

Lighting of Tbilisi-Sagarejo-Bakurtsikhe road - Typical motorway cross sections on tangent Urban section Bakurtsikhe - with Izylum luminaires

Standard EN 13201 : 2015

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Date 27.12.2020

Application Ulysse 3.5.2

Description Lighting calculations of road lighting of Tbilisi-Sagarejo-Bakurtsikhe road - Typical motorway cross sections on tangent Urban section Bakurtsikhe - with Izylum luminaires

Table of contents

1.	Fixtures	3
1.1.	IZYLUM 2 40 LEDs 800mA NW740 Flat glass 5302 449232	3
2.	Photometric documents	4
2.1.	IZYLUM 2 40 LEDs 800mA NW740 Flat glass 5302 449232	4
3.	Results	5
3.1.	Grid summary	5
3.2.	Observer summary	5
3.3.	Values summary	5
4.	Power consumption	6
4.1.	Dynamic cross section	6
5.	Cross section	7
5.1.	2D View	7
6.	Dynamic cross section	8
6.1.	Matrix description	8
6.2.	Luminaire positions	8
6.3.	Luminaire groups	8
6.4.	Secondary road 1 (LU) - Luminance RTable - Absolute 1	9
6.5.	Luminance - Motorway with central island with new jersey barriers (LU) - R1010	10
6.6.	Secondary road 2 (LU) - Luminance RTable - Absolute 1	12
6.7.	Secondary road 1 (TI 1) - TI - Grid	13
6.8.	Motorway with central island with new jersey barriers (TI 1) - TI - Grid	14
6.9.	Motorway with central island with new jersey barriers (TI 2) - TI - Grid	15
6.10.	Secondary road 2 (TI 1) - TI - Grid	16
7.	Grids	17
7.1.	Secondary road 1 (LU)	17
7.2.	Motorway with central island with new jersey barriers (LU)	17
7.3.	Secondary road 2 (LU)	17
8.	Observer	18
8.1.	Secondary road 1 (TI 1)	18
8.2.	Motorway with central island with new jersey barriers (TI 1)	18
8.3.	Motorway with central island with new jersey barriers (TI 2)	18
8.4.	Secondary road 2 (TI 1)	18

1. Fixtures

1.1. IZYLUM 2 40 LEDs 800mA NW740 Flat glass 5302 449232

Type IZYLUM 2

Reflector 5302

Source 40 LEDs 800mA NW740

Protector Flat glass

Source flux 14,949 klm

G* 3

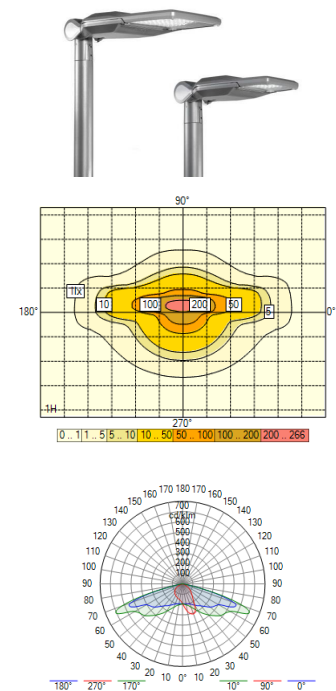
Luminaire wattage 101,0 W

MF 0,80

Matrix 449232

Luminaire flux 12,542 klm

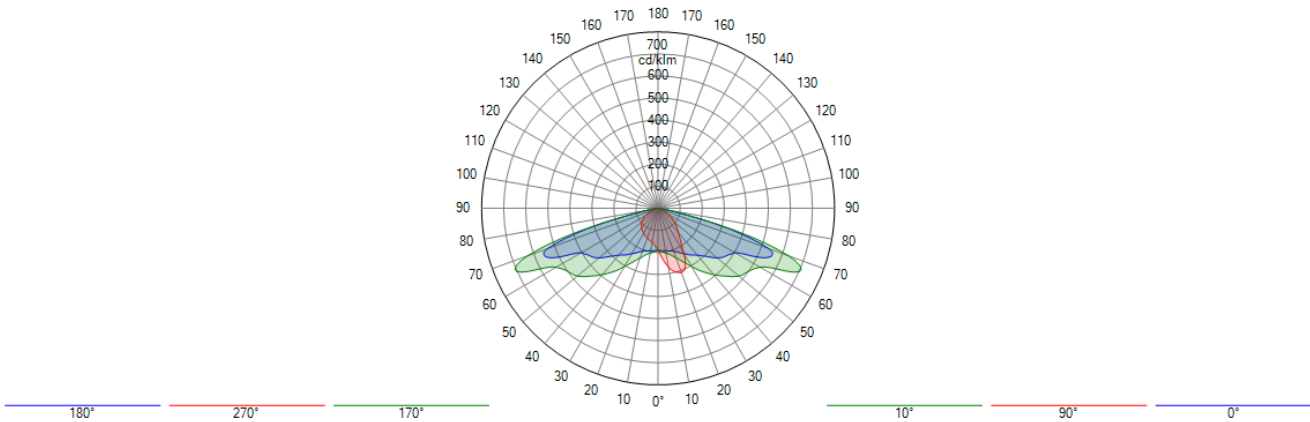
Efficacy 124 lm/W



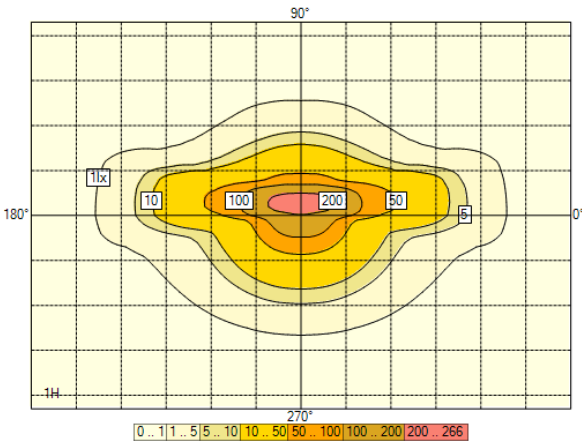
2. Photometric documents

2.1. IZYLUM 2 40 LEDs 800mA NW740 Flat glass 5302 449232

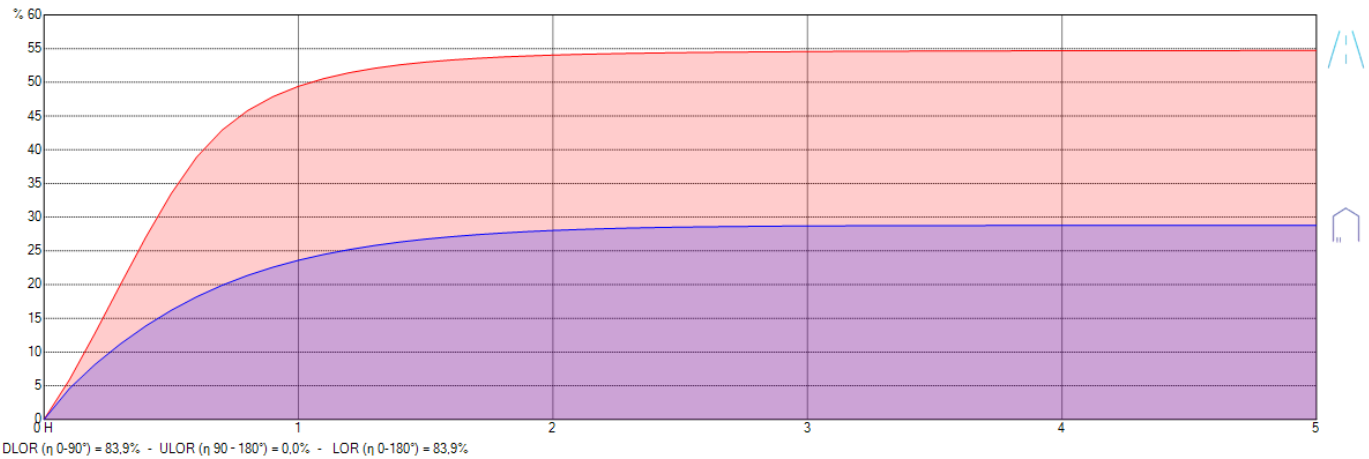
Polar/Cartesian diagram



Isolux



Utilization curve



3. Results

3.1. Grid summary

Secondary road 1 (LU)

M3 (LU : Ave = 1,00 cd/m² Uo = 40 % UI = 60 % UoW = 15 % TI : 15 % EIR : 0,30)

1. Luminance - RTable - R1010	Ave (A) (cd/m ²)	Min/Ave (%)	Min/Max (%)	Min (cd/m ²)	Max (cd/m ²)	UL (%)
Dynamic cross section - Observer 1 (-60,00; 36,50; 3,34)	2,46	68	50	1,67	3,36	61 %



Motorway with central island with new jersey barriers (LU)

M2 (LU : Ave = 1,50 cd/m² Uo = 40 % UI = 70 % UoW = 15 % TI : 10 % EIR : 0,35)

