

VV ALTENA NIEUWENDIJK

Lichthinderonderzoek

Projectcode: id 24197
Datum: 24-01-2011
Klant: Procensus
Code klant: Project 18.540
Vertegenwoordiger: de heer Gerwin Schel

Ontwerper: I. Russo

Opmerkingen: Project id 24197 LICHTHINDERONDERZOEK

Hoofdveld afm. 105 x 69 m
8 masten 16 meter 16 x MVP507 MB /MHN-FC 2000 W 400 V.740
Wedstrijdverlichting klasse II > 200 lux gebruikswaarde
gelijkmatigheid E.min/E.gem. =0,6
8 stuks masten zijn voorzien van een achterafscherming
afmeting 1960 x 70 mm.

Minivelden afm. 20 x 30 (per veld)
2 masten 15 meter, 2 x MVP507 MB /MHN-FC 2000 W 400 V.740.
Trainingsverlichting klasse III > 75 lux gebruikswaarde
gelijkmatigheid E.min/E.gem. =0,5

A 27+ AFRIT 22
De installatie voldoet aan de NSVV "Algemene richtlijn
betreffende lichthinder, deel 1 Algemeen Algemeen
en grenswaarden voor sportverlichting"voor zone 3.

Achtergevels Woningen aan de Rijksweg
De installatie voldoet aan de NSVV "Algemene richtlijn
betreffende lichthinder, deel 1 Algemeen Algemeen
en grenswaarden voor sportverlichting"voor zone 3.
Waargenomen lichtintensiteit < 10.000 candela.
Verticale verlichtingssterkte tegen de gevel < 10 lux.

CONCLUSIE: Verlichting is toegestaan

Omdat in de praktijk de bedrijfsomstandigheden vrijwel altijd zullen verschillen van de voor de berekeningen gekozen uitgangspunten zijn afwijkingen in de opgegeven luminanties of verlichtingssterkten niet uitgesloten. Een rol hierbij spelen onder meer andere ruimtelijke omstandigheden en armatuurposities, toleranties in lampen, armaturen en hulpapparatuur, evenals afwijkende temperatuur en spanning.

A.Hak Verlichtingstechniek

Postbus 101
5460 AC VEGHEL
Lage Landstraat 6
5462 GJ VEGHEL

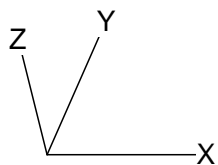
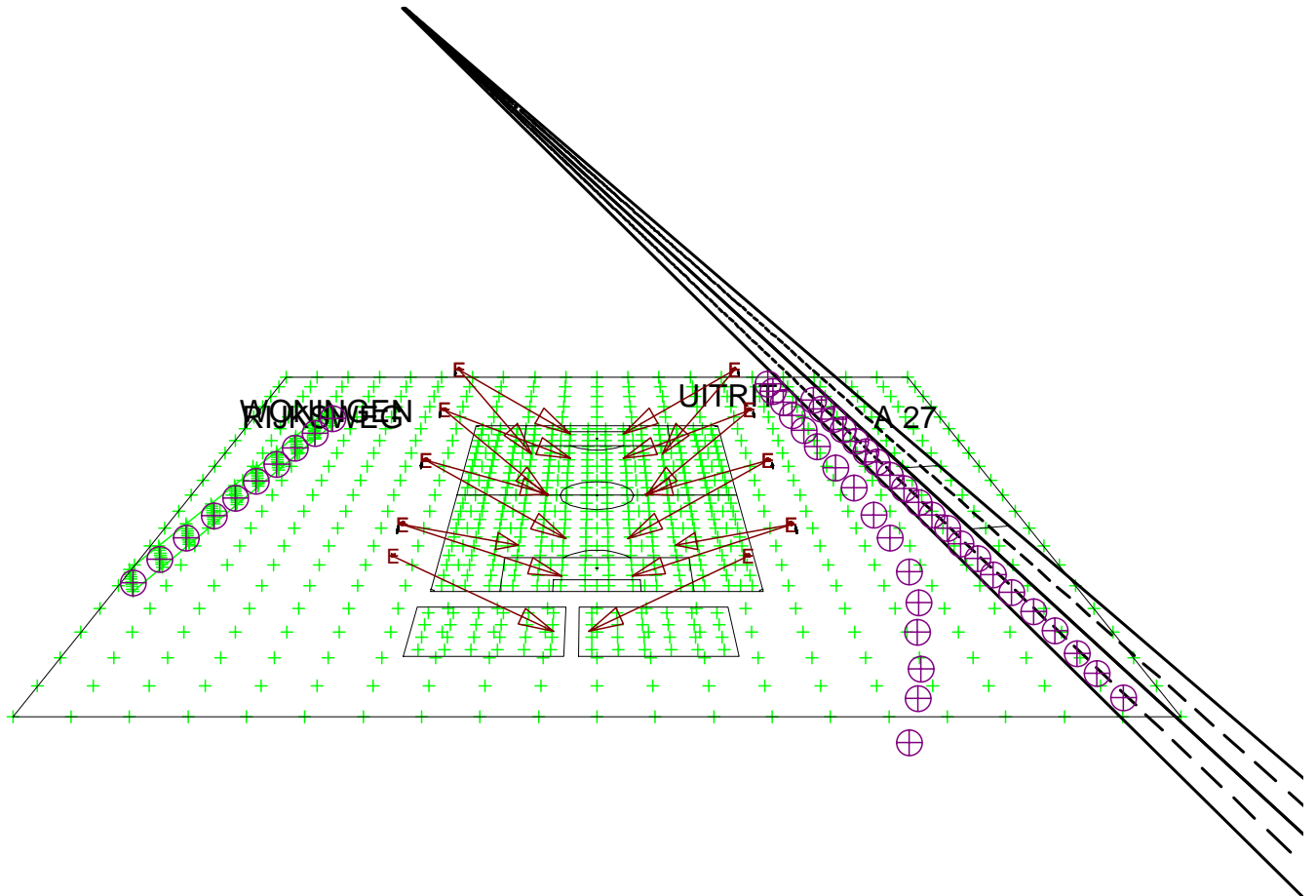
Telefoon: 0413-362926
Fax: 0413-362929
Mobiele Telefoon: 06-22 928 574
E-mail: verlichting@a-hak.nl

