

20240924_lno_talk

September 24, 2024

1 LHC Optics toolkit with Xsuite (R. De Maria, G. Iadarola)

1.1 Introduction

- In the last 20+ years LHC optics works was based on a set of script and macros, mostly in MAD-X (but also a bit of Fortran and Python) hosted in the `toolkit` directory of the optics repository. Developers typically completed the scripts with other personal code.
- Personally, I have collected my scripts and utilities in the package `pyoptics` over the last 20 years.
- Since about a year Xsuite has been capable to twiss and match LHC and HL-LHC optics similarly when not better to MAD-X.
- Good occasion to restructure toolkit around Xsuite with a concrete target of the preparations of LHC MDs.

1.2 Context

Building optics is both an interactive process, more like editing and sculpting beta functions and transitions, coupled with a large set of setup script to generate models for operations.

MAD-X does not allow rich data structure and control flow, limiting the abstractions and automatization and encouraging cut&paste scripts on interactive prompts.

Python still allows this style, but at the same time offers rich data structures and control flow, an enormous number of libraries and tools. Given Xsuite is pure Python the integration in the ecosystem is seamless and allows reducing development time.

The approach for this new toolkit, was to avoid cut&paste work flow and perform all editing and scripting needs through data structures and methods.

I will present using this notebook, but I normally use ipython for interactive work and mscode for code editing. This gives me interactive plots and automatic reload of code.

1.3 Architecture

Main classes: - `LHC`: Access optics repositories and models - `LHCOptics`: Contains an optics: strengths, parameters, knobs, sections, reference to models and main methods - `LHCIR1,...,LHCIR1,LHCArc`: Contains specific strengths, parameters, knobs that can be associated to a section - `LHCXsuiteModel`: Contain an Xsuite model and tools to extract or load optics - `LHCMadxModel`: Contain a Madx model and tools to extract or load optics, useful for loading existing optics and testing new optics - `LHCCircuitModel`: Contain a model of LHC circuits: transfer

functions, current limits, circuit parameters used in matching - `LHCApertureModel`: Contain a model of the LHC apertures.

Code is available in <https://github.com/rdemaria/lhcoptics> and package can be installed using `pip install lhcoptics`, but bleeding edge not there yet!

Code is about 50% completed, enough to put an optics cycle in the machine, but still some essential features are missing. ETA: end of year.

1.4 Optics

```
[1]: from lhcoptics import LHCOptics
```

```
[2]: opt=LHCOptics.from_json("squeezevh/v2/squeeze_0_knobs.json")
```

```
[3]: opt
```

```
[3]: <LHCOptics 'squeezevh_0'>
```

```
[4]: opt.params
```

```
[4]: {'p0c': 6800000000000.0,  
      'qxb1': 62.3100000014583,  
      'qyb1': 60.31999999235994,  
      'qxb2': 62.309999995378064,  
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      'qpxb1': -2.441424840071704e-07,  
      'qpyb1': 0.0,  
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      'match_inj': False,  
      'rx_ip1': 1,  
      'ry_ip1': 1,  
      'rx_ip5': 1,  
      'ry_ip5': 1}
```

```
[5]: opt.knobs
```

```
[5]: {'dqx.b1_op': TuneKnob('dqx.b1_op', 0),  
      'dqx.b1_sq': TuneKnob('dqx.b1_sq', 0),  
      'dqx.b1': TuneKnob('dqx.b1', 0),  
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```

```

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'on_ssep5_v': <Knob 'on_ssep5_v' = 0>,
'on_xx5_h': <Knob 'on_xx5_h' = 0>}

```

[6]: `opt.irs`

```

[6]: [<LHCIR1 in 'squeezevh_0'>,
<LHCIR2 in 'squeezevh_0'>,
<LHCIR3 in 'squeezevh_0'>,
<LHCIR4 in 'squeezevh_0'>,
<LHCIR5 in 'squeezevh_0'>,
<LHCIR6 in 'squeezevh_0'>,
<LHCIR7 in 'squeezevh_0'>,
<LHCIR8 in 'squeezevh_0'>]

```

[7]: `opt.arcs`

```
[7]: [<LHCArc a12 in 'squeezevh_0'>,
      <LHCArc a23 in 'squeezevh_0'>,
      <LHCArc a34 in 'squeezevh_0'>,
      <LHCArc a45 in 'squeezevh_0'>,
      <LHCArc a56 in 'squeezevh_0'>,
      <LHCArc a67 in 'squeezevh_0'>,
      <LHCArc a78 in 'squeezevh_0'>,
      <LHCArc a81 in 'squeezevh_0'>]
```

```
[8]: opt.ir1.strengths
```

```
[8]: {'kqx.l1b1': 0.008496131499484852,
      'kqx.r1b1': -0.008496131499484852,
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```

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'acbv30.r1b1': 0.0,
'acbh31.l1b2': 0.0,

```
'acbh31.r1b1': 0.0,  
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```

```
[9]: opt.ir1.quads
```

```
[9]: {'kqx.l1': 0.008496131499484852,  
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      'kqt111.l1b1': -0.00036630521788250017,
```



```
'kqt111.l1b2': 0.0005309019078840152,  
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'kqt12.l1b1': -0.0016720102953970554,  
'kqt12.l1b2': -0.0012713259315152762,  
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'kqt12.r1b2': -0.0004968265771647666,  
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'kqt13.l1b2': 0.0006127876820936591,  
'kqt13.r1b1': -4.5251738080297636e-05,  
'kqt13.r1b2': -0.004643414605862754}
```

1.5 Xsuite Model

```
[10]: opt.set_xsuite_model("acc-models-lhc/xsuite/lhc.json")
```

```
Loading line from dict:  0%|          | 0/14477 [00:00<?, ?it/s]
```

```
Done loading line from dict.
```

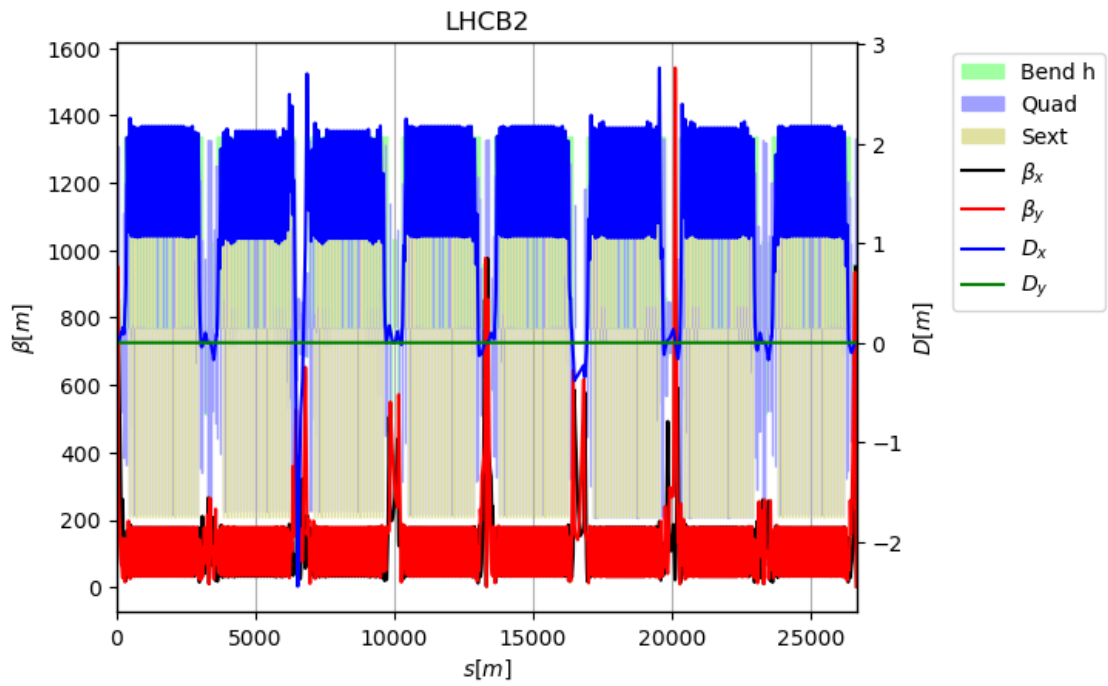
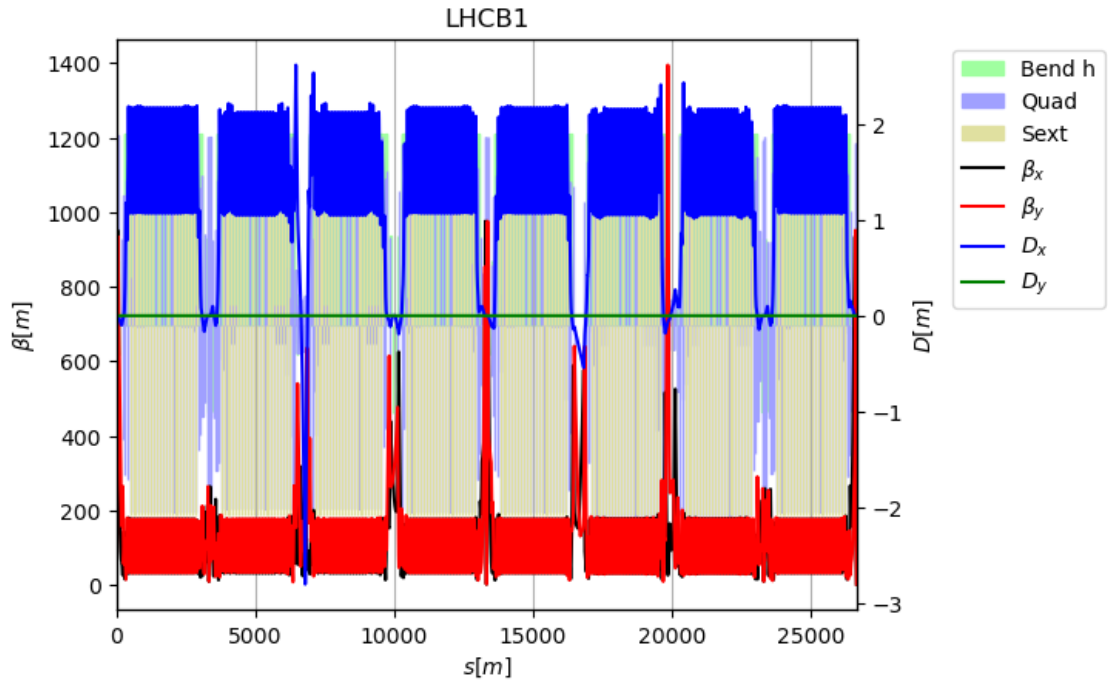
```
Loading line from dict:  0%|          | 0/14493 [00:00<?, ?it/s]
```

```
Done loading line from dict.
```

```
[10]: <LHCOptics 'squeezevh_0'>
```

```
[11]: opt.plot()
```

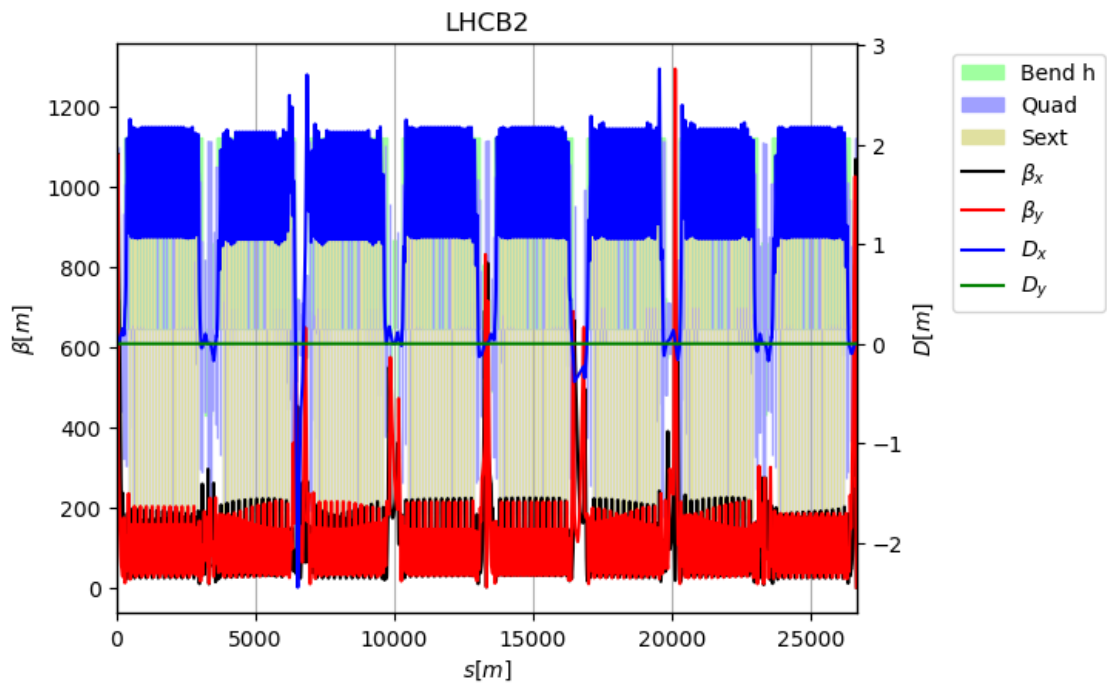
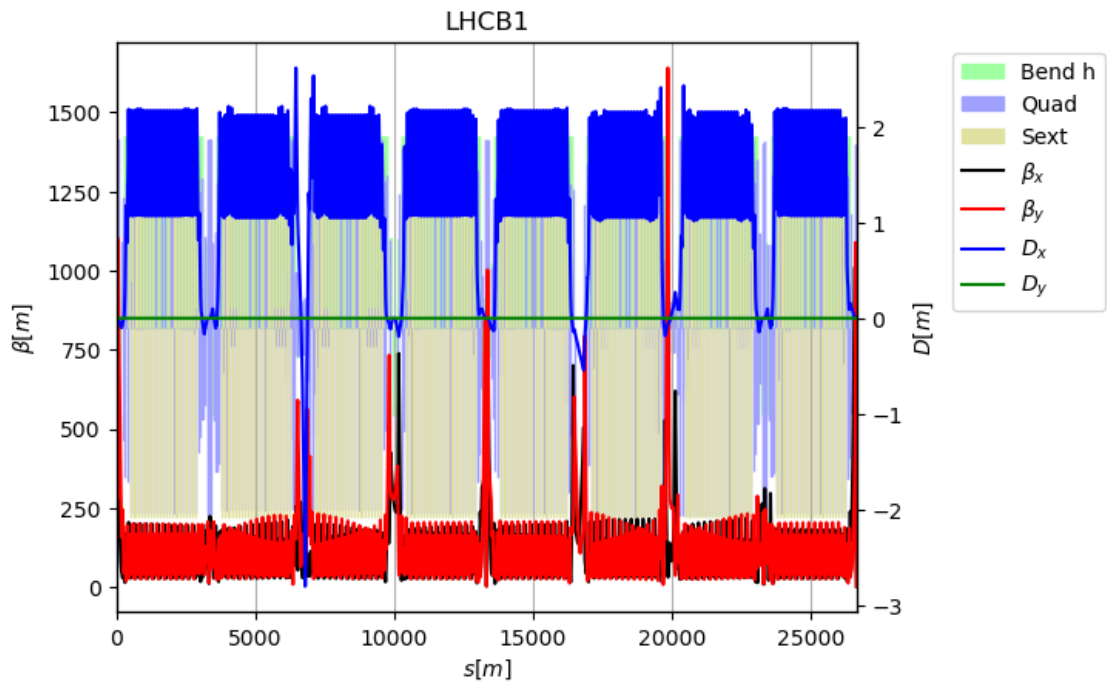
```
[11]: <LHCOptics 'squeezevh_0'>
```



```
[12]: opt.model["kqx.l1"]*=1.01
```

```
[13]: opt.plot()
```

```
[13]: <LHCOptics 'squeezevh_0'>
```

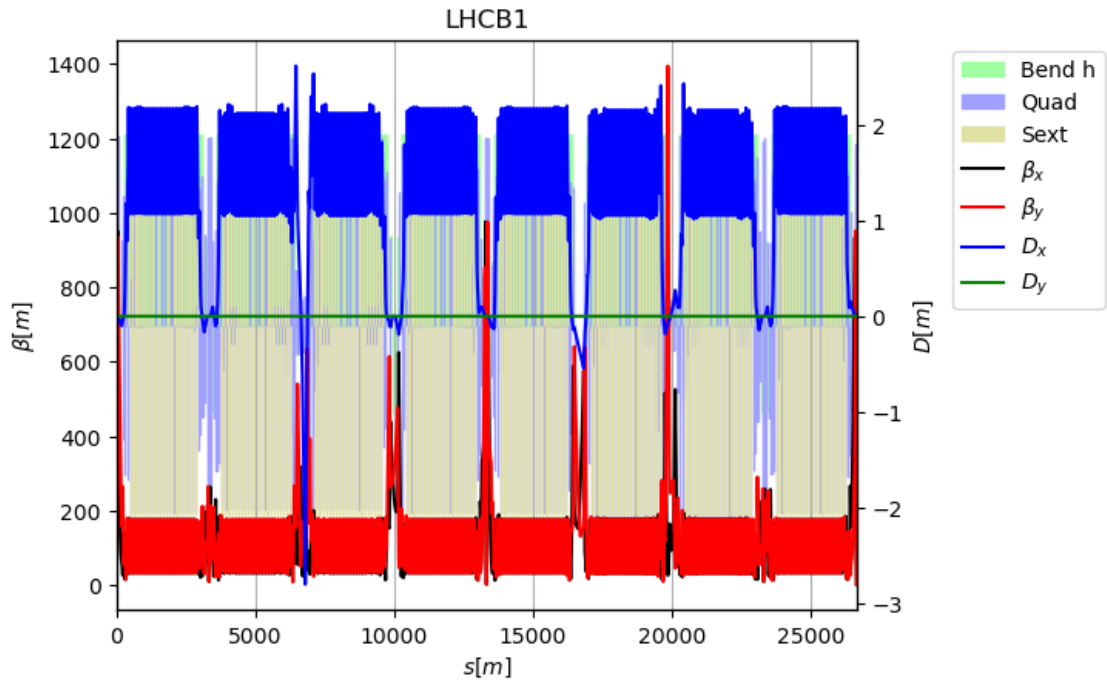


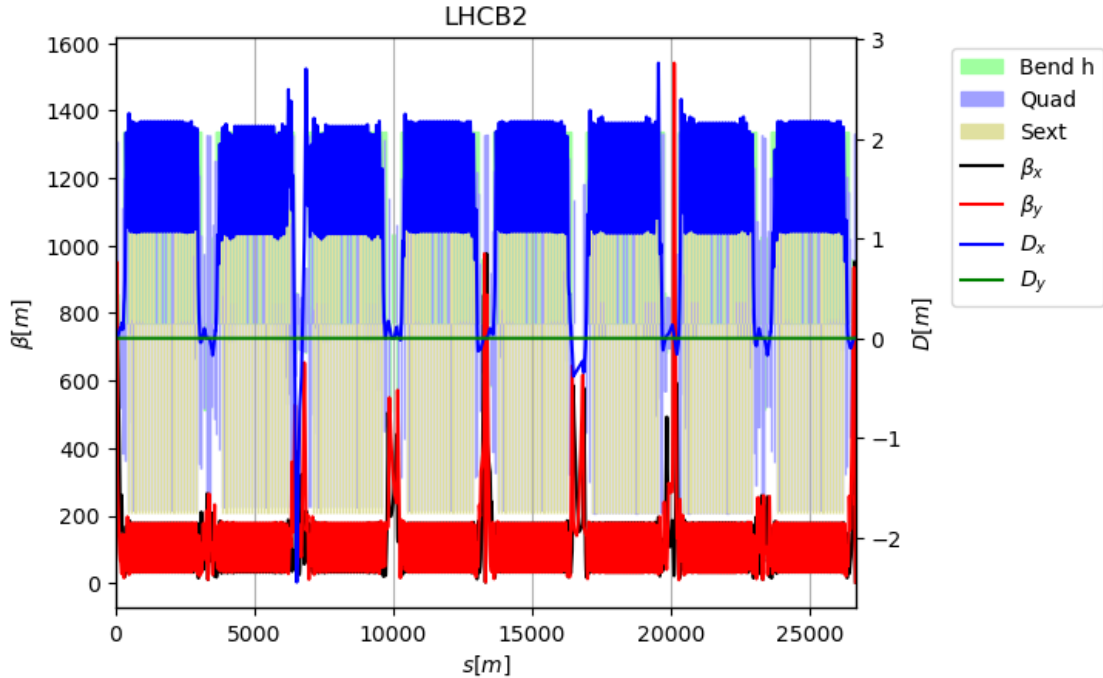
```
[14]: opt.update_model() # restore the model from the optics!
```