1. Luminance - RTable - R1010	Ave (A) (cd/m ²)	Min/Ave (%)	Min/Max (%)	Min (cd/m ²)	Max (cd/m ²)	UL (%)
Dynamic cross section - Observer 1 (-60,00; 14,06; 1,50)	2,24	76	59	1,70	2,90	71 %
Dynamic cross section - Observer 2 (-60,00; 17,69; 1,50)	2,27	76	58	1,73	2,96	75 %



Secondary road 2 (LU)

M3 (LU : Ave = 1,00 cd/m² Uo = 40 % UI = 60 % UoW = 15 % TI : 15 % EIR : 0,30)

1. Luminance - RTable - R1010	Ave (A) (cd/m ²)	Min/Ave (%)	Min/Max (%)	Min (cd/m ²)	Max (cd/m ²)	UL (%)
Dynamic cross section - Observer 1 (-60,00; 5,50; 3,34)	2,46	68	50	1,67	3,36	61 %



3.2. Observer summary

Motorway with central island with new jersey barriers (TI 1)

M2 (LU : Ave = 1,50 cd/m² Uo = 40 % UI = 70 % UoW = 15 % TI : 10 % EIR : 0,35)

	TI
Dynamic cross section - Direction (0,0)	9



Motorway with central island with new jersey barriers (TI 2)

M2 (LU : Ave = 1,50 cd/m² Uo = 40 % UI = 70 % UoW = 15 % TI : 10 % EIR : 0,35)

	TI
Dynamic cross section - Direction (0,0)	7



Secondary road 1 (TI 1)

M3 (LU : Ave = 1,00 cd/m² Uo = 40 % UI = 60 % UoW = 15 % TI : 15 % EIR : 0,30)

	TI
Dynamic cross section - Direction (0,0)	11



Secondary road 2 (TI 1)

M3 (LU : Ave = 1,00 cd/m² Uo = 40 % UI = 60 % UoW = 15 % TI : 15 % EIR : 0,30)

	TI
Dynamic cross section - Direction (0,0)	11



3.3. Values summary

EIR road

M2 (LU : Ave = 1,50 cd/m² Uo = 40 % UI = 70 % UoW = 15 % TI : 10 % EIR : 0,35)

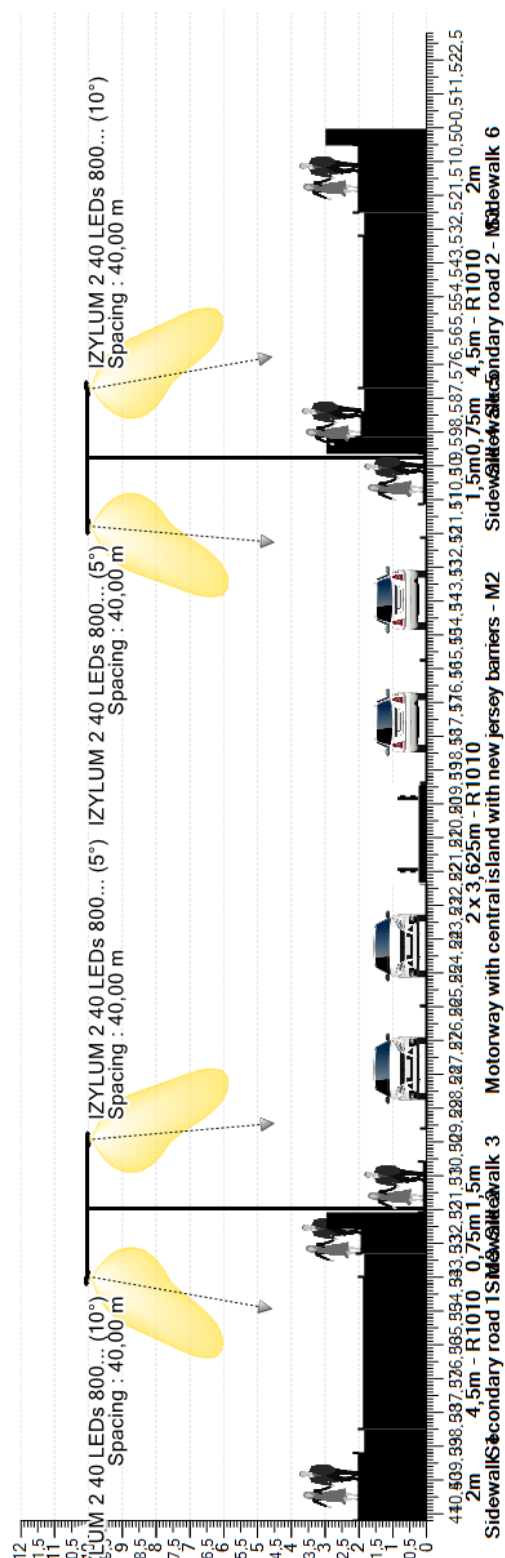
	EIR road	
Dynamic cross section - Motorway with central island with new jersey barriers (EIR)	0,75	✓
Dynamic cross section - Secondary road 1 (EIR)	0,64	✓
Dynamic cross section - Secondary road 2 (EIR)	0,64	✓

4. Power consumption

4.1. Dynamic cross section

Fixture	Current [mA]	Qty	Dimming	Power / Fixture	Total
IZYLUM 2 40 LEDs 800mA NW740 Flat glass 5302 449232	800	100	100 %	101 W	10098 W

5.1. 2D View



6. Dynamic cross section

6.1. Matrix description

Ph. color	Description	Current [mA]	Source flux [klm]	Luminaire flux [klm]	Power [W]	Efficacy [lm/W]	MF	Height [m]	Fixture
	IZYLUM 2 40 LEDs 800mA NW740 Flat glass 5302 449232	800	14,949	12,542	101,0	124	0,800	24 x 10,00	