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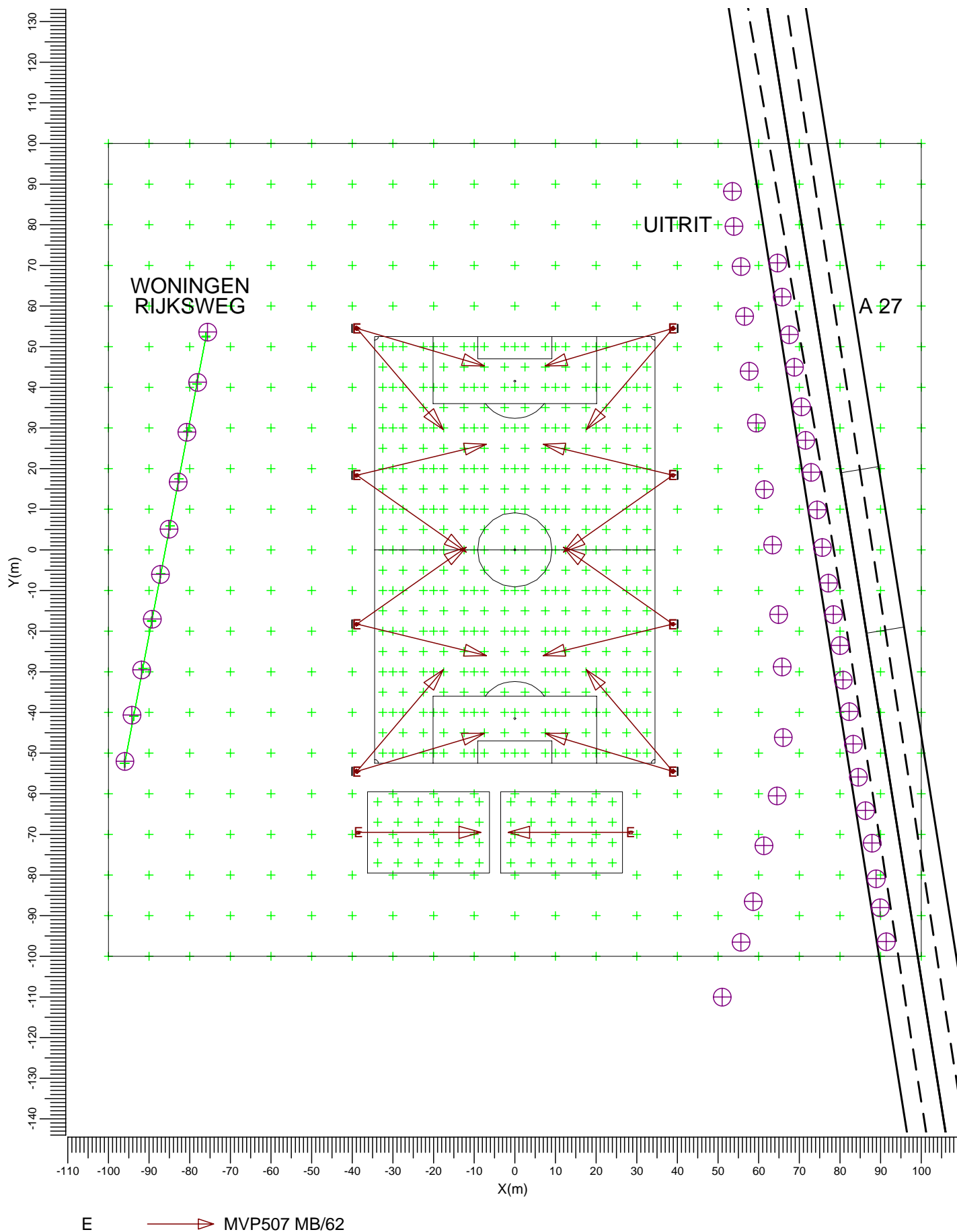
1. Projectbeschrijving

