

Gravesham Tennis Club

500 Lux Lighting Design

Project code: Courts 6+7+8
Date: 14-05-2025

Designer: Andy Collins

Description: LED Floodlighting compliant to the LTA recommended standard:
-PPA - 500 Lux - 0.70 min/ave -TPA - 400 Lux - 0.60 min/ave

PHILIPS
Lighting



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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CalcuLuX Area 7.9.0.0

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1. Project Description

1.1 Description

LED Floodlighting compliant to the LTA recommended standard:

- PPA - 500 Lux average - 0.70 minimum to average uniformity.
- TPA - 400 Lux average - 0.60 minimum to average uniformity.

The LED Luminaires perform with internal integral louvres to mitigate unnecessary spillage and glare to the adjacent surrounding area.

-Tennis Courts 6+7+8 Lighting:

4 Philips Optivision Gen 3.5 LED 1067w 4000K luminaires and
4 Philips Optivision Gen 3.5 LED 1303w 4000K luminaires
mounted on 8 proposed lighting columns at 8m high.

Aiming Offset of Luminaires = 35 degrees.

Total Installed Power = 9.48 Kw (14 amps per phase)

The power saving is 21% compared to the existing
conventional HID solution at 12 Kw.

230/400v power supply required.

Project Maintenance Factors:

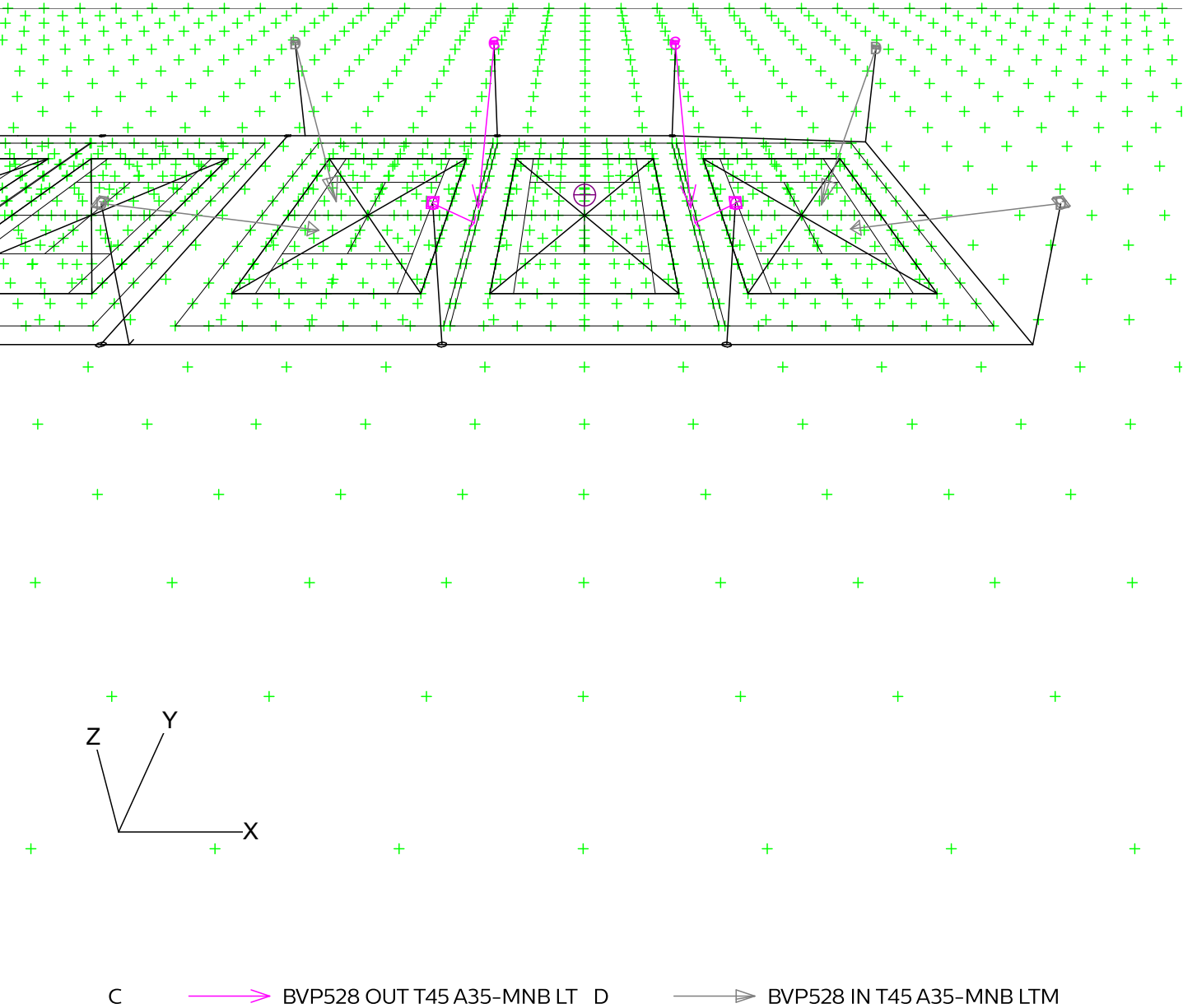
Performance Results = 0.95

Spillage Charts = 1

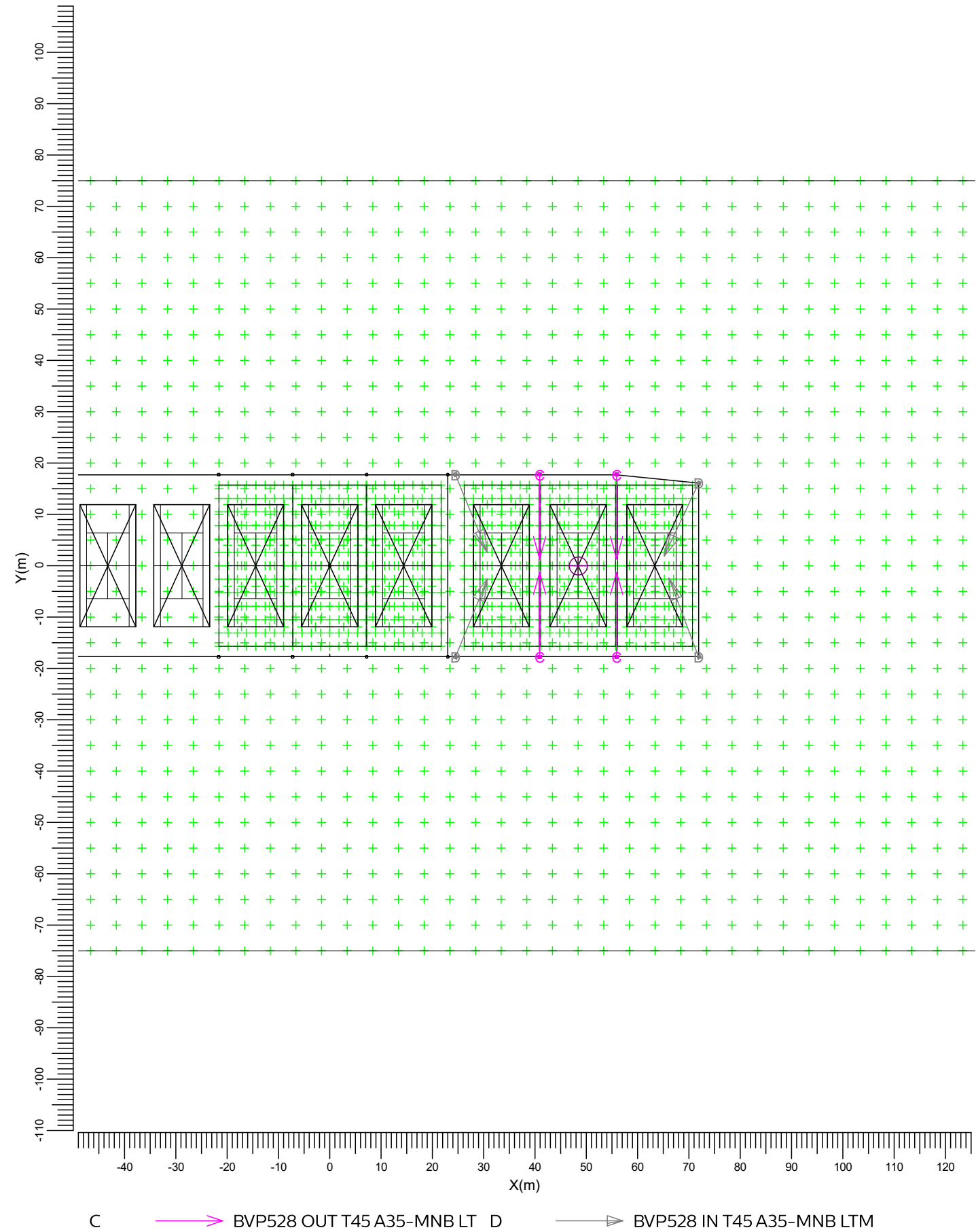
Upward Light Ratio (ULR) is 0.00

The light spill shown is not maintained and therefore
demonstrates maximum lumen intensity from
initial installation.

1.2 3-D Project Overview



1.3 Top Project Overview



Scale
1:1000

2. Summary

2.1 Observer Information

Code	Observer	Position		
		X (m)	Y (m)	Z (m)
Aa	Property Observer 1	-75.92	-36.19	1.50
Bb	Property Observer 2	-76.40	-1.61	1.50
Cc	Property Observer 3	-73.02	5.63	1.50
Dd	Property Observer 4	-65.95	19.30	1.50
Ee	Property Observer 5	-61.28	53.88	1.50
Ff	Property Observer 6	150.07	16.08	1.50
Gg	Property Observer 7	149.26	-4.50	1.50
Hh	Property Observer 8	147.49	-21.71	1.50

2.2 Project Luminaires

Code	Qty	Luminaire Type	Lamp Type	Power (W)	Flux (lm)
C	4	BVP528 OUT T45 A35-MNB LTM	1 * LED2300-4S/740	1303.1	1 * 230000
D	4	BVP528 IN T45 A35-MNB LTM	1 * LED1930-4S/740	1067.8	1 * 193000

The total installed power: 9.48 (kWatt)

Number of Luminaires Per Switching Mode:

Switching Mode	Luminaire Code		Power (kWatt)
	C	D	
Spillage	4	4	9.48
Court 6	2	2	4.74
Court 7	4	0	5.21
Court 8	2	2	4.74

Number of Luminaires Per Arrangement:

Arrangement	Luminaire Code		Power (kWatt)
	C	D	
Column 11+12	2	0	2.61
Column 13+14	2	0	2.61
Column 15	0	1	1.07
Column 16	0	1	1.07
Column 9+10	0	2	2.14

2.3 Calculation Results

Switching Modes:

Code	Switching Mode	Maintenance factor
1	Spillage	1.00
2	Court 6	0.95
3	Court 7	0.95
4	Court 8	0.95

(II)luminance Calculations:

Calculation	Switching Mode	Type	Unit	Ave Min/AveMin/Max		
PPA Court 6	2	Surface Illuminance	lux	528	0.78	0.62

Calculation	Switching Mode	Type	Unit	Ave Min/AveMin/Max		
TPA Court 6	2	Surface Illuminance	lux	534	0.74	0.49
PPA Court 7	3	Surface Illuminance	lux	548	0.89	0.80
TPA Court 7	3	Surface Illuminance	lux	557	0.75	0.53
PPA Court 8	4	Surface Illuminance	lux	555	0.85	0.70
TPA Court 8	4	Surface Illuminance	lux	553	0.72	0.50
Spillage Horizontal LED	1	Horizontal Illuminance	lux	29.9	0.00	0.00

Obtrusive Light Calculations:

Switching Mode	Observer Code	Luminaire Code	Position			Aiming Angles			Maximum Intensity (cd)
			X (m)	Y (m)	Z (m)	Rot.	Tilt90	Tilt0	
1	Aa	D	71.96	16.07	8.00	-115.57	63.00	0.00	397
1	Bb	D	71.96	16.07	8.00	-115.57	63.00	0.00	490
1	Cc	D	71.96	-17.75	8.00	110.64	64.00	0.00	442
1	Dd	D	71.96	-17.75	8.00	110.64	64.00	0.00	581
1	Ee	C	40.95	-17.75	8.00	90.00	64.00	0.00	717
1	Ff	D	24.55	-17.75	8.00	67.89	64.00	0.00	601
1	Gg	D	24.55	17.75	8.00	-67.89	64.00	-0.00	542
1	Hh	D	24.55	17.75	8.00	-67.89	64.00	-0.00	531