6.2. Luminaire positions

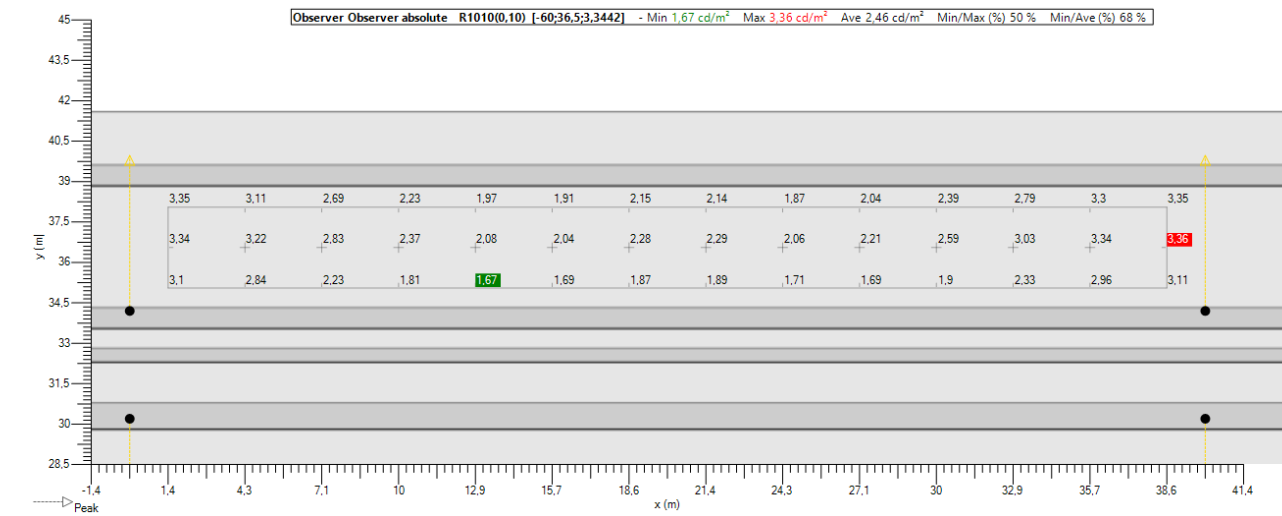
	Color	N°	Position			Luminaire							Target		
			X [m]	Y [m]	Z [m]	Name	Current [mA]	Az [°]	Incl [°]	Rot [°]	Flux [klm]	MF	X [m]	Y [m]	Z [m]
☒		1	-40,00	7,85	10,00	IZYLUM 2 40 LEDs 800mA NW740 Flat glass 5302 449232	800	180,0	10,0	0,0	14,949	0,800	-40,00	6,09	0,00
☒		2	-40,00	11,85	10,00	IZYLUM 2 40 LEDs 800mA NW740 Flat glass 5302 449232	800	0,0	5,0	0,0	14,949	0,800	-40,00	12,73	0,00
☒		3	-40,00	30,15	10,00	IZYLUM 2 40 LEDs 800mA NW740 Flat glass 5302 449232	800	180,0	5,0	0,0	14,949	0,800	-40,00	29,28	0,00
☒		4	-40,00	34,15	10,00	IZYLUM 2 40 LEDs 800mA NW740 Flat glass 5302 449232	800	360,0	10,0	0,0	14,949	0,800	-40,00	35,91	0,00
☒		5	0,00	7,85	10,00	IZYLUM 2 40 LEDs 800mA NW740 Flat glass 5302 449232	800	180,0	10,0	0,0	14,949	0,800	0,00	6,09	0,00
☒		6	0,00	11,85	10,00	IZYLUM 2 40 LEDs 800mA NW740 Flat glass 5302 449232	800	0,0	5,0	0,0	14,949	0,800	0,00	12,73	0,00
☒		7	0,00	30,15	10,00	IZYLUM 2 40 LEDs 800mA NW740 Flat glass 5302 449232	800	180,0	5,0	0,0	14,949	0,800	0,00	29,28	0,00
☒		8	0,00	34,15	10,00	IZYLUM 2 40 LEDs 800mA NW740 Flat glass 5302 449232	800	360,0	10,0	0,0	14,949	0,800	0,00	35,91	0,00
☒		9	40,00	7,85	10,00	IZYLUM 2 40 LEDs 800mA NW740 Flat glass 5302 449232	800	180,0	10,0	0,0	14,949	0,800	40,00	6,09	0,00
☒		10	40,00	11,85	10,00	IZYLUM 2 40 LEDs 800mA NW740 Flat glass 5302 449232	800	0,0	5,0	0,0	14,949	0,800	40,00	12,73	0,00
☒		11	40,00	30,15	10,00	IZYLUM 2 40 LEDs 800mA NW740 Flat glass 5302 449232	800	180,0	5,0	0,0	14,949	0,800	40,00	29,28	0,00
☒		12	40,00	34,15	10,00	IZYLUM 2 40 LEDs 800mA NW740 Flat glass 5302 449232	800	360,0	10,0	0,0	14,949	0,800	40,00	35,91	0,00
☒		13	80,00	7,85	10,00	IZYLUM 2 40 LEDs 800mA NW740 Flat glass 5302 449232	800	180,0	10,0	0,0	14,949	0,800	80,00	6,09	0,00
☒		14	80,00	11,85	10,00	IZYLUM 2 40 LEDs 800mA NW740 Flat glass 5302 449232	800	0,0	5,0	0,0	14,949	0,800	80,00	12,73	0,00
☒		15	80,00	30,15	10,00	IZYLUM 2 40 LEDs 800mA NW740 Flat glass 5302 449232	800	180,0	5,0	0,0	14,949	0,800	80,00	29,28	0,00
☒		16	80,00	34,15	10,00	IZYLUM 2 40 LEDs 800mA NW740 Flat glass 5302 449232	800	360,0	10,0	0,0	14,949	0,800	80,00	35,91	0,00
☒		17	120,00	7,85	10,00	IZYLUM 2 40 LEDs 800mA NW740 Flat glass 5302 449232	800	180,0	10,0	0,0	14,949	0,800	120,00	6,09	0,00
☒		18	120,00	11,85	10,00	IZYLUM 2 40 LEDs 800mA NW740 Flat glass 5302 449232	800	0,0	5,0	0,0	14,949	0,800	120,00	12,73	0,00
☒		19	120,00	30,15	10,00	IZYLUM 2 40 LEDs 800mA NW740 Flat glass 5302 449232	800	180,0	5,0	0,0	14,949	0,800	120,00	29,28	0,00
☒		20	120,00	34,15	10,00	IZYLUM 2 40 LEDs 800mA NW740 Flat glass 5302 449232	800	360,0	10,0	0,0	14,949	0,800	120,00	35,91	0,00
☒		21	160,00	7,85	10,00	IZYLUM 2 40 LEDs 800mA NW740 Flat glass 5302 449232	800	180,0	10,0	0,0	14,949	0,800	160,00	6,09	0,00
☒		22	160,00	11,85	10,00	IZYLUM 2 40 LEDs 800mA NW740 Flat glass 5302 449232	800	0,0	5,0	0,0	14,949	0,800	160,00	12,73	0,00
☒		23	160,00	30,15	10,00	IZYLUM 2 40 LEDs 800mA NW740 Flat glass 5302 449232	800	180,0	5,0	0,0	14,949	0,800	160,00	29,28	0,00
☒		24	160,00	34,15	10,00	IZYLUM 2 40 LEDs 800mA NW740 Flat glass 5302 449232	800	360,0	10,0	0,0	14,949	0,800	160,00	35,91	0,00

6.3. Luminaire groups

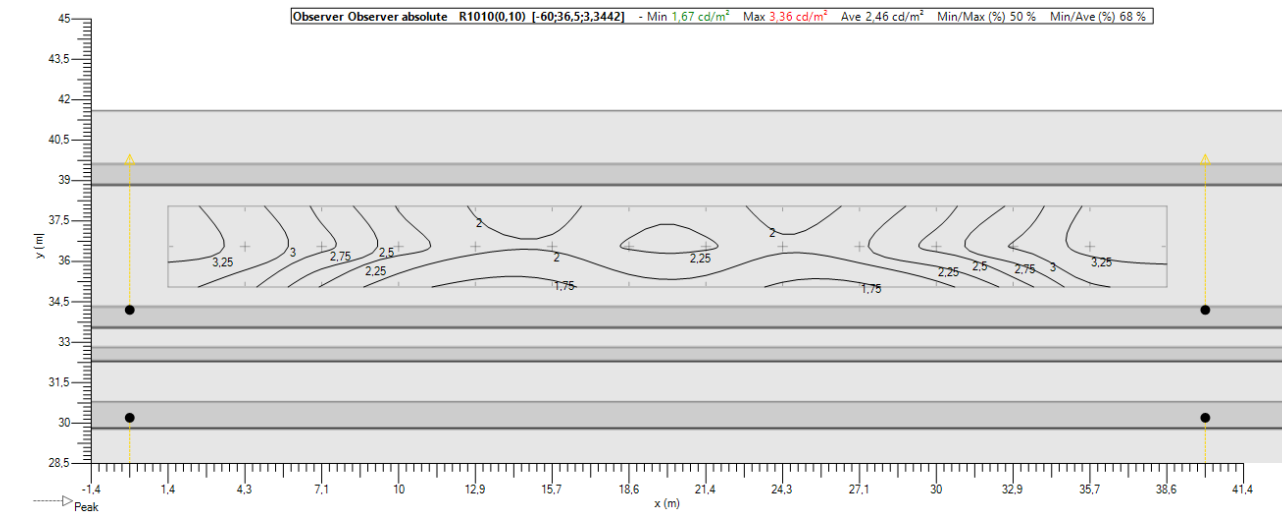
Opposite																
	Color	N°	Position			Luminaire					Dimension			Rotation		
			X [m]	Y [m]	Z [m]	Name	Az [°]	Incl [°]	Rot [°]	Dim [%]	Count	Spacing [m]	Size [m]	X [°]	Y [°]	Z [°]
☒		1	-40,00	7,85	10,00	Fixture opposite rear (bis)	180,0	10,0	0,0	100	6	40,00	200,00	0,0	0,0	0,0
☒		2	-40,00	11,85	10,00	Fixture opposite rear	0,0	5,0	0,0	100	6	40,00	200,00	0,0	0,0	0,0