1.1 Overzicht in 3D



E  MVP507 MB/62

1.2 Overzicht van boven



2. Samenvatting

2.1 Algemeen

Algemene behoudfactor: 1.00.

2.2 Waarnemers

| Code | Waarnemer | Positie [m] | | |
|------|--------------|-------------|---------|------|
| | | X | Y | Z |
| Aa | 19 | 67.51 | 53.03 | 1.80 |
| Bb | 20 | 65.70 | 62.22 | 1.80 |
| Cc | 21 | 64.67 | 70.63 | 1.80 |
| Dd | 22 | 53.90 | 79.59 | 1.80 |
| Ee | 18 | 68.75 | 44.99 | 1.50 |
| Ff | 17 | 70.53 | 35.25 | 1.50 |
| Gg | 16 | 71.55 | 27.03 | 1.50 |
| Hh | 15 | 72.82 | 19.06 | 1.50 |
| Ii | 14 | 74.34 | 9.82 | 1.50 |
| Jj | 13 | 75.62 | 0.59 | 1.50 |
| Kk | 12 | 77.14 | -8.14 | 1.50 |
| Ll | 11 | 78.41 | -15.85 | 1.50 |
| Mm | 10 | 79.99 | -23.56 | 1.50 |
| Nn | 9 | 80.70 | -32.04 | 1.50 |
| Oo | 8 | 82.23 | -39.75 | 1.50 |
| Pp | 7 | 83.24 | -47.72 | 1.50 |
| Qq | 6 | 84.52 | -55.94 | 1.50 |
| Rr | 5 | 86.30 | -64.16 | 1.50 |
| Ss | 4 | 87.83 | -72.12 | 1.50 |
| Tt | 3 | 88.84 | -80.85 | 1.50 |
| Uu | 2 | 89.89 | -88.01 | 1.50 |
| Vv | 1 | 91.35 | -96.38 | 1.50 |
| Ww | AFRIT 22 (a) | 53.45 | 88.28 | 1.50 |
| Xx | AFRIT 22 (b) | 55.63 | 69.71 | 1.50 |
| Yy | AFRIT 22 (c) | 56.53 | 57.44 | 1.50 |
| Zz | AFRIT 22 (d) | 57.68 | 44.03 | 1.50 |
| [[| AFRIT 22 (e) | 59.40 | 31.19 | 1.50 |
| \\ | AFRIT 22 (f) | 61.40 | 14.91 | 1.50 |
|]] | AFRIT 22 (g) | 63.40 | 1.21 | 1.50 |
| ^^ | AFRIT 22 (h) | 64.84 | -15.93 | 1.50 |
| __ | AFRIT 22 (i) | 65.70 | -28.77 | 1.50 |
| € | AFRIT 22 (j) | 65.98 | -46.19 | 1.50 |
| a | AFRIT 22 (k) | 64.55 | -60.46 | 1.50 |
| b, | AFRIT 22 (l) | 61.29 | -72.71 | 1.50 |
| cf | AFRIT 22 (m) | 58.58 | -86.52 | 1.50 |
| d,, | AFRIT 22 (n) | 55.59 | -96.52 | 1.50 |
| e... | AFRIT 22 (o) | 50.98 | -110.04 | 1.50 |
| f† | Gevel 1 | -75.57 | 53.63 | 1.80 |
| g‡ | Gevel 2 | -78.11 | 41.18 | 1.80 |
| h^ | Gevel 3 | -80.80 | 28.97 | 1.80 |
| i‰ | Gevel 4 | -82.85 | 16.76 | 1.80 |
| jŠ | Gevel 5 | -85.18 | 5.11 | 1.80 |
| kˆ | Gevel 6 | -87.22 | -5.97 | 1.80 |
| lœ | Gevel 7 | -89.27 | -17.04 | 1.80 |
| m | Gevel 8 | -91.89 | -29.54 | 1.80 |
| nŽ | Gevel 9 | -94.22 | -40.62 | 1.80 |
| o | Gevel 10 | -95.98 | -51.98 | 1.80 |

