.00	45.67	-5.63	-0.00	70.0	64.4	0.0	0.00	2	+	+
1*A	35.00	-35.00	15.00	34.47	-0.42	0.00	90.9	66.6	-0.0	0.00	2	+	+
1*A	35.00	-35.00	15.00	15.19	-0.18	-0.00	119.6	69.5	-0.0	0.00	2	+	+
1*A	35.00	35.00	15.00	42.19	0.31	-0.00	-78.3	67.1	0.0	0.00	2	+	+



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	35.00	35.00	15.00	45.67	5.63	-0.00	-70.0	64.4	0.0	0.00	2	+	+
1*A	35.00	35.00	15.00	34.47	0.42	0.00	-90.9	66.6	0.0	0.00	2	+	+
1*A	35.00	35.00	15.00	15.19	0.18	-0.00	-119.6	69.5	0.0	0.00	2	+	+