6.4. Secondary road 1 (LU) - Luminance RTable - Absolute 1

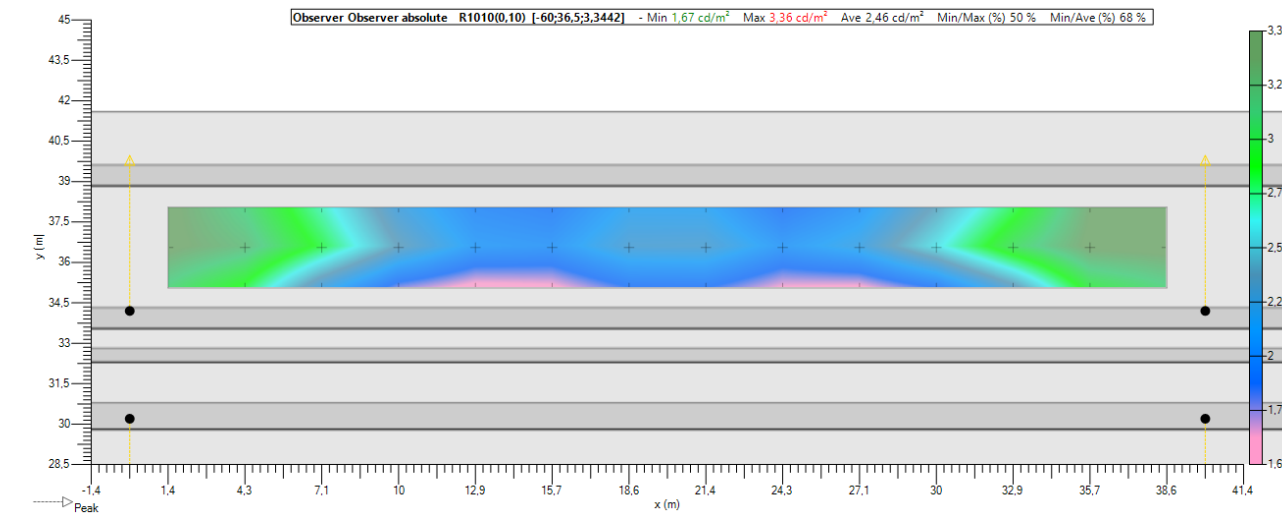
Values



Isolevel

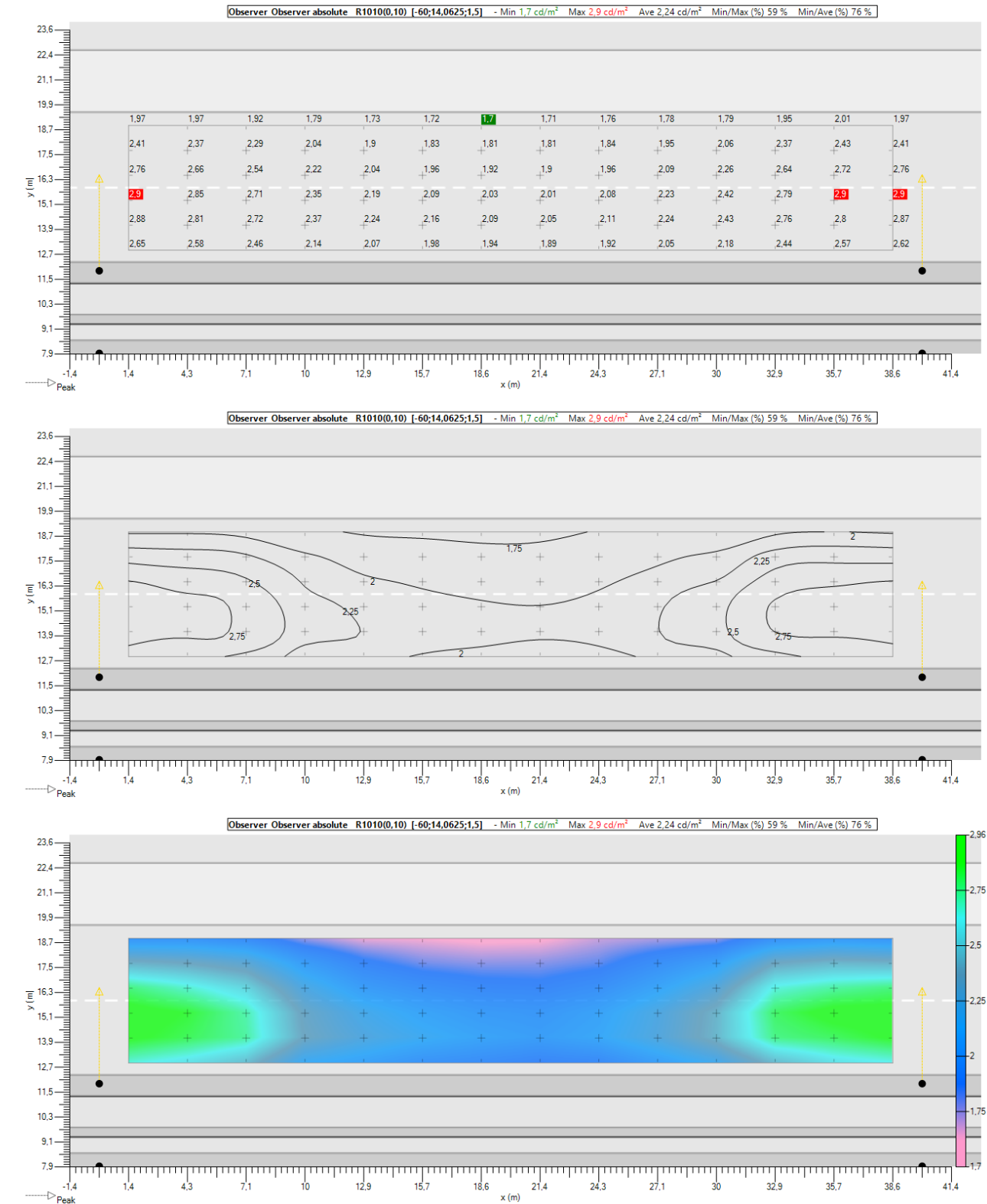


Shading

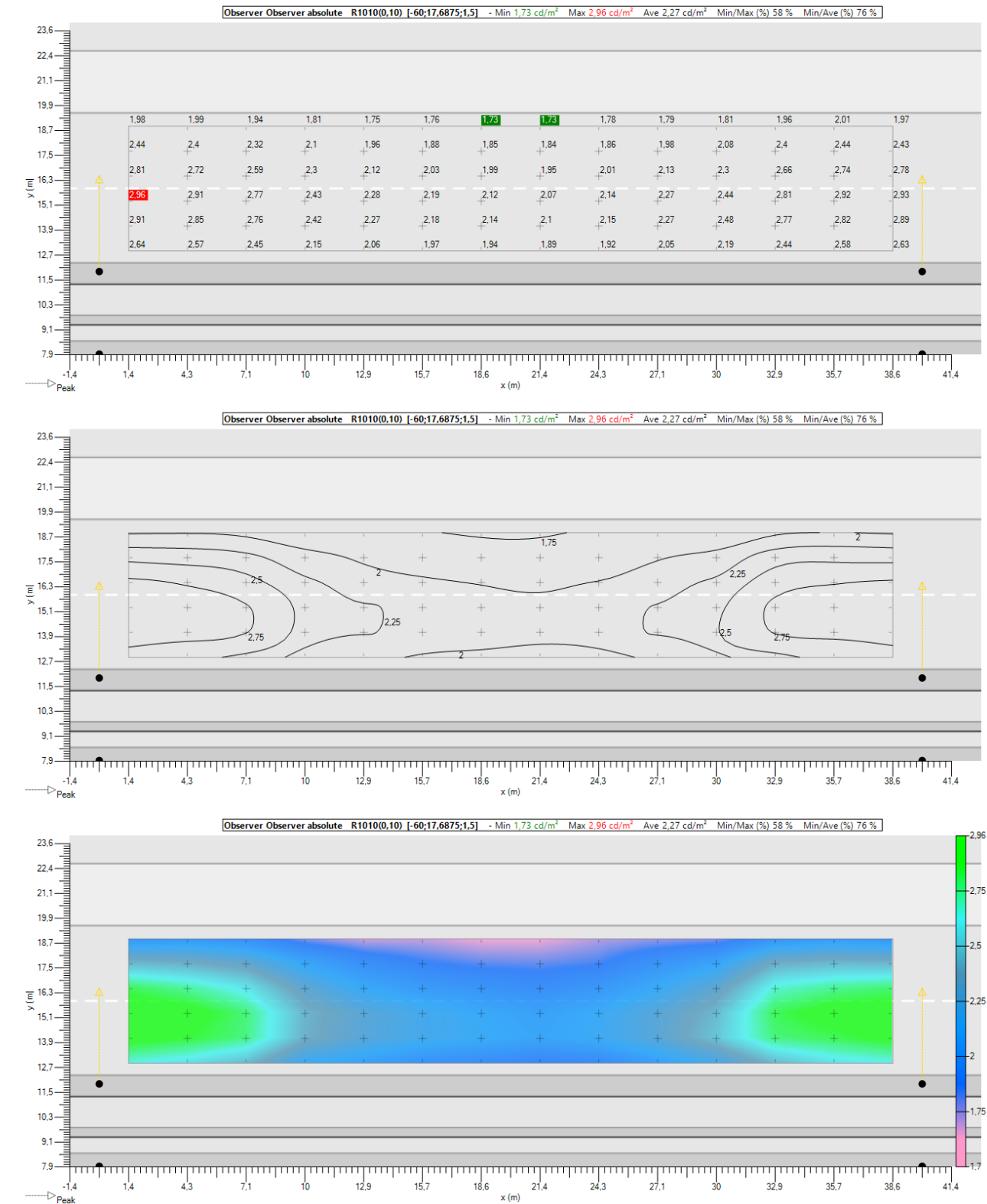


6.5. Luminance - Motorway with central island with new jersey barriers (LU) - R1010