2.3 Gegevens obstakel

| Obstakel | Transmissiefactor | Positie | | |
|---------------|-------------------|---------|--------|-------|
| | | X | Y | Z |
| Afscherming 1 | 0 | 40.00 | 17.30 | 14.50 |
| | | -40.00 | 17.30 | 14.50 |
| | | 40.00 | -17.30 | 14.50 |
| | | -40.00 | -17.30 | 14.50 |

| Obstakel | Transmissiefactor | Positie | | |
|---------------|-------------------|---------|--------|-------|
| | | X | Y | Z |
| Afscherming 2 | 0 | 40.00 | 53.50 | 14.50 |
| | | -40.00 | 53.50 | 14.50 |
| | | 40.00 | -53.50 | 14.50 |
| | | -40.00 | -53.50 | 14.50 |

2.4 Armatuurtypen

| Code | Aantal | Armatuurtype | Aantal x lamptype | Vermogen [W] | Lichtstroom [lm] |
|------|--------|--------------|--------------------------|--------------|------------------|
| E | 18 | MVP507 MB/62 | 1 * MHN-FC2000W/400V/740 | 2119.0 | 1 * 210000 |

Totaal geïnstalleerd vermogen: 38.14 kW

2.5 Berekeningsresultaten

Verlichtingssterkte / luminantie:

| Berekening | Type berekening | Eenheid | Gem | Min/gem | Min/max |
|------------------|-----------------------------|---------|------|---------|---------|
| Gevels Woningen | (Vlak-) verlichtingssterkte | lux | 1.02 | 0.18 | 0.08 |
| Algemeen terrein | (Vlak-) verlichtingssterkte | lux | 73.0 | 0.00 | 0.00 |

Berekeningen lichthinder:

