Contents

Usage of CRG_TEST_GEN_CSB2CRG0

Introducing the usage of crg_test_gen_csb2crg0. Examples are included. The file comments are optimized for the matlab publishing makro.

```
%   Copyright 2005-2010 OpenCRG - VIRES Simulationstechnologie GmbH -
%   Holger Helmich
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%
%   More Information on OpenCRG open file formats and tools can be found at
%
%       http://www.opencrg.org
%
%   $Id: crg_test_gen_csb2crg0.m 41 2010-03-24 15:05:00Z hhelmich $
```

Test proceedings

- create additional information (curv, banking, slope)
- display result

```
% DEFAULT SETTINGS
% clear enviroment
clear all;
close all;
```

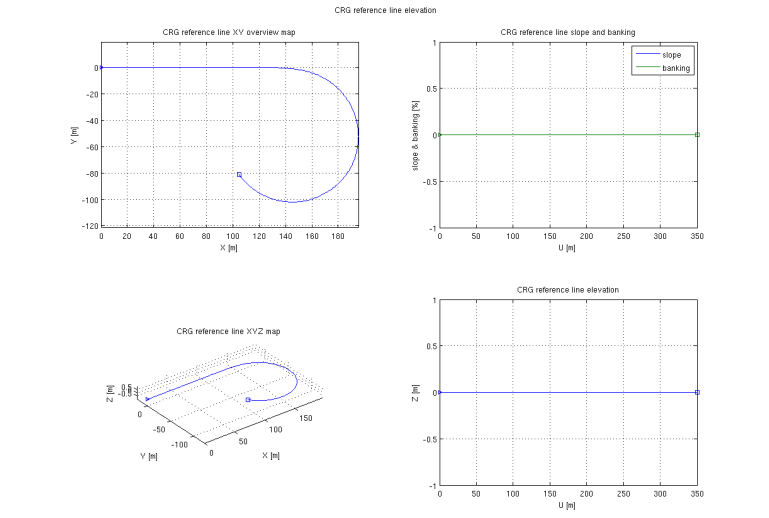
Test1.1 (curvature)

```
ulength = 350;

LC1  =   120;  C1s  =  inf;      C1e  =  inf;
LC2  =    50;  C2s  =  inf;      C2e  =  -50;
LC3  =   180;  C3s  =  -50;      C3e  =  -50;

c = {  LC1    { 1/C1s ( 1/C1e - 1/C1s )/ LC1} ...
    ;  LC2    { 1/C2s ( 1/C2e - 1/C2s )/ LC2} ...
    ;  LC3    { 1/C3s ( 1/C3e - 1/C3s )/ LC3} ...
    };
dat1 = crg_gen_csb2crg0([1 0.5], ulength, 1, c);

crg_show_refline_elevation(dat1);
```