Motorway with central island with new jersey barriers (LU) - Absolute 1

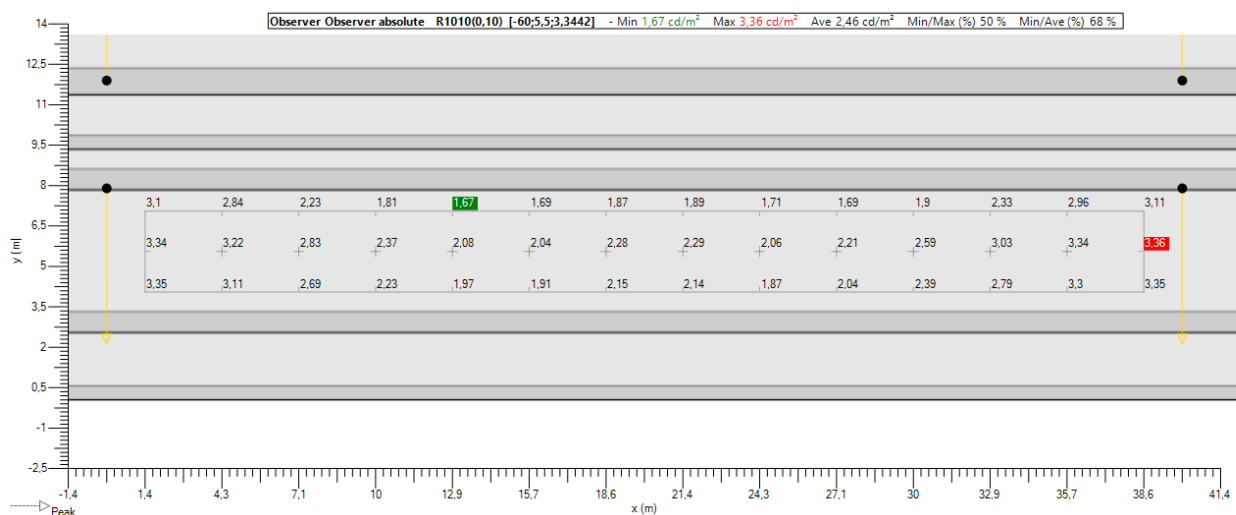


Motorway with central island with new jersey barriers (LU) - Absolute 2

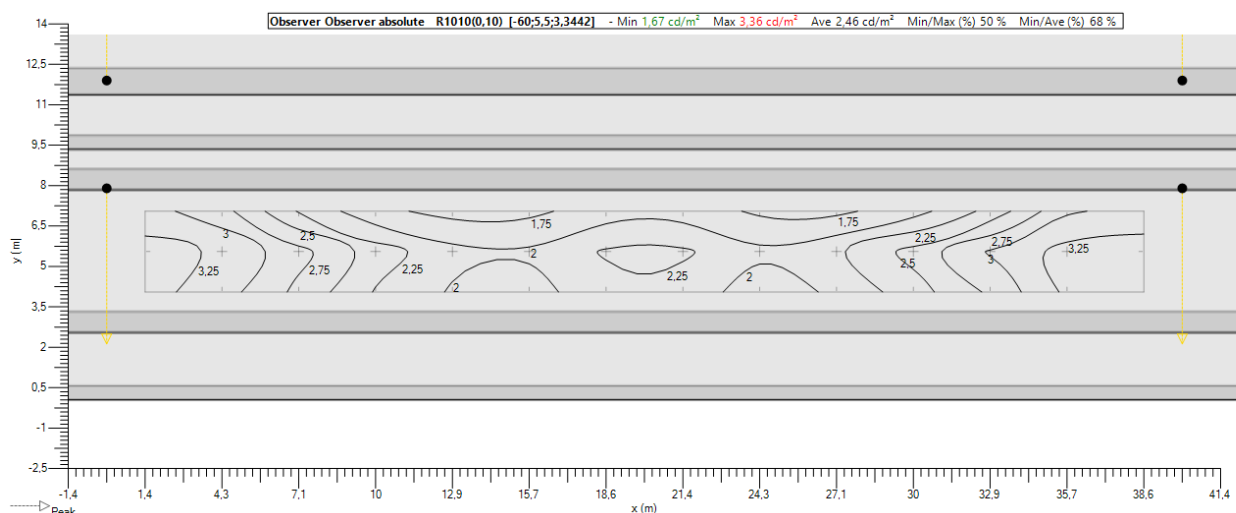


6.6. Secondary road 2 (LU) - Luminance RTable - Absolute 1

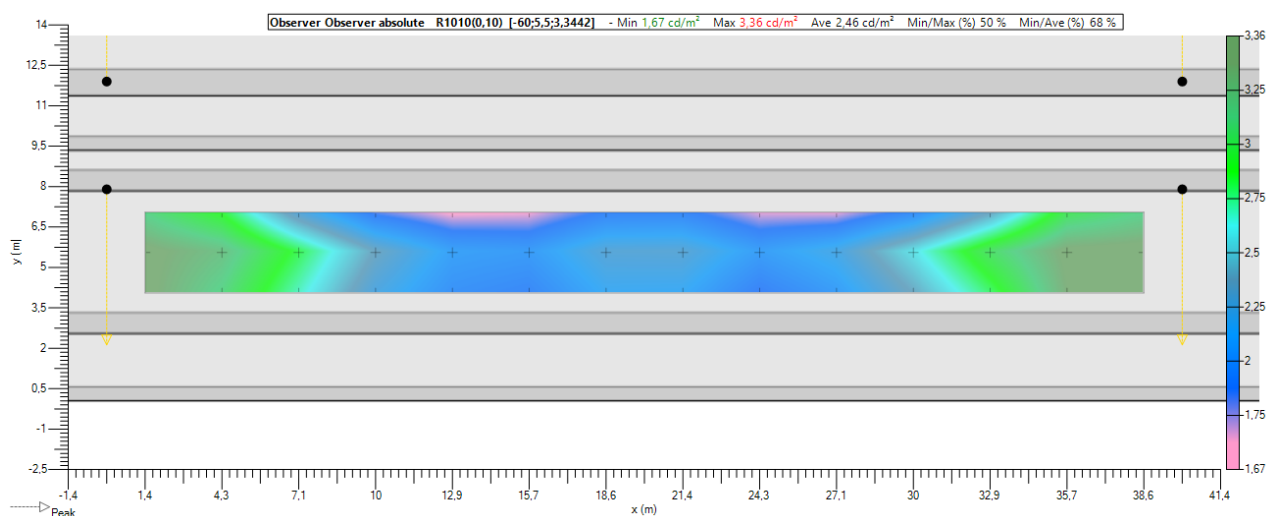