| Waarnemercode | Code armatuurtype | Positie | | | Instelrichting in hoeken | | | Maximale lichtintensiteit (cd) |
|---------------|-------------------|---------|--------|-------|--------------------------|----------|---------|--------------------------------|
| | | X | Y | Z | Draai | Kantel90 | Kantel0 | |
| Vv | E | 28.50 | -69.55 | 16.00 | 180.00 | 62.00 | -0.00 | 376 |
| Uu | E | 28.50 | -69.55 | 16.00 | 180.00 | 62.00 | -0.00 | 612 |
| Tt | E | 28.50 | -69.55 | 16.00 | 180.00 | 62.00 | -0.00 | 829 |
| Ss | E | 28.50 | -69.55 | 16.00 | 180.00 | 62.00 | -0.00 | 835 |
| Rr | E | 38.90 | -54.50 | 16.00 | 163.50 | 64.00 | 0.00 | 998 |
| Qq | E | 38.90 | -54.50 | 16.00 | 163.50 | 64.00 | 0.00 | 1376 |
| Pp | E | -38.90 | -54.50 | 16.00 | 16.50 | 64.00 | -0.00 | 756 |
| Oo | E | 38.90 | -18.30 | 16.00 | 144.90 | 64.00 | 0.00 | 1140 |
| Nn | E | 38.90 | -18.30 | 16.00 | 144.90 | 64.00 | 0.00 | 1338 |
| Mm | E | 38.90 | -18.30 | 16.00 | -166.40 | 64.00 | 0.00 | 1191 |
| Ll | E | 38.90 | -18.30 | 16.00 | -166.40 | 64.00 | 0.00 | 1734 |
| Kk | E | 38.90 | -18.30 | 16.00 | -166.40 | 64.00 | 0.00 | 1615 |
| Jj | E | 38.90 | 18.30 | 16.00 | 166.40 | 64.00 | -0.00 | 1690 |
| Ii | E | 38.90 | 18.30 | 16.00 | 166.40 | 64.00 | -0.00 | 1840 |
| Hh | E | 38.90 | 18.30 | 16.00 | 166.40 | 64.00 | -0.00 | 1991 |
| Gg | E | 38.90 | 18.30 | 16.00 | -144.90 | 64.00 | -0.00 | 1392 |
| Ff | E | 38.90 | 18.30 | 16.00 | -144.90 | 64.00 | -0.00 | 1891 |
| Ee | E | 38.90 | 18.30 | 16.00 | -144.90 | 64.00 | -0.00 | 1715 |
| Aa | E | 38.90 | 54.50 | 16.00 | -163.50 | 64.00 | -0.00 | 1717 |
| Bb | E | 38.90 | 54.50 | 16.00 | -163.50 | 64.00 | -0.00 | 2309 |
| Cc | E | 38.90 | 54.50 | 16.00 | -163.50 | 64.00 | -0.00 | 2065 |
| Dd | E | 38.90 | 54.50 | 16.00 | -130.50 | 64.00 | -0.00 | 2221 |
| Ww | E | 38.90 | 54.50 | 16.00 | -130.50 | 64.00 | -0.00 | 1621 |
| Xx | E | 38.90 | 54.50 | 16.00 | -130.50 | 64.00 | -0.00 | 2520 |
| Yy | E | -38.90 | 54.50 | 16.00 | -16.50 | 64.00 | 0.00 | 4153 |
| Zz | E | -38.90 | 54.50 | 16.00 | -16.50 | 64.00 | 0.00 | 1839 |
| { | E | -38.90 | 18.30 | 16.00 | 13.60 | 64.00 | 0.00 | 1200 |
| \ | E | -38.90 | 18.30 | 16.00 | 13.60 | 64.00 | 0.00 | 2630 |
| } | E | 38.90 | 18.30 | 16.00 | 166.40 | 64.00 | -0.00 | 1517 |
| ^ | E | 38.90 | -18.30 | 16.00 | -166.40 | 64.00 | 0.00 | 2310 |
| _ | E | 38.90 | -18.30 | 16.00 | 144.90 | 64.00 | 0.00 | 2157 |

| Waarnemercode | Code armatuurtype | Positie | | | Instelrichting in hoeken | | | Maximale lichtintensiteit (cd) |
|---------------|----------------------|---------|--------|-------|--------------------------|----------|---------|--------------------------------------|
| | | X | Y | Z | Draai | Kantel90 | Kantel0 | |
| `€ | E | 38.90 | -18.30 | 16.00 | 144.90 | 64.00 | 0.00 | 1763 |
| a | E | 38.90 | -54.50 | 16.00 | 163.50 | 64.00 | 0.00 | 2310 |
| b, | E | 38.90 | -54.50 | 16.00 | 130.50 | 64.00 | 0.00 | 2278 |
| cf | E | 38.90 | -54.50 | 16.00 | 130.50 | 64.00 | 0.00 | 1816 |
| d, | E | 38.90 | -54.50 | 16.00 | 130.50 | 64.00 | 0.00 | 1103 |
| e... | E | 28.50 | -69.55 | 16.00 | 180.00 | 62.00 | -0.00 | 613 |
| f† | E | -38.90 | 54.50 | 16.00 | -16.50 | 64.00 | 0.00 | 1529 |
| g‡ | E | -38.90 | 54.50 | 16.00 | -16.50 | 64.00 | 0.00 | 1198 |
| h^ | E | -38.90 | 18.30 | 16.00 | -35.10 | 64.00 | 0.00 | 1010 |
| i‰ | E | -38.90 | 18.30 | 16.00 | 13.60 | 64.00 | 0.00 | 1417 |
| jŠ | E | -38.90 | 18.30 | 16.00 | 13.60 | 64.00 | 0.00 | 956 |
| k< | E | -38.90 | -18.30 | 16.00 | -13.60 | 64.00 | -0.00 | 864 |
| l€ | E | -38.90 | -18.30 | 16.00 | -13.60 | 64.00 | -0.00 | 953 |
| m_ | E | -38.90 | 54.50 | 16.00 | -49.50 | 64.00 | 0.00 | 625 |
| nŽ | E | -38.90 | 54.50 | 16.00 | -49.50 | 64.00 | 0.00 | 506 |
| o | E | -38.50 | -69.55 | 16.00 | 0.00 | 62.00 | 0.00 | 719 |

ULR (lichtrendement naar boven) is 0.00.

