

LINEAR STATIC ANALYSIS REPORT

Mon Sep 10 2018 17:21:24 GMT+1000 (Australian Eastern Standard Time)

S 1 (FFFFR) 1 S 2 (RFFRR)

File Name: real-life-model
Software: SkyCiv Structural 3D v3.0.2

Included in this Report:

- Job Setup
- Bill of Materials
- Screenshots
- Single Member Reports
- Member Results

Job Setup

LINEAR STATIC ANALYSIS REPORT

SkyCiv Structural 3D v3.0.2

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File Name	real-life-model
Job Name	Empty
Designer	Empty
Job Description	Empty

Length Units	m
Section Length Units	mm
Force Units	kN
Moment and Torsion Units	kNm
Pressure Units	kPa
Material Strength Units	MPa
Material Density Units	kg/m ³
Translation Units	mm
Stress Units	MPa
Nodes	2
Members	1
Plates	0
Meshed Plates	0
Supports	2
Sections	1
Point Loads	0
Distributed Loads	0
Moments	0
Pressures	0
Area Loads	0
Units	Metric
Member Evaluation Points	24
General Constraint	RRRRRR
Total Degrees of Freedom	6
Self Weight	ON

NODE COORDINATES (m)

Node	X Coordinate	Y Coordinate	Z Coordinate
1	0.000	0.000	0.000
2	15.516	0.000	0.000

MEMBERS (deg, mm, m)

F=Fixed, R=Released

Member	Node A	Node B	Type	Section	Angle	Node A Fixity	Node B Fixity	Node A Offsets	Node B Offsets	Cable Length	Length
1	1	2	Continuous & Normal	1	0.000	FFFFFF	FFFFFF	0,0,0	0,0,0	-	15.516

SUPPORTS (kN/m, kNm/rad)

F=Fixed, R=Released, S=Spring

Node	Restraint Code	X Trans Stiffness	Y Trans Stiffness	Z Trans Stiffness	X Rot Stiffness	Y Rot Stiffness	Z Rot Stiffness
1	FFFFRR	-	-	-	-	-	-
2	RFFRRR	-	-	-	-	-	-

MATERIALS (MPa, kg/m³)

Material	Name	Young's Modulus	Density	Poisson's Ratio
4	Concrete	30240.000	2500.000	0.200

SECTIONS (mm, mm², mm⁴, deg)

Section	Name	Shape	Depth	Width	Shear Area z (STRESS)	Shear Area y (STRESS)	Shear Area z (TIMO)	Shear Area y (TIMO)	Torsion Radius
1	300 x 500	I-Beam	300.000	500.000	88047.618	64963.738	-	-	201.380

Section	Centroid y	Centroid z	Area	y-Axis Mol	z-Axis Mol	Torsion Constant	Principal Angle
1	150.000	250.000	103101.652	1269414692.650	945076497.479	1035730000.000	0.000

SELF WEIGHT (g's)