Values



Isolevel

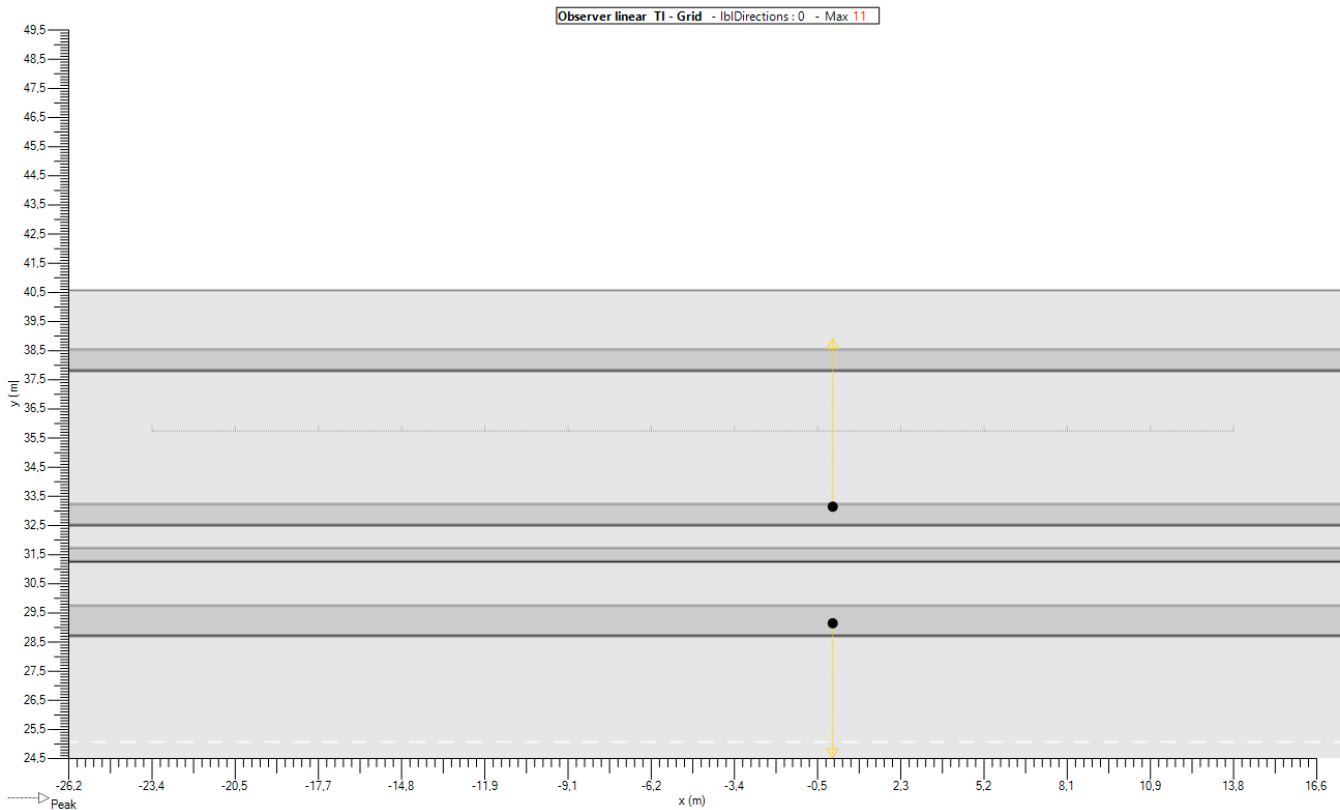


Shading

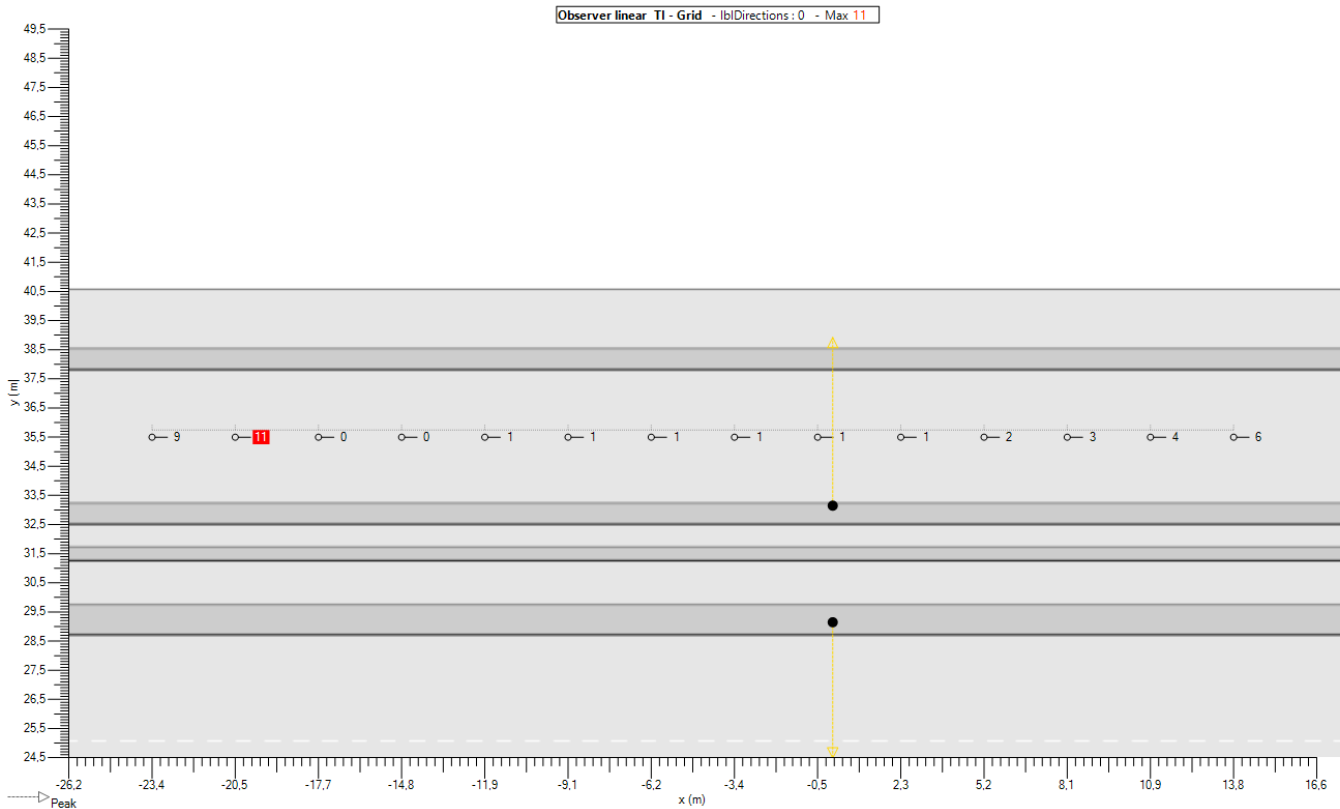


6.7. Secondary road 1 (TI 1) - TI - Grid

Implantation

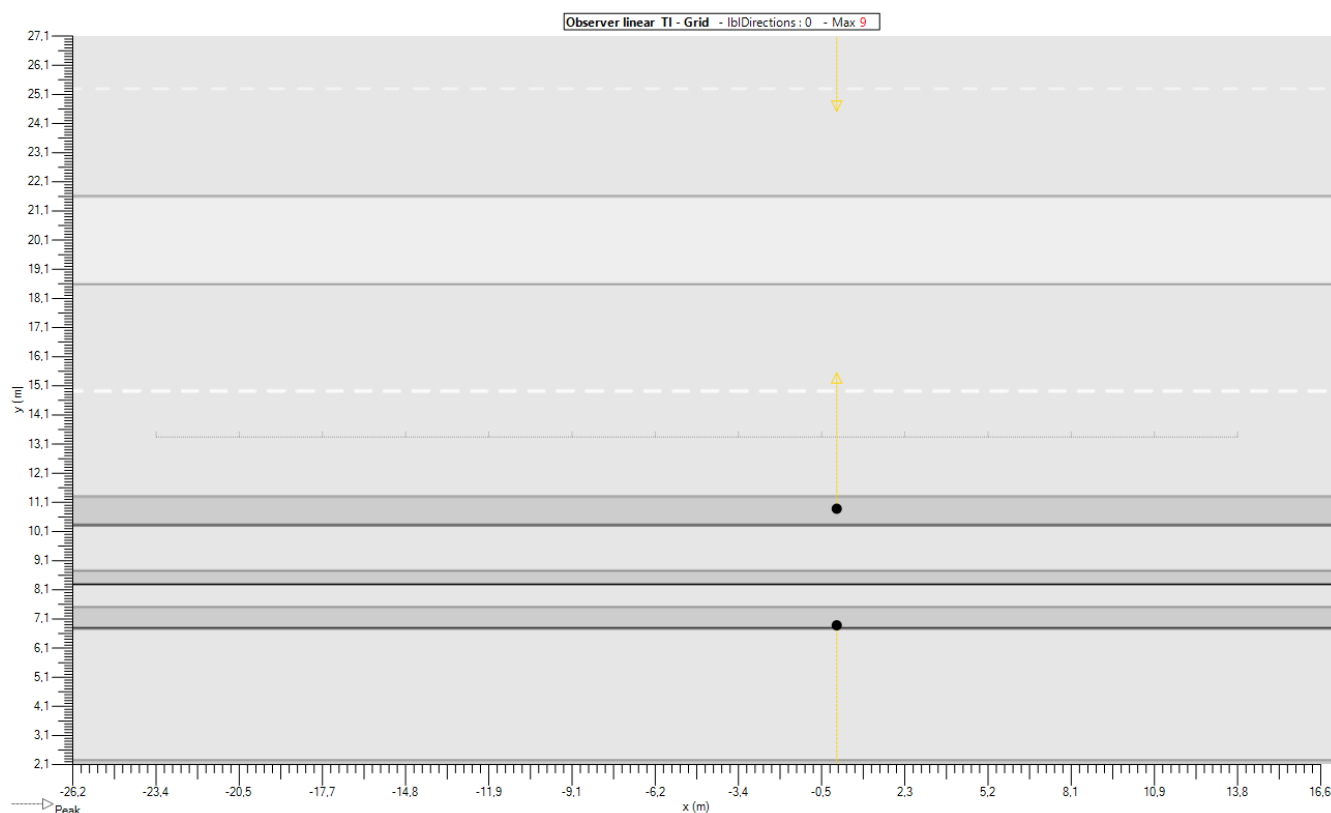


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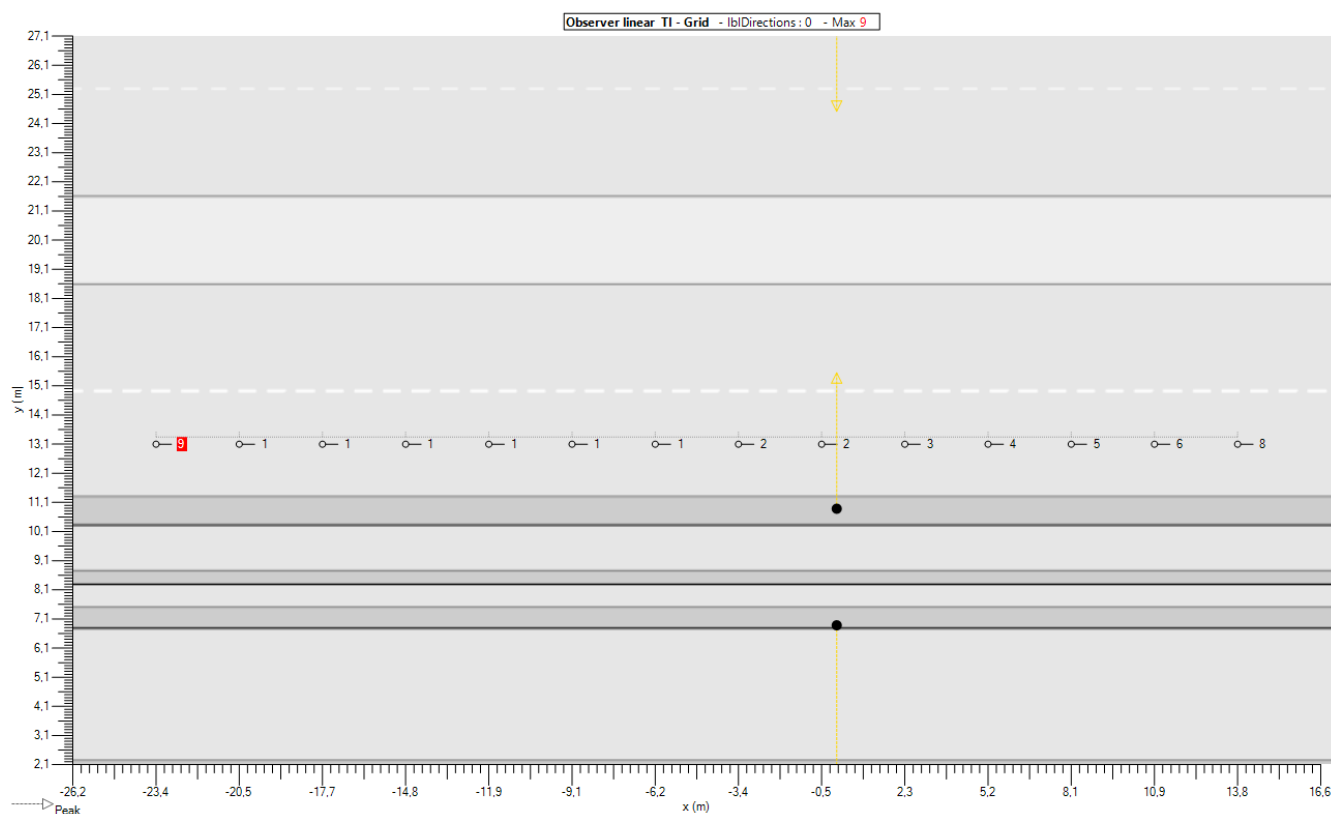