Switching Mode	ULR
1	0.00
2	0.00
3	0.00
4	0.00

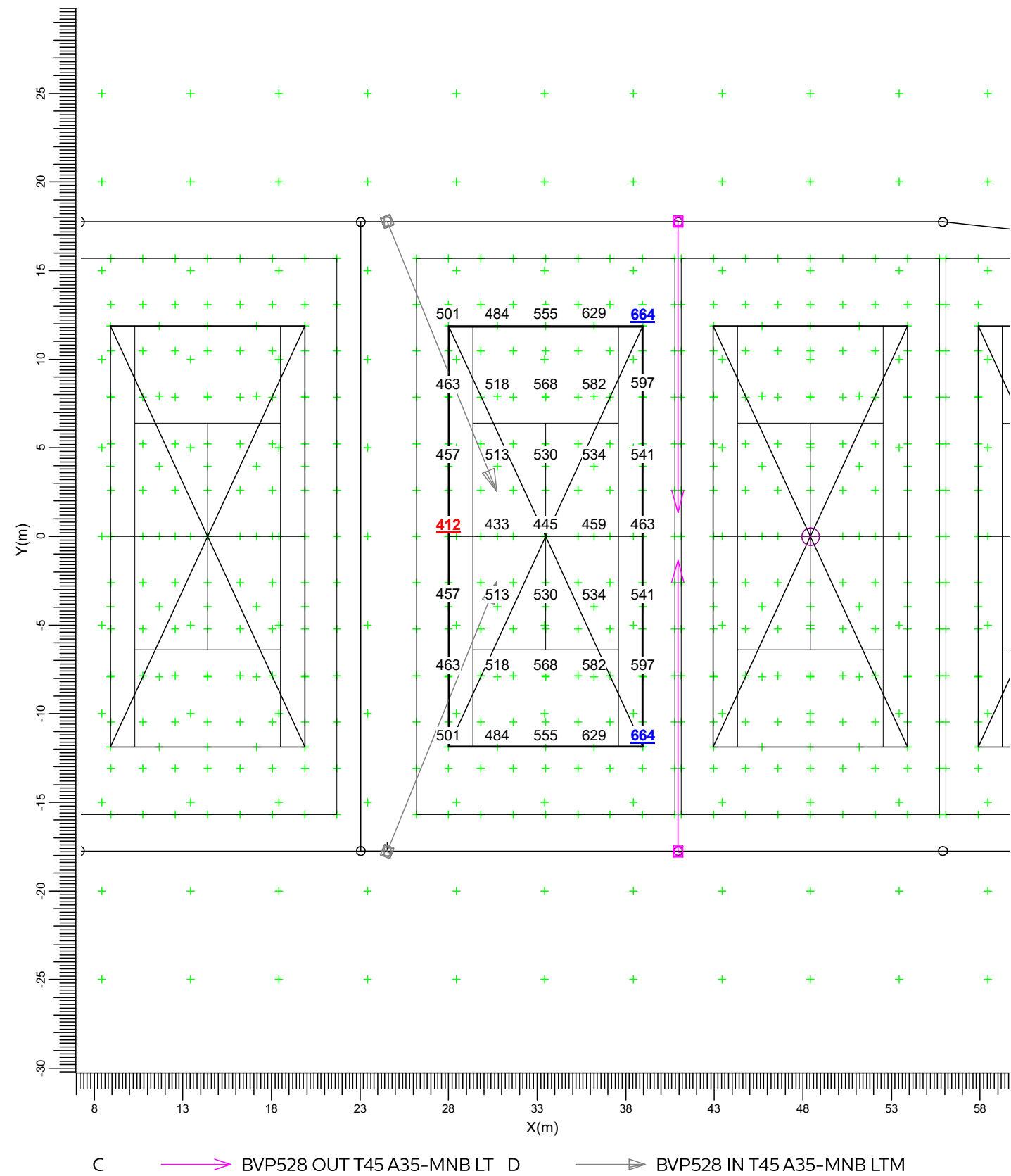
3. Calculation Results

3.1 PPA Court 6: Graphical Table

Court 6

Grid : PPA Court 6 at Z = -0.00 m

Calculation : Surface Illuminance (lux)



Average
528

Min/Ave
0.78

Min/Max
0.62

Project maintenance factor
0.95

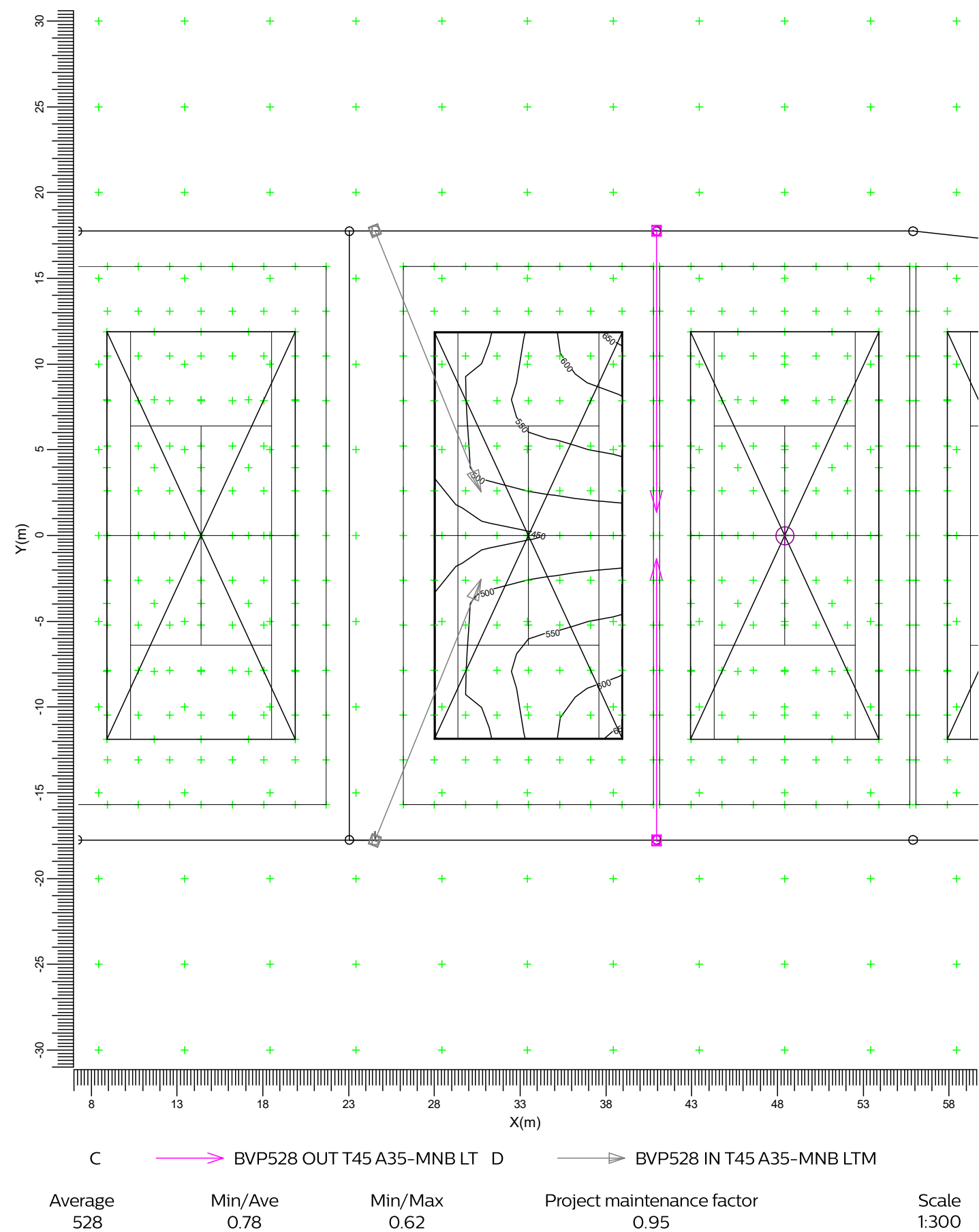
Scale
1:300

3.2 PPA Court 6: Iso Contour

Court 6

Grid : PPA Court 6 at Z = -0.00 m

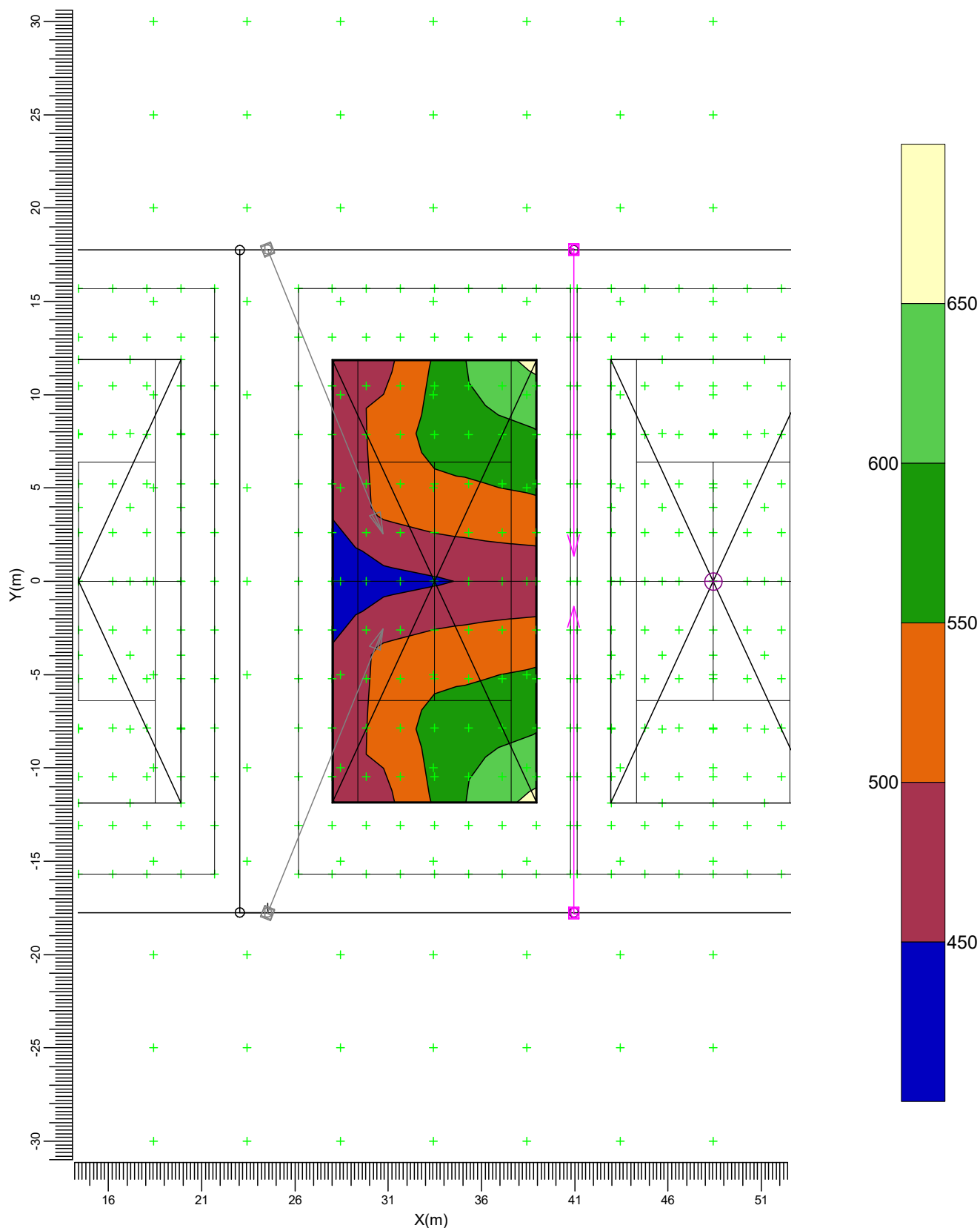
Calculation : Surface Illuminance (lux)



3.3 PPA Court 6: Filled Iso Contour

Court 6

Grid : PPA Court 6 at Z = -0.00 m
Calculation : Surface Illuminance (lux)