<unknown CRG file name>

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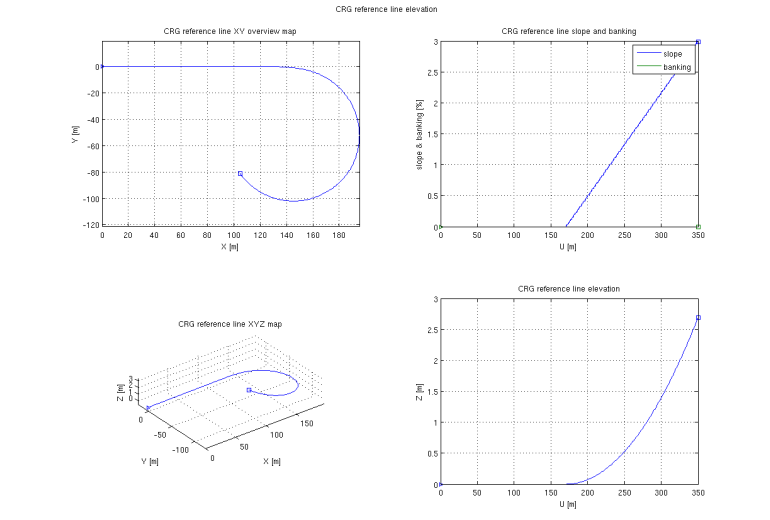
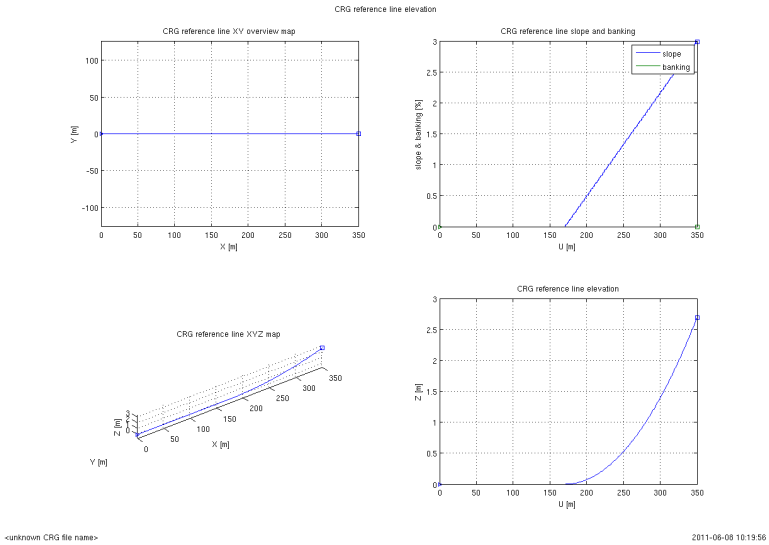
Test1.2 (curvature and slope)

```
ulength = 350;

LC1  =   120;  C1s  =  inf;      C1e  =  inf;
LC2  =    50;  C2s  =  inf;      C2e  =  -50;
LC3  =   180;  C3s  =  -50;      C3e  =  -50;

LS1  =  120;      S1s  =  0;        S1e  =  0;
LS2  =   50;      S2s  =  0;        S2e  =  0;
LS3  =  180;      S3s  =  0;        S3e  =  0.03;

c = {  LC1    { 1/C1s ( 1/C1e - 1/C1s )/ LC1} ...
    ;  LC2    { 1/C2s ( 1/C2e - 1/C2s )/ LC2} ...
    ;  LC3    { 1/C3s ( 1/C3e - 1/C3s )/ LC3} ...
    };

s = { ...
    ; LS1   { S1s  ( S1e  - S1s  )/LS1  }  ...
    ; LS2   { S2s  ( S2e  - S2s  )/LS2  }  ...
    ; LS3   { S3s  ( S3e  - S3s  )/LS3  }  ...
    };

dat1 = crg_gen_csb2crg0([1,0.5], ulength, 1, c, s);

crg_show_refline_elevation(dat1);
```



Test1.3 (slope)

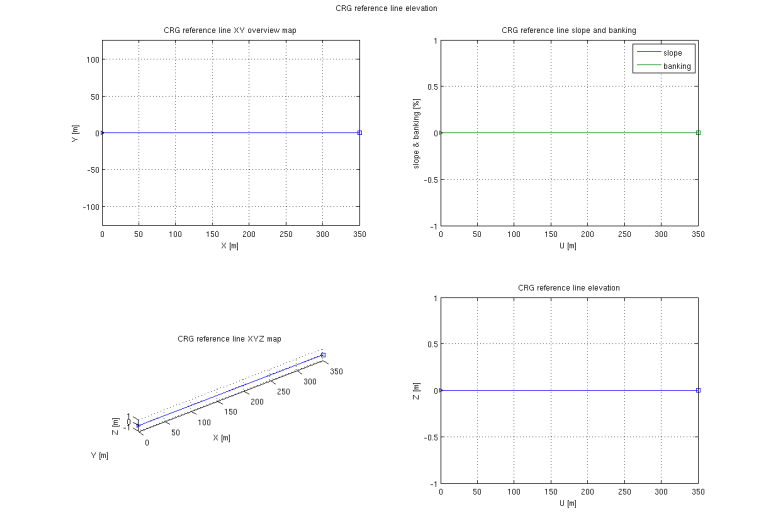
```
ulength = 350;

LS1  =  120;      S1s  =  0;        S1e  =  0;
LS2  =   50;      S2s  =  0;        S2e  =  0;
LS3  =  180;      S3s  =  0;        S3e  =  0.03;

s = { ...
    ; LS1   { S1s  ( S1e  - S1s  )/LS1  }  ...
    ; LS2   { S2s  ( S2e  - S2s  )/LS2  }  ...
    ; LS3   { S3s  ( S3e  - S3s  )/LS3  }  ...
    };

dat1 = crg_gen_csb2crg0([1,0.5], ulength, 1, [], s);

crg_show_refline_elevation(dat1);
```