```
[14]: <LHCOptics 'squeezevh_0'>
```

```
[15]: opt.plot()
```

```
[15]: <LHCOptics 'squeezevh_0'>
```





```
[16]: opt.check()
```

name	betx	bety	dx	dpx	px*1e6	py*1e6	x*1e3	y*1e3
ip1	2.5000	2.5000	0.0000	0.0000	0.0000	-0.0000	-0.0000	0.0000
ip1	2.5000	2.5000	-0.0000	0.0000	-0.0000	0.0000	-0.0000	-0.0000
ip2	10.0000	10.0000	0.0000	-0.0000	0.0000	0.0000	-0.0000	-0.0000
ip2	10.0000	10.0000	-0.0000	-0.0000	-0.0000	0.0000	0.0000	0.0000
ip5	2.5000	2.5000	0.0000	-0.0000	-0.0000	0.0000	-0.0000	-0.0000
ip5	2.5000	2.5000	0.0000	0.0000	-0.0000	0.0000	-0.0000	-0.0000
ip8	10.0000	10.0000	-0.0000	0.0000	0.0000	-0.0000	-0.0000	-0.0000
ip8	10.0000	10.0000	-0.0000	0.0000	-0.0000	-0.0000	-0.0000	0.0000
	HB1	HB2	VB1	VB2				
Tunes:	62.310000	62.310000	60.320000	60.320000				
Chroma:	-0.000000	-0.000001	0.000000	0.000000				

```
[17]: opt.model.b1 # an xsuite object
```

```
[17]: <xtrack.line.Line at 0x713204869410>
```

```
[18]: opt.model.b1.twiss().rows["ip.*"].cols["betx bety"]
```

```
[18]: TwissTable: 9 rows, 3 cols
```

name	betx	bety
ip1	2.5	2.5
ip2	10	10

ip3	125.612	87.627
ip4	236.18	306.197
ip5	2.5	2.5
ip6	188.438	175.63
ip7	94.2582	251.258
ip8	10	10
ip1.l1	2.5	2.5

```
[19]: opt.model.b2.twiss().rows["ip.*"].cols["betx bety"]
```

```
[19]: TwissTable: 9 rows, 3 cols
```

name	betx	bety
ip1	2.5	2.5
ip2	10	10
ip3	127.193	111.964
ip4	236.148	320.924
ip5	2.5	2.5
ip6	189.334	181.969
ip7	112.842	270.465
ip8	10	10
ip1.l1	2.5	2.5

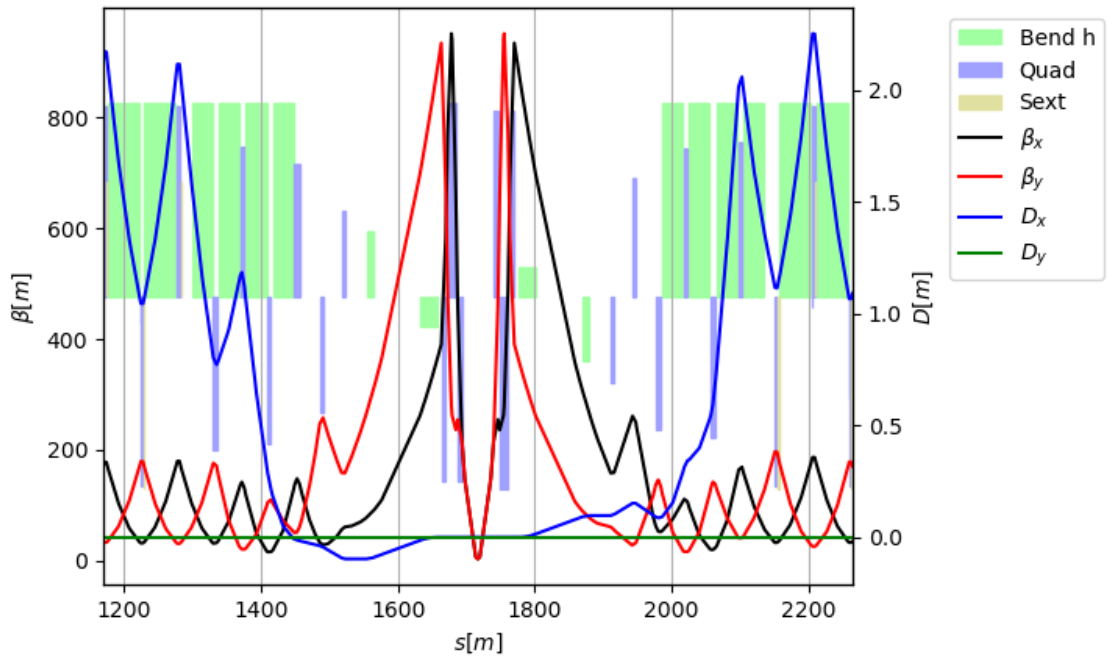
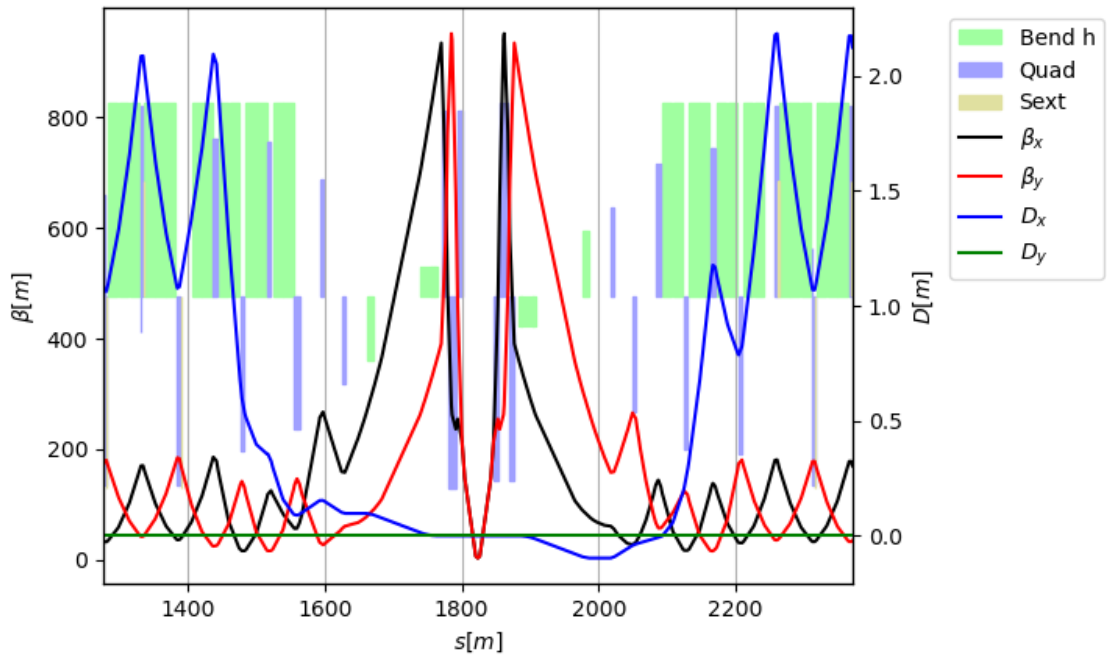
```
[20]: opt.model.b2.twiss().rows["ip.*"].cols["betx bety dx/sqrt(betx)"]
```

```
[20]: TwissTable: 9 rows, 4 cols
```

name	betx	bety	dx/sqrt(betx)
ip1	2.5	2.5	-2.53942e-09
ip2	10	10	-1.59509e-09
ip3	127.193	111.964	-0.0512793
ip4	236.148	320.924	-2.40626e-06
ip5	2.5	2.5	8.57871e-10
ip6	189.334	181.969	-0.0221652
ip7	112.842	270.465	0.00845265
ip8	10	10	-1.65971e-09
ip1.l1	2.5	2.5	-1.05961e-10

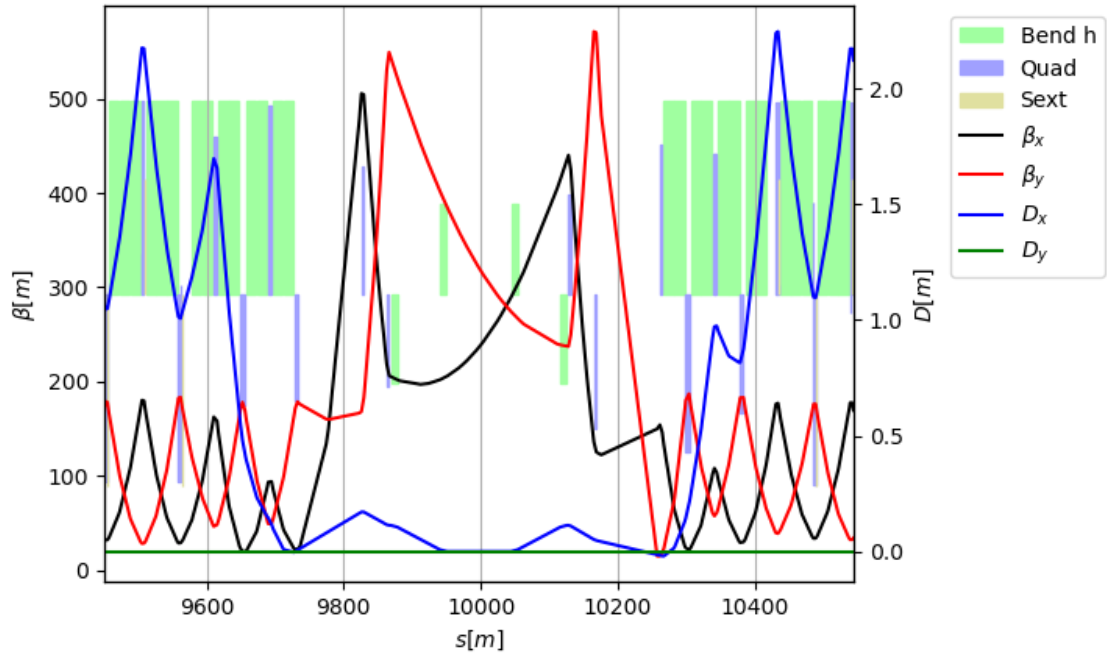
```
[21]: opt.ir1.plot()
```

```
[21]: [<xtrack.twissplot.TwissPlot object at 0x7131e32a9a10>,
<xtrack.twissplot.TwissPlot object at 0x71320389a010>]
```



```
[22]: opt.ir4.plot(beam=2)
```

```
[22]: <xtrack.twissplot.TwissPlot object at 0x7131e23db210>
```



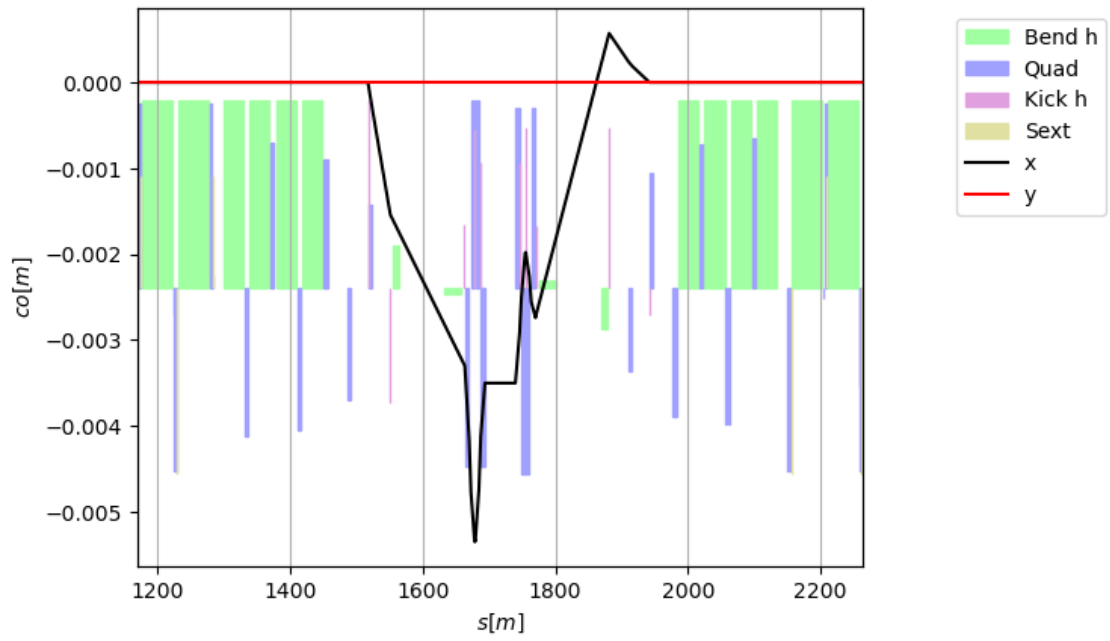
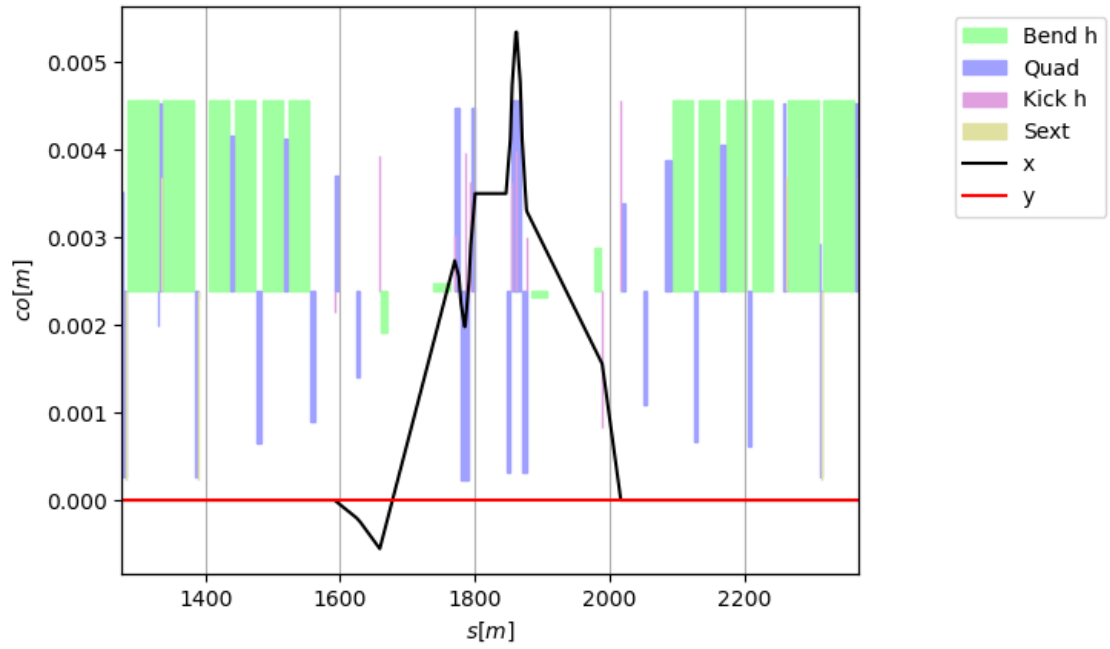
```
[23]: opt.ir1.knobs['on_sep1_h']
```

```
[23]: <IPKnob 'on_sep1_h' = 0>
```

```
[24]: opt.ir1.knobs['on_sep1_h'].weights
```

```
[24]: {'acbch5.l1b2': -1.371046422067373e-05,
      'acbch5.r1b1': 1.6039772689813456e-05,
      'acbch6.l1b1': -1.9155669684996245e-06,
      'acbch6.r1b2': 2.0747398717201065e-06,
      'acbxh1.l1': 9.145424242533198e-06,
      'acbxh1.r1': 9.158081596395345e-06,
      'acbxh2.l1': 1.1698448545340638e-05,
      'acbxh2.r1': 1.1774535503523277e-05,
      'acbxh3.l1': 4.662779491114475e-06,
      'acbxh3.r1': 4.565308016985104e-06,
      'acbyhs4.l1b1': 1.14376143157755e-05,
      'acbyhs4.l1b2': 8.46503930703532e-06,
      'acbyhs4.r1b1': -1.159472324019039e-05,
      'acbyhs4.r1b2': -1.1719098578938528e-05}
```

```
[25]: opt.ir1.knobs['on_sep1_h'].plot(3.5)
```

```
[26]: opt.model.b1["on_sep1_h"]
```

[26]: 0

```
[27]: opt.model.b1.vars["on_sep1_h"]._info(limit=None)
```

```
# vars['on_sep1_h']._get_value()
vars['on_sep1_h'] = 0

# vars['on_sep1_h']._expr is None

# vars['on_sep1_h']._find_dependant_targets()
vars['acbyhs4.l1b2']
eref['b2']['mcbyh.4l1.b2'].knl[0]
vars['acbch6.r1b2']
eref['b2']['mcbch.6r1.b2'].knl[0]
vars['acbch5.l1b2']
eref['b2']['mcbch.5l1.b2'].knl[0]
vars['acbyhs4.r1b1']
eref['b1']['mcbyh.4r1.b1'].knl[0]
vars['acbch6.l1b1']
eref['b1']['mcbch.6l1.b1'].knl[0]
vars['acbch5.r1b1']
eref['b1']['mcbch.5r1.b1'].knl[0]
vars['acbyhs4.r1b2']
eref['b2']['mcbyh.a4r1.b2'].knl[0]
vars['acbyhs4.l1b1']
eref['b1']['mcbyh.a4l1.b1'].knl[0]
vars['acbxh3.r1']
eref['b2']['mcbxh.3r1'].knl[0]
eref['b1']['mcbxh.3r1'].knl[0]
vars['acbxh3.l1']
eref['b2']['mcbxh.3l1'].knl[0]
eref['b1']['mcbxh.3l1'].knl[0]
vars['acbxh2.r1']
eref['b2']['mcbxh.2r1'].knl[0]
eref['b1']['mcbxh.2r1'].knl[0]
vars['acbxh2.l1']
eref['b2']['mcbxh.2l1'].knl[0]
eref['b1']['mcbxh.2l1'].knl[0]
vars['acbxh1.r1']
eref['b2']['mcbxh.1r1'].knl[0]
eref['b1']['mcbxh.1r1'].knl[0]
vars['acbxh1.l1']
eref['b2']['mcbxh.1l1'].knl[0]
eref['b1']['mcbxh.1l1'].knl[0]
```

```
[28]: opt.model.b1.vars['acbxh1.l1']._info()
```

```
# vars['acbxh1.l1']._get_value()
vars['acbxh1.l1'] = 0.0
```

```

# vars['acbxh1.l1']._expr
vars['acbxh1.l1'] = ((0.0 + (vars['acbxh1.l1_from_on_x1_h'] *
vars['on_x1_h'])) + (vars['acbxh1.l1_from_on_sep1_h'] * vars['on_sep1_h']))

# vars['acbxh1.l1']._expr._get_dependencies()
vars['acbxh1.l1_from_on_sep1_h'] = 9.145424242533198e-06
vars['acbxh1.l1_from_on_x1_h'] = 1.8223980164567105e-08
vars['on_x1_h'] = 0
vars['on_sep1_h'] = 0

# vars['acbxh1.l1']._find_dependant_targets()
eref['b2']['mcbxh.111'].knl[0]
eref['b1']['mcbxh.111'].knl[0]

```

1.6 Circuits

```
[29]: opt.set_circuits("data/lhccircuits.json")
```

```
[29]: <LHCOptics 'squeezevh_0'>
```

```
[30]: opt.circuits
```

```
[30]: <LHCCircuits 1697 circuits>
```

```
[31]: opt.circuits.madname["kq6.l5b1"]
```

```
[31]: <LHCCircuit 'RPHSB.RR53.RQ6.L5B1'>
```

```
[32]: opt.circuits.madname["kq6.l5b1"].imax
```

```
[32]: 4310.0
```

```
[33]: from lhcoptics.circuits import LHCCircuit
      cir=LHCCircuit.from_lsa("RPHSB.RR53.RQ6.L5B1")
      print(cir.imax)
```

```
lsa.mode=3
```

```
lsa.server.properties = lsa-gpn-server.properties
```

```
SLF4J: Failed to load class "org.slf4j.impl.StaticLoggerBinder".
```

```
SLF4J: Defaulting to no-operation (NOP) logger implementation
```

```
SLF4J: See http://www.slf4j.org/codes.html#StaticLoggerBinder for further
details.
```

```
4310.0
```

SLF4J: Failed to load class "org.slf4j.impl.StaticMDCBinder".
SLF4J: Defaulting to no-operation MDCAdapter implementation.
SLF4J: See http://www.slf4j.org/codes.html#no_static_mdc_binder for further details.