C → BVP528 OUT T45 A35-MNB LT D → BVP528 IN T45 A35-MNB LTM

Average
528

Min/Ave
0.78

Min/Max
0.62

Project maintenance factor
0.95

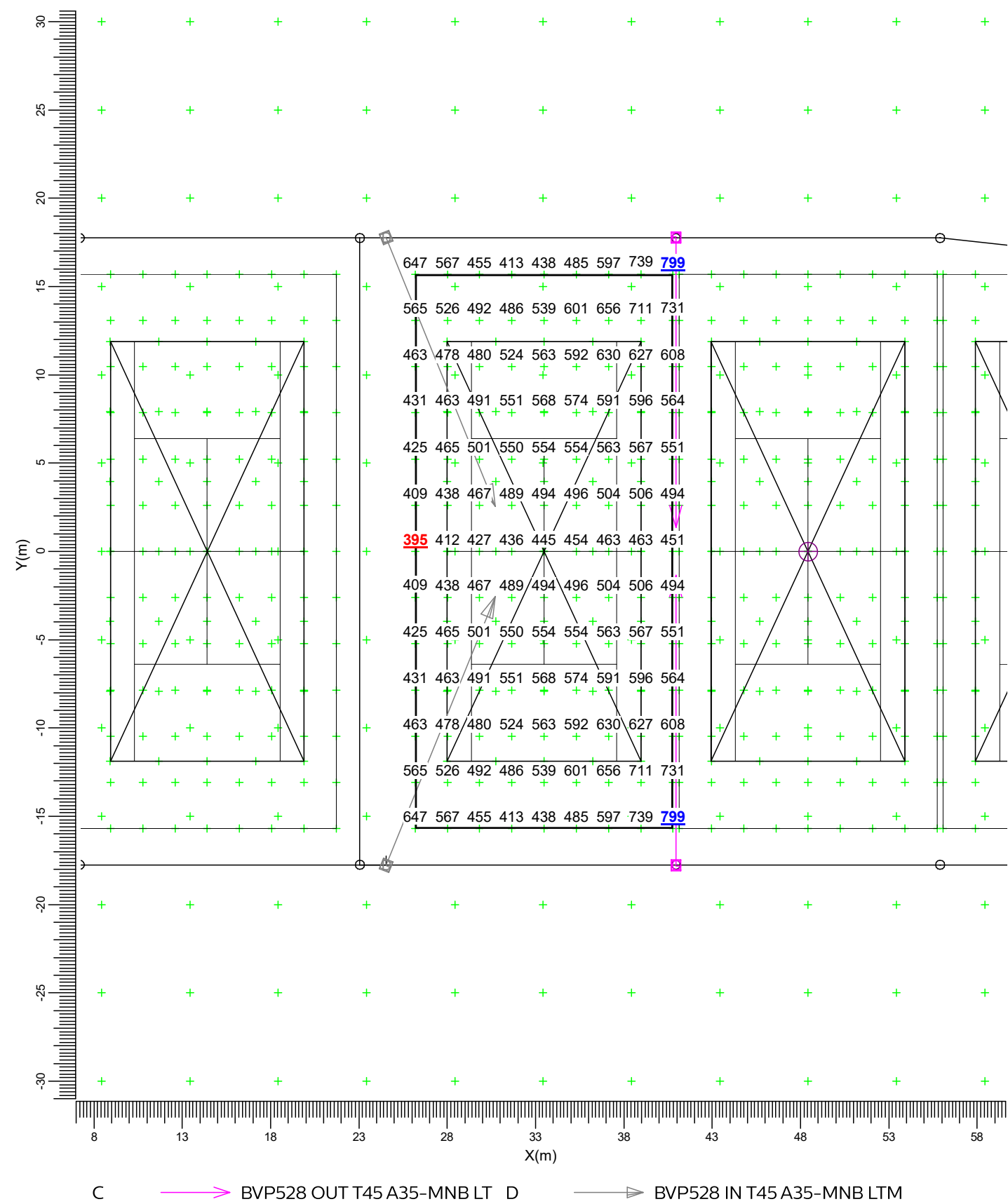
Scale
1:300

3.4 TPA Court 6: Graphical Table

Court 6

Grid : TPA Court 6 at Z = -0.00 m

Calculation : Surface Illuminance (lux)



Average
534

Min/Ave
0.74

Min/Max
0.49

Project maintenance factor
0.95

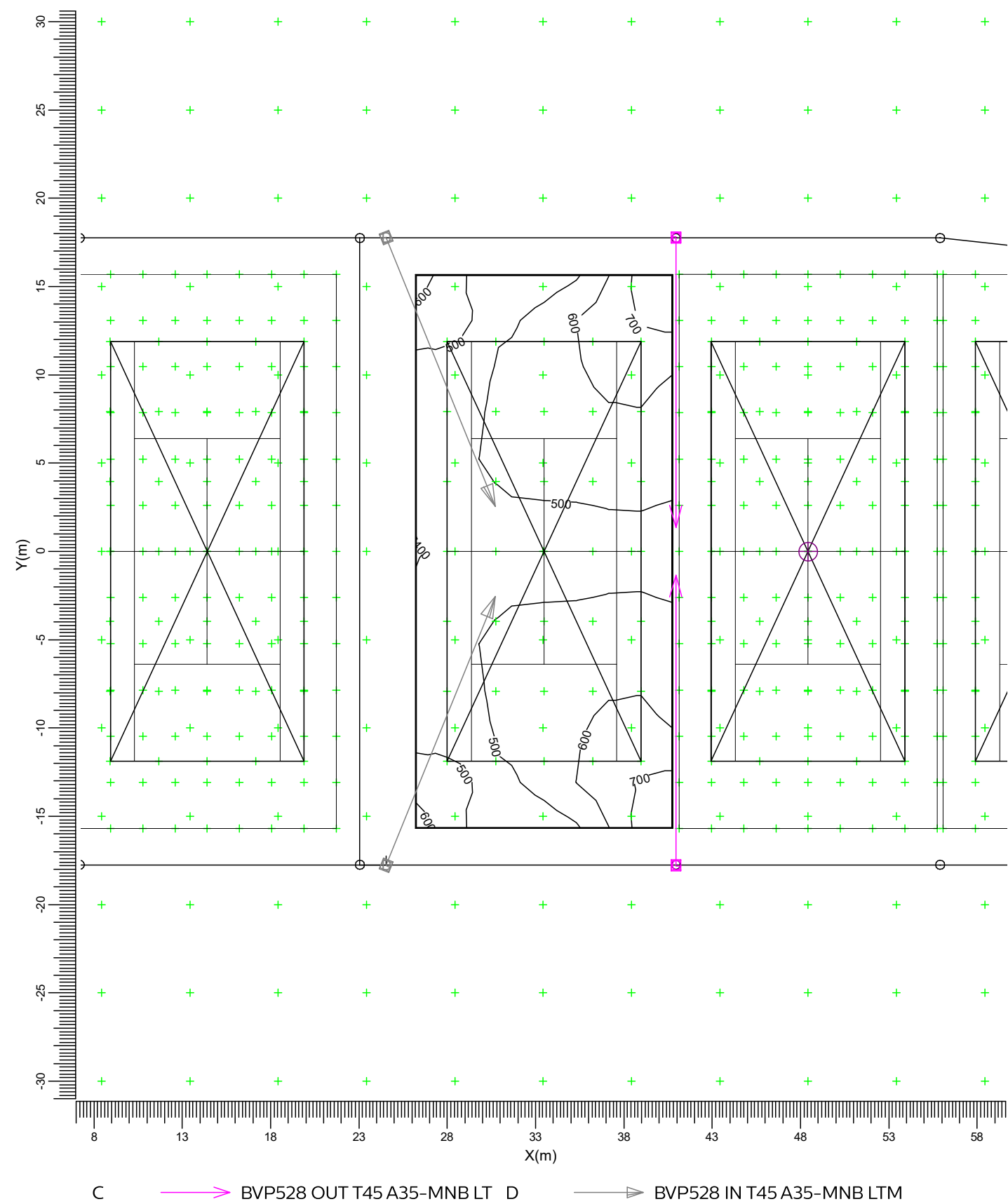
Scale
1:300

3.5 TPA Court 6: Iso Contour

Court 6

Grid : TPA Court 6 at Z = -0.00 m

Calculation : Surface Illuminance (lux)

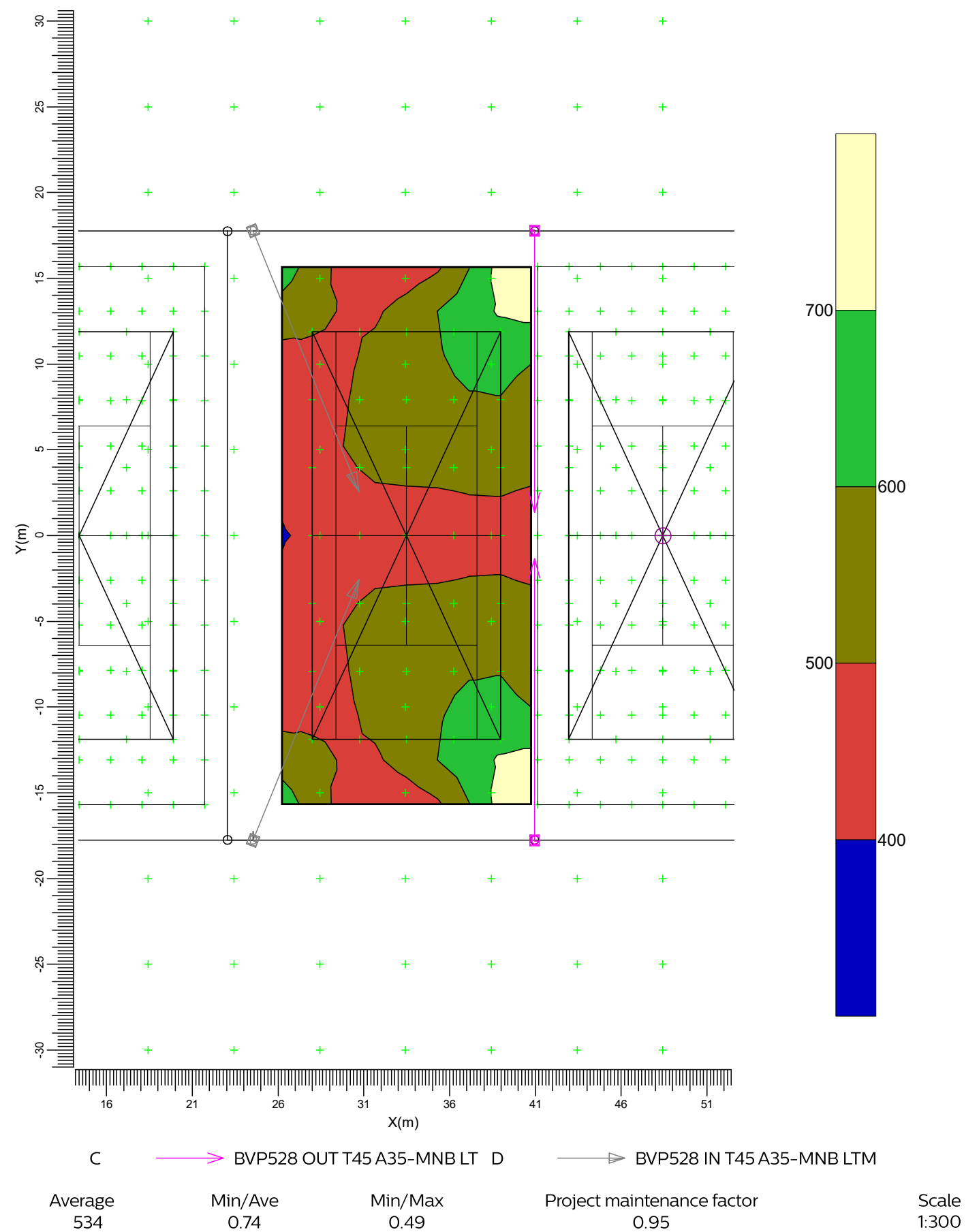


Average 534	Min/Ave 0.74	Min/Max 0.49	Project maintenance factor 0.95	Scale 1:300
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3.6 TPA Court 6: Filled Iso Contour

Court 6

Grid : TPA Court 6 at Z = -0.00 m
Calculation : Surface Illuminance (lux)