<unknown CRG file name> 2011-06-08 10:19:56

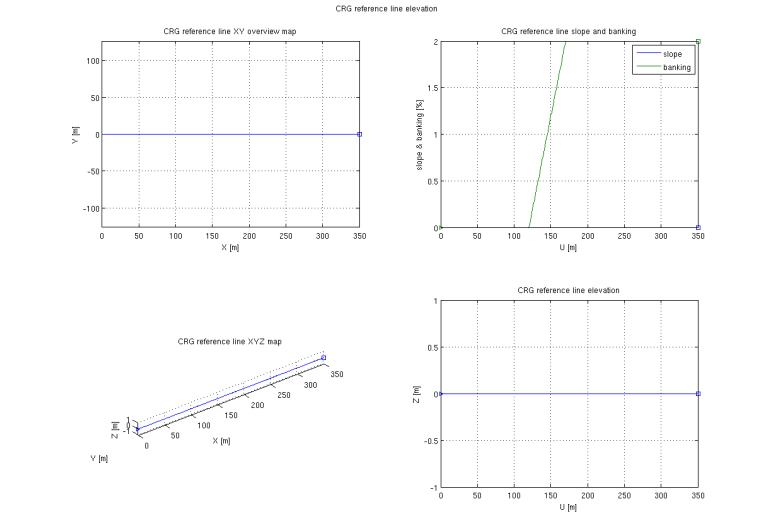
Test1.4 (minimal content)

```
ulength = 350;

dat1 = crg_gen_csb2crg0([], ulength, 1);

crg_show_refline_elevation(dat1);
```



Test2.1 (banking)

```
ulength = 350;

LB1  = 120;      B1s  =  0;       B1e  =  0;
LB2  =  50;      B2s  =  0;       B2e  =  0.02;
LB3  = 180;      B3s  =  0.02;    B3e  =  0.02;

b = { ...
    ; LB1   { B1s  ( B1e  - B1s  )/LB1  }  ...
    ; LB2   { B2s  ( B2e  - B2s  )/LB2  }  ...
    ; LB3   { B3s  ( B3e  - B3s  )/LB3  }  ...
    };

dat1 = crg_gen_csb2crg0([1,0.5], ulength, 1, [], [], b);

crg_show_refline_elevation(dat1);
```