3. Berekeningsresultaten

3.1 Gevels Woningen: Tekst-tabel

Rekenraster : Gevels Woningen
Berekening : (Vlak-) verlichtingssterkte op andere kant (lux)

| | | | | | | | | | | |
|--------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| AB [m] | 0.00 | 11.88 | 23.75 | 35.63 | 47.51 | 59.38 | 71.26 | 83.13 | 95.01 | 106.89 |
| AC [m] | | | | | | | | | | |
| 5.00 | 1.0 | 0.8 | 0.7 | 0.6 | 0.5 | 0.4 | 0.4 | 0.3 | 0.3 | 0.2< |
| 4.44 | 1.3 | 0.9 | 0.8 | 0.8 | 0.6 | 0.5 | 0.4 | 0.4 | 0.3 | 0.2 |
| 3.89 | 1.5 | 1.1 | 0.9 | 1.0 | 0.7 | 0.6 | 0.5 | 0.4 | 0.3 | 0.3 |
| 3.33 | 1.6 | 1.3 | 1.0 | 1.1 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.4 |
| 2.78 | 1.8 | 1.4 | 1.2 | 1.3 | 1.0 | 0.8 | 0.7 | 0.5 | 0.4 | 0.4 |
| 2.22 | 1.9 | 1.6 | 1.3 | 1.5 | 1.2 | 0.9 | 0.8 | 0.6 | 0.4 | 0.5 |
| 1.67 | 1.9 | 1.8 | 1.5 | 1.6 | 1.3 | 1.1 | 1.0 | 0.6 | 0.5 | 0.6 |
| 1.11 | 2.0 | 2.0 | 1.6 | 1.8 | 1.5 | 1.2 | 1.1 | 0.7 | 0.5 | 0.7 |
| 0.56 | 2.2 | 2.1 | 1.7 | 1.9 | 1.6 | 1.3 | 1.3 | 0.7 | 0.6 | 0.8 |
| 0.00 | 2.3> | 2.3 | 1.8 | 2.0 | 1.8 | 1.5 | 1.4 | 0.8 | 0.7 | 0.9 |

(-76.00, 52.50, 5.00) C-----D (-96.00, -52.50, 5.00)
| |
A-----B (-96.00, -52.50, -0.00)