6.8. Motorway with central island with new jersey barriers (TI 1) - TI - Grid

Implantation

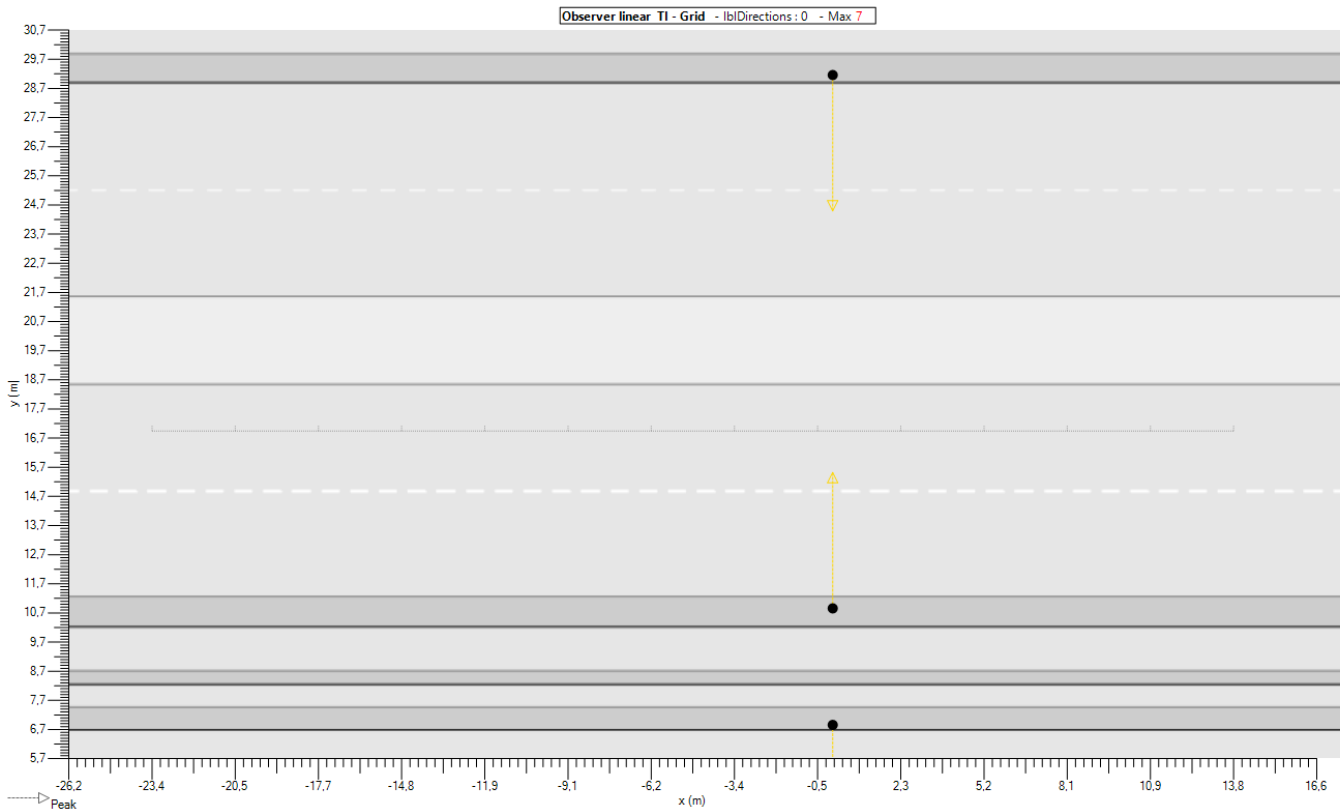


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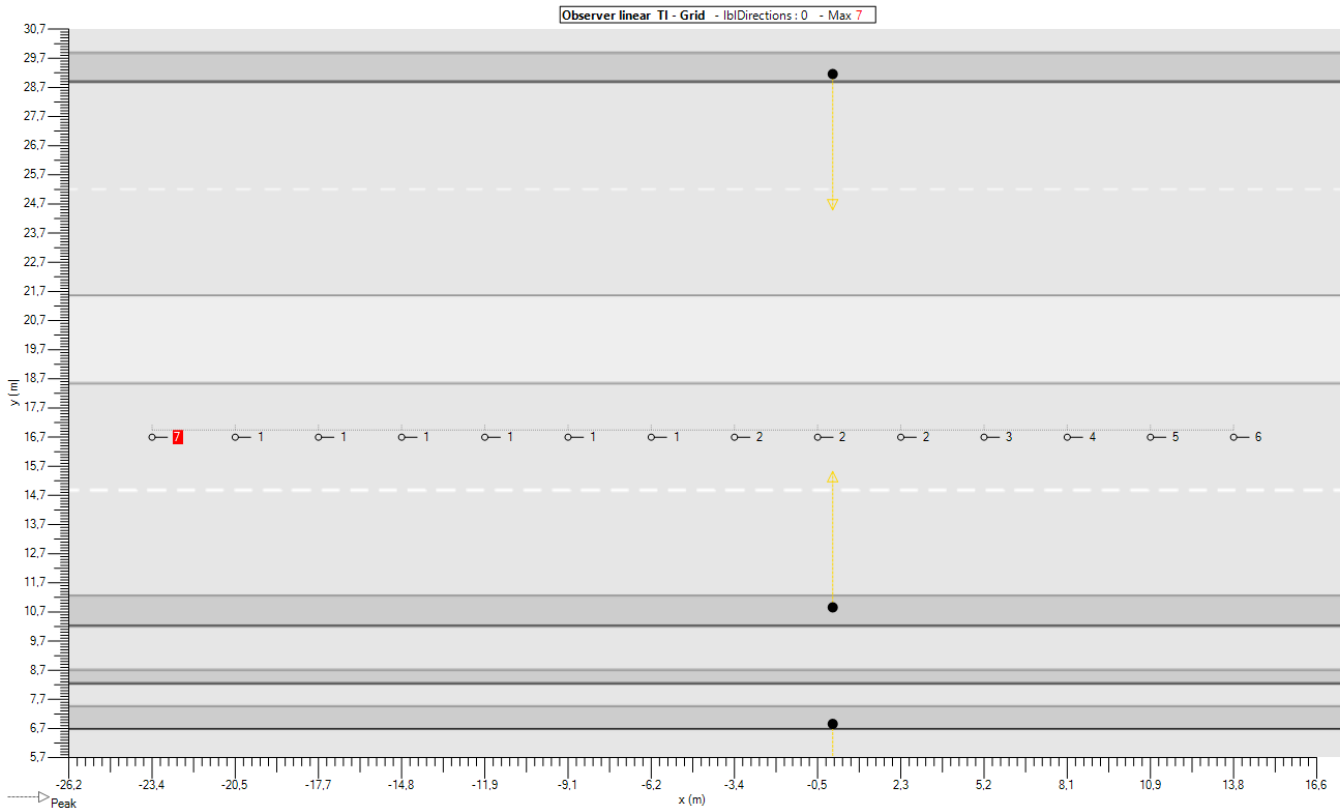