<unknown CRG file name>

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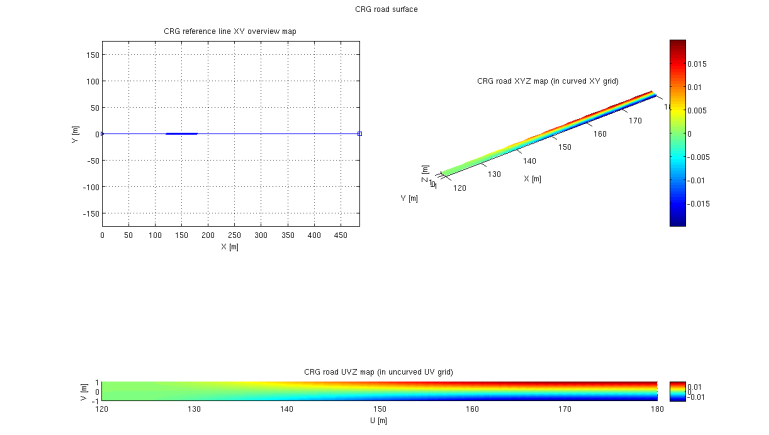
Test2.2 (banking/spline)

```
ulength = 485;

LB1  = 120;      B1s  =  0;        B1e  =  0;
LB2  =  50;      B2s  =  0;        B2e  =  0.02;
LB3  = 180;      B3s  =  0.02;     B3e  =  0.02;
LB4  =  50;      B4s  =  0.02;     B4e  =  0.02;
LB5  =  65;      B5s  =  0.03;     B5e  =  0.02;
LB6  =  20;      B6s  =  0.02;     B6e  =  0.02;

B2_a =                         0;
B2_b =  3*( B2e  - B2s  )/LB2^2;
B2_c = -2*( B2e  - B2s  )/LB2^3;

b = { ...
    ; LB1   { B1s  ( B1e  - B1s  )/LB1  }  ...
    ; LB2   { B2s  B2_a B2_b B2_c       }  ...
    ; LB3   { B3s  ( B3e  - B3s  )/LB3  }  ...
    ; LB4   { B4s  ( B4e  - B4s  )/LB4  }  ...
    ; LB5   { B5s  ( B5e  - B5s  )/LB5  }  ...
    ; LB6   { B6s  ( B6e  - B6s  )/LB6  }  ...
    };

dat1 = crg_gen_csb2crg0([1,0.5], ulength, 1, [], [], b);

crg_show_road_uv2surface(dat1, [120:1:180], [-1:0.2:1]);
```