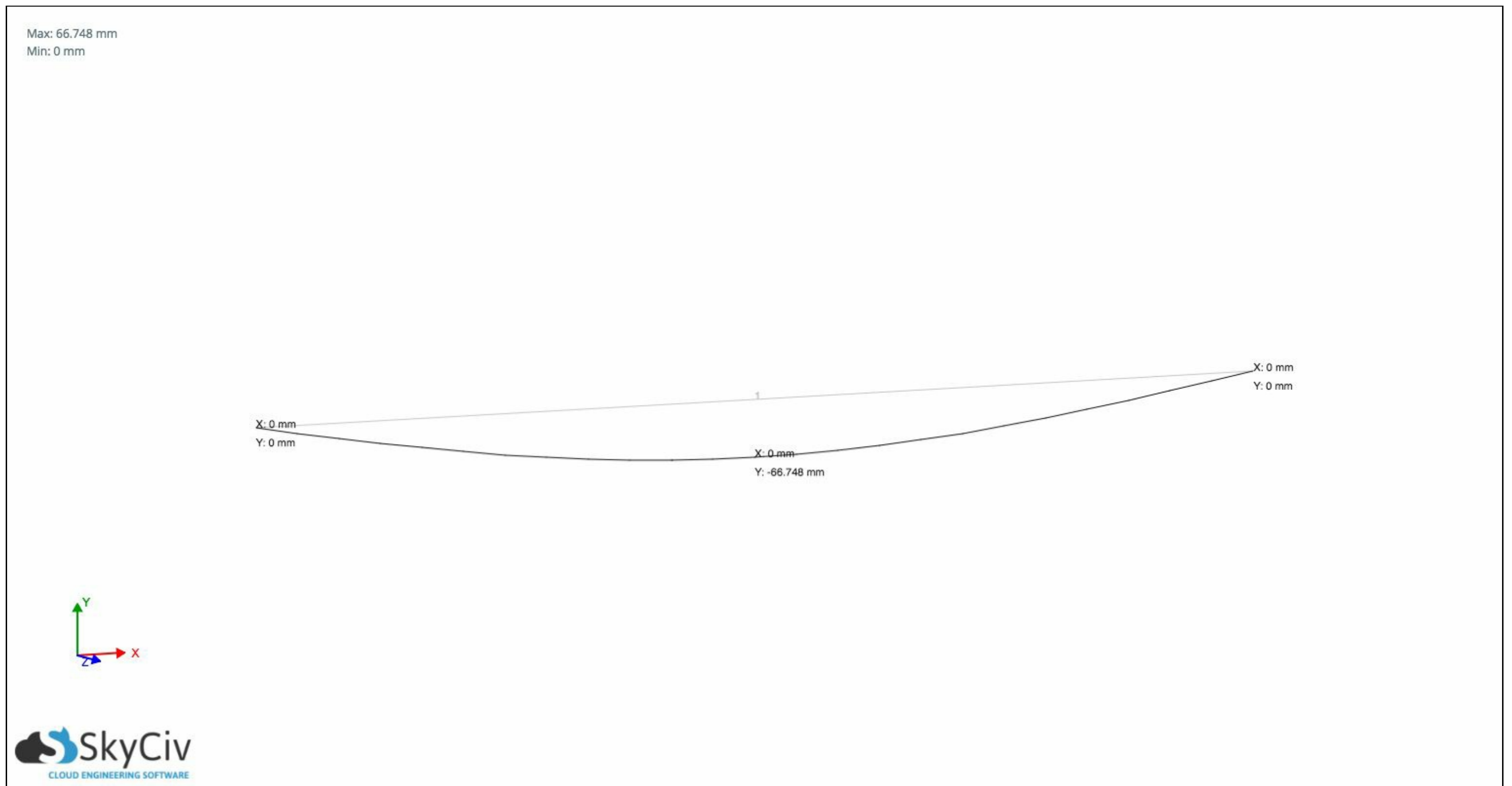
Load Group	X Gravity	Y Gravity	Z Gravity
SW	0.000	-1.000	0.000