```
[34]: opt.circuits.madname["kq6.15b1"].get_field(4310)
```

```
[34]: np.float64(159.70454797073262)
```

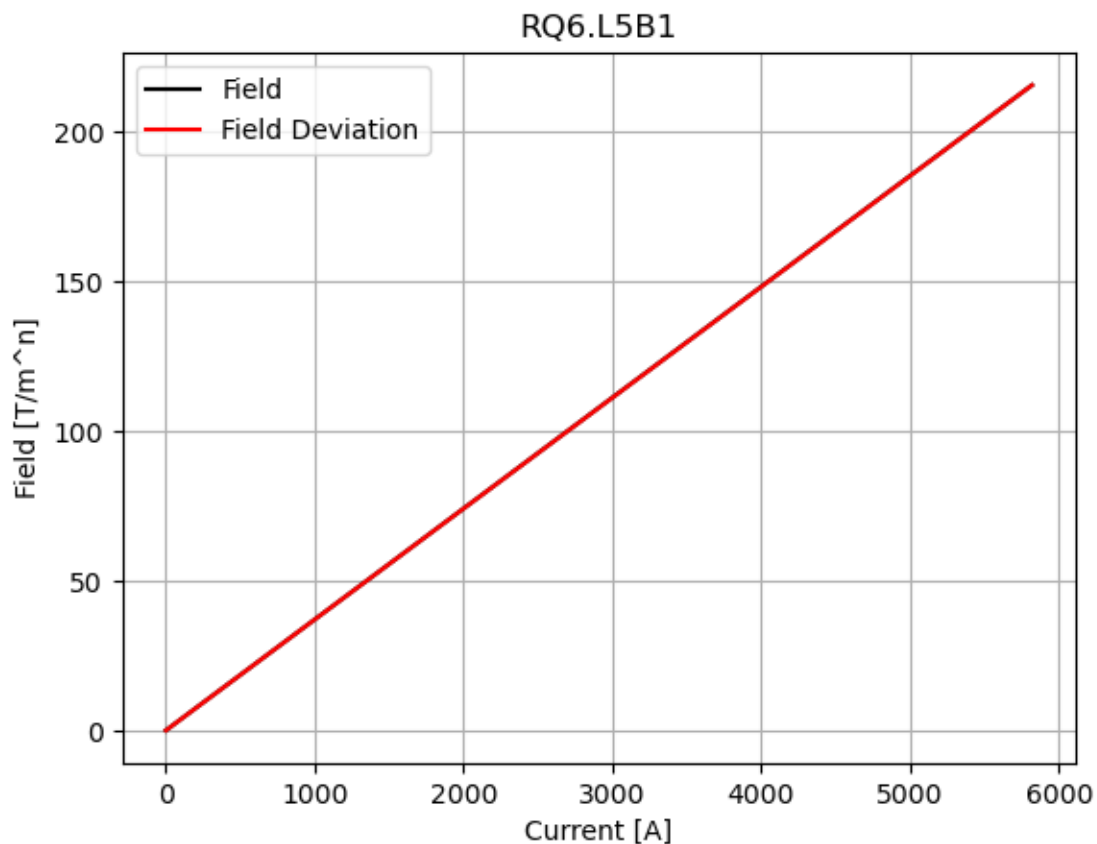
```
[35]: opt.circuits.madname["kq6.15b1"].get_current(opt['kq6.15b1'], p0c=6.8e12)
```

```
[35]: np.float64(2494.5817283808155)
```

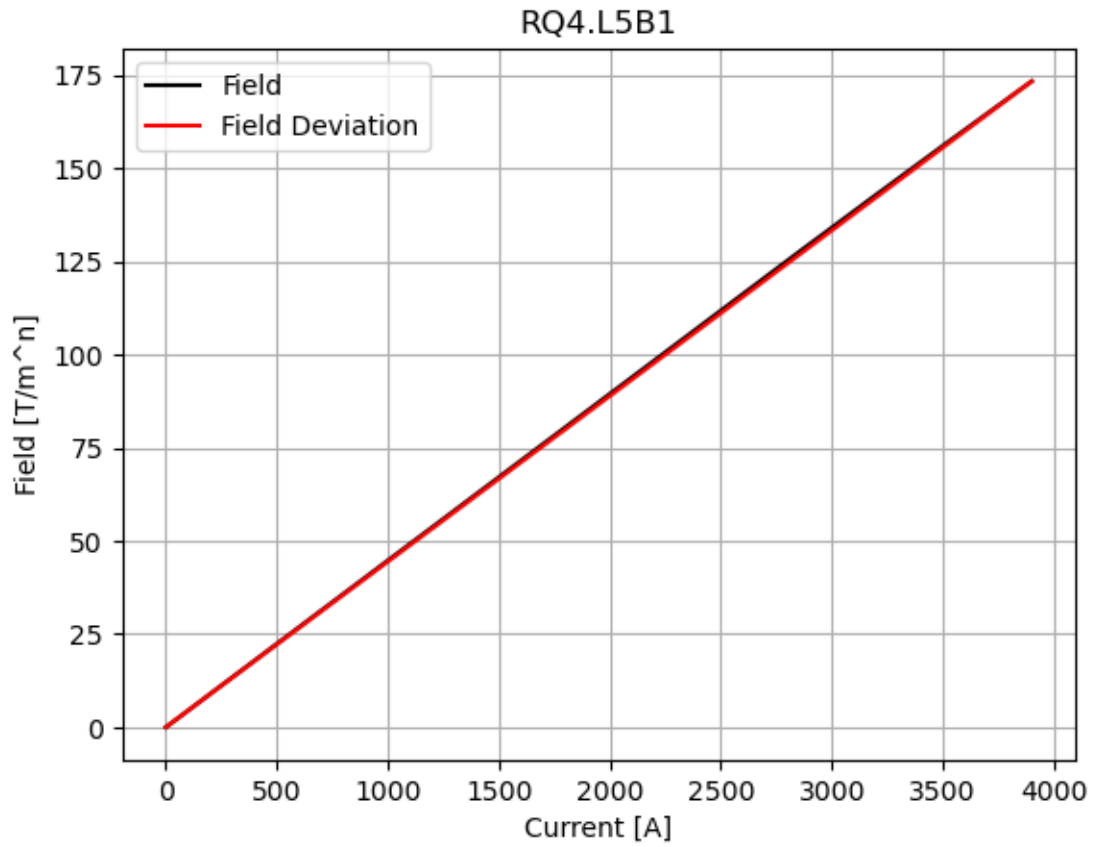
```
[36]: opt.circuits.madname["kq6.15b1"].calibName
```

```
[36]: 'RQ6.L5B1'
```

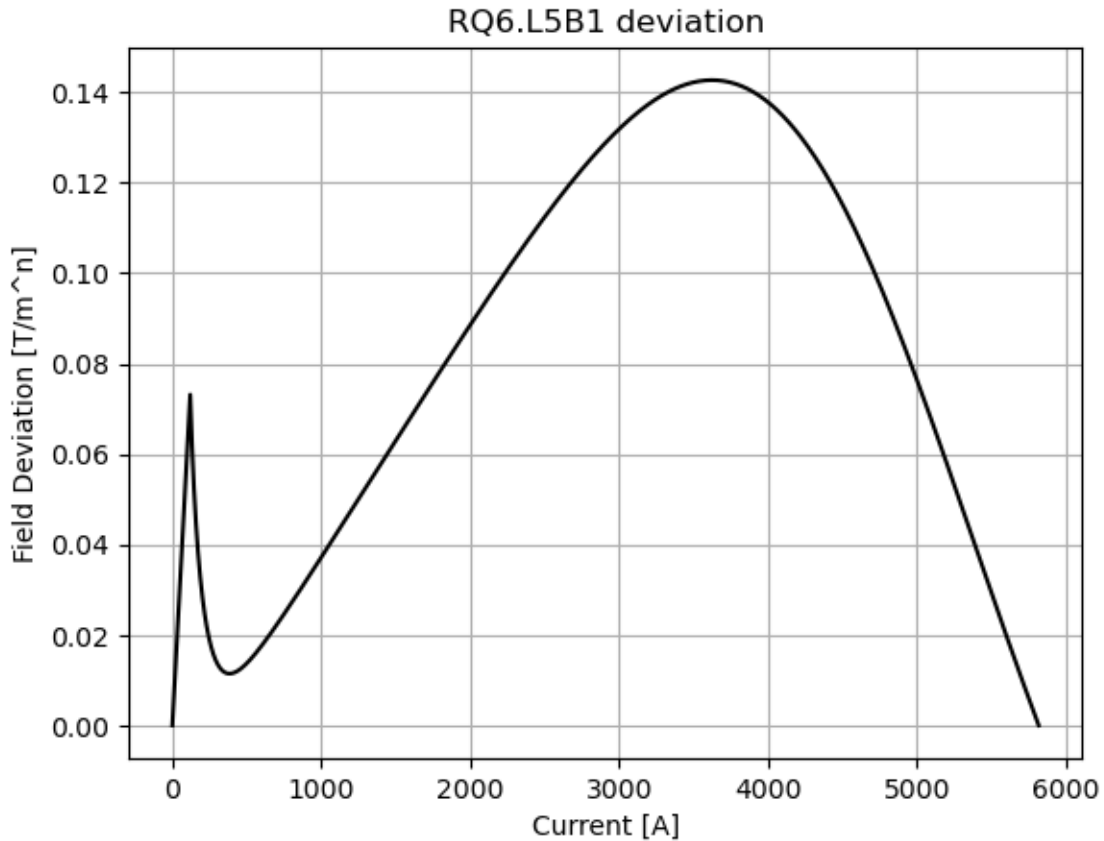
```
[37]: opt.circuits.madname["kq6.15b1"].plot_calib()
```



```
[38]: opt.circuits.madname["kq4.15b1"].plot_calib()
```



```
[39]: opt.circuits.madname["kq6.15b1"].plot_calib_deviation()
```



1.7 Matching

```
[40]: opt.ir5.match()
```

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON	muxip5b1	True	-2.28173e-12	2.6448	2.6448	line=b1, ('mux', 'e.ds.r5.b1'), val=2.64 ...
1	ON	muxip5b2	True	7.8213e-12	2.6448	2.6448	line=b2, ('mux', 'e.ds.r5.b2'), val=2.64 ...
2	ON	muyip5b1	True	-1.14264e-12	2.645	2.645	line=b1, ('muy', 'e.ds.r5.b1'), val=2.64 ...
3	ON	muyip5b2	True	-1.14131e-13	2.645	2.645	line=b2, ('muy', 'e.ds.r5.b2'), val=2.64 ...
4	ON	e_alfxb1	True	1.16199e-09	2.34552	2.34552	line=b1, ('alfx', 'e.ds.r5.b1'), val=2.3 ...
5	ON	e_alfyb1	True	4.01184e-11	-0.546151	-0.546151	line=b1, ('alfy', 'e.ds.r5.b1'), val=-0. ...
6	ON	e_betxb1	False	9.54625e-08	169.503	169.503	line=b1, ('betx', 'e.ds.r5.b1'), val=169 ...

```

7 ON    e_betyb1      True  -7.21094e-10      33.9409      33.9409 line=b1,
('bety', 'e.ds.r5.b1'), val=33. ...
8 ON    e_dxb1        True   5.55182e-10      2.12249      2.12249 line=b1,
('dx', 'e.ds.r5.b1'), val=2.122 ...
9 ON    e_dpzb1       True   3.4451e-12      -0.0296002   -0.0296002 line=b1,
('dpx', 'e.ds.r5.b1'), val=-0.0 ...
10 ON   e_alfxb2      True  -7.75627e-11     -0.543768    -0.543768 line=b2,
('alfx', 'e.ds.r5.b2'), val=-0. ...
11 ON   e_alfyb2     True   1.84963e-12      2.34301      2.34301 line=b2,
('alfy', 'e.ds.r5.b2'), val=2.3 ...
12 ON   e_betxb2     True   1.30216e-08      33.7636      33.7636 line=b2,
('betx', 'e.ds.r5.b2'), val=33. ...
13 ON   e_betyb2     True   1.47423e-10      169.673      169.673 line=b2,
('bety', 'e.ds.r5.b2'), val=169 ...
14 ON   e_dxb2       True   1.8028e-09       1.09112      1.09112 line=b2,
('dx', 'e.ds.r5.b2'), val=1.091 ...
15 ON   e_dpzb2      True   1.26507e-11     0.0143141    0.0143141 line=b2,
('dpx', 'e.ds.r5.b2'), val=0.01 ...
16 ON   ip_betxb1    True   8.93238e-10      2.5           2.5 line=b1,
('betx', 'ip5'), val=2.5, tol=5 ...
17 ON   ip_betxb2    True  -7.79344e-10     2.5           2.5 line=b2,
('betx', 'ip5'), val=2.5, tol=5 ...
18 ON   ip_betyb1    True   9.05613e-11     2.5           2.5 line=b1,
('bety', 'ip5'), val=2.5, tol=5 ...
19 ON   ip_betyb2    True   6.92157e-12     2.5           2.5 line=b2,
('bety', 'ip5'), val=2.5, tol=5 ...
20 ON   ip_alfxb1    True  -2.00703e-10    -2.00703e-10  -0 line=b1,
('alfx', 'ip5'), val=-0, tol=5e ...
21 ON   ip_alfxb2    True  -6.10184e-11    -6.10184e-11  -0 line=b2,
('alfx', 'ip5'), val=-0, tol=5e ...
22 ON   ip_alfyb1    True   2.93331e-12     2.93331e-12   0 line=b1,
('alfy', 'ip5'), val=0, tol=5e- ...
23 ON   ip_alfyb2    True   4.54523e-14     4.54523e-14   0 line=b2,
('alfy', 'ip5'), val=0, tol=5e- ...
24 ON   ip_dxb1      True  -1.6111e-10     -1.6111e-10   -0 line=b1,
('dx', 'ip5'), val=-0, tol=5e-0 ...
25 ON   ip_dxb2      True   4.18788e-10     4.18788e-10   0 line=b2,
('dx', 'ip5'), val=0, tol=5e-08 ...
26 ON   ip_dpzb1     True  -5.6624e-11     -5.6624e-11   -0 line=b1,
('dpx', 'ip5'), val=-0, tol=5e- ...
27 ON   ip_dpzb2     True   4.48666e-11     4.48666e-11   0 line=b2,
('dpx', 'ip5'), val=0, tol=5e-0 ...

```

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit
val_at_iter_0				step	weight		
0	OFF	common	OK	kqx.l5	-0.00894748	-0.00874934	0
-0.00874934				1e-09	1		
1	ON	common	OK	kqx.r5	0	0.00874934	0.00894748

0.00874934			1e-09	1			
2 OFF	common	OK	ktqx1.15	-0.000872925	-2.23175e-05	0.000872925	
-2.23175e-05			1e-09	1			
3 ON	common	OK	ktqx1.r5	-0.000872925	2.23175e-05	0.000872925	
2.23175e-05			1e-09	1			
4 OFF	common	OK	ktqx2.15	-0.000872925	-5.63456e-06	0.000872925	
-5.63456e-06			1e-09	1			
5 ON	common	OK	ktqx2.r5	-0.000872925	5.63456e-06	0.000872925	
5.63456e-06			1e-09	1			
6 ON	b1	OK	kq4.15b1	0.000157621	0.002443	0.00702098	
0.002443			1e-09	1			
7 ON	b2	OK	kq4.15b2	-0.00702318	-0.00233485	-0.000157671	
-0.00233485			1e-09	1			
8 ON	b1	OK	kq4.r5b1	-0.00701639	-0.00242849	-0.000159546	
-0.00242849			1e-09	1			
9 ON	b2	OK	kq4.r5b2	0.000157736	0.00234611	0.00702605	
0.00234611			1e-09	1			
10 ON	b1	OK	kq5.15b1	-0.006978	-0.00286838	-0.000167757	
-0.00286838			1e-09	1			
11 ON	b2	OK	kq5.15b2	0.000167757	0.00274714	0.006978	
0.00274714			1e-09	1			
12 ON	b1	OK	kq5.r5b1	0.000167345	0.00279104	0.00696059	
0.00279104			1e-09	1			
13 ON	b2	OK	kq5.r5b2	-0.00697084	-0.00293066	-0.000167588	
-0.00293066			1e-09	1			
14 ON	b1	OK	kq6.15b1	0.00016758	0.00407693	0.00697051	
0.00407693			1e-09	1			
15 ON	b2	OK	kq6.15b2	-0.00697022	-0.00416337	-0.000167573	
-0.00416337			1e-09	1			
16 ON	b1	OK	kq6.r5b1	-0.00696071	-0.00426604	-0.000167348	
-0.00426604			1e-09	1			
17 ON	b2	OK	kq6.r5b2	0.000167403	0.00428313	0.00696301	
0.00428313			1e-09	1			
18 ON	b1	OK	kq7.15b1	-0.008703	-0.00597692	-0.000166994	
-0.00597692			1e-09	1			
19 ON	b2	OK	kq7.15b2	0.0001669	0.00600842	0.00869807	
0.00600842			1e-09	1			
20 ON	b1	OK	kq7.r5b1	0.000166939	0.00594261	0.0087001	
0.00594261			1e-09	1			
21 ON	b2	OK	kq7.r5b2	-0.00869728	-0.00601428	-0.000166886	
-0.00601428			1e-09	1			
22 ON	b1	OK	kq8.15b1	0.000167314	0.00733694	0.00871992	
0.00733694			1e-09	1			
23 ON	b2	OK	kq8.15b2	-0.00871401	-0.00711728	-0.000167202	
-0.00711728			1e-09	1			
24 ON	b1	OK	kq8.r5b1	-0.00872554	-0.00676238	-0.00016742	
-0.00676238			1e-09	1			
25 ON	b2	OK	kq8.r5b2	0.000167109	0.00713103	0.00870911	

0.00713103		1e-09	1			
26 ON b1	OK	kq9.15b1	-0.0086956	-0.00724161	-0.000166854	
-0.00724161		1e-09	1			
27 ON b2	OK	kq9.15b2	0.000166957	0.00700852	0.00870108	
0.00700852		1e-09	1			
28 ON b1	OK	kq9.r5b1	0.000167096	0.00693077	0.00870842	
0.00693077		1e-09	1			
29 ON b2	OK	kq9.r5b2	-0.00870074	-0.00700936	-0.000166951	
-0.00700936		1e-09	1			
30 ON b1	OK	kq10.15b1	0.000167362	0.00724474	0.00872244	
0.00724474		1e-09	1			
31 ON b2	OK	kq10.15b2	-0.00871559	-0.00721977	-0.000167232	
-0.00721977		1e-09	1			
32 ON b1	OK	kq10.r5b1	-0.00873707	-0.00704615	-0.000167639	
-0.00704615		1e-09	1			
33 ON b2	OK	kq10.r5b2	0.000167594	0.00723862	0.00873469	
0.00723862		1e-09	1			
34 ON b1	OK	kqt111.15b1	-0.00565017	-0.000429407	0.00565017	
-0.000429407		1e-09	1			
35 ON b2	OK	kqt111.15b2	-0.00565017	0.000315538	0.00565017	
0.000315538		1e-09	1			
36 ON b1	OK	kqt111.r5b1	-0.00522662	0.000370436	0.00522662	
0.000370436		1e-09	1			
37 ON b2	OK	kqt111.r5b2	-0.00522662	-6.76861e-05	0.00522662	
-6.76861e-05		1e-09	1			
38 ON b1	OK	kqt12.15b1	-0.00538093	-0.00124975	0.00538093	
-0.00124975		1e-09	1			
39 ON b2	OK	kqt12.15b2	-0.00538093	-0.00124816	0.00538093	
-0.00124816		1e-09	1			
40 ON b1	OK	kqt12.r5b1	-0.00538093	-0.00221118	0.00538093	
-0.00221118		1e-09	1			
41 ON b2	OK	kqt12.r5b2	-0.00538093	-0.00162471	0.00538093	
-0.00162471		1e-09	1			
42 ON b1	OK	kqt13.15b1	-0.00538093	0.00283945	0.00538093	
0.00283945		1e-09	1			
43 ON b2	OK	kqt13.15b2	-0.00538093	0.00119448	0.00538093	
0.00119448		1e-09	1			
44 ON b1	OK	kqt13.r5b1	-0.00538093	0.00144377	0.00538093	
0.00144377		1e-09	1			
45 ON b2	OK	kqt13.r5b2	-0.00538093	0.000626542	0.00538093	
0.000626542		1e-09	1			

[40]: <xdeps.optimize.optimize.Optimize at 0x7131e1036a10>

[41]: `opt.ir5.params`