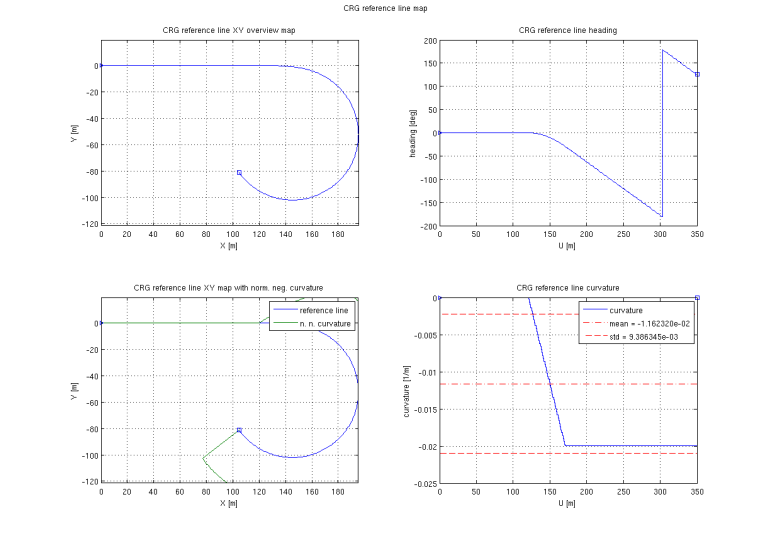


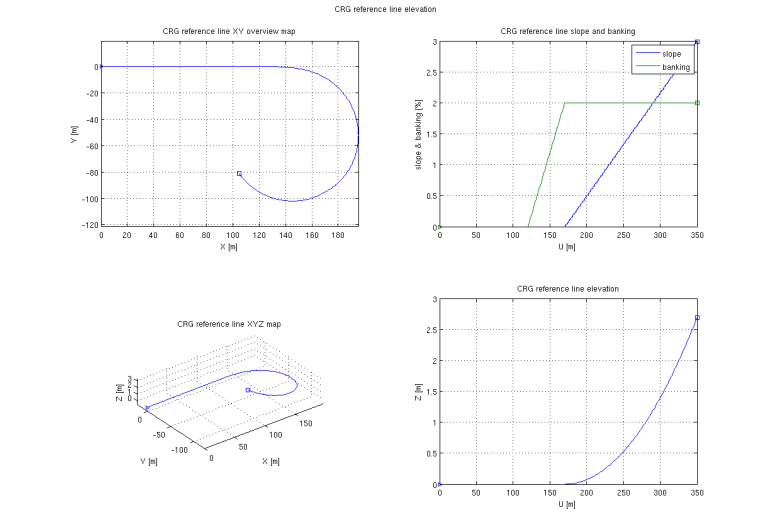
<unknown CRG file name>

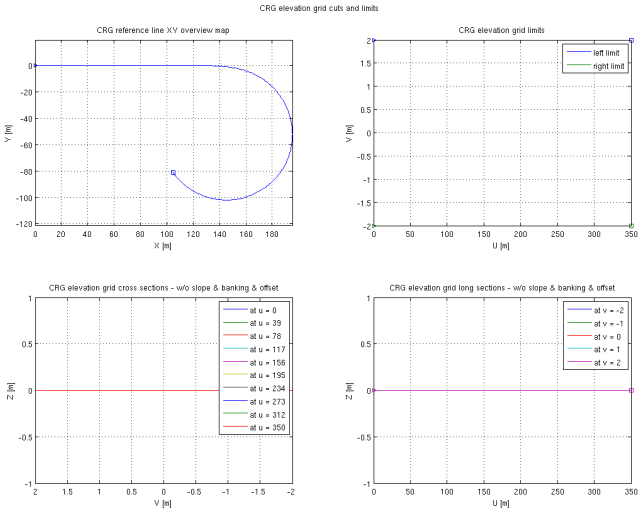
2011-06-08 10:20:01

Test2.3 (curvature, slope and banking)

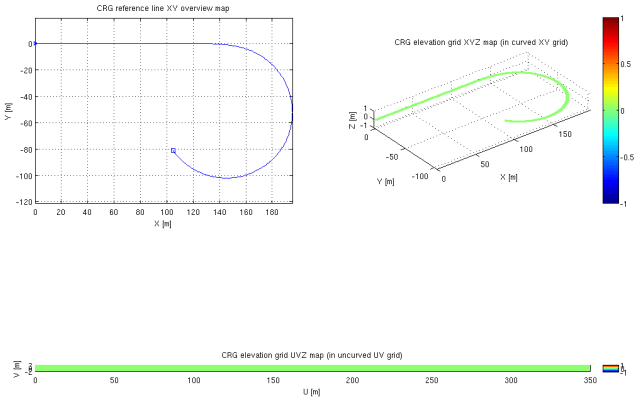
```
ulength = 350;

LC1  =   120;  C1s  =  inf;      C1e  =  inf;
LC2  =    50;  C2s  =  inf;      C2e  =  -50;
LC3  =   180;  C3s  =  -50;      C3e  =  -50;

LS1  =   120;  S1s  =  0;        S1e  =  0;
LS2  =    50;  S2s  =  0;        S2e  =  0;
LS3  =   180;  S3s  =  0;        S3e  =  0.03;

LB1  =   120;  B1s  =  0;        B1e  =  0;
LB2  =    50;  B2s  =  0;        B2e  =  0.02;
LB3  =   180;  B3s  =  0.02;     B3e  =  0.02;

c = {  LC1    { 1/C1s ( 1/C1e - 1/C1s )/ LC1} ...
    ;  LC2    { 1/C2s ( 1/C2e - 1/C2s )/ LC2} ...
    ;  LC3    { 1/C3s ( 1/C3e - 1/C3s )/ LC3} ...
    };

s = { ...
    ; LS1   { S1s  ( S1e  - S1s  )/LS1  }  ...
    ; LS2   { S2s  ( S2e  - S2s  )/LS2  }  ...
    ; LS3   { S3s  ( S3e  - S3s  )/LS3  }  ...
    };

b = { ...
    ; LB1   { B1s  ( B1e  - B1s  )/LB1  }  ...
    ; LB2   { B2s  ( B2e  - B2s  )/LB2  }  ...
    ; LB3   { B3s  ( B3e  - B3s  )/LB3  }  ...
    };

dat1 = crg_gen_csb2crg0([1,0.5], ulength, 2, c, s, b);

crg_show(dat1);
```