Bill of Materials

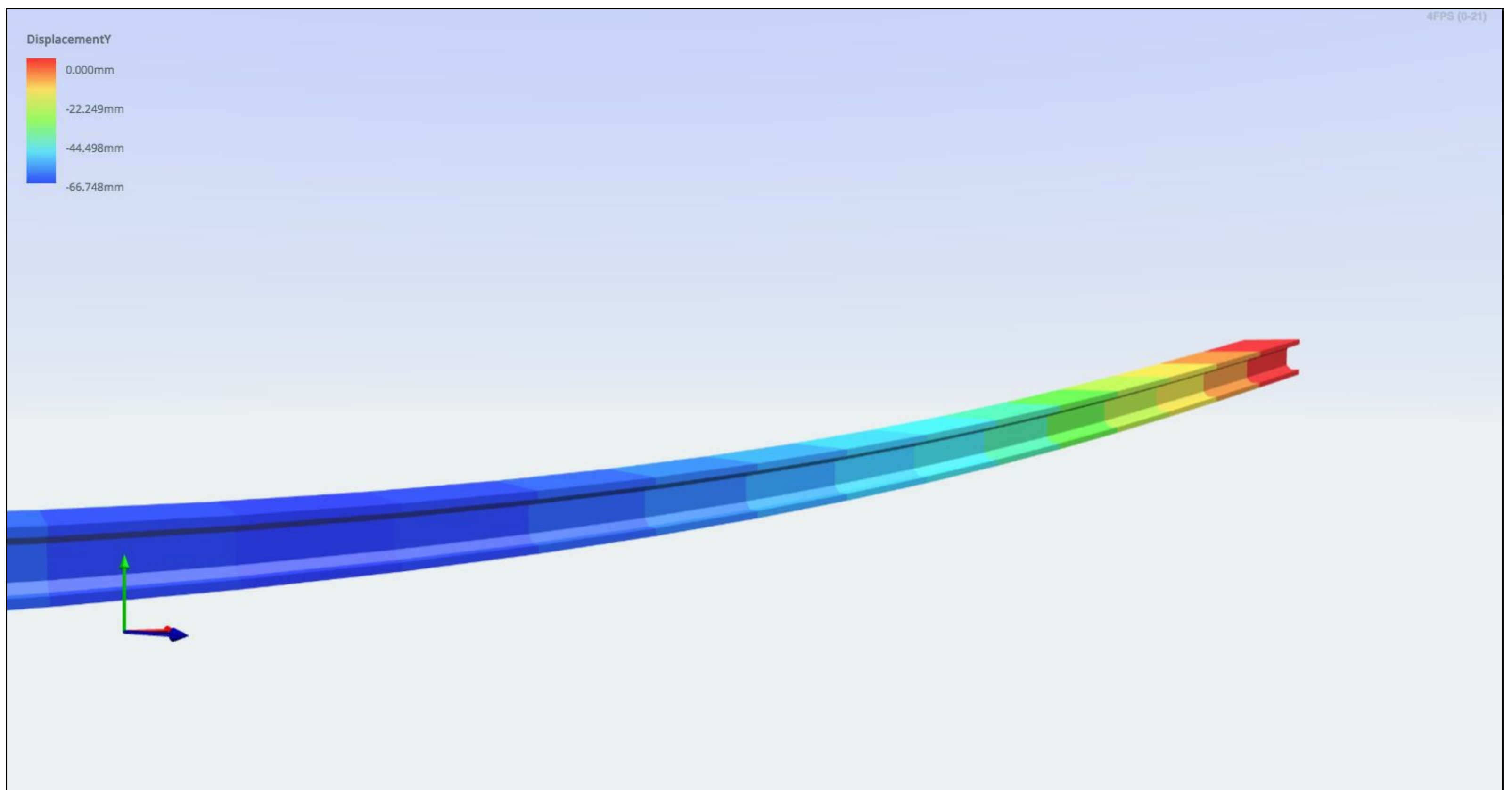
BILL OF MATERIALS FOR MEMBERS (m, kg)

Section	Material	Quantity	Unit Length	Total Length	Unit Mass	Total Mass
1	4	1	15.516	15.516	3999.313	3999.313
						3999.313