```
[41]: {'betxip5b1': 2.5,
      'betxip5b2': 2.5,
      'betyip5b1': 2.5,
      'betyip5b2': 2.5,
      'alfxip5b1': -0.0,
      'alfxip5b2': -0.0,
      'alfyip5b1': 0.0,
      'alfyip5b2': 0.0,
      'dxip5b1': -0.0,
      'dxip5b2': 0.0,
      'dpxip5b1': -0.0,
      'dpxip5b2': 0.0,
      'muxip5b1': 2.6448,
      'muxip5b2': 2.6448,
      'muyip5b1': 2.645,
      'muyip5b2': 2.645,
      'muxip5b1_l': 1.17423447,
      'muxip5b2_l': 1.47935904,
      'muyip5b1_l': 1.47638373,
      'muyip5b2_l': 1.17686978,
      'muxip5b1_r': 1.47056553,
      'muxip5b2_r': 1.16544096,
      'muyip5b1_r': 1.16861627,
      'muyip5b2_r': 1.46813022}
```

```
[42]: opt.ir5.params["betxip5b1"]=2.2
      opt.ir5.params["betyip5b1"]=2.2
      opt.ir5.params["betxip5b2"]=2.2
      opt.ir5.params["betyip5b2"]=2.2
```

```
[43]: opt.ir5.match()
```

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON	muxip5b1	True	-2.28173e-12	2.6448	2.6448	line=b1,
('mux', 'e.ds.r5.b1'), val=2.64 ...							
1	ON	muxip5b2	True	7.8213e-12	2.6448	2.6448	line=b2,
('mux', 'e.ds.r5.b2'), val=2.64 ...							
2	ON	muyip5b1	True	-1.14264e-12	2.645	2.645	line=b1,
('muy', 'e.ds.r5.b1'), val=2.64 ...							
3	ON	muyip5b2	True	-1.14131e-13	2.645	2.645	line=b2,
('muy', 'e.ds.r5.b2'), val=2.64 ...							
4	ON	e_alfxb1	True	1.16199e-09	2.34552	2.34552	line=b1,
('alfx', 'e.ds.r5.b1'), val=2.3 ...							
5	ON	e_alfyb1	True	4.01184e-11	-0.546151	-0.546151	line=b1,
('alfy', 'e.ds.r5.b1'), val=-0. ...							
6	ON	e_betxb1	False	9.54625e-08	169.503	169.503	line=b1,

```

('betx', 'e.ds.r5.b1'), val=169 ...
 7 ON   e_betyb1      True  -7.21094e-10      33.9409      33.9409 line=b1,
('bety', 'e.ds.r5.b1'), val=33. ...
 8 ON   e_dxb1       True   5.55182e-10      2.12249     2.12249 line=b1,
('dx', 'e.ds.r5.b1'), val=2.122 ...
 9 ON   e_dpzb1      True   3.4451e-12     -0.0296002  -0.0296002 line=b1,
('dpx', 'e.ds.r5.b1'), val=-0.0 ...
10 ON   e_alfxb2     True  -7.75627e-11     -0.543768   -0.543768 line=b2,
('alfx', 'e.ds.r5.b2'), val=-0. ...
11 ON   e_alfyb2     True   1.84963e-12      2.34301     2.34301 line=b2,
('alfy', 'e.ds.r5.b2'), val=2.3 ...
12 ON   e_betxb2     True   1.30216e-08      33.7636     33.7636 line=b2,
('betx', 'e.ds.r5.b2'), val=33. ...
13 ON   e_betyb2     True   1.47423e-10      169.673     169.673 line=b2,
('bety', 'e.ds.r5.b2'), val=169 ...
14 ON   e_dxb2       True   1.8028e-09       1.09112     1.09112 line=b2,
('dx', 'e.ds.r5.b2'), val=1.091 ...
15 ON   e_dpzb2     True   1.26507e-11      0.0143141   0.0143141 line=b2,
('dpx', 'e.ds.r5.b2'), val=0.01 ...
16 ON   ip_betxb1    False      0.3          2.5          2.2 line=b1,
('betx', 'ip5'), val=2.2, tol=5 ...
17 ON   ip_betxb2    False      0.3          2.5          2.2 line=b2,
('betx', 'ip5'), val=2.2, tol=5 ...
18 ON   ip_betyb1    False      0.3          2.5          2.2 line=b1,
('bety', 'ip5'), val=2.2, tol=5 ...
19 ON   ip_betyb2    False      0.3          2.5          2.2 line=b2,
('bety', 'ip5'), val=2.2, tol=5 ...
20 ON   ip_alfxb1    True  -2.00703e-10    -2.00703e-10  -0 line=b1,
('alfx', 'ip5'), val=-0, tol=5e ...
21 ON   ip_alfxb2    True  -6.10184e-11    -6.10184e-11  -0 line=b2,
('alfx', 'ip5'), val=-0, tol=5e ...
22 ON   ip_alfyb1    True   2.93331e-12     2.93331e-12   0 line=b1,
('alfy', 'ip5'), val=0, tol=5e- ...
23 ON   ip_alfyb2    True   4.54523e-14     4.54523e-14   0 line=b2,
('alfy', 'ip5'), val=0, tol=5e- ...
24 ON   ip_dxb1     True  -1.6111e-10     -1.6111e-10  -0 line=b1,
('dx', 'ip5'), val=-0, tol=5e-0 ...
25 ON   ip_dxb2     True   4.18788e-10     4.18788e-10   0 line=b2,
('dx', 'ip5'), val=0, tol=5e-08 ...
26 ON   ip_dpzb1    True  -5.6624e-11     -5.6624e-11  -0 line=b1,
('dpx', 'ip5'), val=-0, tol=5e- ...
27 ON   ip_dpzb2    True   4.48666e-11     4.48666e-11   0 line=b2,
('dpx', 'ip5'), val=0, tol=5e-0 ...

```

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit
val_at_iter_0				step	weight		
0	OFF	common	OK	kqx.l5	-0.00894748	-0.00874934	0
-0.00874934				1e-09	1		

1	ON	common	OK	kqx.r5	0	0.00874934	0.00894748
0.00874934				1e-09	1		
2	OFF	common	OK	ktqx1.15	-0.000872925	-2.23175e-05	0.000872925
-2.23175e-05				1e-09	1		
3	ON	common	OK	ktqx1.r5	-0.000872925	2.23175e-05	0.000872925
2.23175e-05				1e-09	1		
4	OFF	common	OK	ktqx2.15	-0.000872925	-5.63456e-06	0.000872925
-5.63456e-06				1e-09	1		
5	ON	common	OK	ktqx2.r5	-0.000872925	5.63456e-06	0.000872925
5.63456e-06				1e-09	1		
6	ON	b1	OK	kq4.15b1	0.000157621	0.002443	0.00702098
0.002443				1e-09	1		
7	ON	b2	OK	kq4.15b2	-0.00702318	-0.00233485	-0.000157671
-0.00233485				1e-09	1		
8	ON	b1	OK	kq4.r5b1	-0.00701639	-0.00242849	-0.000159546
-0.00242849				1e-09	1		
9	ON	b2	OK	kq4.r5b2	0.000157736	0.00234611	0.00702605
0.00234611				1e-09	1		
10	ON	b1	OK	kq5.15b1	-0.006978	-0.00286838	-0.000167757
-0.00286838				1e-09	1		
11	ON	b2	OK	kq5.15b2	0.000167757	0.00274714	0.006978
0.00274714				1e-09	1		
12	ON	b1	OK	kq5.r5b1	0.000167345	0.00279104	0.00696059
0.00279104				1e-09	1		
13	ON	b2	OK	kq5.r5b2	-0.00697084	-0.00293066	-0.000167588
-0.00293066				1e-09	1		
14	ON	b1	OK	kq6.15b1	0.00016758	0.00407693	0.00697051
0.00407693				1e-09	1		
15	ON	b2	OK	kq6.15b2	-0.00697022	-0.00416337	-0.000167573
-0.00416337				1e-09	1		
16	ON	b1	OK	kq6.r5b1	-0.00696071	-0.00426604	-0.000167348
-0.00426604				1e-09	1		
17	ON	b2	OK	kq6.r5b2	0.000167403	0.00428313	0.00696301
0.00428313				1e-09	1		
18	ON	b1	OK	kq7.15b1	-0.008703	-0.00597692	-0.000166994
-0.00597692				1e-09	1		
19	ON	b2	OK	kq7.15b2	0.0001669	0.00600842	0.00869807
0.00600842				1e-09	1		
20	ON	b1	OK	kq7.r5b1	0.000166939	0.00594261	0.0087001
0.00594261				1e-09	1		
21	ON	b2	OK	kq7.r5b2	-0.00869728	-0.00601428	-0.000166886
-0.00601428				1e-09	1		
22	ON	b1	OK	kq8.15b1	0.000167314	0.00733694	0.00871992
0.00733694				1e-09	1		
23	ON	b2	OK	kq8.15b2	-0.00871401	-0.00711728	-0.000167202
-0.00711728				1e-09	1		
24	ON	b1	OK	kq8.r5b1	-0.00872554	-0.00676238	-0.00016742
-0.00676238				1e-09	1		

25 ON	b2	OK	kq8.r5b2	0.000167109	0.00713103	0.00870911
0.00713103			1e-09	1		
26 ON	b1	OK	kq9.l5b1	-0.0086956	-0.00724161	-0.000166854
-0.00724161			1e-09	1		
27 ON	b2	OK	kq9.l5b2	0.000166957	0.00700852	0.00870108
0.00700852			1e-09	1		
28 ON	b1	OK	kq9.r5b1	0.000167096	0.00693077	0.00870842
0.00693077			1e-09	1		
29 ON	b2	OK	kq9.r5b2	-0.00870074	-0.00700936	-0.000166951
-0.00700936			1e-09	1		
30 ON	b1	OK	kq10.l5b1	0.000167362	0.00724474	0.00872244
0.00724474			1e-09	1		
31 ON	b2	OK	kq10.l5b2	-0.00871559	-0.00721977	-0.000167232
-0.00721977			1e-09	1		
32 ON	b1	OK	kq10.r5b1	-0.00873707	-0.00704615	-0.000167639
-0.00704615			1e-09	1		
33 ON	b2	OK	kq10.r5b2	0.000167594	0.00723862	0.00873469
0.00723862			1e-09	1		
34 ON	b1	OK	kqt111.l5b1	-0.00565017	-0.000429407	0.00565017
-0.000429407			1e-09	1		
35 ON	b2	OK	kqt111.l5b2	-0.00565017	0.000315538	0.00565017
0.000315538			1e-09	1		
36 ON	b1	OK	kqt111.r5b1	-0.00522662	0.000370436	0.00522662
0.000370436			1e-09	1		
37 ON	b2	OK	kqt111.r5b2	-0.00522662	-6.76861e-05	0.00522662
-6.76861e-05			1e-09	1		
38 ON	b1	OK	kqt12.l5b1	-0.00538093	-0.00124975	0.00538093
-0.00124975			1e-09	1		
39 ON	b2	OK	kqt12.l5b2	-0.00538093	-0.00124816	0.00538093
-0.00124816			1e-09	1		
40 ON	b1	OK	kqt12.r5b1	-0.00538093	-0.00221118	0.00538093
-0.00221118			1e-09	1		
41 ON	b2	OK	kqt12.r5b2	-0.00538093	-0.00162471	0.00538093
-0.00162471			1e-09	1		
42 ON	b1	OK	kqt13.l5b1	-0.00538093	0.00283945	0.00538093
0.00283945			1e-09	1		
43 ON	b2	OK	kqt13.l5b2	-0.00538093	0.00119448	0.00538093
0.00119448			1e-09	1		
44 ON	b1	OK	kqt13.r5b1	-0.00538093	0.00144377	0.00538093
0.00144377			1e-09	1		
45 ON	b2	OK	kqt13.r5b2	-0.00538093	0.000626542	0.00538093
0.000626542			1e-09	1		

[43]: <xdeps.optimize.optimize.Optimize at 0x7131e0d3a510>

[44]: mtc=opt.ir5.match()

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON	muxip5b1	True	-2.28173e-12	2.6448	2.6448	line=b1,
('mux', 'e.ds.r5.b1'), val=2.64 ...							
1	ON	muxip5b2	True	7.8213e-12	2.6448	2.6448	line=b2,
('mux', 'e.ds.r5.b2'), val=2.64 ...							
2	ON	muyip5b1	True	-1.14264e-12	2.645	2.645	line=b1,
('muy', 'e.ds.r5.b1'), val=2.64 ...							
3	ON	muyip5b2	True	-1.14131e-13	2.645	2.645	line=b2,
('muy', 'e.ds.r5.b2'), val=2.64 ...							
4	ON	e_alfxb1	True	1.16199e-09	2.34552	2.34552	line=b1,
('alfx', 'e.ds.r5.b1'), val=2.3 ...							
5	ON	e_alfyb1	True	4.01184e-11	-0.546151	-0.546151	line=b1,
('alfy', 'e.ds.r5.b1'), val=-0. ...							
6	ON	e_betxb1	False	9.54625e-08	169.503	169.503	line=b1,
('betx', 'e.ds.r5.b1'), val=169 ...							
7	ON	e_betyb1	True	-7.21094e-10	33.9409	33.9409	line=b1,
('bety', 'e.ds.r5.b1'), val=33. ...							
8	ON	e_dxb1	True	5.55182e-10	2.12249	2.12249	line=b1,
('dx', 'e.ds.r5.b1'), val=2.122 ...							
9	ON	e_dpzb1	True	3.4451e-12	-0.0296002	-0.0296002	line=b1,
('dpx', 'e.ds.r5.b1'), val=-0.0 ...							
10	ON	e_alfxb2	True	-7.75627e-11	-0.543768	-0.543768	line=b2,
('alfx', 'e.ds.r5.b2'), val=-0. ...							
11	ON	e_alfyb2	True	1.84963e-12	2.34301	2.34301	line=b2,
('alfy', 'e.ds.r5.b2'), val=2.3 ...							
12	ON	e_betxb2	True	1.30216e-08	33.7636	33.7636	line=b2,
('betx', 'e.ds.r5.b2'), val=33. ...							
13	ON	e_betyb2	True	1.47423e-10	169.673	169.673	line=b2,
('bety', 'e.ds.r5.b2'), val=169 ...							
14	ON	e_dxb2	True	1.8028e-09	1.09112	1.09112	line=b2,
('dx', 'e.ds.r5.b2'), val=1.091 ...							
15	ON	e_dpzb2	True	1.26507e-11	0.0143141	0.0143141	line=b2,
('dpx', 'e.ds.r5.b2'), val=0.01 ...							
16	ON	ip_betxb1	False	0.3	2.5	2.2	line=b1,
('betx', 'ip5'), val=2.2, tol=5 ...							
17	ON	ip_betxb2	False	0.3	2.5	2.2	line=b2,
('betx', 'ip5'), val=2.2, tol=5 ...							
18	ON	ip_betyb1	False	0.3	2.5	2.2	line=b1,
('bety', 'ip5'), val=2.2, tol=5 ...							
19	ON	ip_betyb2	False	0.3	2.5	2.2	line=b2,
('bety', 'ip5'), val=2.2, tol=5 ...							
20	ON	ip_alfxb1	True	-2.00703e-10	-2.00703e-10	-0	line=b1,
('alfx', 'ip5'), val=-0, tol=5e ...							
21	ON	ip_alfxb2	True	-6.10184e-11	-6.10184e-11	-0	line=b2,
('alfx', 'ip5'), val=-0, tol=5e ...							
22	ON	ip_alfyb1	True	2.93331e-12	2.93331e-12	0	line=b1,
('alfy', 'ip5'), val=0, tol=5e- ...							
23	ON	ip_alfyb2	True	4.54523e-14	4.54523e-14	0	line=b2,