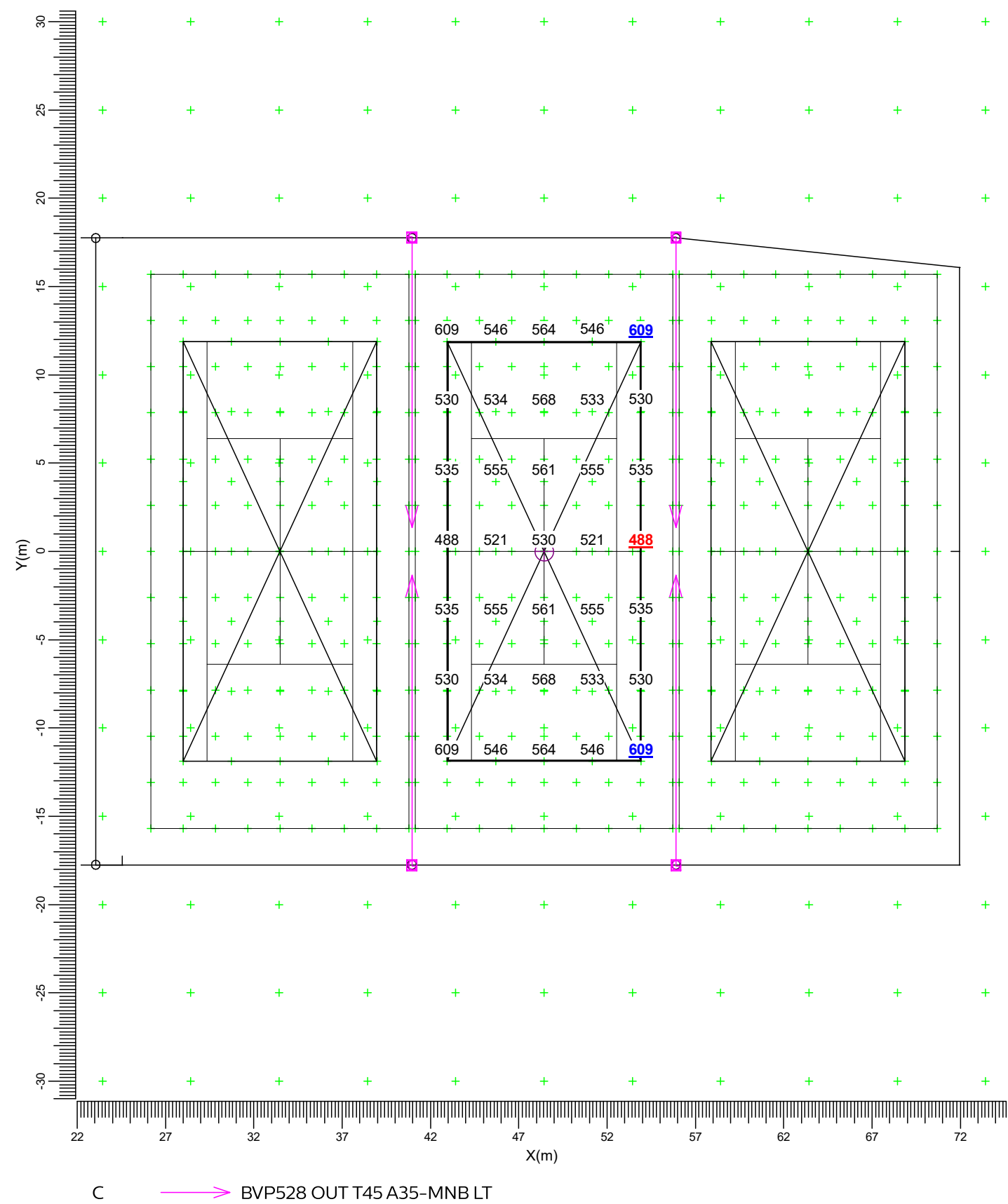


3.7 PPA Court 7: Graphical Table

Court 7

Grid : PPA Court 7 at Z = -0.00 m

Calculation : Surface Illuminance (lux)

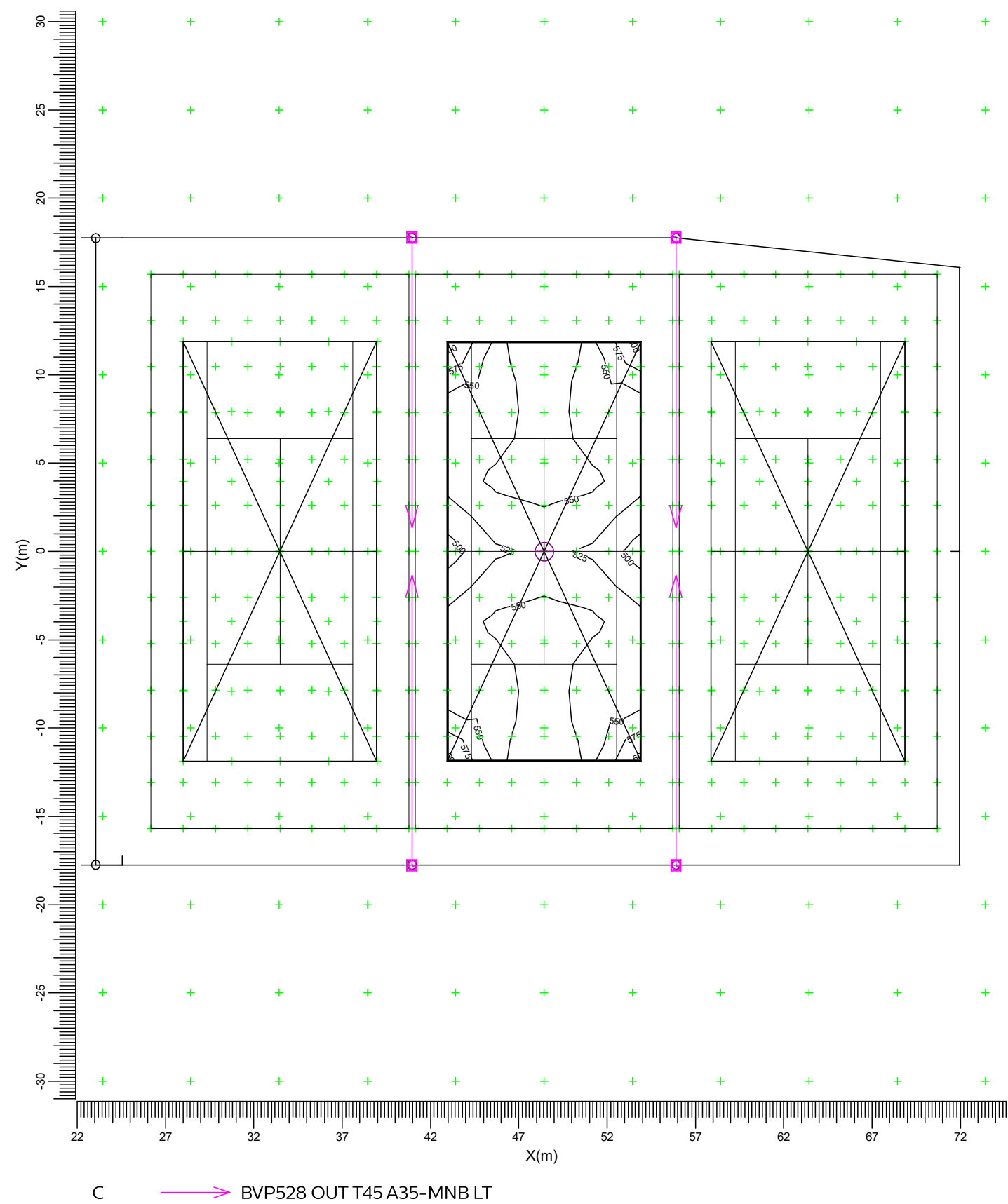


3.8 PPA Court 7: Iso Contour

Court 7

Grid : PPA Court 7 at Z = -0.00 m

Calculation : Surface Illuminance (lux)

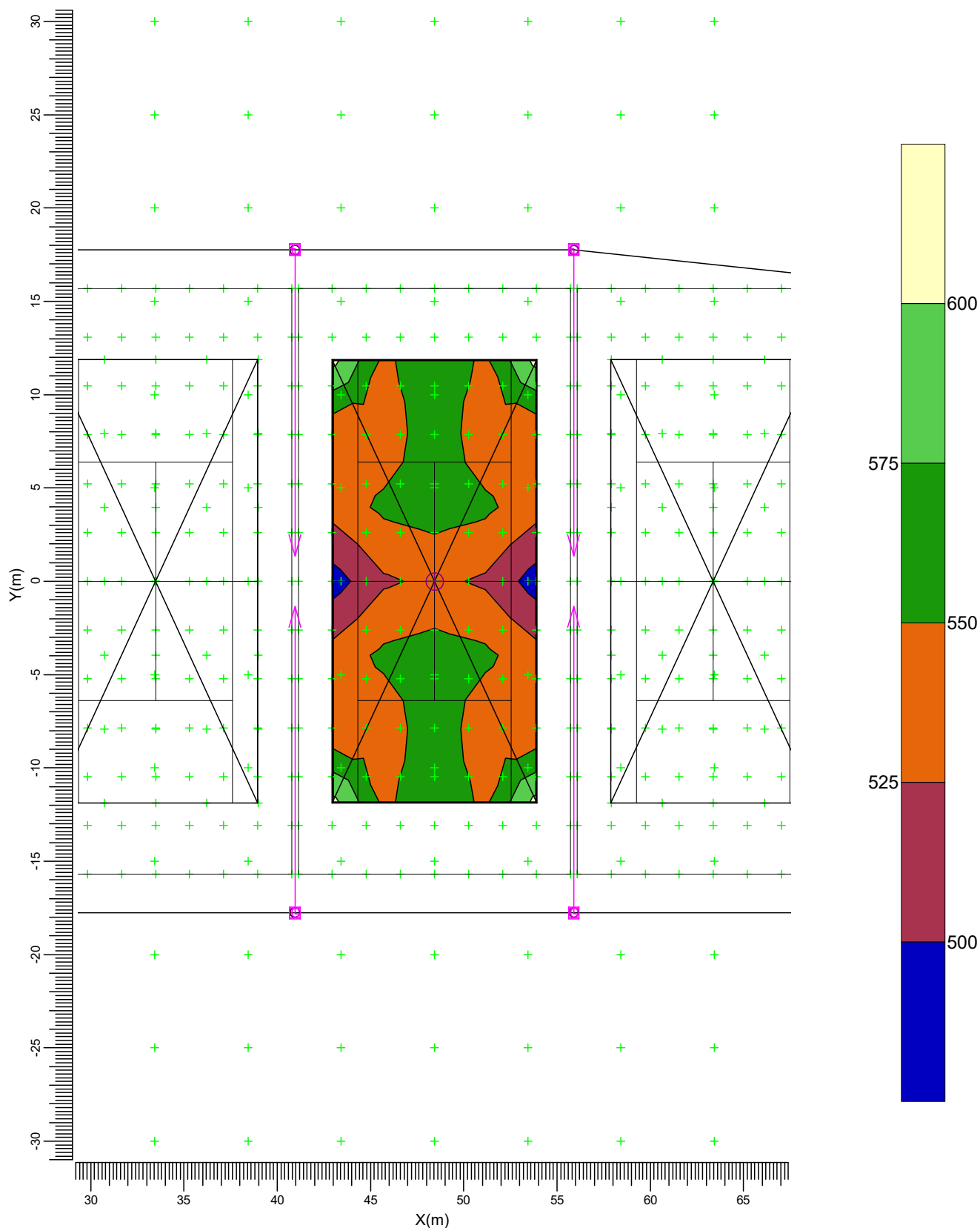


Average 548	Min/Ave 0.89	Min/Max 0.80	Project maintenance factor 0.95	Scale 1:300
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3.9 PPA Court 7: Filled Iso Contour

Court 7

Grid : PPA Court 7 at Z = -0.00 m
Calculation : Surface Illuminance (lux)