Screenshots



deflection-beam-wireframe.jpg

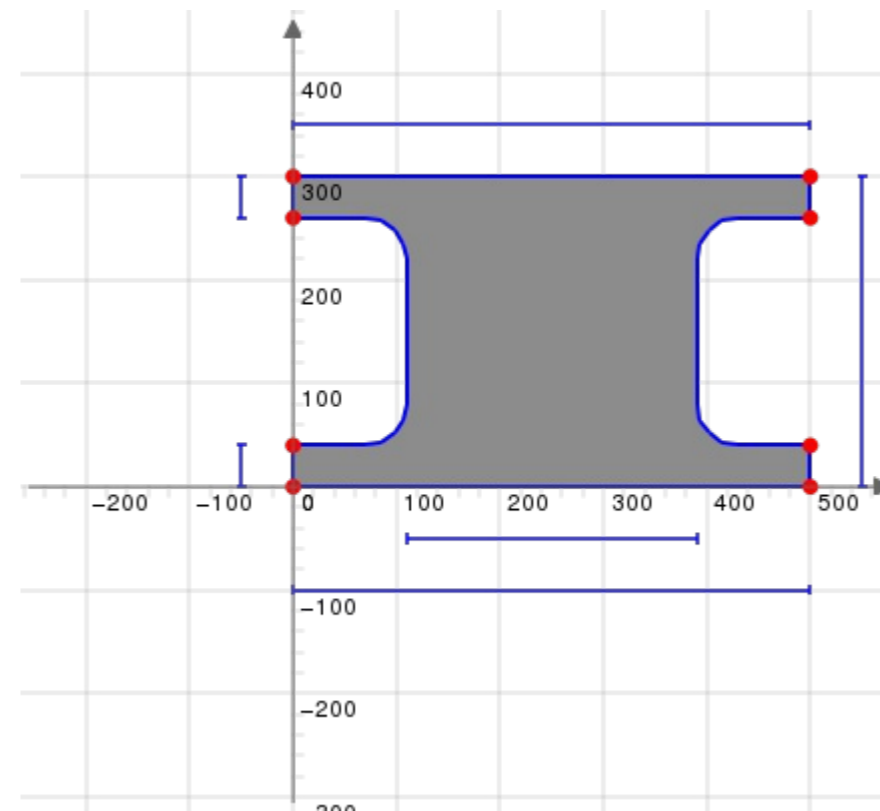


deflection-beam-renderer.jpg

Member 1

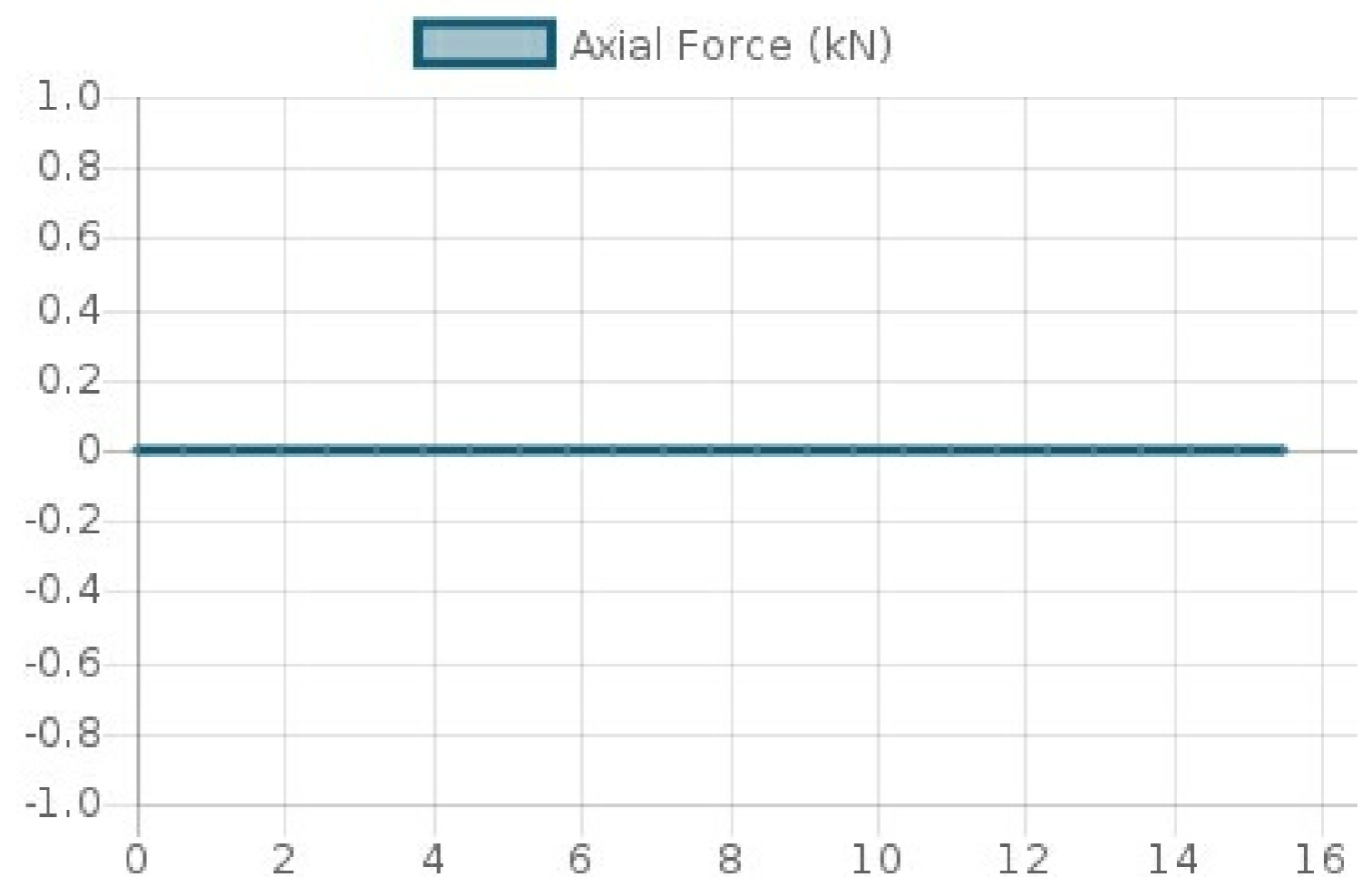