```

('alfy', 'ip5'), val=0, tol=5e- ...
24 ON ip_dxb1 True -1.6111e-10 -1.6111e-10 -0 line=b1,
('dx', 'ip5'), val=-0, tol=5e-0 ...
25 ON ip_dxb2 True 4.18788e-10 4.18788e-10 0 line=b2,
('dx', 'ip5'), val=0, tol=5e-08 ...
26 ON ip_dpzb1 True -5.6624e-11 -5.6624e-11 -0 line=b1,
('dpx', 'ip5'), val=-0, tol=5e- ...
27 ON ip_dpzb2 True 4.48666e-11 4.48666e-11 0 line=b2,
('dpx', 'ip5'), val=0, tol=5e-0 ...

```

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit
val_at_iter_0				step	weight		
0	OFF	common	OK	kqx.l5	-0.00894748	-0.00874934	0
-0.00874934				1e-09	1		
1	ON	common	OK	kqx.r5	0	0.00874934	0.00894748
0.00874934				1e-09	1		
2	OFF	common	OK	ktqx1.l5	-0.000872925	-2.23175e-05	0.000872925
-2.23175e-05				1e-09	1		
3	ON	common	OK	ktqx1.r5	-0.000872925	2.23175e-05	0.000872925
2.23175e-05				1e-09	1		
4	OFF	common	OK	ktqx2.l5	-0.000872925	-5.63456e-06	0.000872925
-5.63456e-06				1e-09	1		
5	ON	common	OK	ktqx2.r5	-0.000872925	5.63456e-06	0.000872925
5.63456e-06				1e-09	1		
6	ON	b1	OK	kq4.l5b1	0.000157621	0.002443	0.00702098
0.002443				1e-09	1		
7	ON	b2	OK	kq4.l5b2	-0.00702318	-0.00233485	-0.000157671
-0.00233485				1e-09	1		
8	ON	b1	OK	kq4.r5b1	-0.00701639	-0.00242849	-0.000159546
-0.00242849				1e-09	1		
9	ON	b2	OK	kq4.r5b2	0.000157736	0.00234611	0.00702605
0.00234611				1e-09	1		
10	ON	b1	OK	kq5.l5b1	-0.006978	-0.00286838	-0.000167757
-0.00286838				1e-09	1		
11	ON	b2	OK	kq5.l5b2	0.000167757	0.00274714	0.006978
0.00274714				1e-09	1		
12	ON	b1	OK	kq5.r5b1	0.000167345	0.00279104	0.00696059
0.00279104				1e-09	1		
13	ON	b2	OK	kq5.r5b2	-0.00697084	-0.00293066	-0.000167588
-0.00293066				1e-09	1		
14	ON	b1	OK	kq6.l5b1	0.00016758	0.00407693	0.00697051
0.00407693				1e-09	1		
15	ON	b2	OK	kq6.l5b2	-0.00697022	-0.00416337	-0.000167573
-0.00416337				1e-09	1		
16	ON	b1	OK	kq6.r5b1	-0.00696071	-0.00426604	-0.000167348
-0.00426604				1e-09	1		
17	ON	b2	OK	kq6.r5b2	0.000167403	0.00428313	0.00696301
0.00428313				1e-09	1		

18 ON	b1	OK	kq7.15b1	-0.008703	-0.00597692	-0.000166994
-0.00597692			1e-09	1		
19 ON	b2	OK	kq7.15b2	0.0001669	0.00600842	0.00869807
0.00600842			1e-09	1		
20 ON	b1	OK	kq7.r5b1	0.000166939	0.00594261	0.0087001
0.00594261			1e-09	1		
21 ON	b2	OK	kq7.r5b2	-0.00869728	-0.00601428	-0.000166886
-0.00601428			1e-09	1		
22 ON	b1	OK	kq8.15b1	0.000167314	0.00733694	0.00871992
0.00733694			1e-09	1		
23 ON	b2	OK	kq8.15b2	-0.00871401	-0.00711728	-0.000167202
-0.00711728			1e-09	1		
24 ON	b1	OK	kq8.r5b1	-0.00872554	-0.00676238	-0.00016742
-0.00676238			1e-09	1		
25 ON	b2	OK	kq8.r5b2	0.000167109	0.00713103	0.00870911
0.00713103			1e-09	1		
26 ON	b1	OK	kq9.15b1	-0.0086956	-0.00724161	-0.000166854
-0.00724161			1e-09	1		
27 ON	b2	OK	kq9.15b2	0.000166957	0.00700852	0.00870108
0.00700852			1e-09	1		
28 ON	b1	OK	kq9.r5b1	0.000167096	0.00693077	0.00870842
0.00693077			1e-09	1		
29 ON	b2	OK	kq9.r5b2	-0.00870074	-0.00700936	-0.000166951
-0.00700936			1e-09	1		
30 ON	b1	OK	kq10.15b1	0.000167362	0.00724474	0.00872244
0.00724474			1e-09	1		
31 ON	b2	OK	kq10.15b2	-0.00871559	-0.00721977	-0.000167232
-0.00721977			1e-09	1		
32 ON	b1	OK	kq10.r5b1	-0.00873707	-0.00704615	-0.000167639
-0.00704615			1e-09	1		
33 ON	b2	OK	kq10.r5b2	0.000167594	0.00723862	0.00873469
0.00723862			1e-09	1		
34 ON	b1	OK	kqt111.15b1	-0.00565017	-0.000429407	0.00565017
-0.000429407			1e-09	1		
35 ON	b2	OK	kqt111.15b2	-0.00565017	0.000315538	0.00565017
0.000315538			1e-09	1		
36 ON	b1	OK	kqt111.r5b1	-0.00522662	0.000370436	0.00522662
0.000370436			1e-09	1		
37 ON	b2	OK	kqt111.r5b2	-0.00522662	-6.76861e-05	0.00522662
-6.76861e-05			1e-09	1		
38 ON	b1	OK	kqt12.15b1	-0.00538093	-0.00124975	0.00538093
-0.00124975			1e-09	1		
39 ON	b2	OK	kqt12.15b2	-0.00538093	-0.00124816	0.00538093
-0.00124816			1e-09	1		
40 ON	b1	OK	kqt12.r5b1	-0.00538093	-0.00221118	0.00538093
-0.00221118			1e-09	1		
41 ON	b2	OK	kqt12.r5b2	-0.00538093	-0.00162471	0.00538093
-0.00162471			1e-09	1		


```

42 ON    b1    OK    kqt13.l5b1    -0.00538093    0.00283945    0.00538093
0.00283945    1e-09    1
43 ON    b2    OK    kqt13.l5b2    -0.00538093    0.00119448    0.00538093
0.00119448    1e-09    1
44 ON    b1    OK    kqt13.r5b1    -0.00538093    0.00144377    0.00538093
0.00144377    1e-09    1
45 ON    b2    OK    kqt13.r5b2    -0.00538093    0.000626542    0.00538093
0.000626542    1e-09    1

```

```
[45]: mtc.solve()
```

Matching: model call n. 228

```
[46]: mtc.target_status()
```

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON	muxip5b1	True	-6.17995e-12	2.6448	2.6448	line=b1, ('mux', 'e.ds.r5.b1'), val=2.64 ...
1	ON	muxip5b2	True	-1.43929e-11	2.6448	2.6448	line=b2, ('mux', 'e.ds.r5.b2'), val=2.64 ...
2	ON	muyip5b1	True	-1.77636e-15	2.645	2.645	line=b1, ('muy', 'e.ds.r5.b1'), val=2.64 ...
3	ON	muyip5b2	True	-2.66454e-15	2.645	2.645	line=b2, ('muy', 'e.ds.r5.b2'), val=2.64 ...
4	ON	e_alfxb1	True	-2.69427e-10	2.34552	2.34552	line=b1, ('alfx', 'e.ds.r5.b1'), val=2.3 ...
5	ON	e_alfyb1	True	-1.11022e-15	-0.546151	-0.546151	line=b1, ('alfy', 'e.ds.r5.b1'), val=-0. ...
6	ON	e_betxb1	True	-1.85985e-08	169.503	169.503	line=b1, ('betx', 'e.ds.r5.b1'), val=169 ...
7	ON	e_betyb1	True	-1.07292e-12	33.9409	33.9409	line=b1, ('bety', 'e.ds.r5.b1'), val=33. ...
8	ON	e_dxb1	True	-2.35608e-10	2.12249	2.12249	line=b1, ('dx', 'e.ds.r5.b1'), val=2.122 ...
9	ON	e_dpzb1	True	4.46592e-12	-0.0296002	-0.0296002	line=b1, ('dpz', 'e.ds.r5.b1'), val=-0.0 ...
10	ON	e_alfxb2	True	7.33256e-11	-0.543768	-0.543768	line=b2, ('alfx', 'e.ds.r5.b2'), val=-0. ...
11	ON	e_alfyb2	True	1.37668e-14	2.34301	2.34301	line=b2, ('alfy', 'e.ds.r5.b2'), val=2.3 ...
12	ON	e_betxb2	True	-1.62124e-09	33.7636	33.7636	line=b2, ('betx', 'e.ds.r5.b2'), val=33. ...
13	ON	e_betyb2	True	-2.84217e-13	169.673	169.673	line=b2, ('bety', 'e.ds.r5.b2'), val=169 ...
14	ON	e_dxb2	True	4.19082e-10	1.09112	1.09112	line=b2, ('dx', 'e.ds.r5.b2'), val=1.091 ...

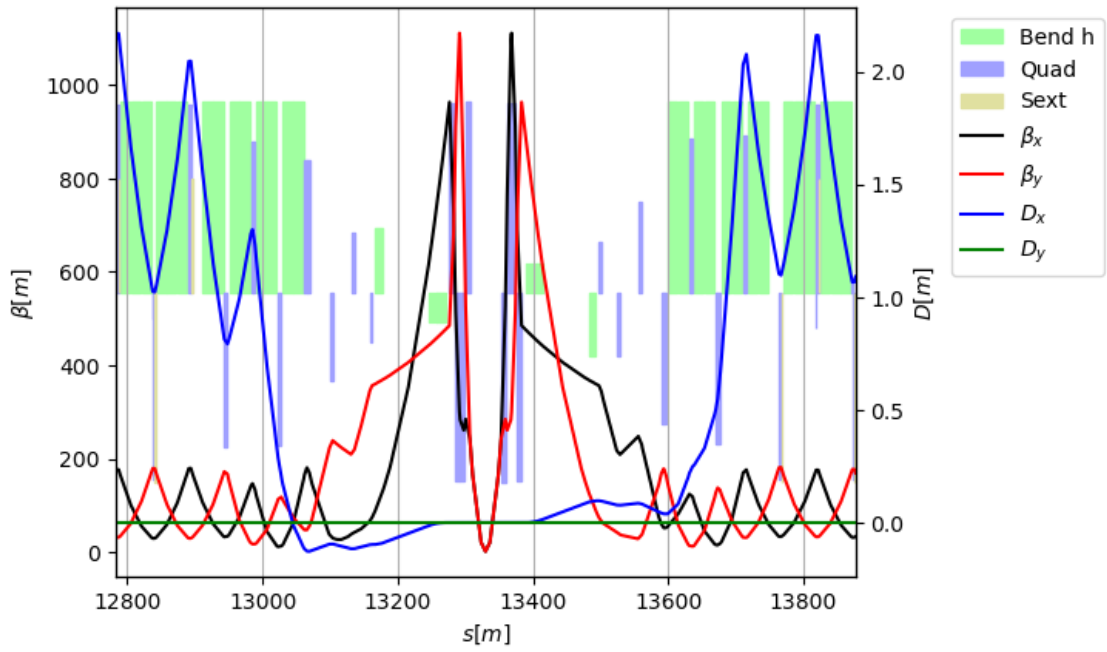
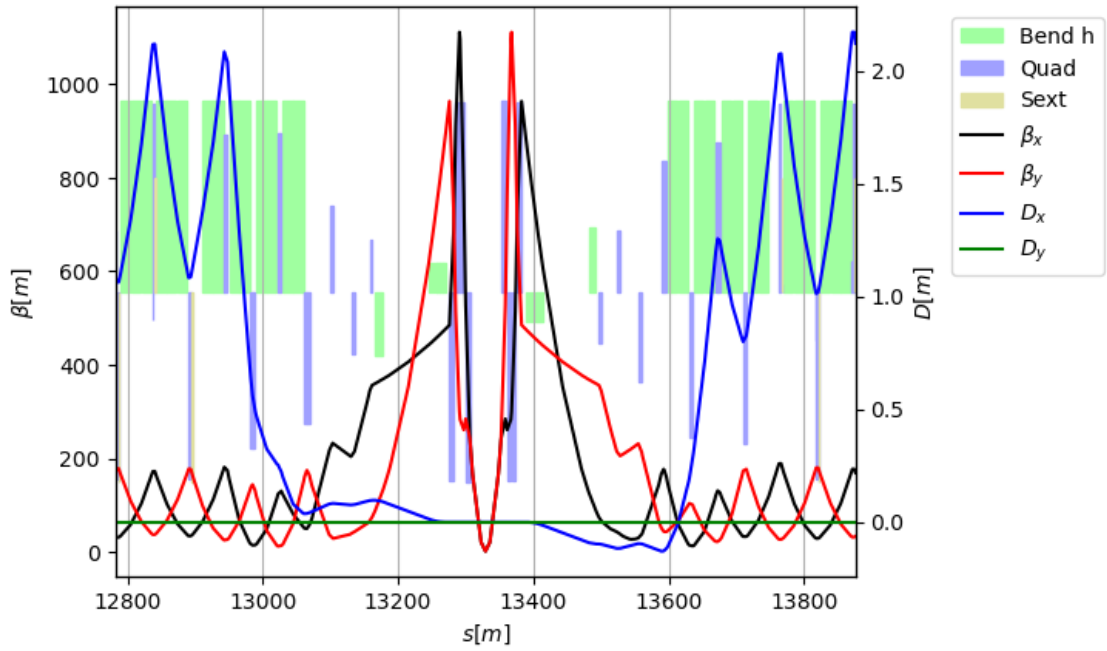
```

15 ON    e_dpxb2      True  -4.64512e-12    0.0143141    0.0143141 line=b2,
('dpx', 'e.ds.r5.b2'), val=0.01 ...
16 ON    ip_betxb1   True  -1.92694e-10    2.2          2.2 line=b1,
('betx', 'ip5'), val=2.2, tol=5 ...
17 ON    ip_betxb2   True   1.24938e-10    2.2          2.2 line=b2,
('betx', 'ip5'), val=2.2, tol=5 ...
18 ON    ip_betyb1   True   1.77636e-15    2.2          2.2 line=b1,
('bety', 'ip5'), val=2.2, tol=5 ...
19 ON    ip_betyb2   True  -1.00364e-13    2.2          2.2 line=b2,
('bety', 'ip5'), val=2.2, tol=5 ...
20 ON    ip_alfxb1   True  -4.34439e-11   -4.34439e-11  -0 line=b1,
('alfx', 'ip5'), val=-0, tol=5e ...
21 ON    ip_alfxb2   True   3.21794e-11    3.21794e-11  -0 line=b2,
('alfx', 'ip5'), val=-0, tol=5e ...
22 ON    ip_alfyb1   True   1.66032e-14    1.66032e-14   0 line=b1,
('alfy', 'ip5'), val=0, tol=5e- ...
23 ON    ip_alfyb2   True   2.44365e-14    2.44365e-14   0 line=b2,
('alfy', 'ip5'), val=0, tol=5e- ...
24 ON    ip_dxb1     True   2.18434e-11    2.18434e-11  -0 line=b1,
('dx', 'ip5'), val=-0, tol=5e-0 ...
25 ON    ip_dxb2     True   2.34266e-11    2.34266e-11   0 line=b2,
('dx', 'ip5'), val=0, tol=5e-08 ...
26 ON    ip_dpxb1    True  -3.00215e-11   -3.00215e-11  -0 line=b1,
('dpx', 'ip5'), val=-0, tol=5e- ...
27 ON    ip_dpxb2    True  -1.07935e-11   -1.07935e-11   0 line=b2,
('dpx', 'ip5'), val=0, tol=5e-0 ...

```

```
[47]: opt.ir5.plot()
```

```
[47]: [<xtrack.twissplot.TwissPlot object at 0x7131e1331a90>,
<xtrack.twissplot.TwissPlot object at 0x7131e0c24b50>]
```



```
[48]: opt.check()
```

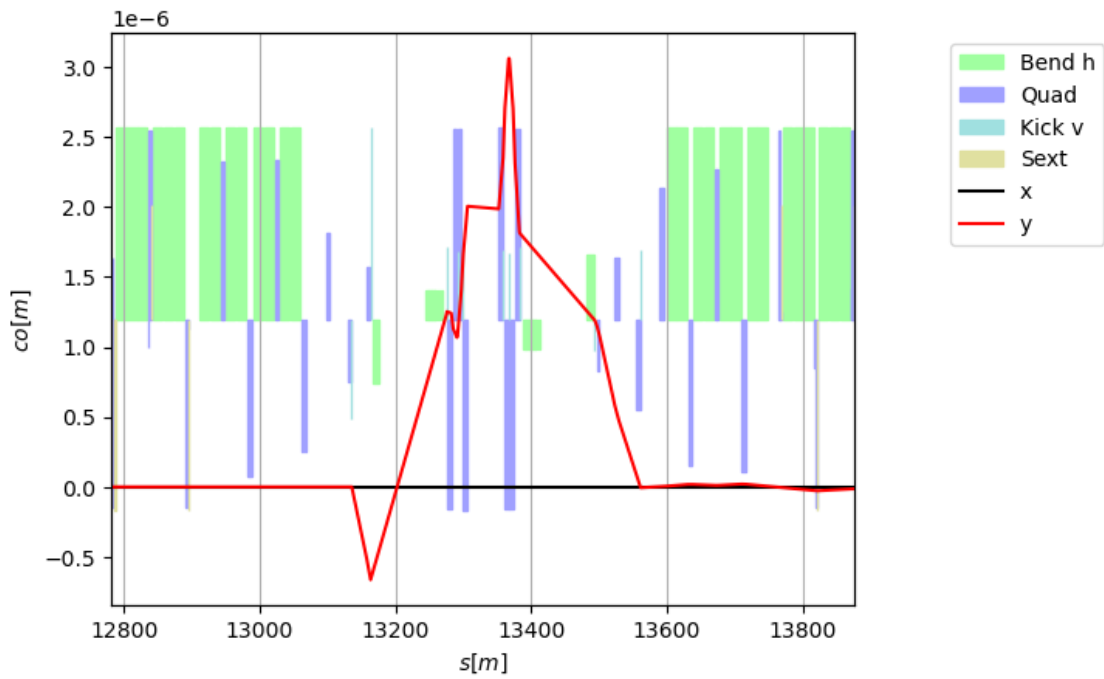
name	betx	bety	dx	dpx	px*1e6	py*1e6	x*1e3	y*1e3
ip1	2.5000	2.5000	0.0000	-0.0000	0.0000	-0.0000	-0.0000	0.0000

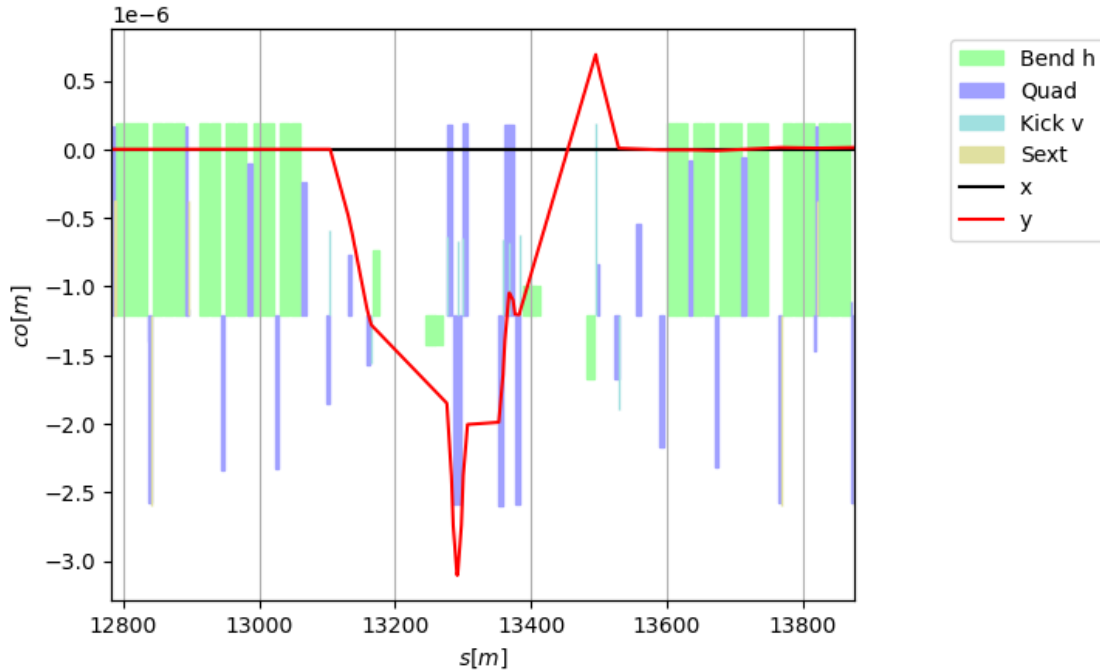
```

ip1  2.5000  2.5000 -0.0000  0.0000 -0.0000 -0.0000 -0.0000 -0.0000
ip2  10.0000 10.0000 -0.0000 -0.0000  0.0000  0.0000 -0.0000 -0.0000
ip2  10.0000 10.0000 -0.0000 -0.0000 -0.0000  0.0000  0.0000 -0.0000
ip5   2.2000  2.2000  0.0000 -0.0000 -0.0000  0.0000 -0.0000 -0.0000
ip5   2.2000  2.2000  0.0000  0.0000 -0.0000 -0.0000 -0.0000  0.0000
ip8  10.0000 10.0000 -0.0000  0.0000  0.0000 -0.0000  0.0000  0.0000
ip8  10.0000 10.0000 -0.0000  0.0000 -0.0000 -0.0000 -0.0000  0.0000
      HB1      HB2      VB1      VB2
Tunes:  62.310000  62.310000  60.320000  60.320000
Chroma: -0.774122 -0.774608 -0.776417 -0.774526

```