Gemiddeld
1.02

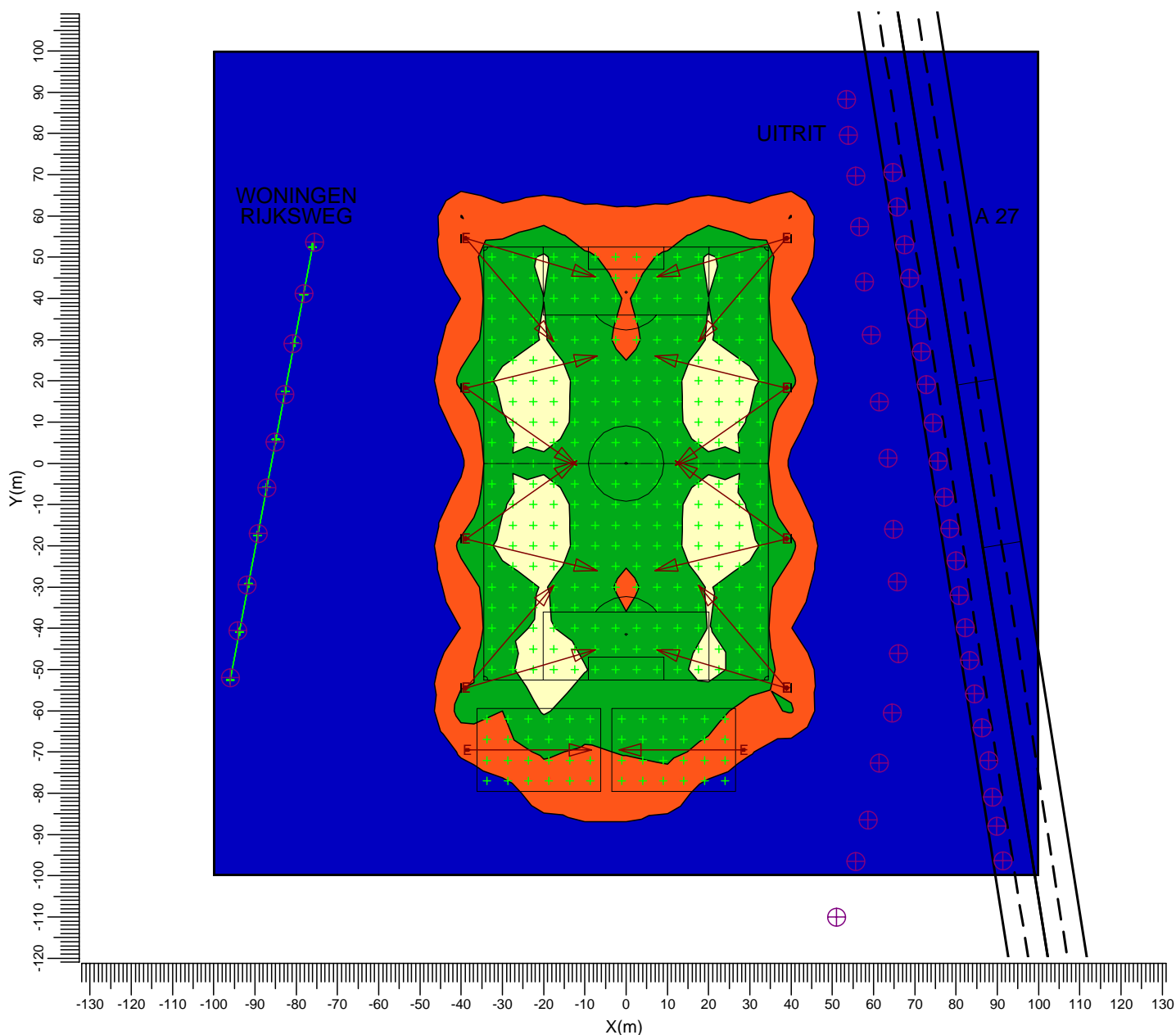
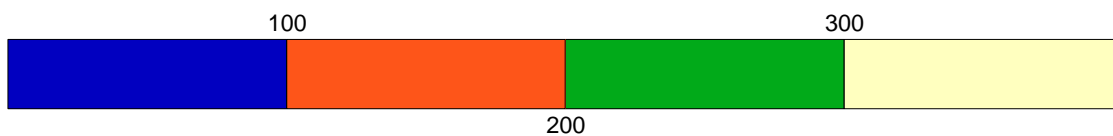
Min/gem
0.18

Min/max
0.08

Algemene behoudfactor
1.00

3.2 Algemeen terrein: Gevuld isolijndiagramm

Rekenraster : Algemeen terrein op Z = -0.00 m
Berekening : (Vlak-) verlichtingssterkte (lux)



E MVP507 MB/62

Gemiddeld
73.0

Min/gem
0.00

Min/max
0.00

Algemene behoudfactor
1.00

Schaal
1:1500

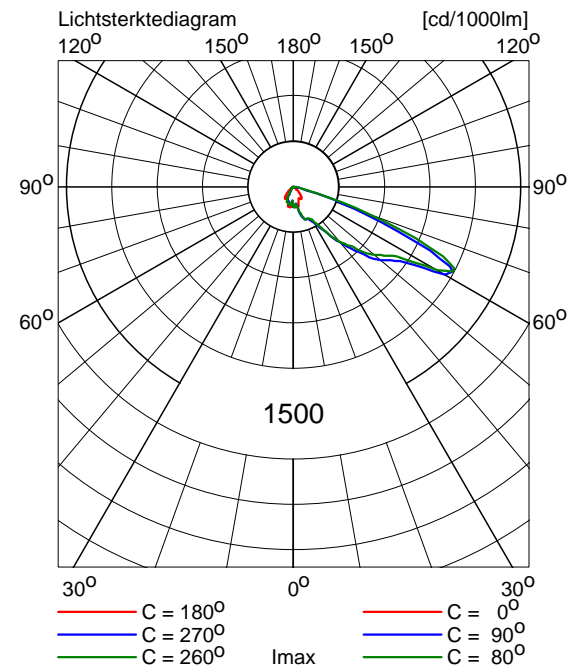
4. Armatuurgegevens

4.1 Armatuurtypen

OptiVision
MVP507 1xMHN-FC2000W/400V/740 MB/62



| | |
|---------------------|----------------|
| Armatuurrendement | |
| Omlaag | : 0.85 |
| Omhoog | : 0.00 |
| Totaal | : 0.85 |
| Voorschakelapparaat | : Conventional |
| Lichtstroom / lamp | : 210000 lm |
| Vermogen / armatuur | : 2119.0 W |
| Meetcode | : LVMA700000 |