C → BVP528 OUT T45 A35-MNB LT

Average
548

Min/Ave
0.89

Min/Max
0.80

Project maintenance factor
0.95

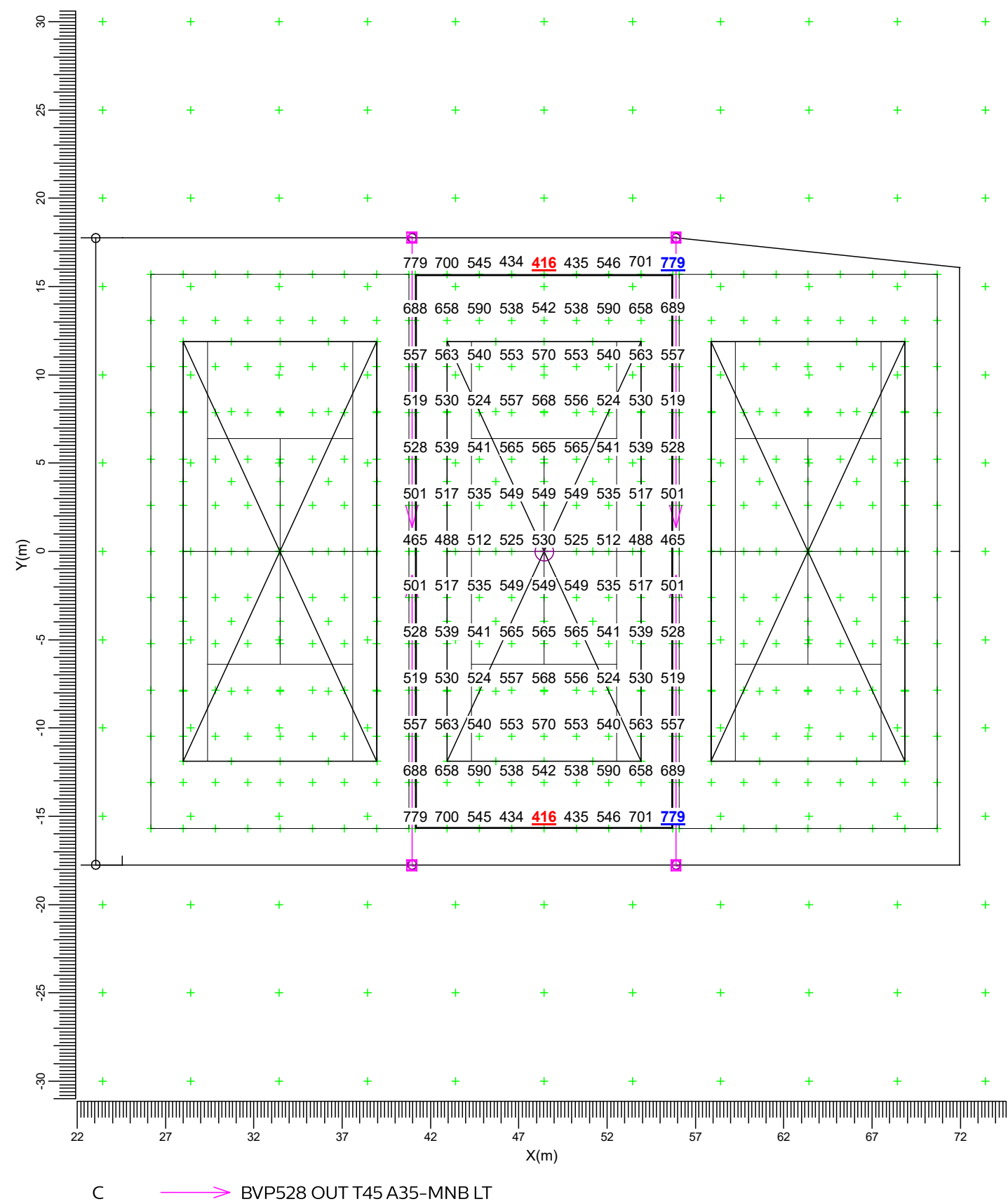
Scale
1:300

3.10 TPA Court 7: Graphical Table

Court 7

Grid : TPA Court 7 at Z = -0.00 m

Calculation : Surface Illuminance (lux)



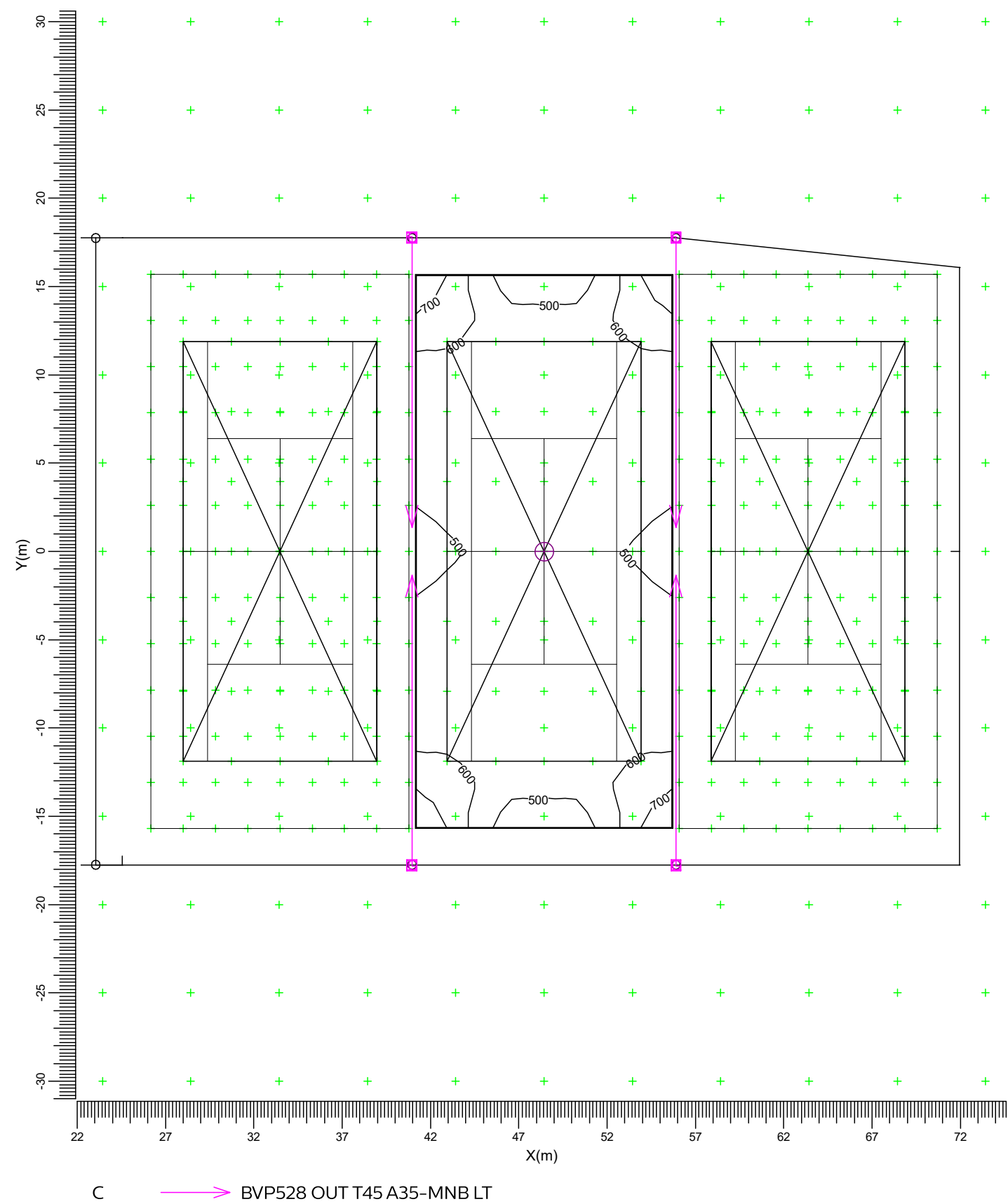
Average	Min/Ave	Min/Max	Project maintenance factor	Scale
557	0.75	0.53	0.95	1:300

3.11 TPA Court 7: Iso Contour

Court 7

Grid : TPA Court 7 at Z = -0.00 m

Calculation : Surface Illuminance (lux)

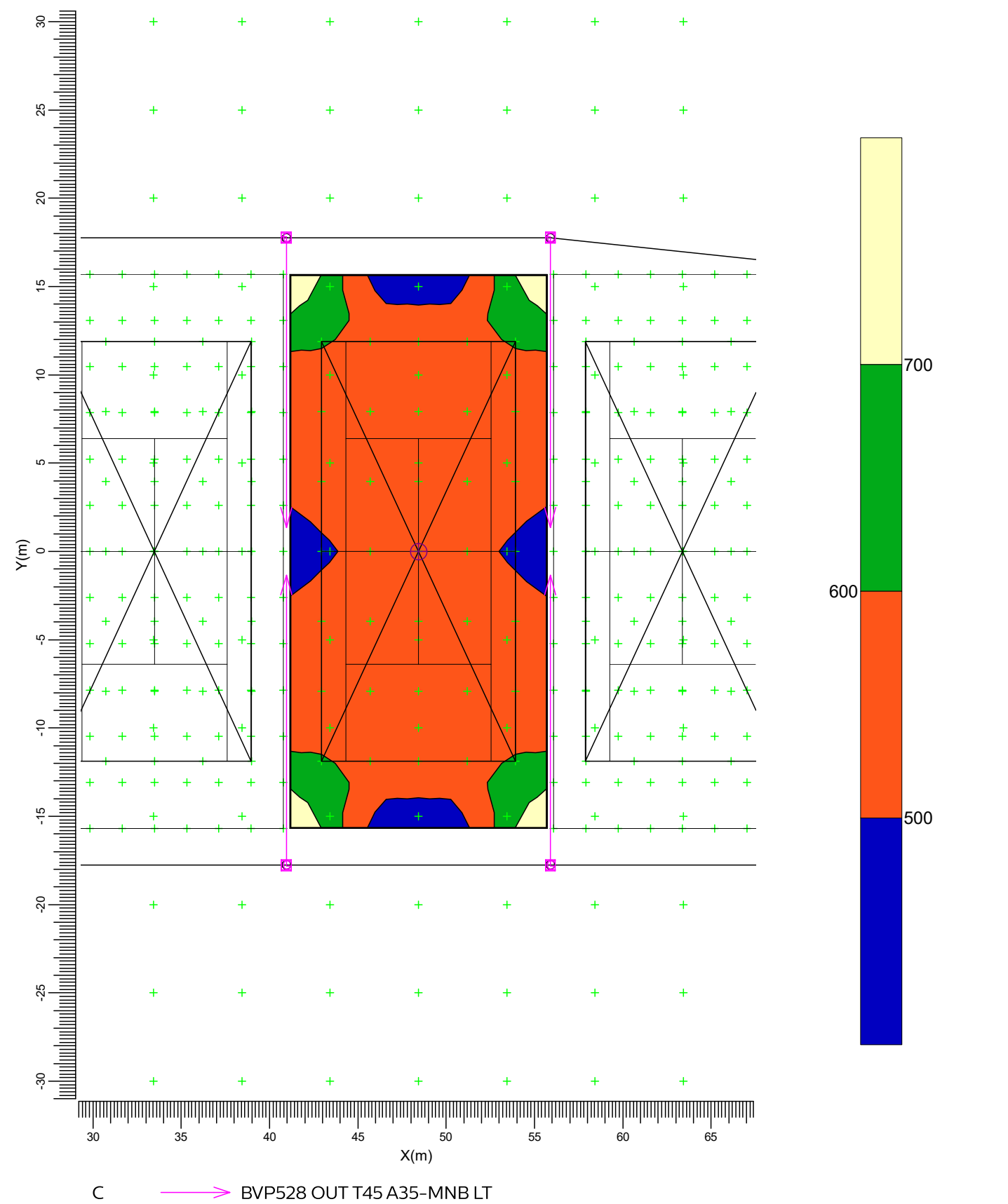


Average 557	Min/Ave 0.75	Min/Max 0.53	Project maintenance factor 0.95	Scale 1:300
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3.12 TPA Court 7: Filled Iso Contour

Court 7

Grid : TPA Court 7 at Z = -0.00 m
Calculation : Surface Illuminance (lux)