```
[49]: opt.ir5.knobs["on_sep5_v"].plot(0.002)
```





```
[50]: opt.ir5.knobs["on_sep5_v"].match()
```

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		False	-1.95845e-06	0.000998042	0.001	line=b1, ('y', 'ip5'), val=0.001, tol=1e ...
1	ON		False	1.42116e-06	-0.000998579	-0.001	line=b2, ('y', 'ip5'), val=-0.001, tol=1 ...
2	ON		False	-2.03728e-07	-2.03728e-07	0	line=b1, ('py', 'ip5'), val=0, tol=1e-10 ...
3	ON		False	1.7466e-07	1.7466e-07	0	line=b2, ('py', 'ip5'), val=0, tol=1e-10 ...
4	ON		False	-6.5565e-06	-6.5565e-06	0	line=b1, ('y', 'e.ds.r5.b1'), val=0, tol ...
5	ON		False	6.59776e-06	6.59776e-06	0	line=b2, ('y', 'e.ds.r5.b2'), val=0, tol ...
6	ON		False	-3.62593e-08	-3.62593e-08	0	line=b1, ('py', 'e.ds.r5.b1'), val=0, to ...
7	ON		False	-1.27748e-07	-1.27748e-07	0	line=b2, ('py', 'e.ds.r5.b2'), val=0, to ...

Matching: model call n. 18

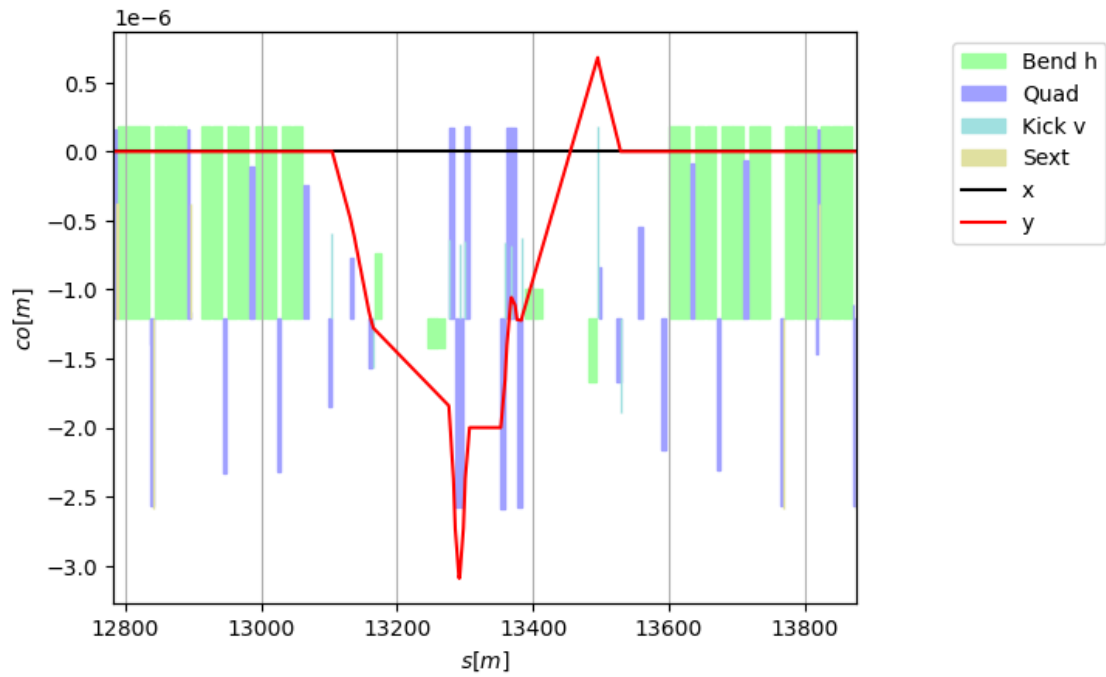
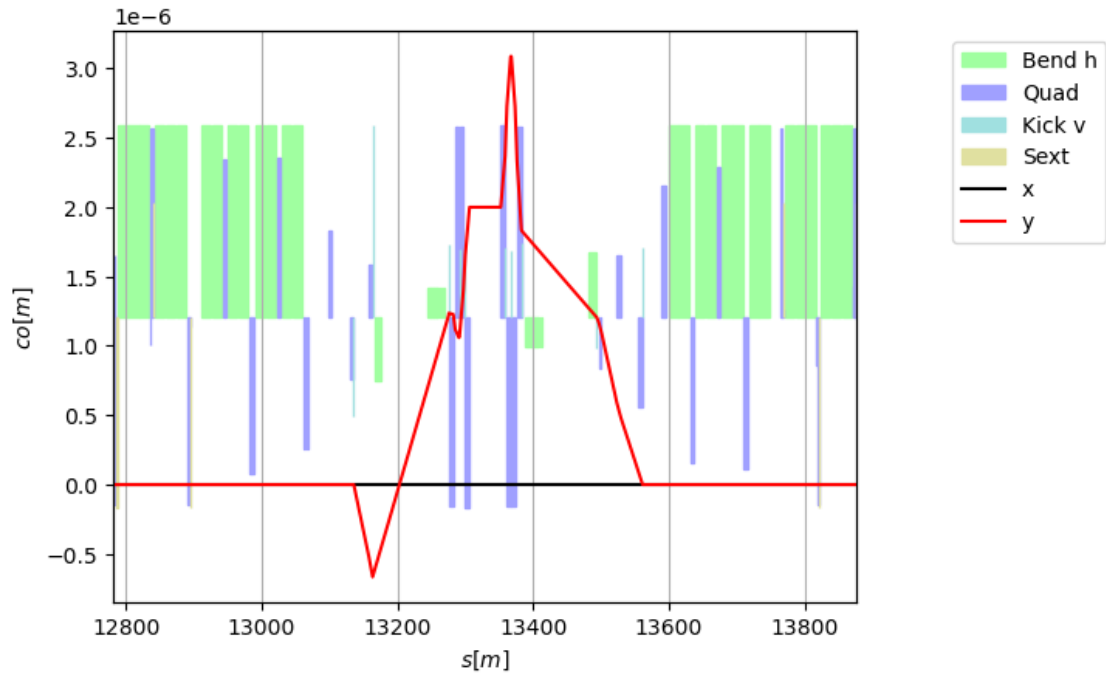
Vary status:

id	state	tag	met	name	lower_limit	current_val
		upper_limit	val_at_iter_0		step	weight

0	ON	OK	acbxv1.l5_from_on_sep5_v	None	8.31157e-06	None
8.29291e-06			1e-09	1		
1	ON	OK	acbxv1.r5_from_on_sep5_v	None	8.19396e-06	None
8.17671e-06			1e-09	1		
2	ON	OK	acbxv2.l5_from_on_sep5_v	None	7.9543e-06	None
7.94865e-06			1e-09	1		
3	ON	OK	acbxv2.r5_from_on_sep5_v	None	7.76183e-06	None
7.76016e-06			1e-09	1		
4	ON	OK	acbxv3.l5_from_on_sep5_v	None	8.48718e-06	None
8.44805e-06			1e-09	1		
5	ON	OK	acbxv3.r5_from_on_sep5_v	None	8.60434e-06	None
8.56257e-06			1e-09	1		
6	ON	OK	acbcv5.l5b1_from_on_sep5_v	None	-1.16929e-05	None
-1.16536e-05			1e-09	1		
7	ON	OK	acbcv6.r5b1_from_on_sep5_v	None	8.07407e-06	None
8.10484e-06			1e-09	1		
8	ON	OK	acbyvs4.l5b1_from_on_sep5_v	None	2.24367e-05	None
2.24531e-05			1e-09	1		
9	ON	OK	acbyvs4.r5b1_from_on_sep5_v	None	-3.77706e-06	None
-3.74368e-06			1e-09	1		
10	ON	OK	acbcv5.r5b2_from_on_sep5_v	None	1.01985e-05	None
1.01597e-05			1e-09	1		
11	ON	OK	acbcv6.l5b2_from_on_sep5_v	None	-9.06139e-06	None
-9.0754e-06			1e-09	1		
12	ON	OK	acbyvs4.l5b2_from_on_sep5_v	None	5.32762e-06	None
5.30924e-06			1e-09	1		
13	ON	OK	acbyvs4.r5b2_from_on_sep5_v	None	-2.05505e-05	None
-2.05625e-05			1e-09	1		

[50]: <xdeps.optimize.optimize.Optimize at 0x7131ea556050>

[51]: `opt.ir5.knobs["on_sep5_v"].plot(0.002)`



```
[52]: opt.ir5.knobs["on_sep5_v"].get_mcbx_preset()
```

[52]: (2.4689616797143186e-05, 2.4499435096286023e-05)

```
[53]: opt.ir5.knobs["on_sep5_v"].set_mcbx_preset(15e-6)
opt.ir5.knobs["on_sep5_v"].const="acbx.*"
opt.ir5.knobs["on_sep5_v"].match()
opt.ir5.knobs["on_sep5_v"].plot(0.002)
```

Target status:

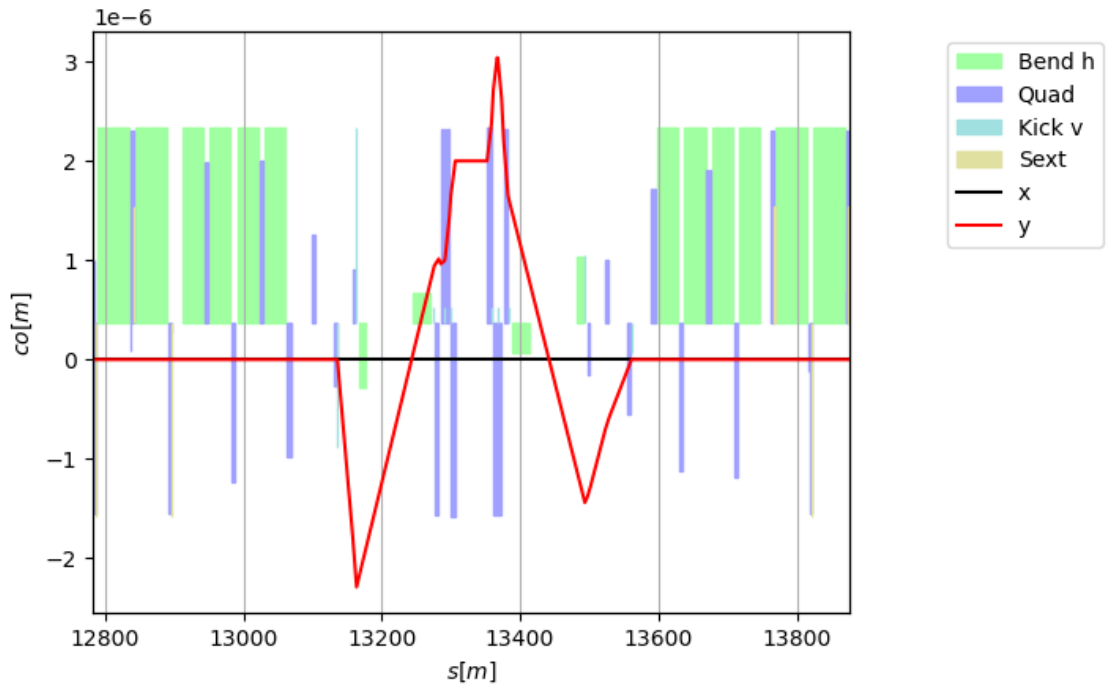
id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		False	-0.000316415	0.000683585	0.001	line=b1, ('y', 'ip5'), val=0.001, tol=1e ...
1	ON		False	0.000374879	-0.000625121	-0.001	line=b2, ('y', 'ip5'), val=-0.001, tol=1 ...
2	ON		False	-4.99237e-06	-4.99237e-06	0	line=b1, ('py', 'ip5'), val=0, tol=1e-10 ...
3	ON		False	1.07915e-05	1.07915e-05	0	line=b2, ('py', 'ip5'), val=0, tol=1e-10 ...
4	ON		False	-1.19642e-05	-1.19642e-05	0	line=b1, ('y', 'e.ds.r5.b1'), val=0, tol ...
5	ON		False	-0.000485288	-0.000485288	0	line=b2, ('y', 'e.ds.r5.b2'), val=0, tol ...
6	ON		False	-7.00271e-06	-7.00271e-06	0	line=b1, ('py', 'e.ds.r5.b1'), val=0, to ...
7	ON		False	4.49439e-06	4.49439e-06	0	line=b2, ('py', 'e.ds.r5.b2'), val=0, to ...

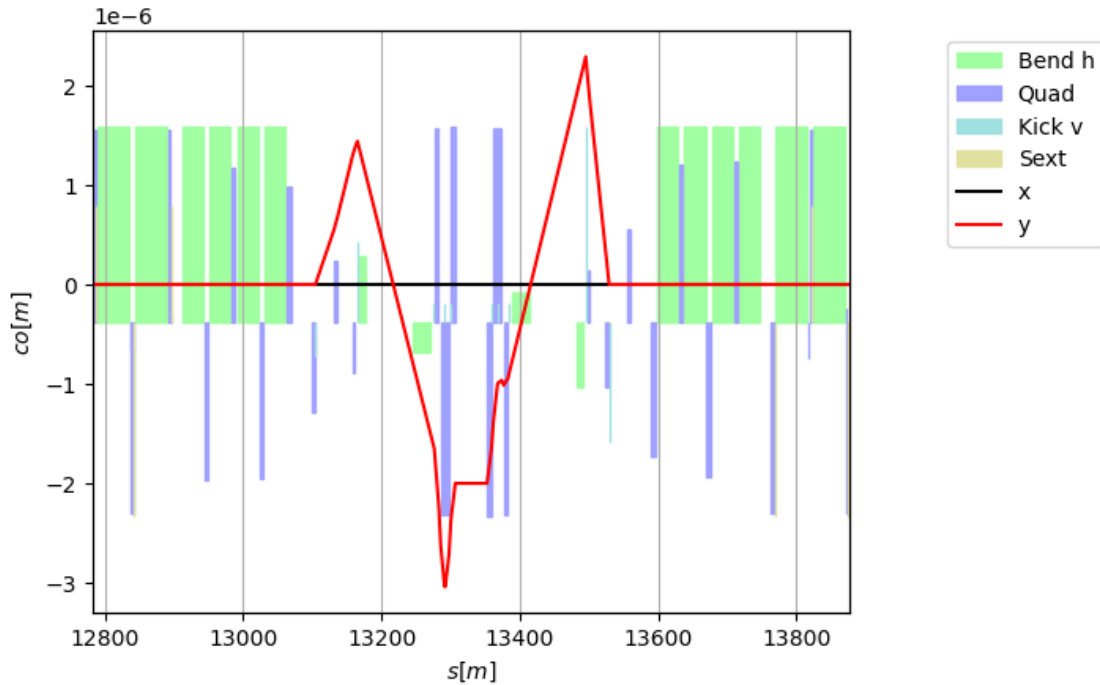
Matching: model call n. 12

Vary status:

id	state	tag	met	name	lower_limit	current_val
upper_limit	val_at_iter_0	step	weight			
0	OFF	OK		acbxv1.l5_from_on_sep5_v	None	5e-06 None
8.31157e-06		1e-09	1			
1	OFF	OK		acbxv1.r5_from_on_sep5_v	None	5e-06 None
8.19396e-06		1e-09	1			
2	OFF	OK		acbxv2.l5_from_on_sep5_v	None	5e-06 None
7.9543e-06		1e-09	1			
3	OFF	OK		acbxv2.r5_from_on_sep5_v	None	5e-06 None
7.76183e-06		1e-09	1			
4	OFF	OK		acbxv3.l5_from_on_sep5_v	None	5e-06 None
8.48718e-06		1e-09	1			
5	OFF	OK		acbxv3.r5_from_on_sep5_v	None	5e-06 None
8.60434e-06		1e-09	1			
6	ON	OK		acbcv5.l5b1_from_on_sep5_v	None	-4.02305e-05 None
-1.16929e-05		1e-09	1			
7	ON	OK		acbcv6.r5b1_from_on_sep5_v	None	-9.65205e-06 None
8.07407e-06		1e-09	1			
8	ON	OK		acbyvs4.l5b1_from_on_sep5_v	None	6.25698e-05 None

2.24367e-05		1e-09		1		
9 ON	OK	acbyvs4.r5b1_from_on_sep5_v	None		2.17914e-05	None
-3.77706e-06		1e-09		1		
10 ON	OK	acbcv5.r5b2_from_on_sep5_v	None		3.4302e-05	None
1.01985e-05		1e-09		1		
11 ON	OK	acbcv6.l5b2_from_on_sep5_v	None		1.01989e-05	None
-9.06139e-06		1e-09		1		
12 ON	OK	acbyvs4.l5b2_from_on_sep5_v	None		-2.27457e-05	None
5.32762e-06		1e-09		1		
13 ON	OK	acbyvs4.r5b2_from_on_sep5_v	None		-5.51133e-05	None
-2.05505e-05		1e-09		1		