6.9. Motorway with central island with new jersey barriers (TI 2) - TI - Grid

Implantation

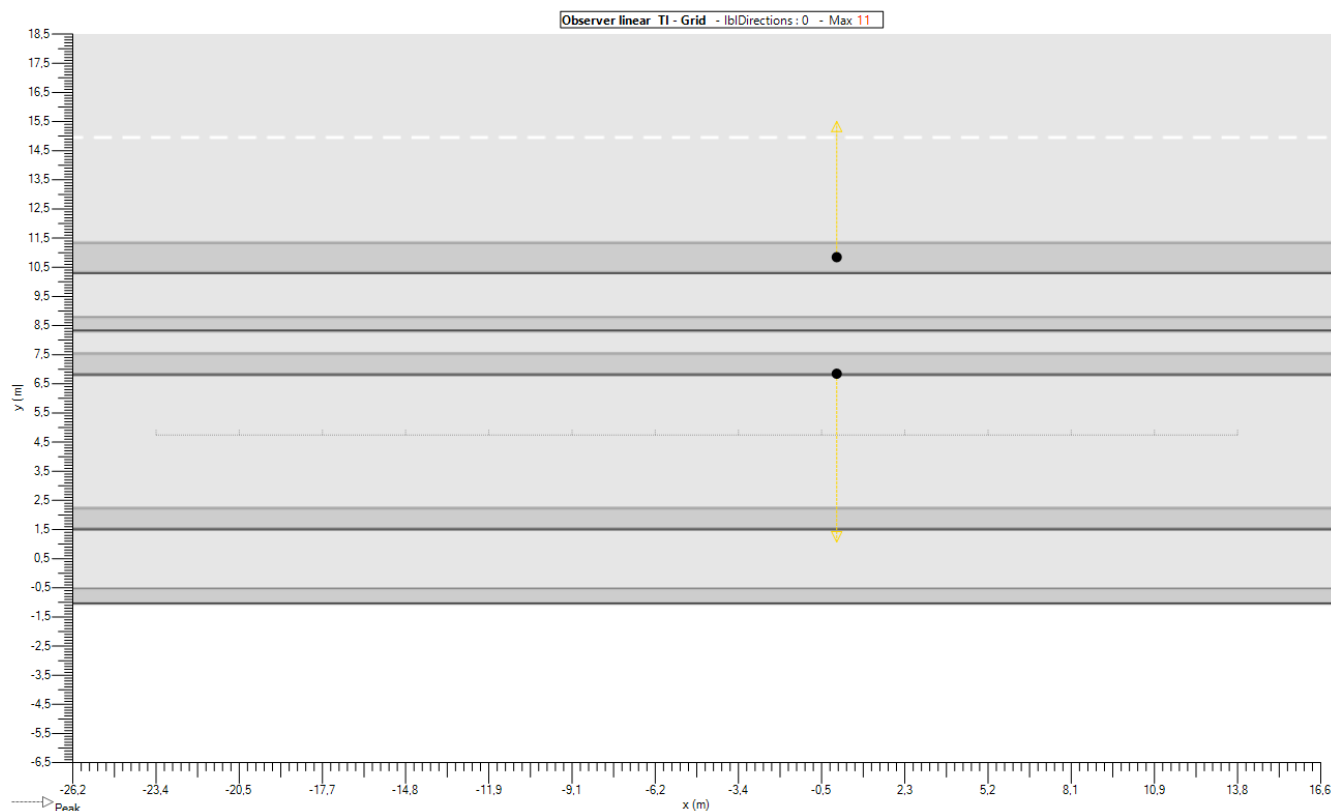


Values

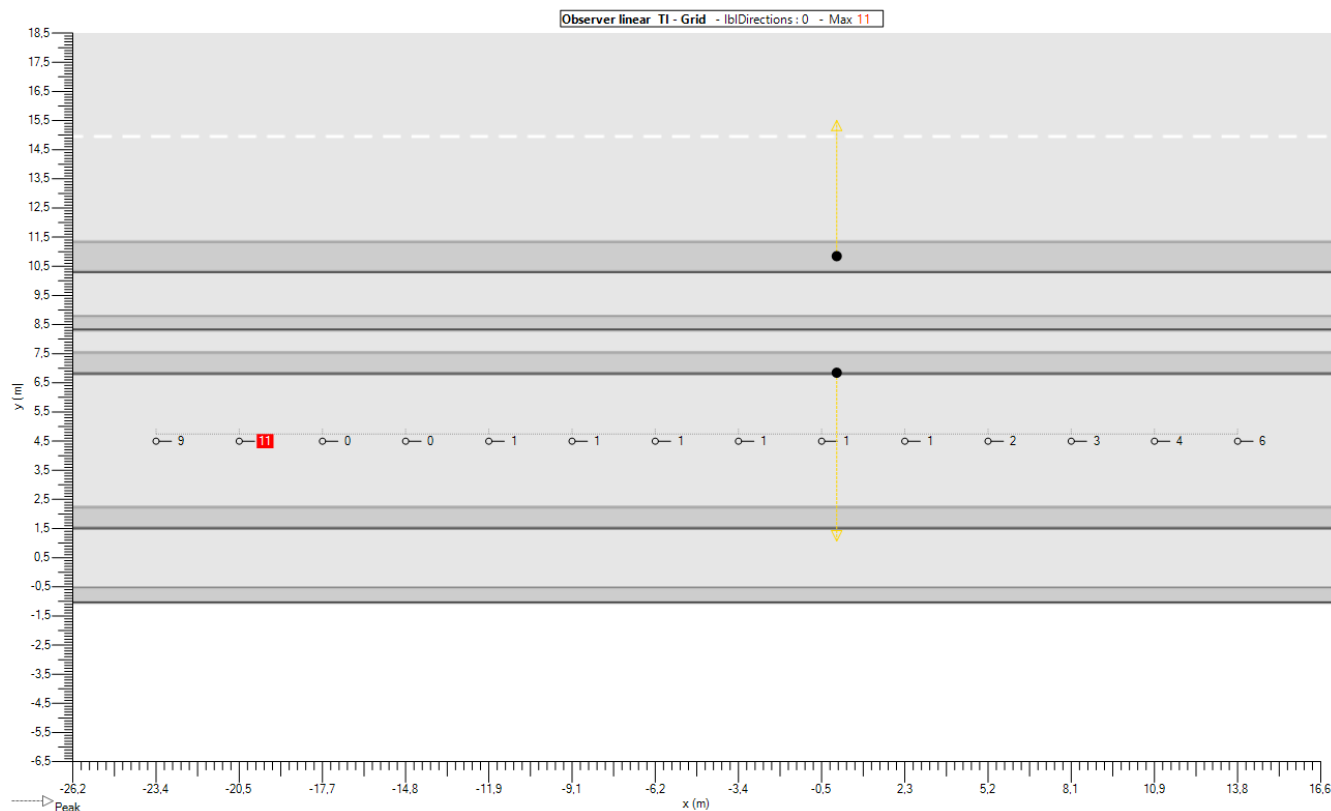


6.10. Secondary road 2 (TI 1) - TI - Grid

Implantation



Values



7. Grids

7.1. Secondary road 1 (LU)

General

Type Grid rectangular XY
Enabled ☒
Colour 

Geometry

Origin X 1,43 m Y 35,00 m Z 1,84 m
Rotation X 0,0 ° Y 0,0 ° Z 0,0 °
Dimension Count X 14 Count Y 3
Spacing X 2,86 m Spacing Y 1,50 m
Size X 37,14 m Size Y 3,00 m

7.2. Motorway with central island with new jersey barriers (LU)

General

Type Grid rectangular XY
Enabled ☒
Colour 

Geometry

Origin X 1,43 m Y 12,85 m Z 0,00 m
Rotation X 0,0 ° Y 0,0 ° Z 0,0 °
Dimension Count X 14 Count Y 6
Spacing X 2,86 m Spacing Y 1,21 m
Size X 37,14 m Size Y 6,04 m

7.3. Secondary road 2 (LU)

General

Type Grid rectangular XY
Enabled ☒
Colour 

Geometry

Origin X 1,43 m Y 4,00 m Z 1,84 m
Rotation X 0,0 ° Y 0,0 ° Z 0,0 °
Dimension Count X 14 Count Y 3
Spacing X 2,86 m Spacing Y 1,50 m
Size X 37,14 m Size Y 3,00 m

8. Observer

8.1. Secondary road 1 (TI 1)

General	
Type	Observer linear
En	☒
Color	
Directions	0,0
Calculation	TI - Grid
Grid	Secondary road 1 (LU)

Geometry			
Origin	X -23,38 m	Y 36,50 m	Z 3,34 m
Rotation	X 0,0 °	Y 0,0 °	Z 0,0 °
Dimension	Count 14	Spacing 2,86 m	Size 37,14 m

8.2. Motorway with central island with new jersey barriers (TI 1)

General	
Type	Observer linear
En	☒
Color	
Directions	0,0
Calculation	TI - Grid
Grid	Motorway with central island with new jersey barriers (LU)

Geometry			
Origin	X -23,38 m	Y 14,06 m	Z 1,50 m
Rotation	X 0,0 °	Y 0,0 °	Z 0,0 °
Dimension	Count 14	Spacing 2,86 m	Size 37,14 m

8.3. Motorway with central island with new jersey barriers (TI 2)

General	
Type	Observer linear
En	☒
Color	
Directions	0,0
Calculation	TI - Grid
Grid	Motorway with central island with new jersey barriers (LU)

Geometry			
Origin	X -23,38 m	Y 17,69 m	Z 1,50 m
Rotation	X 0,0 °	Y 0,0 °	Z 0,0 °
Dimension	Count 14	Spacing 2,86 m	Size 37,14 m

8.4. Secondary road 2 (TI 1)

General	
Type	Observer linear
En	☒
Color	
Directions	0,0
Calculation	TI - Grid
Grid	Secondary road 2 (LU)

Geometry			
Origin	X -23,38 m	Y 5,50 m	Z 3,34 m
Rotation	X 0,0 °	Y 0,0 °	Z 0,0 °
Dimension	Count 14	Spacing 2,86 m	Size 37,14 m