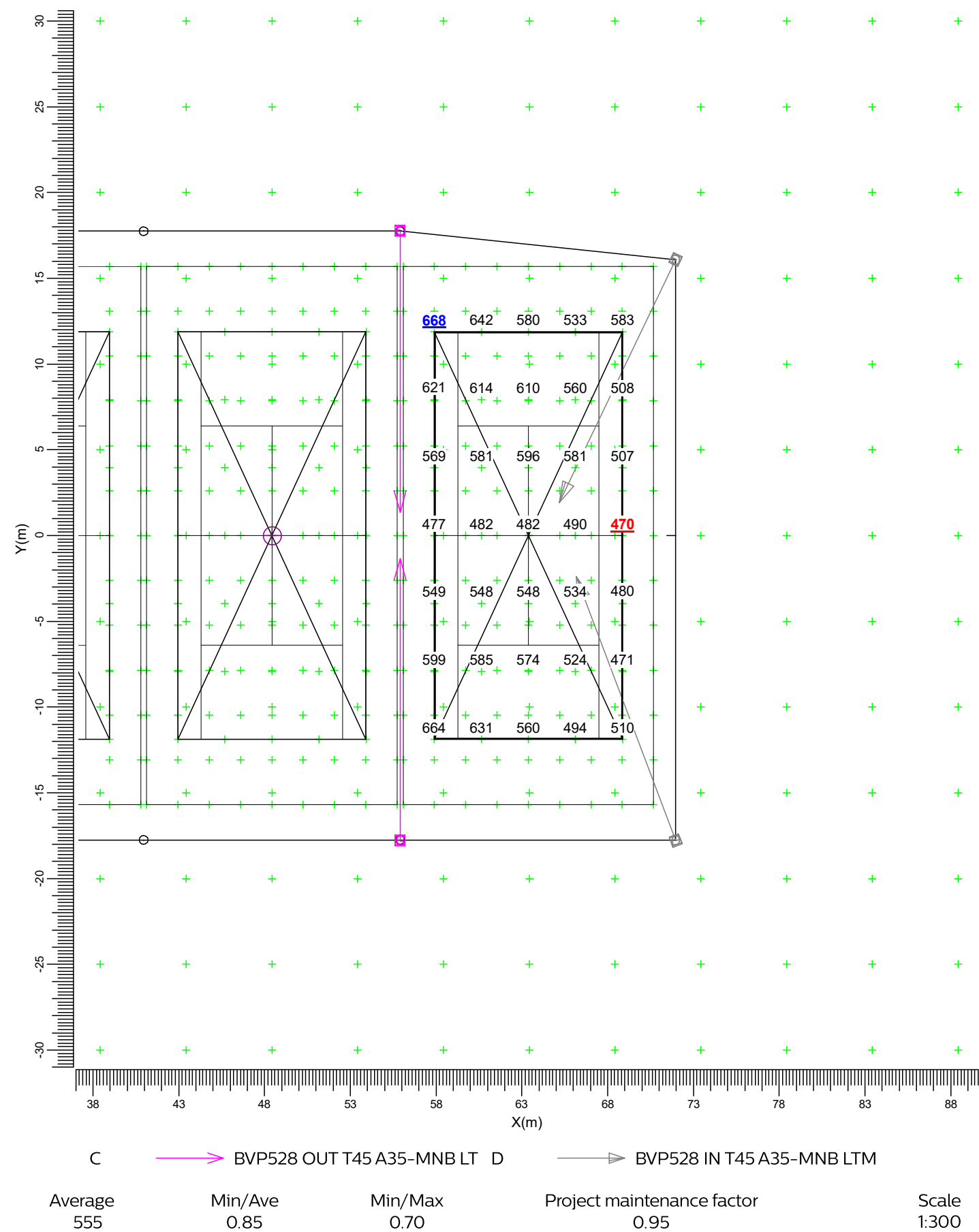
Average	Min/Ave	Min/Max	Project maintenance factor	Scale
557	0.75	0.53	0.95	1:300

3.13 PPA Court 8: Graphical Table

Court 8

Grid : PPA Court 8 at Z = -0.00 m

Calculation : Surface Illuminance (lux)

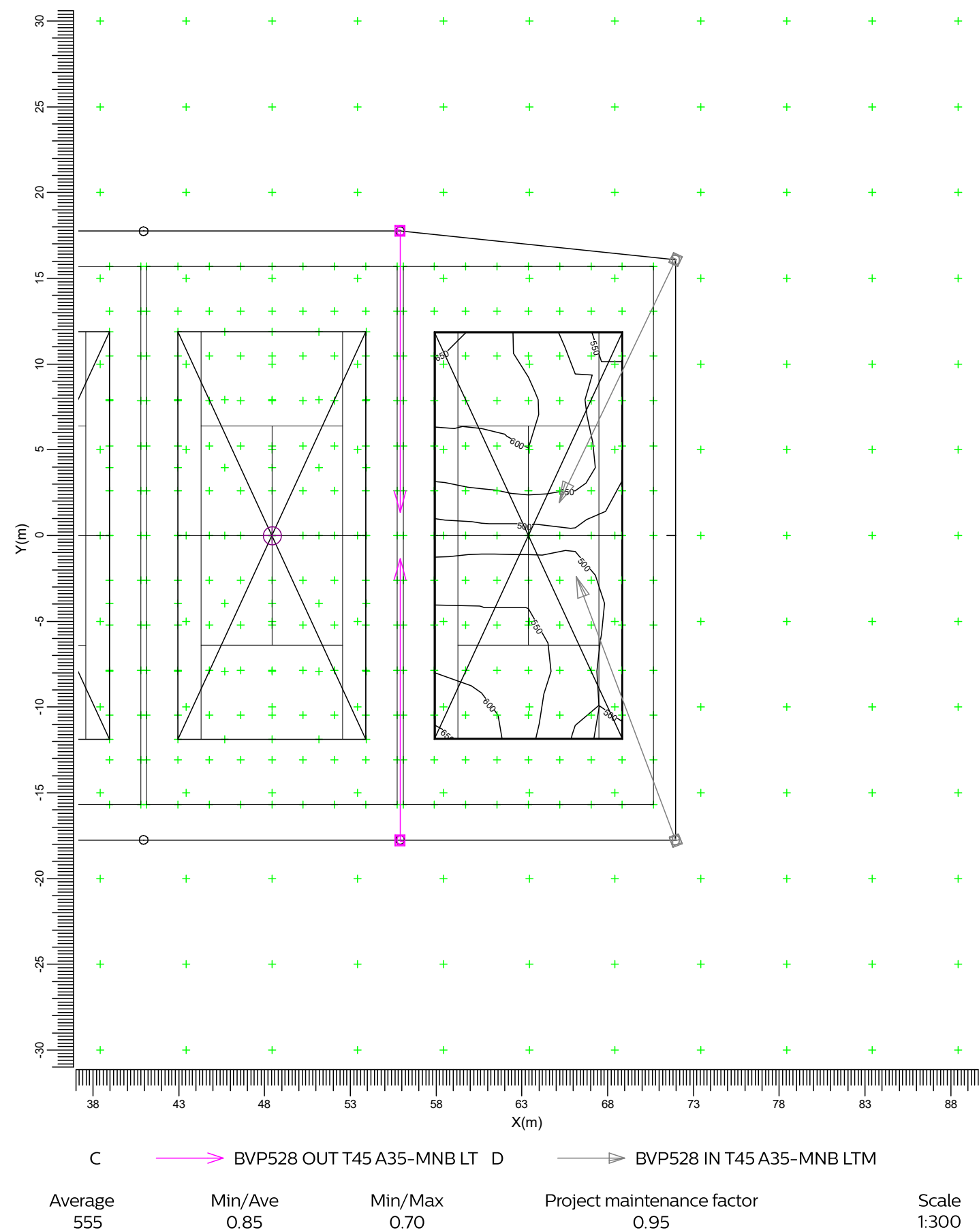


3.14 PPA Court 8: Iso Contour

Court 8

Grid : PPA Court 8 at Z = -0.00 m

Calculation : Surface Illuminance (lux)

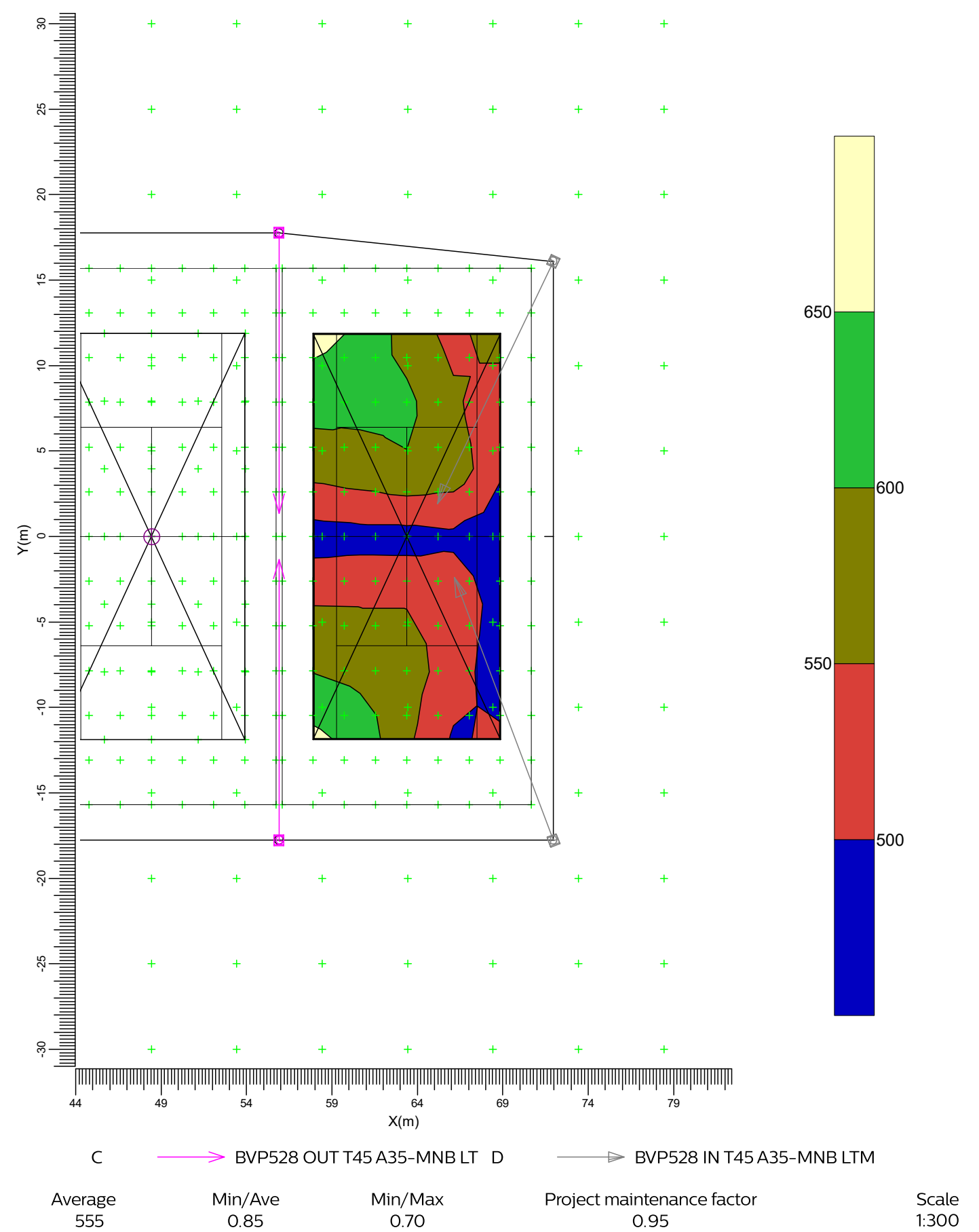


3.15 PPA Court 8: Filled Iso Contour

Court 8

Grid : PPA Court 8 at Z = -0.00 m

Calculation : Surface Illuminance (lux)