```
[54]: opt.check()
      opt.update() # get optics from model
```

name	betx	bety	dx	dpx	px*1e6	py*1e6	x*1e3	y*1e3
ip1	2.5000	2.5000	0.0000	-0.0000	0.0000	-0.0000	-0.0000	0.0000
ip1	2.5000	2.5000	-0.0000	0.0000	-0.0000	-0.0000	-0.0000	-0.0000
ip2	10.0000	10.0000	-0.0000	-0.0000	0.0000	0.0000	-0.0000	-0.0000
ip2	10.0000	10.0000	-0.0000	-0.0000	-0.0000	0.0000	0.0000	-0.0000
ip5	2.2000	2.2000	0.0000	-0.0000	-0.0000	0.0000	-0.0000	-0.0000
ip5	2.2000	2.2000	0.0000	0.0000	-0.0000	-0.0000	-0.0000	0.0000
ip8	10.0000	10.0000	-0.0000	0.0000	0.0000	-0.0000	0.0000	0.0000
ip8	10.0000	10.0000	-0.0000	0.0000	-0.0000	-0.0000	-0.0000	0.0000
	HB1	HB2	VB1	VB2				
Tunes:	62.310000	62.310000	60.320000	60.320000				
Chroma:	-0.774122	-0.774608	-0.776417	-0.774526				

```
[54]: <LHCOptics 'squeezevh_0'>
```

```
[55]: opt.match_chroma()
      opt.match_knobs() #match all known knobs
```

```
Set ksf_b1 from ksf1.a12b1 to 0.06564828747256604
vars['ksf_b1']
Set ksf_b1 from ksf2.a12b1 to 0.06564828747256604
vars['ksf_b1']
```

Set ksf_b1 from ksf1.a23b1 to 0.06564828747256604
vars['ksf_b1']
Set ksf_b1 from ksf2.a23b1 to 0.06564828747256604
vars['ksf_b1']
Set ksf_b1 from ksf1.a34b1 to 0.06564828747256604
vars['ksf_b1']
Set ksf_b1 from ksf2.a34b1 to 0.06564828747256604
vars['ksf_b1']
Set ksf_b1 from ksf1.a45b1 to 0.06564828747256604
vars['ksf_b1']
Set ksf_b1 from ksf2.a45b1 to 0.06564828747256604
vars['ksf_b1']
Set ksf_b1 from ksf1.a56b1 to 0.06564828747256604
vars['ksf_b1']
Set ksf_b1 from ksf2.a56b1 to 0.06564828747256604
vars['ksf_b1']
Set ksf_b1 from ksf1.a67b1 to 0.06564828747256604
vars['ksf_b1']
Set ksf_b1 from ksf2.a67b1 to 0.06564828747256604
vars['ksf_b1']
Set ksf_b1 from ksf1.a78b1 to 0.06564828747256604
vars['ksf_b1']
Set ksf_b1 from ksf2.a78b1 to 0.06564828747256604
vars['ksf_b1']
Set ksf_b1 from ksf1.a81b1 to 0.06564828747256604
vars['ksf_b1']
Set ksf_b1 from ksf2.a81b1 to 0.06564828747256604
vars['ksf_b1']
Set ksd_b1 from ksd1.a12b1 to -0.10984961868786221
vars['ksd_b1']
Set ksd_b1 from ksd2.a12b1 to -0.10984961868786221
vars['ksd_b1']
Set ksd_b1 from ksd1.a23b1 to -0.10984961868786221
vars['ksd_b1']
Set ksd_b1 from ksd2.a23b1 to -0.10984961868786221
vars['ksd_b1']
Set ksd_b1 from ksd1.a34b1 to -0.10984961868786221
vars['ksd_b1']
Set ksd_b1 from ksd2.a34b1 to -0.10984961868786221
vars['ksd_b1']
Set ksd_b1 from ksd1.a45b1 to -0.10984961868786221
vars['ksd_b1']
Set ksd_b1 from ksd2.a45b1 to -0.10984961868786221
vars['ksd_b1']
Set ksd_b1 from ksd1.a56b1 to -0.10984961868786221
vars['ksd_b1']
Set ksd_b1 from ksd2.a56b1 to -0.10984961868786221
vars['ksd_b1']

```

Set ksd_b1 from ksd1.a67b1 to -0.10984961868786221
vars['ksd_b1']
Set ksd_b1 from ksd2.a67b1 to -0.10984961868786221
vars['ksd_b1']
Set ksd_b1 from ksd1.a78b1 to -0.10984961868786221
vars['ksd_b1']
Set ksd_b1 from ksd2.a78b1 to -0.10984961868786221
vars['ksd_b1']
Set ksd_b1 from ksd1.a81b1 to -0.10984961868786221
vars['ksd_b1']
Set ksd_b1 from ksd2.a81b1 to -0.10984961868786221
vars['ksd_b1']
Matching: model call n. 49

```

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	-7.34914e-07	-7.34914e-07	0	line=b1, 'dqx', val=0, tol=1e-06, weight ...
1	ON		True	0	0	0	line=b1, 'dqy', val=0, tol=1e-06, weight ...

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit	val_at_iter_0
0	ON		OK	ksf_b1	None	0.0661968	None	0.0656483
1	ON		OK	ksd_b1	None	-0.110767	None	-0.10985

```

Set ksf_b2 from ksf1.a12b2 to 0.0656891744419247
vars['ksf_b2']
Set ksf_b2 from ksf2.a12b2 to 0.0656891744419247
vars['ksf_b2']
Set ksf_b2 from ksf1.a23b2 to 0.0656891744419247
vars['ksf_b2']
Set ksf_b2 from ksf2.a23b2 to 0.0656891744419247
vars['ksf_b2']
Set ksf_b2 from ksf1.a34b2 to 0.0656891744419247
vars['ksf_b2']
Set ksf_b2 from ksf2.a34b2 to 0.0656891744419247
vars['ksf_b2']
Set ksf_b2 from ksf1.a45b2 to 0.0656891744419247
vars['ksf_b2']
Set ksf_b2 from ksf2.a45b2 to 0.0656891744419247
vars['ksf_b2']
Set ksf_b2 from ksf1.a56b2 to 0.0656891744419247
vars['ksf_b2']
Set ksf_b2 from ksf2.a56b2 to 0.0656891744419247
vars['ksf_b2']
Set ksf_b2 from ksf1.a67b2 to 0.0656891744419247

```

```

vars['ksf_b2']
Set ksf_b2 from ksf2.a67b2 to 0.0656891744419247
vars['ksf_b2']
Set ksf_b2 from ksf1.a78b2 to 0.0656891744419247
vars['ksf_b2']
Set ksf_b2 from ksf2.a78b2 to 0.0656891744419247
vars['ksf_b2']
Set ksf_b2 from ksf1.a81b2 to 0.0656891744419247
vars['ksf_b2']
Set ksf_b2 from ksf2.a81b2 to 0.0656891744419247
vars['ksf_b2']
Set ksd_b2 from ksd1.a12b2 to -0.10977306188966501
vars['ksd_b2']
Set ksd_b2 from ksd2.a12b2 to -0.10977306188966501
vars['ksd_b2']
Set ksd_b2 from ksd1.a23b2 to -0.10977306188966501
vars['ksd_b2']
Set ksd_b2 from ksd2.a23b2 to -0.10977306188966501
vars['ksd_b2']
Set ksd_b2 from ksd1.a34b2 to -0.10977306188966501
vars['ksd_b2']
Set ksd_b2 from ksd2.a34b2 to -0.10977306188966501
vars['ksd_b2']
Set ksd_b2 from ksd1.a45b2 to -0.10977306188966501
vars['ksd_b2']
Set ksd_b2 from ksd2.a45b2 to -0.10977306188966501
vars['ksd_b2']
Set ksd_b2 from ksd1.a56b2 to -0.10977306188966501
vars['ksd_b2']
Set ksd_b2 from ksd2.a56b2 to -0.10977306188966501
vars['ksd_b2']
Set ksd_b2 from ksd1.a67b2 to -0.10977306188966501
vars['ksd_b2']
Set ksd_b2 from ksd2.a67b2 to -0.10977306188966501
vars['ksd_b2']
Set ksd_b2 from ksd1.a78b2 to -0.10977306188966501
vars['ksd_b2']
Set ksd_b2 from ksd2.a78b2 to -0.10977306188966501
vars['ksd_b2']
Set ksd_b2 from ksd1.a81b2 to -0.10977306188966501
vars['ksd_b2']
Set ksd_b2 from ksd2.a81b2 to -0.10977306188966501
vars['ksd_b2']
Matching: model call n. 46

```

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	1.26903e-07	1.26903e-07	0	line=b2, 'dqx',

val=0, tol=1e-06, weight ...
 1 ON True 0 0 0 line=b2, 'dqy',
 val=0, tol=1e-06, weight ...

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit	val_at_iter_0
0	ON	OK	ksf_b2	ksf_b2	None	0.0662383	None	0.0656892
1e-09			1					
1	ON	OK	ksd_b2	ksd_b2	None	-0.11069	None	-0.109773
1e-09			1					

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON	True	3.07494e-18	1.28153e-16	1.25078e-16	line=b1, ('x', 'ip1'), val=1.25078e-16, ...	
1	ON	True	-4.28671e-18	-1.92663e-16	-1.88376e-16	line=b2, ('x', 'ip1'), val=-1.88376e-16, ...	
2	ON	True	-2.71051e-20	0.00017	0.00017	line=b1, ('px', 'ip1'), val=0.00017, tol ...	
3	ON	True	1.89735e-19	-0.00017	-0.00017	line=b2, ('px', 'ip1'), val=-0.00017, to ...	
4	ON	True	-1.63974e-14	-1.91475e-14	-2.75007e-15	line=b1, ('x', 'e.ds.r1.b1'), val=-2.750 ...	
5	ON	True	-2.28864e-13	-2.30134e-13	-1.26987e-15	line=b2, ('x', 'e.ds.r1.b2'), val=-1.269 ...	
6	ON	True	1.11351e-15	1.15914e-15	4.56343e-17	line=b1, ('px', 'e.ds.r1.b1'), val=4.563 ...	
7	ON	True	-9.50401e-15	-9.50748e-15	-3.47101e-18	line=b2, ('px', 'e.ds.r1.b2'), val=-3.47 ...	

Matching: model call n. 3

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit
0	ON	OK	acbxh1.l1_from_on_x1_h	acbxh1.l1_from_on_x1_h	None	1.8224e-08	None
1.8224e-08			1e-09				
1	ON	OK	acbxh1.r1_from_on_x1_h	acbxh1.r1_from_on_x1_h	None	-1.80626e-08	None
-1.80626e-08			1e-09				
2	ON	OK	acbxh2.l1_from_on_x1_h	acbxh2.l1_from_on_x1_h	None	-7.28348e-08	None
-7.28348e-08			1e-09				
3	ON	OK	acbxh2.r1_from_on_x1_h	acbxh2.r1_from_on_x1_h	None	7.55934e-08	None
7.55934e-08			1e-09				
4	ON	OK	acbxh3.l1_from_on_x1_h	acbxh3.l1_from_on_x1_h	None	1.82523e-07	None
1.82523e-07			1e-09				
5	ON	OK	acbxh3.r1_from_on_x1_h	acbxh3.r1_from_on_x1_h	None	-1.85722e-07	None
-1.85722e-07			1e-09				
6	ON	OK	acbch5.r1b1_from_on_x1_h	acbch5.r1b1_from_on_x1_h	None	3.88865e-08	None
3.88865e-08			1e-09				
7	ON	OK	acbch6.l1b1_from_on_x1_h	acbch6.l1b1_from_on_x1_h	None	-9.9565e-08	None

-9.9565e-08			1e-09		1		
8 ON	OK	acbyhs4.l1b1_from_on_x1_h	None			-2.10534e-07	None
-2.10534e-07			1e-09		1		
9 ON	OK	acbyhs4.r1b1_from_on_x1_h	None			2.37775e-07	None
2.37775e-07			1e-09		1		
10 ON	OK	acbch5.l1b2_from_on_x1_h	None			2.86068e-08	None
2.86068e-08			1e-09		1		
11 ON	OK	acbch6.r1b2_from_on_x1_h	None			-1.02733e-07	None
-1.02733e-07			1e-09		1		
12 ON	OK	acbyhs4.l1b2_from_on_x1_h	None			2.50674e-07	None
2.50674e-07			1e-09		1		
13 ON	OK	acbyhs4.r1b2_from_on_x1_h	None			-2.08634e-07	None
-2.08634e-07			1e-09		1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	3.68629e-18	0.001	0.001	line=b1, ('x', 'ip1'), val=0.001, tol=1e ...
1	ON		True	1.51788e-18	-0.001	-0.001	line=b2, ('x', 'ip1'), val=-0.001, tol=1 ...
2	ON		True	-2.07836e-19	-6.66344e-17	-6.64266e-17	line=b1, ('px', 'ip1'), val=-6.64266e-17 ...
3	ON		True	-6.37832e-20	-7.75205e-18	-7.68826e-18	line=b2, ('px', 'ip1'), val=-7.68826e-18 ...
4	ON		True	-3.32636e-11	-3.32664e-11	-2.75007e-15	line=b1, ('x', 'e.ds.r1.b1'), val=-2.750 ...
5	ON		True	-2.27135e-12	-2.27262e-12	-1.26987e-15	line=b2, ('x', 'e.ds.r1.b2'), val=-1.269 ...
6	ON		True	4.74411e-13	4.74457e-13	4.56343e-17	line=b1, ('px', 'e.ds.r1.b1'), val=4.563 ...
7	ON		True	-8.68287e-14	-8.68322e-14	-3.47101e-18	line=b2, ('px', 'e.ds.r1.b2'), val=-3.47 ...

Matching: model call n. 3

Vary status:

id	state	tag	met	name	lower_limit	current_val	
upper_limit	val_at_iter_0	step	weight				
0	ON	OK		acbxh1.l1_from_on_sep1_h	None	9.14542e-06	None
9.14542e-06				1e-09	1		
1	ON	OK		acbxh1.r1_from_on_sep1_h	None	9.15808e-06	None
9.15808e-06				1e-09	1		
2	ON	OK		acbxh2.l1_from_on_sep1_h	None	1.16984e-05	None
1.16984e-05				1e-09	1		
3	ON	OK		acbxh2.r1_from_on_sep1_h	None	1.17745e-05	None
1.17745e-05				1e-09	1		
4	ON	OK		acbxh3.l1_from_on_sep1_h	None	4.66278e-06	None
4.66278e-06				1e-09	1		
5	ON	OK		acbxh3.r1_from_on_sep1_h	None	4.56531e-06	None
4.56531e-06				1e-09	1		

6	ON	OK	acbch5.r1b1_from_on_sep1_h	None	1.60398e-05	None
1.60398e-05			1e-09	1		
7	ON	OK	acbch6.l1b1_from_on_sep1_h	None	-1.91557e-06	None
-1.91557e-06			1e-09	1		
8	ON	OK	acbyhs4.l1b1_from_on_sep1_h	None	1.14376e-05	None
1.14376e-05			1e-09	1		
9	ON	OK	acbyhs4.r1b1_from_on_sep1_h	None	-1.15947e-05	None
-1.15947e-05			1e-09	1		
10	ON	OK	acbch5.l1b2_from_on_sep1_h	None	-1.37105e-05	None
-1.37105e-05			1e-09	1		
11	ON	OK	acbch6.r1b2_from_on_sep1_h	None	2.07474e-06	None
2.07474e-06			1e-09	1		
12	ON	OK	acbyhs4.l1b2_from_on_sep1_h	None	8.46504e-06	None
8.46504e-06			1e-09	1		
13	ON	OK	acbyhs4.r1b2_from_on_sep1_h	None	-1.17191e-05	None
-1.17191e-05			1e-09	1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	-5.63785e-18	-5.63785e-18	0	line=b1, ('y', 'ip1'), val=0, tol=1e-08, ...
1	ON		True	4.33681e-18	4.33681e-18	0	line=b2, ('y', 'ip1'), val=0, tol=1e-08, ...
2	ON		True	-3.52366e-19	0.00017	0.00017	line=b1, ('py', 'ip1'), val=0.00017, tol ...
3	ON		True	-1.0842e-19	-0.00017	-0.00017	line=b2, ('py', 'ip1'), val=-0.00017, to ...
4	ON		True	-3.03824e-17	-3.03824e-17	0	line=b1, ('y', 'e.ds.r1.b1'), val=0, tol ...
5	ON		True	1.73799e-17	1.73799e-17	0	line=b2, ('y', 'e.ds.r1.b2'), val=0, tol ...
6	ON		True	-3.11673e-19	-3.11673e-19	0	line=b1, ('py', 'e.ds.r1.b1'), val=0, to ...
7	ON		True	-2.53876e-19	-2.53876e-19	0	line=b2, ('py', 'e.ds.r1.b2'), val=0, to ...

Matching: model call n. 3

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit
0	ON	OK		acbvx1.l1_from_on_x1_v	None	1.83253e-08	None
1.83253e-08				1e-09	1		
1	ON	OK		acbvx1.r1_from_on_x1_v	None	-1.80089e-08	None
-1.80089e-08				1e-09	1		
2	ON	OK		acbvx2.l1_from_on_x1_v	None	-7.26803e-08	None
-7.26803e-08				1e-09	1		
3	ON	OK		acbvx2.r1_from_on_x1_v	None	7.56378e-08	None
7.56378e-08				1e-09	1		
4	ON	OK		acbvx3.l1_from_on_x1_v	None	1.82166e-07	None

1.82166e-07			1e-09	1		
5 ON	OK	acbxv3.r1_from_on_x1_v	None		-1.85857e-07	None
-1.85857e-07			1e-09	1		
6 ON	OK	acbcv5.l1b1_from_on_x1_v	None		-2.86273e-08	None
-2.86273e-08			1e-09	1		
7 ON	OK	acbcv6.r1b1_from_on_x1_v	None		1.02143e-07	None
1.02143e-07			1e-09	1		
8 ON	OK	acbyvs4.l1b1_from_on_x1_v	None		-2.50697e-07	None
-2.50697e-07			1e-09	1		
9 ON	OK	acbyvs4.r1b1_from_on_x1_v	None		2.08458e-07	None
2.08458e-07			1e-09	1		
10 ON	OK	acbcv5.r1b2_from_on_x1_v	None		-3.88768e-08	None
-3.88768e-08			1e-09	1		
11 ON	OK	acbcv6.l1b2_from_on_x1_v	None		1.00845e-07	None
1.00845e-07			1e-09	1		
12 ON	OK	acbyvs4.l1b2_from_on_x1_v	None		2.10916e-07	None
2.10916e-07			1e-09	1		
13 ON	OK	acbyvs4.r1b2_from_on_x1_v	None		-2.37802e-07	None
-2.37802e-07			1e-09	1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	2.1684e-19	-0.001	-0.001	line=b1, ('y', 'ip1'), val=-0.001, tol=1 ...
1	ON		True	8.67362e-19	0.001	0.001	line=b2, ('y', 'ip1'), val=0.001, tol=1e ...
2	ON		True	2.03288e-20	2.03288e-20	0	line=b1, ('py', 'ip1'), val=0, tol=1e-10 ...
3	ON		True	1.69407e-20	1.69407e-20	0	line=b2, ('py', 'ip1'), val=0, tol=1e-10 ...
4	ON		True	-1.44663e-19	-1.44663e-19	0	line=b1, ('y', 'e.ds.r1.b1'), val=0, tol ...
5	ON		True	-1.22426e-18	-1.22426e-18	0	line=b2, ('y', 'e.ds.r1.b2'), val=0, tol ...
6	ON		True	2.02347e-20	2.02347e-20	0	line=b1, ('py', 'e.ds.r1.b1'), val=0, to ...
7	ON		True	8.85521e-21	8.85521e-21	0	line=b2, ('py', 'e.ds.r1.b2'), val=0, to ...

Matching: model call n. 3

Vary status:

id	state	tag	met	name	lower_limit	current_val	
upper_limit	val_at_iter_0	step	weight				
0	ON	OK		acbxv1.l1_from_on_sep1_v	None	-9.14676e-06	None
-9.14676e-06			1e-09		1		
1	ON	OK		acbxv1.r1_from_on_sep1_v	None	-9.15493e-06	None
-9.15493e-06			1e-09		1		
2	ON	OK		acbxv2.l1_from_on_sep1_v	None	-1.16986e-05	None
-1.16986e-05			1e-09		1		

3	ON	OK	acbxv2.r1_from_on_sep1_v	None	-1.1773e-05	None
-1.1773e-05			1e-09	1		
4	ON	OK	acbxv3.l1_from_on_sep1_v	None	-4.65583e-06	None
-4.65583e-06			1e-09	1		
5	ON	OK	acbxv3.r1_from_on_sep1_v	None	-4.57146e-06	None
-4.57146e-06			1e-09	1		
6	ON	OK	acbcv5.l1b1_from_on_sep1_v	None	-1.37218e-05	None
-1.37218e-05			1e-09	1		
7	ON	OK	acbcv6.r1b1_from_on_sep1_v	None	2.06063e-06	None
2.06063e-06			1e-09	1		
8	ON	OK	acbyvs4.l1b1_from_on_sep1_v	None	8.43862e-06	None
8.43862e-06			1e-09	1		
9	ON	OK	acbyvs4.r1b1_from_on_sep1_v	None	-1.1717e-05	None
-1.1717e-05			1e-09	1		
10	ON	OK	acbcv5.r1b2_from_on_sep1_v	None	1.60395e-05	None
1.60395e-05			1e-09	1		
11	ON	OK	acbcv6.l1b2_from_on_sep1_v	None	-1.94331e-06	None
-1.94331e-06			1e-09	1		
12	ON	OK	acbyvs4.l1b2_from_on_sep1_v	None	1.14368e-05	None
1.14368e-05			1e-09	1		
13	ON	OK	acbyvs4.r1b2_from_on_sep1_v	None	-1.1595e-05	None
-1.1595e-05			1e-09	1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	-8.67362e-19	0.001	0.001	line=b1, ('x', 'ip1'), val=0.001, tol=1e ...
1	ON		True	1.64859e-19	-6.62617e-17	-6.64266e-17	line=b1, ('px', 'ip1'), val=-6.64266e-17 ...
2	ON		True	-9.29903e-12	-9.30178e-12	-2.75007e-15	line=b1, ('x', 'e.ds.r1.b1'), val=-2.750 ...
3	ON		True	1.3187e-13	1.31916e-13	4.56343e-17	line=b1, ('px', 'e.ds.r1.b1'), val=4.563 ...

Matching: model call n. 3

Vary status:

id	state	tag	met	name	lower_limit	current_val	
upper_limit	val_at_iter_0	step	weight				
0	ON	OK		acbch5.r1b1_from_on_xip1b1	None	-0.000122309	None
-0.000122309			1e-09	1			
1	ON	OK		acbch6.l1b1_from_on_xip1b1	None	-2.78484e-05	None
-2.78484e-05			1e-09	1			
2	ON	OK		acbyh4.l1b1_from_on_xip1b1	None	6.57306e-05	None
6.57306e-05			1e-09	1			
3	ON	OK		acbyhs4.r1b1_from_on_xip1b1	None	0.00015798	None
0.00015798			1e-09	1			

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	-2.38524e-18	0.001	0.001	line=b2, ('x',