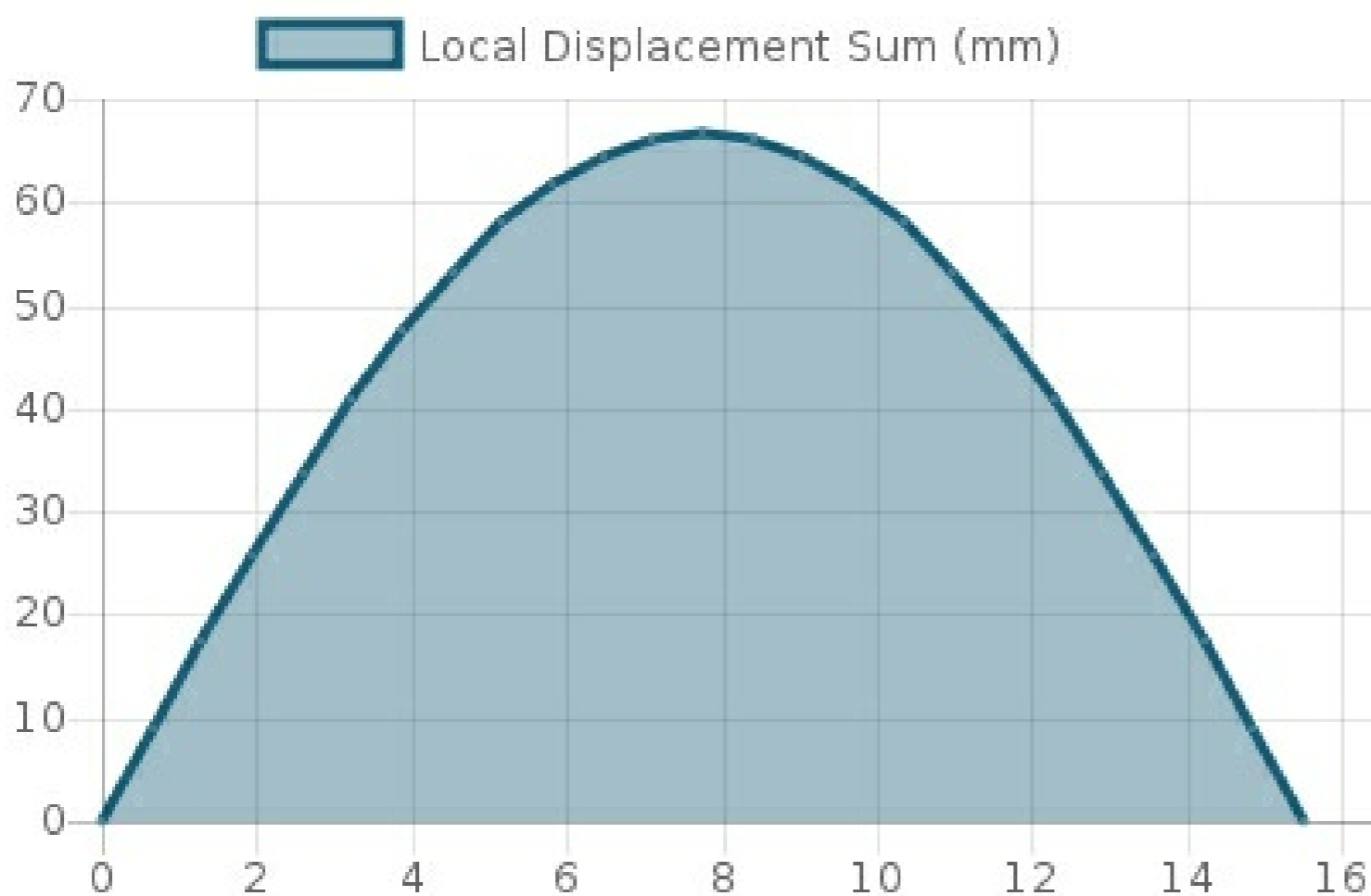
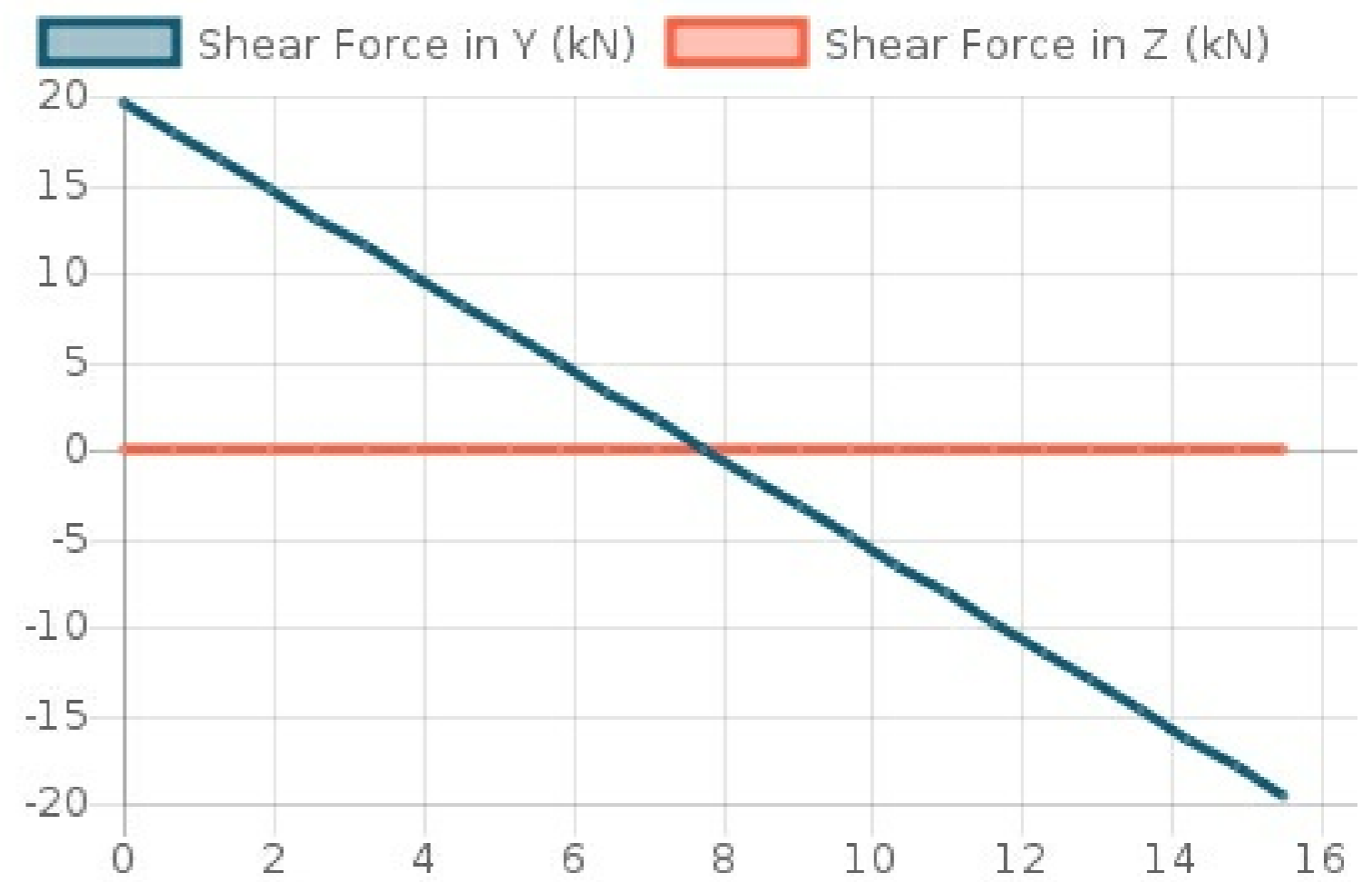
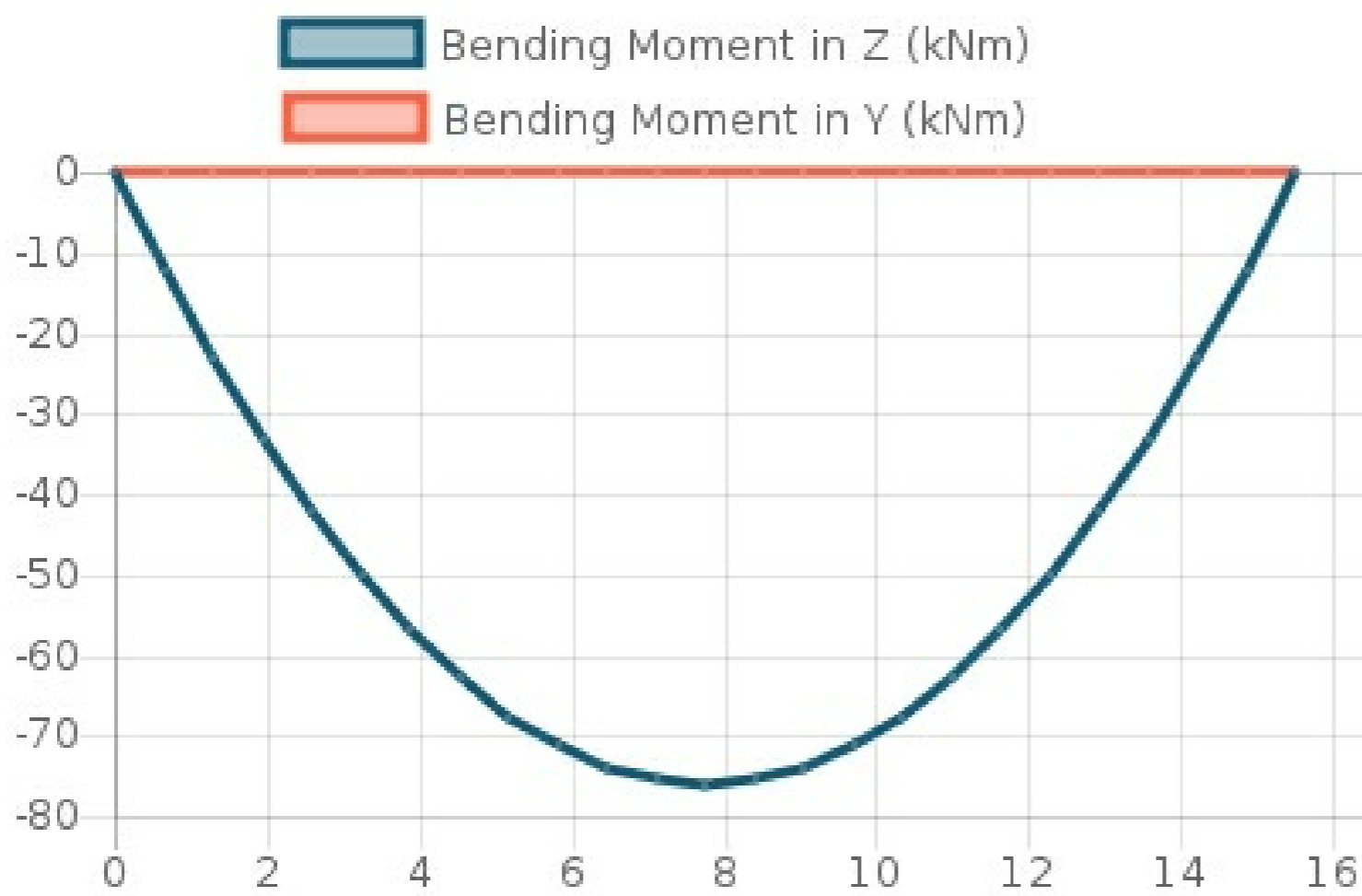
Member Summary Table	
Member Number	1
Node A	1 (0, 0, 0)
Node B	2 (15.516, 0, 0)
Member Length	15.516 m
Section Name	300 x 500
Section No	1
Section Rotation	0 degrees
Fixity A	FFFFFF
Fixity B	FFFFFF
Buckling	Not Analysed
Reaction A (kN,kNm)	X: 0.000 Y: 19.610 Z: 0.000 Mx: 0.000 My: 0.000 Mz: 0.000
Reaction B (kN,kNm)	X: 0.000 Y: 19.610 Z: 0.000 Mx: 0.000 My: 0.000 Mz: 0.000