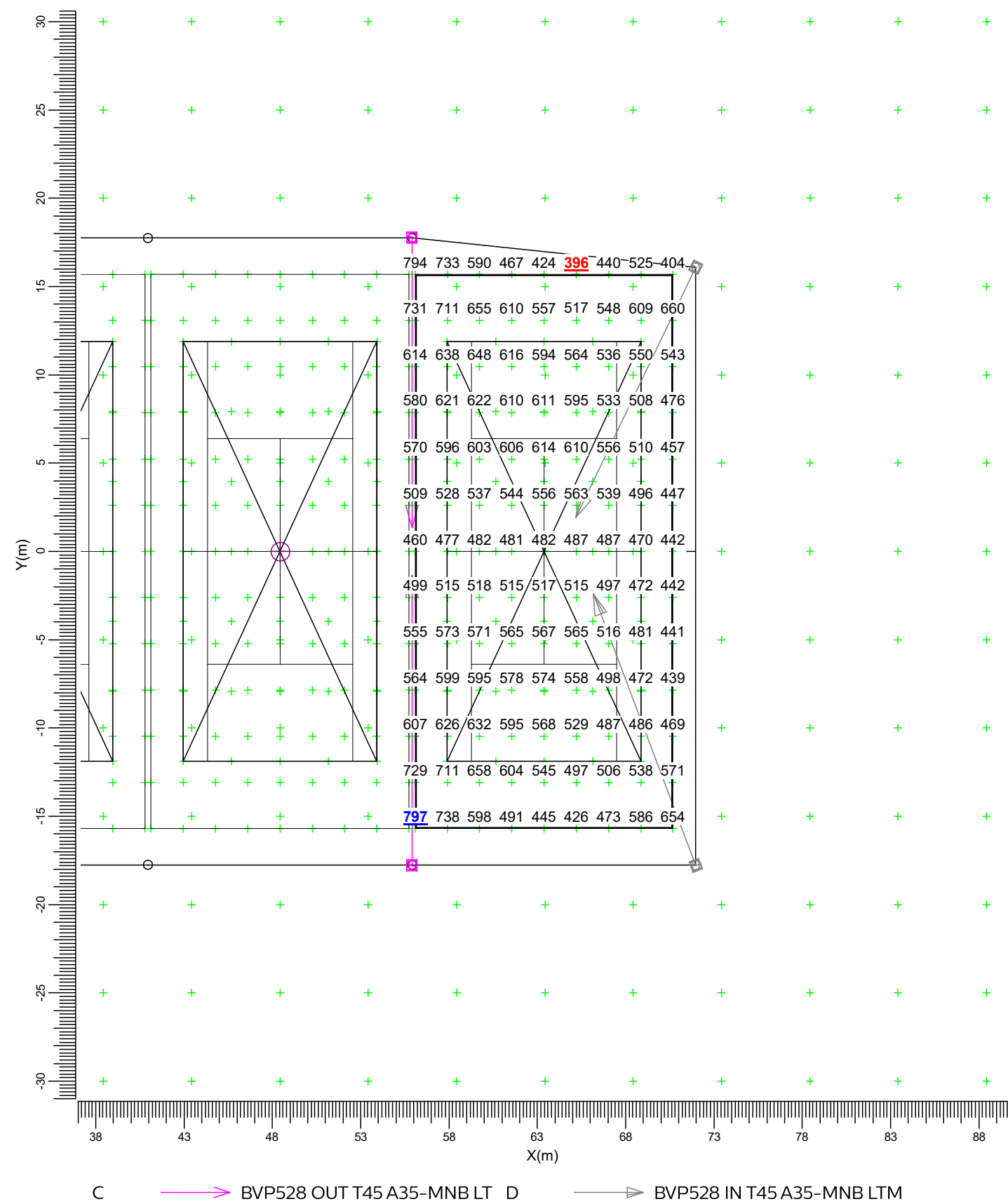


3.16 TPA Court 8: Graphical Table

Court 8

Grid : TPA Court 8 at Z = -0.00 m

Calculation : Surface Illuminance (lux)

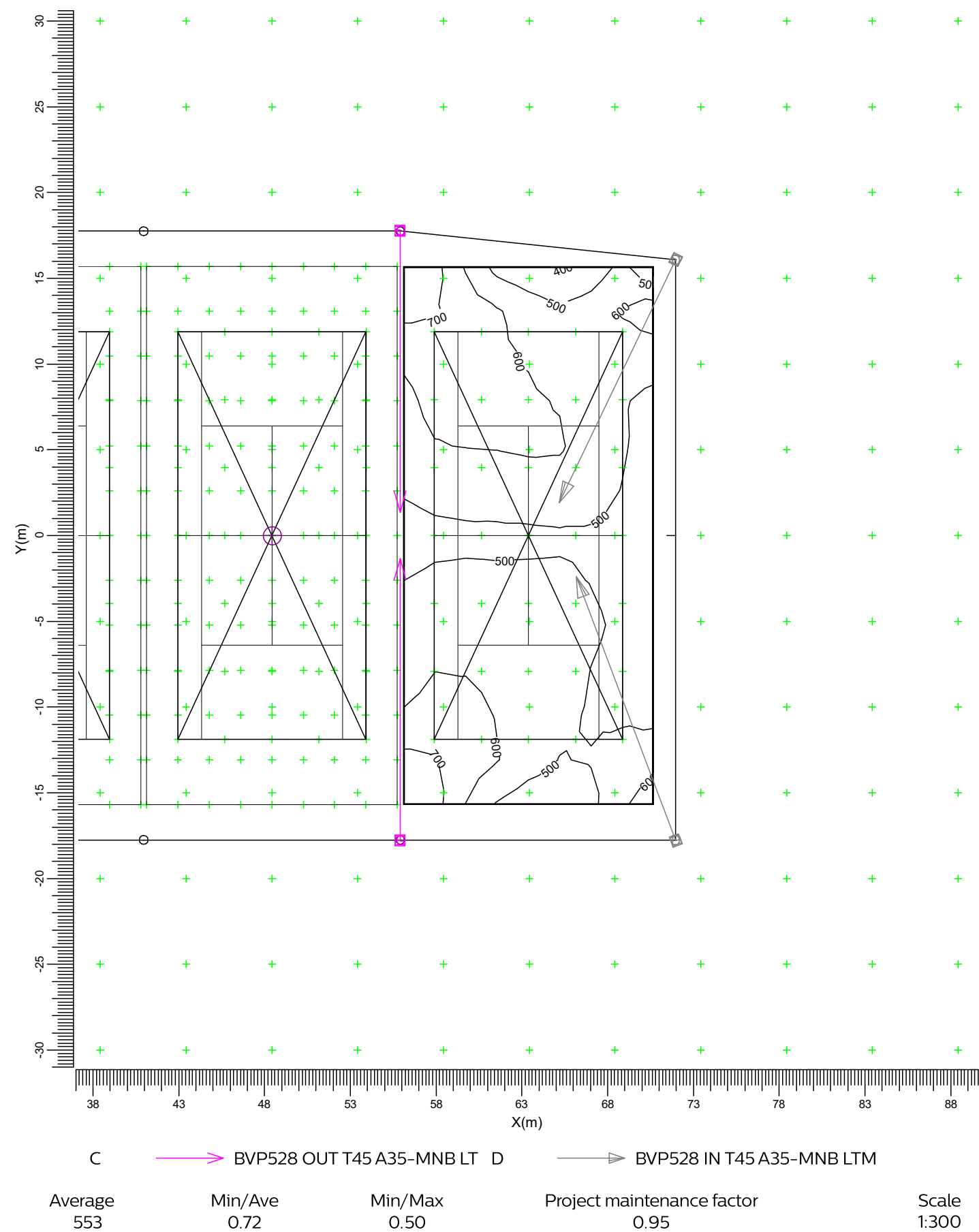


3.17 TPA Court 8: Iso Contour

Court 8

Grid : TPA Court 8 at Z = -0.00 m

Calculation : Surface Illuminance (lux)