5. Installatiegegevens

5.1 Legenda

Armatuurtypen:

| Code | Aantal | Armatuurtype | Aantal x lamptype | Lichtstroom [lm] |
|------|--------|--------------|--------------------------|------------------|
| E | 18 | MVP507 MB/62 | 1 * MHN-FC2000W/400V/740 | 1 * 210000 |

5.2 Positie en instelrichting per armatuur

| Aantal x code | Positie [m] | | | Richtpunt [m] | | | Instelrichting in hoeken | | | ULR |
|------------------|-------------|--------|-------|---------------|--------|------|--------------------------|----------|---------|------|
| | X | Y | Z | X | Y | Z | Draai | Kantel90 | Kantel0 | |
| 1 * E | -38.90 | -54.50 | 16.00 | -17.59 | -29.55 | 0.00 | 49.5 | 64.0 | -0.0 | 0.00 |
| 1 * E | -38.90 | -54.50 | 16.00 | -7.45 | -45.18 | 0.00 | 16.5 | 64.0 | -0.0 | 0.00 |
| 1 * E | -38.90 | -18.30 | 16.00 | -12.06 | 0.56 | 0.00 | 35.1 | 64.0 | -0.0 | 0.00 |
| 1 * E | -38.90 | -18.30 | 16.00 | -7.01 | -26.01 | 0.00 | -13.6 | 64.0 | -0.0 | 0.00 |
| 1 * E | -38.90 | 18.30 | 16.00 | -12.06 | -0.56 | 0.00 | -35.1 | 64.0 | 0.0 | 0.00 |
| 1 * E | -38.90 | 18.30 | 16.00 | -7.01 | 26.01 | 0.00 | 13.6 | 64.0 | 0.0 | 0.00 |
| 1 * E | -38.90 | 54.50 | 16.00 | -17.59 | 29.55 | 0.00 | -49.5 | 64.0 | 0.0 | 0.00 |
| 1 * E | -38.90 | 54.50 | 16.00 | -7.45 | 45.18 | 0.00 | -16.5 | 64.0 | 0.0 | 0.00 |
| 1 * E | -38.50 | -69.55 | 16.00 | -8.41 | -69.55 | 0.00 | 0.0 | 62.0 | 0.0 | 0.00 |
| 1 * E | 28.50 | -69.55 | 16.00 | -1.59 | -69.55 | 0.00 | 180.0 | 62.0 | -0.0 | 0.00 |
| 1 * E | 38.90 | -54.50 | 16.00 | 17.59 | -29.55 | 0.00 | 130.5 | 64.0 | 0.0 | 0.00 |
| 1 * E | 38.90 | -54.50 | 16.00 | 7.45 | -45.18 | 0.00 | 163.5 | 64.0 | 0.0 | 0.00 |
| 1 * E | 38.90 | -18.30 | 16.00 | 12.06 | 0.56 | 0.00 | 144.9 | 64.0 | 0.0 | 0.00 |
| 1 * E | 38.90 | -18.30 | 16.00 | 7.01 | -26.01 | 0.00 | -166.4 | 64.0 | 0.0 | 0.00 |
| 1 * E | 38.90 | 18.30 | 16.00 | 12.06 | -0.56 | 0.00 | -144.9 | 64.0 | -0.0 | 0.00 |
| 1 * E | 38.90 | 18.30 | 16.00 | 7.01 | 26.01 | 0.00 | 166.4 | 64.0 | -0.0 | 0.00 |
| 1 * E | 38.90 | 54.50 | 16.00 | 17.59 | 29.55 | 0.00 | -130.5 | 64.0 | -0.0 | 0.00 |
| 1 * E | 38.90 | 54.50 | 16.00 | 7.45 | 45.18 | 0.00 | -163.5 | 64.0 | -0.0 | 0.00 |