Result	Max Location (m,MPa)	Result	Min Location (m,MPa)	Result
Shear Stress in Y	0.000	0.223	15.516	-0.223
Shear Stress in Z	0.000	0.000	0.000	0.000
Bending Stress (Bottom) in Y	0.000	0.000	0.000	0.000
Bending Stress (Bottom) in Z	0.000	0.000	7.758	-12.073
Combined Stress (Bottom) in Y	0.000	0.000	0.000	0.000
Combined Stress (Bottom) in Z	0.000	0.000	7.758	-12.073
Bending Stress (Top) in Y	0.000	0.000	0.000	0.000
Bending Stress (Bottom) in Z	7.758	12.073	0.000	0.000
Combined Stress (Top) in Y	0.000	0.000	0.000	0.000
Combined Stress (Top) in Z	7.758	12.073	0.000	0.000
Axial Stress	0.000	0.000	0.000	0.000
Torsion Stress	0.000	0.000	0.000	0.000



Geometric Properties		
A	103101.652	mm ²
C _z	250	mm
C _y	150	mm
Bending Properties		
I _z	945076497.479	mm ⁴
I _y	1269414692.65	mm ⁴
α	0	°
Shear Properties		
A _z	88047.618	mm ²
A _y	64963.738	mm ²
Q _z	4369515.059	mm ³
Q _y	4768191.449	mm ³
Torsion Properties		
J	1035730000	mm ⁴
r	201.38	mm

Shape	Material	E (MPa)	ν	ρ (kg/m ³)
I-Beam	Concrete	17237	0.2	2403



Member Results

MEMBER DISPLACEMENTS (m, mm, rad)

Red Cells = Maximum value of a result in the member/plate.

Green Cells = Minimum value of a result in the member/plate.

Member	Station Location	Global X Translation	Global Y Translation	Global Z Translation	Total Translation	Global X Rotation	Global Y Rotation	Global Z Rotation
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.014
1	0.647	0.000	-8.869	0.000	8.869	0.000	0.000	-0.014
1	1.293	0.000	-17.562	0.000	17.562	0.000	0.000	-0.013
1	1.939	0.000	-25.917	0.000	25.917	0.000	0.000	-0.013
1	2.586	0.000	-33.786	0.000	33.786	0.000	0.000	-0.012
1	3.232	0.000	-41.038	0.000	41.038	0.000	0.000	-0.011
1	3.879	0.000	-47.558	0.000	47.558	0.000	0.000	-0.009
1	4.526	0.000	-53.244	0.000	53.244	0.000	0.000	-0.008
1	5.172	0.000	-58.013	0.000	58.013	0.000	0.000	-0.007
1	5.819	0.000	-61.794	0.000	61.794	0.000	0.000	-0.005
1	6.465	0.000	-64.533	0.000	64.533	0.000	0.000	-0.003
1	7.112	0.000	-66.192	0.000	66.192	0.000	0.000	-0.002
1	7.758	0.000	-66.748	0.000	66.748	0.000	0.000	-0.000
1	8.404	0.000	-66.192	0.000	66.192	0.000	0.000	0.002
1	9.051	0.000	-64.533	0.000	64.533	0.000	0.000	0.003
1	9.697	0.000	-61.794	0.000	61.794	0.000	0.000	0.005
1	10.344	0.000	-58.013	0.000	58.013	0.000	0.000	0.007
1	10.990	0.000	-53.244	0.000	53.244	0.000	0.000	0.008
1	11.637	0.000	-47.558	0.000	47.558	0.000	0.000	0.009
1	12.284	0.000	-41.038	0.000	41.038	0.000	0.000	0.011
1	12.930	0.000	-33.786	0.000	33.786	0.000	0.000	0.012
1	13.577	0.000	-25.917	0.000	25.917	0.000	0.000	0.013
1	14.223	0.000	-17.562	0.000	17.562	0.000	0.000	0.013
1	14.869	0.000	-8.869	0.000	8.869	0.000	0.000	0.014
1	15.516	0.000	0.000	0.000	0.000	0.000	0.000	0.014