CRG reference line map
CRG reference line XY overview map
X [m]
Y [m]
CRG reference line heading
heading [deg]
U [m]
CRG reference line XY map with norm. neg. curvature
reference line
n. n. curvature
CRG reference line curvature
curvature
mean = -1.162320e-02
std = 9.386345e-03
curvature [1/m]
<unknown CRG file name>
2011-06-08 10:20:02


CRG reference line elevation
CRG reference line XY overview map
CRG reference line slope and banking
slope
banking
slope & banking [%]
CRG reference line XYZ map
CRG reference line elevation
Z [m]
<unknown CRG file name>
2011-06-08 10:20:03

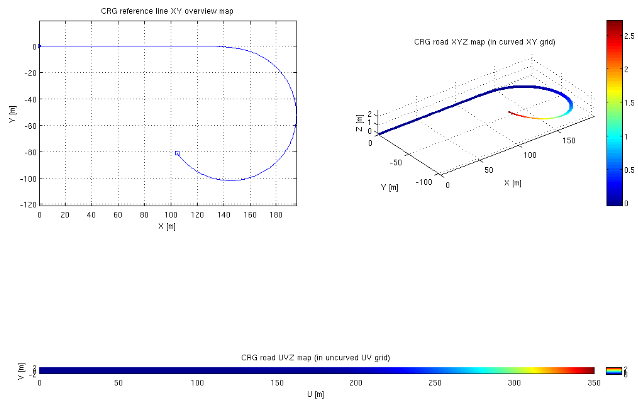


<unknown CRG file name> 2011-06-08 10:20:04



<unknown CRG file name> 2011-06-08 10:20:05

CRG road surface



CRG information

CRG elevation grid size:		
length	=	[illegible]
width	=	9
CRG header data:		
reference line start u	=	[illegible]
reference line end u	=	[illegible]
reference line increment	=	[illegible]
long section v right	=	[illegible]
long section v left	=	[illegible]
long section v increment	=	[illegible]
reference line start x	=	[illegible]
reference line end x	=	[illegible]
reference line offset x	=	[illegible]
reference line start y	=	[illegible]
reference line end y	=	[illegible]
reference line offset y	=	[illegible]
reference line start s	=	[illegible]
reference line end s	=	[illegible]
reference line offset s	=	[illegible]
reference line start phi	=	[illegible]
reference line end phi	=	[illegible]
reference line offset phi	=	[illegible]
reference line start z	=	[illegible]
reference line end z	=	[illegible]
reference line start b	=	[illegible]
reference line end b	=	[illegible]
CRG modifier data:		
grid nan mode	=	[illegible]
refpoint u fraction	=	[illegible]
refpoint u offset	=	[illegible]
refpoint v	=	[illegible]
refpoint v offset	=	[illegible]
refpoint x	=	[illegible]
refpoint y	=	[illegible]
refpoint z	=	[illegible]
refpoint phi	=	[illegible]
CRG option data:		
border mode u	=	[illegible]
border mode v	=	[illegible]
border offset u	=	[illegible]
border offset v	=	[illegible]
border smooth ubeg	=	[illegible]
border smooth uend	=	[illegible]
refline continuation	=	[illegible]
refline search far	=	[illegible]
refline search close	=	[illegible]
check eps	=	[illegible]
check inc	=	[illegible]
check tol	=	[illegible]
CRG derived data:		
crossing ubeg	=	[illegible]
crossing uend	=	[illegible]
crossing ulen	=	[illegible]

CRG comment data:

CRG minimal artificial road and flat surface
... curvature added
... slope added
... banking added