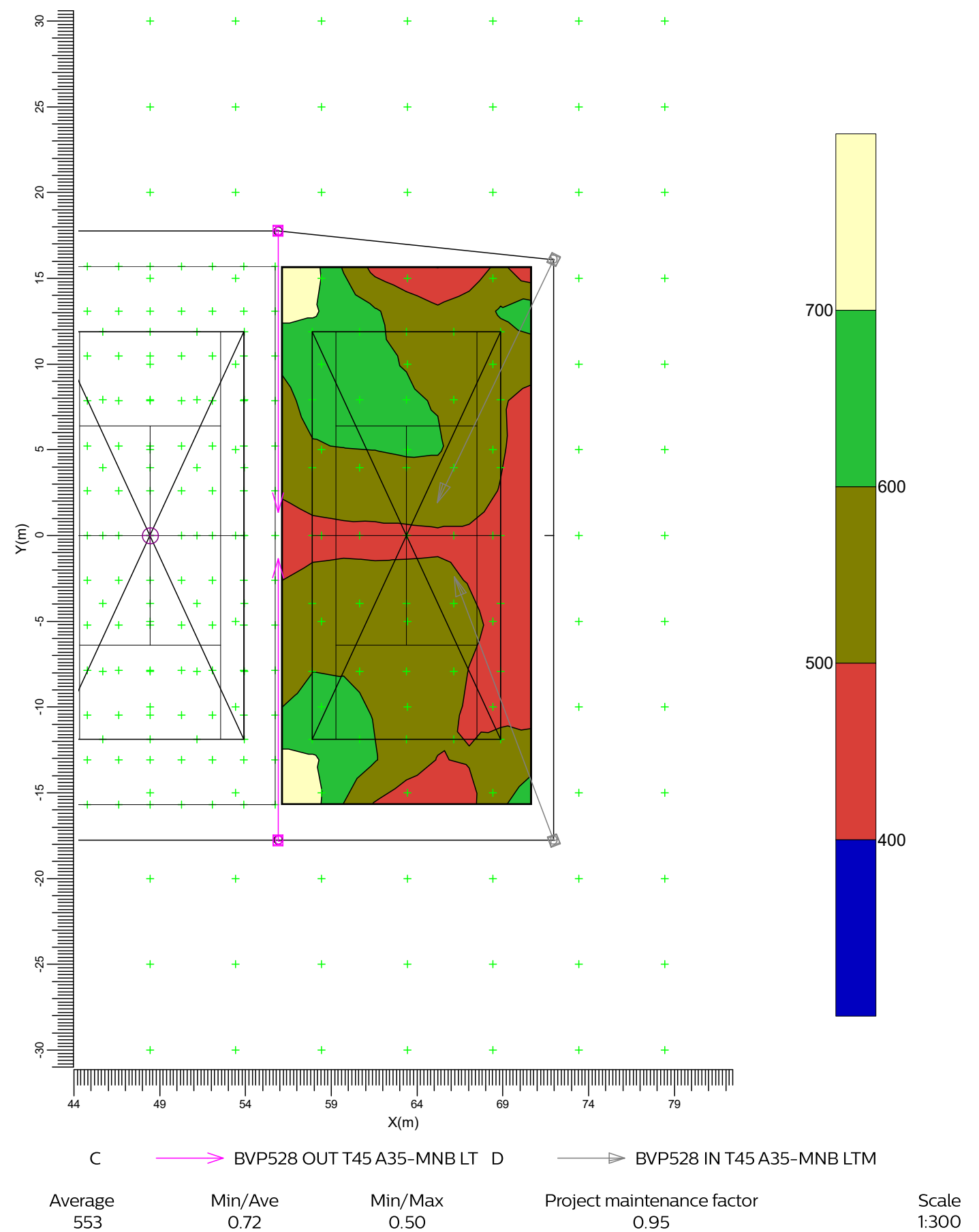


3.18 TPA Court 8: Filled Iso Contour

Court 8

Grid : TPA Court 8 at Z = -0.00 m

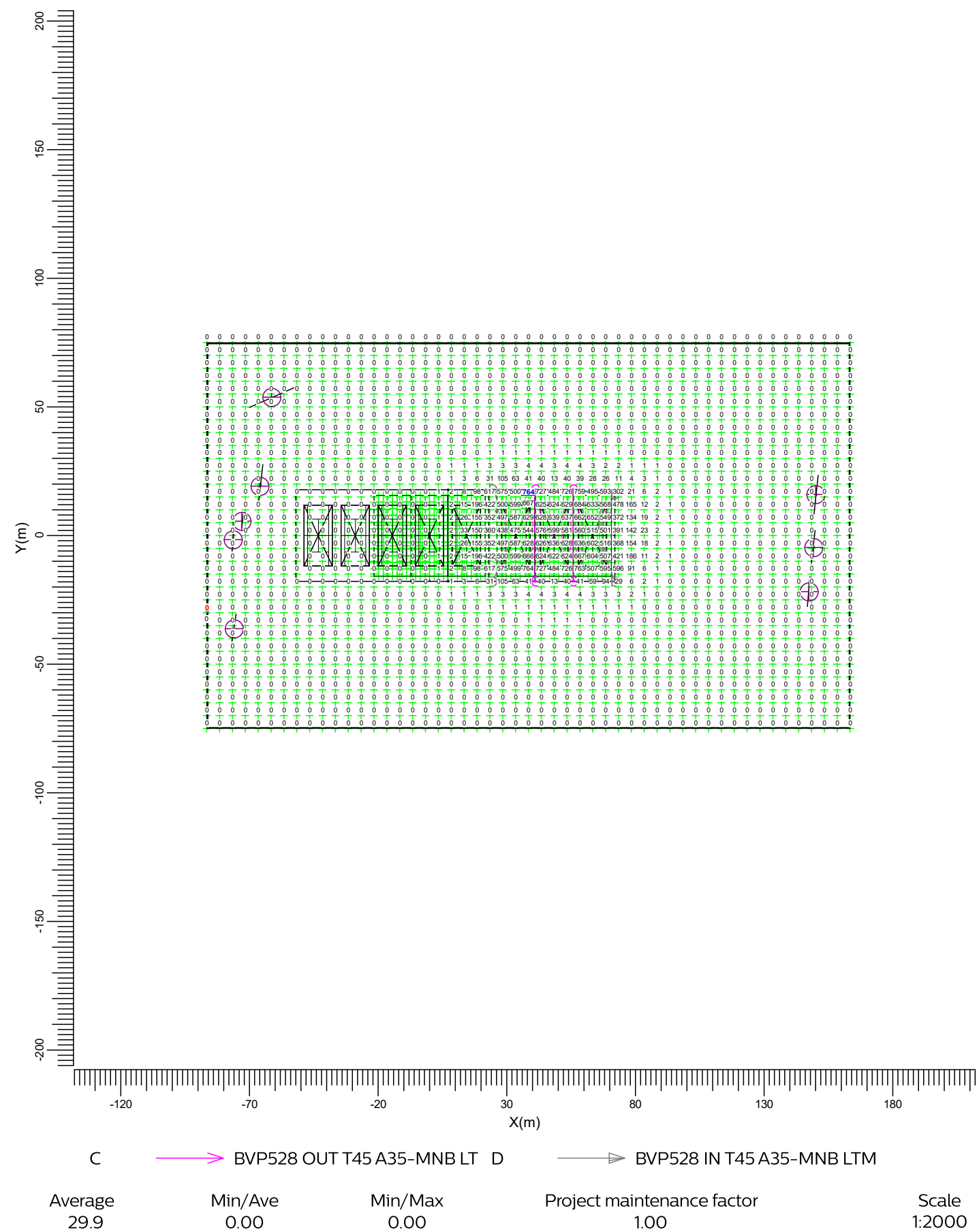
Calculation : Surface Illuminance (lux)



3.19 Spillage Horizontal LED: Graphical Table

Spillage

Grid : Spillage at Z = -0.00 m
Calculation : Horizontal Illuminance (lux)

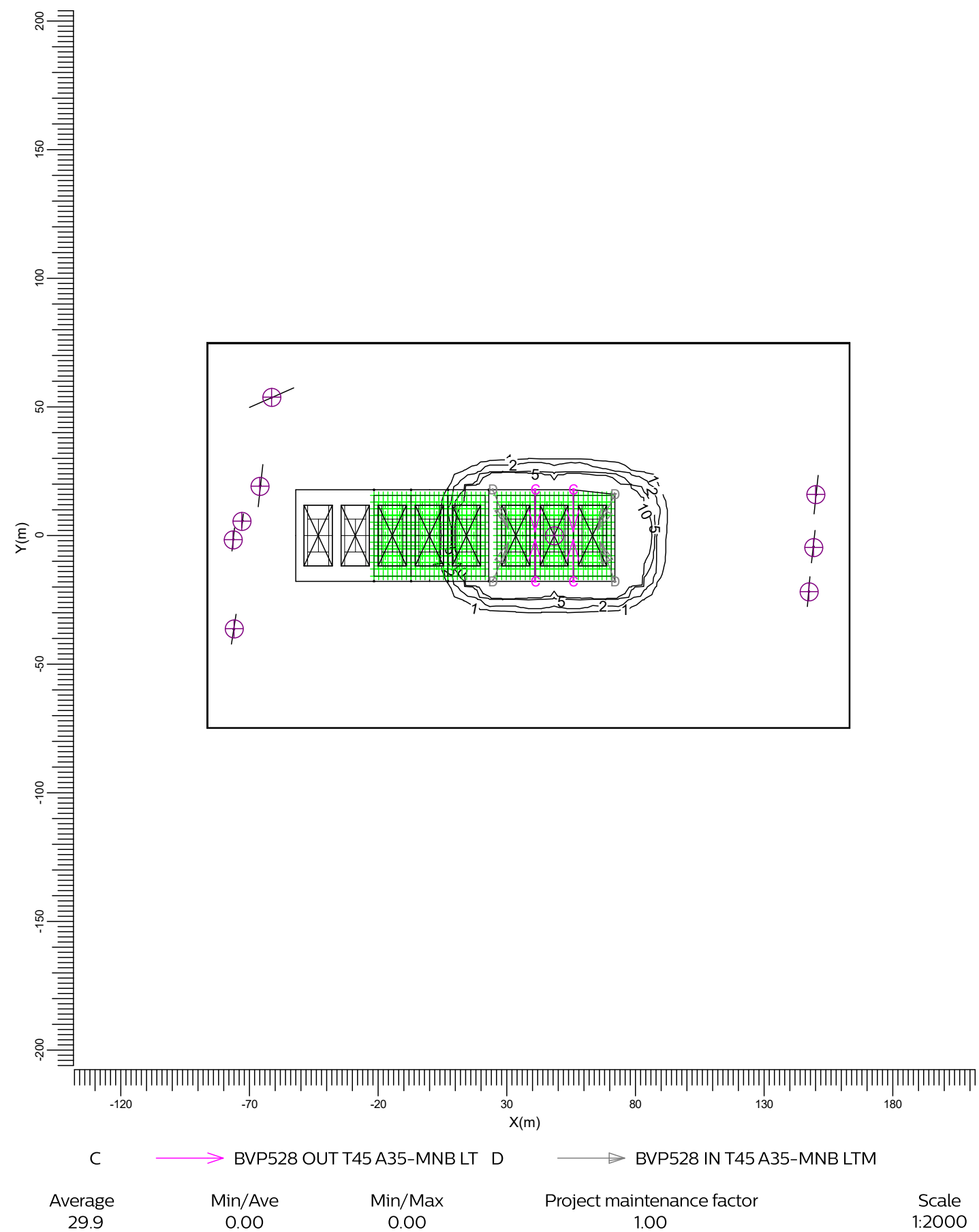


3.20 Spillage Horizontal LED: Iso Contour

Spillage

Grid
Calculation

: Spillage at Z = -0.00 m
: Horizontal Illuminance (lux)



3.21 Spillage Horizontal LED: Filled Iso Contour

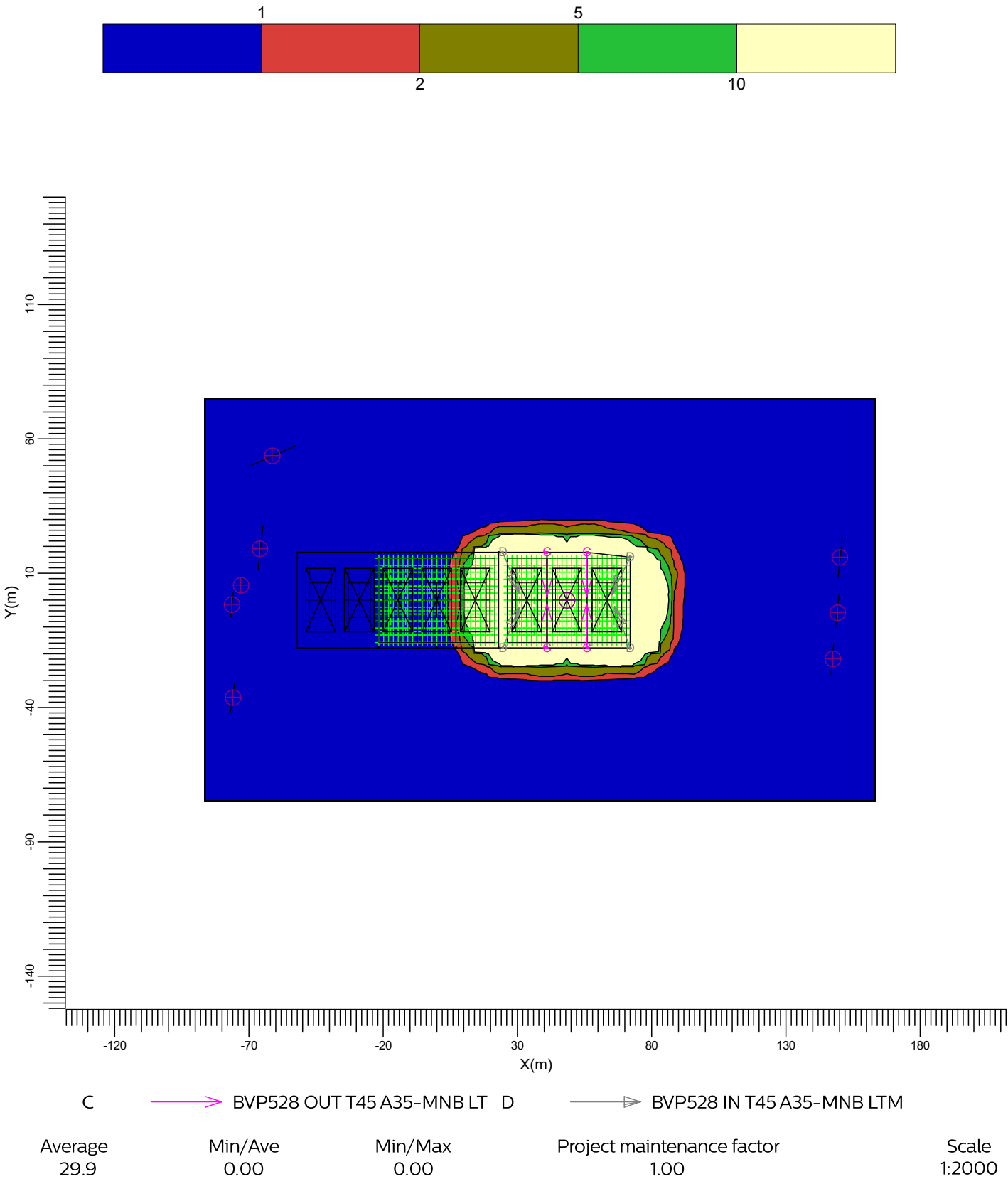
Spillage

Grid

Calculation

: Spillage at Z = -0.00 m

: Horizontal Illuminance (lux)



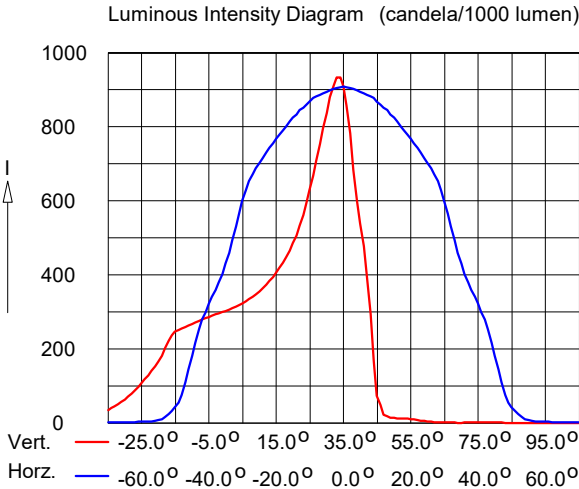
4. Luminaire Details

4.1 Project Luminaires

OptiVision LED gen3.5 2022
BVP528 OUT T45 1xLED2300-4S/740/740 E3/D4I A35-MNB LTM

Light output ratios	
DLOR	: 0.69
ULOR	: 0.00
TLOR	: 0.69
Ballast	: E3/D4I
Lamp flux	: 230000 lm
Luminaire wattage	: 1303.1 W
Measurement code	: LVM2I46900

Note: Luminaire data not from database.



OptiVision LED gen3.5 2022
BVP528 IN T45 1xLED1930-4S/740/740 E3/D4I A35-MNB LTM

Light output ratios	
DLOR	: 0.69
ULOR	: 0.00
TLOR	: 0.69
Ballast	: E3/D4I
Lamp flux	: 193000 lm
Luminaire wattage	: 1067.8 W
Measurement code	: LVM2I46900

Note: Luminaire data not from database.