```

'ip1'), val=0.001, tol=1e ...
 1 ON          True   6.13843e-19  -7.07442e-18  -7.68826e-18 line=b2, ('px',
'ip1'), val=-7.68826e-18 ...
 2 ON          True   6.83969e-13   6.82699e-13  -1.26987e-15 line=b2, ('x',
'e.ds.r1.b2'), val=-1.269 ...
 3 ON          True   3.70186e-14   3.70151e-14  -3.47101e-18 line=b2, ('px',
'e.ds.r1.b2'), val=-3.47 ...
Matching: model call n. 3

```

Vary status:

id	state	tag	met name	lower_limit	current_val
upper_limit	val_at_iter_0	step	weight		
0	ON	OK	acbch5.l1b2_from_on_xip1b2	None	-0.000105602 None
-0.000105602		1e-09	1		
1	ON	OK	acbch6.r1b2_from_on_xip1b2	None	-2.93553e-05 None
-2.93553e-05		1e-09	1		
2	ON	OK	acbyh4.r1b2_from_on_xip1b2	None	6.77417e-05 None
6.77417e-05		1e-09	1		
3	ON	OK	acbyhs4.l1b2_from_on_xip1b2	None	0.000135316 None
0.000135316		1e-09	1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	5.42101e-18	0.001	0.001	line=b1, ('x',
							'ip1'), val=0.001, tol=1e ...
1	ON		True	-2.38524e-18	0.001	0.001	line=b2, ('x',
							'ip1'), val=0.001, tol=1e ...
2	ON		True	2.37053e-18	-6.4056e-17	-6.64266e-17	line=b1, ('px',
							'ip1'), val=-6.64266e-17 ...
3	ON		True	1.80162e-19	-7.5081e-18	-7.68826e-18	line=b2, ('px',
							'ip1'), val=-7.68826e-18 ...
4	ON		True	-4.54537e-10	-4.5454e-10	-2.75007e-15	line=b1, ('x',
							'e.ds.r1.b1'), val=-2.750 ...
5	ON		True	5.45758e-12	5.45631e-12	-1.26987e-15	line=b2, ('x',
							'e.ds.r1.b2'), val=-1.269 ...
6	ON		True	6.16371e-12	6.16375e-12	4.56343e-17	line=b1, ('px',
							'e.ds.r1.b1'), val=4.563 ...
7	ON		True	6.664e-13	6.66397e-13	-3.47101e-18	line=b2, ('px',
							'e.ds.r1.b2'), val=-3.47 ...

Matching: model call n. 3

Vary status:

id	state	tag	met name	lower_limit	current_val	upper_limit
val_at_iter_0		step	weight			
0	ON	OK	acbch5.r1b1_from_on_oh1	None	1.64413e-05	None
1.64413e-05		1e-09	1			
1	ON	OK	acbch6.l1b1_from_on_oh1	None	2.52404e-05	None
2.52404e-05		1e-09	1			
2	ON	OK	acbch7.r1b1_from_on_oh1	None	-4.32056e-05	None

-4.32056e-05			1e-09		1		
3 ON	OK	acbch8.11b1_from_on_oh1	None			-2.65737e-05	None
-2.65737e-05			1e-09		1		
4 ON	OK	acbyhs4.11b1_from_on_oh1	None			2.32173e-05	None
2.32173e-05			1e-09		1		
5 ON	OK	acbyhs4.r1b1_from_on_oh1	None			2.04922e-05	None
2.04922e-05			1e-09		1		
6 ON	OK	acbch5.11b2_from_on_oh1	None			2.00018e-05	None
2.00018e-05			1e-09		1		
7 ON	OK	acbch6.r1b2_from_on_oh1	None			2.41969e-05	None
2.41969e-05			1e-09		1		
8 ON	OK	acbch7.11b2_from_on_oh1	None			-4.25407e-05	None
-4.25407e-05			1e-09		1		
9 ON	OK	acbch8.r1b2_from_on_oh1	None			-2.62939e-05	None
-2.62939e-05			1e-09		1		
10 ON	OK	acbyhs4.11b2_from_on_oh1	None			2.40387e-05	None
2.40387e-05			1e-09		1		
11 ON	OK	acbyhs4.r1b2_from_on_oh1	None			2.10721e-05	None
2.10721e-05			1e-09		1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	-9.86624e-16	0.001	0.001	line=b2, ('y', 'ip1'), val=0.001, tol=1e ...
1	ON		True	-2.51603e-17	-2.51603e-17	0	line=b2, ('py', 'ip1'), val=0, tol=1e-10 ...
2	ON		True	1.16666e-10	1.16666e-10	0	line=b2, ('y', 'e.ds.r1.b2'), val=0, tol ...
3	ON		True	-7.80665e-12	-7.80665e-12	0	line=b2, ('py', 'e.ds.r1.b2'), val=0, to ...

Matching: model call n. 3

Vary status:

id	state	tag	met	name	lower_limit	current_val	
upper_limit	val_at_iter_0	step	weight				
0	ON	OK		acbcv5.r1b2_from_on_yip1b2	None	-0.000122309	None
-0.000122309			1e-09		1		
1	ON	OK		acbcv6.11b2_from_on_yip1b2	None	-2.81237e-05	None
-2.81237e-05			1e-09		1		
2	ON	OK		acbyv4.11b2_from_on_yip1b2	None	6.54286e-05	None
6.54286e-05			1e-09		1		
3	ON	OK		acbyvs4.r1b2_from_on_yip1b2	None	0.000157979	None
0.000157979			1e-09		1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	0	0.001	0.001	line=b1, ('y', 'ip1'), val=0.001, tol=1e ...
1	ON		True	1.69407e-20	1.69407e-20	0	line=b1, ('py', 'ip1'), val=0, tol=1e-10 ...

```

 2 ON          True   5.13335e-20   5.13335e-20           0 line=b1, ('y',
'e.ds.r1.b1'), val=0, tol ...
 3 ON          True   8.34811e-21   8.34811e-21           0 line=b1, ('py',
'e.ds.r1.b1'), val=0, to ...
Matching: model call n. 3

```

Vary status:

id	state	tag	met	name	lower_limit	current_val
upper_limit	val_at_iter_0	step	weight			
0	ON	OK		acbcv5.11b1_from_on_yip1b1	None	-0.000105831
-0.000105831		1e-09	1			None
1	ON	OK		acbcv6.r1b1_from_on_yip1b1	None	-2.92212e-05
-2.92212e-05		1e-09	1			None
2	ON	OK		acbyv4.r1b1_from_on_yip1b1	None	6.78736e-05
6.78736e-05		1e-09	1			None
3	ON	OK		acbyvs4.11b1_from_on_yip1b1	None	0.000135288
0.000135288		1e-09	1			None

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	8.67362e-19	0.001	0.001	line=b1, ('y', 'ip1'), val=0.001, tol=1e ...
1	ON		True	2.1684e-19	0.001	0.001	line=b2, ('y', 'ip1'), val=0.001, tol=1e ...
2	ON		True	7.11508e-20	7.11508e-20		0 line=b1, ('py', 'ip1'), val=0, tol=1e-10 ...
3	ON		True	-1.35525e-20	-1.35525e-20		0 line=b2, ('py', 'ip1'), val=0, tol=1e-10 ...
4	ON		True	2.67007e-18	2.67007e-18		0 line=b1, ('y', 'e.ds.r1.b1'), val=0, tol ...
5	ON		True	-9.27665e-19	-9.27665e-19		0 line=b2, ('y', 'e.ds.r1.b2'), val=0, tol ...
6	ON		True	-2.50139e-20	-2.50139e-20		0 line=b1, ('py', 'e.ds.r1.b1'), val=0, to ...
7	ON		True	-1.02284e-20	-1.02284e-20		0 line=b2, ('py', 'e.ds.r1.b2'), val=0, to ...

Matching: model call n. 3

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit
val_at_iter_0		step	weight				
0	ON	OK		acbcv5.11b1_from_on_ov1	None	1.85686e-05	None
1.85686e-05		1e-09	1				
1	ON	OK		acbcv6.r1b1_from_on_ov1	None	2.44789e-05	None
2.44789e-05		1e-09	1				
2	ON	OK		acbcv7.11b1_from_on_ov1	None	-4.30078e-05	None
-4.30078e-05		1e-09	1				
3	ON	OK		acbcv8.r1b1_from_on_ov1	None	-2.60118e-05	None
-2.60118e-05		1e-09	1				

4	ON	OK	acbyvs4.l1b1_from_on_ov1	None	2.26056e-05	None
2.26056e-05			1e-09	1		
5	ON	OK	acbyvs4.r1b1_from_on_ov1	None	2.21232e-05	None
2.21232e-05			1e-09	1		
6	ON	OK	acbcv5.r1b2_from_on_ov1	None	1.73107e-05	None
1.73107e-05			1e-09	1		
7	ON	OK	acbcv6.l1b2_from_on_ov1	None	2.47905e-05	None
2.47905e-05			1e-09	1		
8	ON	OK	acbcv7.r1b2_from_on_ov1	None	-4.28291e-05	None
-4.28291e-05			1e-09	1		
9	ON	OK	acbcv8.l1b2_from_on_ov1	None	-2.68326e-05	None
-2.68326e-05			1e-09	1		
10	ON	OK	acbyvs4.l1b2_from_on_ov1	None	2.22247e-05	None
2.22247e-05			1e-09	1		
11	ON	OK	acbyvs4.r1b2_from_on_ov1	None	2.12075e-05	None
2.12075e-05			1e-09	1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	-5.30424e-18	-4.07226e-16	-4.01922e-16	line=b1, ('x', 'ip2'), val=-4.01922e-16, ...
1	ON		True	2.25483e-17	-2.68015e-16	-2.90563e-16	line=b2, ('x', 'ip2'), val=-2.90563e-16, ...
2	ON		True	2.71051e-20	0.00017	0.00017	line=b1, ('px', 'ip2'), val=0.00017, tol ...
3	ON		True	1.6263e-19	-0.00017	-0.00017	line=b2, ('px', 'ip2'), val=-0.00017, to ...
4	ON		True	2.20619e-13	2.20477e-13	-1.42314e-16	line=b1, ('x', 'e.ds.r2.b1'), val=-1.423 ...
5	ON		True	-4.83654e-13	-4.83659e-13	-4.94421e-18	line=b2, ('x', 'e.ds.r2.b2'), val=-4.944 ...
6	ON		True	6.77048e-15	6.77826e-15	7.78283e-18	line=b1, ('px', 'e.ds.r2.b1'), val=7.782 ...
7	ON		True	-1.56991e-14	-1.56947e-14	4.43542e-18	line=b2, ('px', 'e.ds.r2.b2'), val=4.435 ...

Matching: model call n. 3

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit
0	ON	OK		acbxh1.r2_from_on_x2h	None	-7.83514e-08	None
-7.83514e-08				1e-09	1		
1	ON	OK		acbxh2.l2_from_on_x2h	None	1.62853e-07	None
1.62853e-07				1e-09	1		
2	ON	OK		acbxh2.r2_from_on_x2h	None	-1.2517e-07	None
-1.2517e-07				1e-09	1		
3	ON	OK		acbxh3.l2_from_on_x2h	None	4.77778e-08	None
4.77778e-08				1e-09	1		
4	ON	OK		acbxh3.r2_from_on_x2h	None	-2.38995e-08	None

-2.38995e-08			1e-09	1		
5 ON	OK	acbchs5.r2b1_from_on_x2h	None		7.52684e-08	None
7.52684e-08			1e-09	1		
6 ON	OK	acbyhs4.l2b1_from_on_x2h	None		-6.01615e-08	None
-6.01615e-08			1e-09	1		
7 ON	OK	acbyhs4.r2b1_from_on_x2h	None		3.15188e-07	None
3.15188e-07			1e-09	1		
8 ON	OK	acbyhs5.l2b1_from_on_x2h	None		-2.30691e-07	None
-2.30691e-07			1e-09	1		
9 ON	OK	acbchs5.r2b2_from_on_x2h	None		-2.65036e-07	None
-2.65036e-07			1e-09	1		
10 ON	OK	acbyhs4.l2b2_from_on_x2h	None		3.17711e-07	None
3.17711e-07			1e-09	1		
11 ON	OK	acbyhs4.r2b2_from_on_x2h	None		1.78079e-08	None
1.78079e-08			1e-09	1		
12 ON	OK	acbyhs5.l2b2_from_on_x2h	None		7.11387e-08	None
7.11387e-08			1e-09	1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	1.17094e-17	0.001	0.001	line=b1, ('x', 'ip2'), val=0.001, tol=1e ...
1	ON		True	6.72205e-18	-0.001	-0.001	line=b2, ('x', 'ip2'), val=-0.001, tol=1 ...
2	ON		True	-2.69492e-19	-6.04443e-18	-5.77494e-18	line=b1, ('px', 'ip2'), val=-5.77494e-18 ...
3	ON		True	3.34684e-19	-3.24041e-17	-3.27388e-17	line=b2, ('px', 'ip2'), val=-3.27388e-17 ...
4	ON		True	-3.47527e-15	-3.61758e-15	-1.42314e-16	line=b1, ('x', 'e.ds.r2.b1'), val=-1.423 ...
5	ON		True	-3.61258e-12	-3.61259e-12	-4.94421e-18	line=b2, ('x', 'e.ds.r2.b2'), val=-4.944 ...
6	ON		True	1.10221e-15	1.10999e-15	7.78283e-18	line=b1, ('px', 'e.ds.r2.b1'), val=7.782 ...
7	ON		True	5.93664e-14	5.93708e-14	4.43542e-18	line=b2, ('px', 'e.ds.r2.b2'), val=4.435 ...

Matching: model call n. 3

Vary status:

id	state	tag	met	name	lower_limit	current_val
upper_limit	val_at_iter_0	step	weight			
0	ON	OK		acbxh1.r2_from_on_sep2h	None	6.94065e-06 None
6.94065e-06			1e-09	1		
1	ON	OK		acbxh2.l2_from_on_sep2h	None	7.89975e-06 None
7.89975e-06			1e-09	1		
2	ON	OK		acbxh2.r2_from_on_sep2h	None	4.38784e-06 None
4.38784e-06			1e-09	1		
3	ON	OK		acbxh3.l2_from_on_sep2h	None	1.41811e-05 None
1.41811e-05			1e-09	1		

4	ON	OK	acbxh3.r2_from_on_sep2h	None	1.0012e-05	None
1.0012e-05			1e-09	1		
5	ON	OK	acbchs5.r2b1_from_on_sep2h	None	7.81204e-06	None
7.81204e-06			1e-09	1		
6	ON	OK	acbyhs4.l2b1_from_on_sep2h	None	9.26857e-06	None
9.26857e-06			1e-09	1		
7	ON	OK	acbyhs4.r2b1_from_on_sep2h	None	4.99972e-06	None
4.99972e-06			1e-09	1		
8	ON	OK	acbyhs5.l2b1_from_on_sep2h	None	-2.30178e-06	None
-2.30178e-06			1e-09	1		
9	ON	OK	acbchs5.r2b2_from_on_sep2h	None	6.47351e-06	None
6.47351e-06			1e-09	1		
10	ON	OK	acbyhs4.l2b2_from_on_sep2h	None	-3.48975e-06	None
-3.48975e-06			1e-09	1		
11	ON	OK	acbyhs4.r2b2_from_on_sep2h	None	-1.95873e-05	None
-1.95873e-05			1e-09	1		
12	ON	OK	acbyhs5.l2b2_from_on_sep2h	None	-7.53931e-06	None
-7.53931e-06			1e-09	1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	-1.30104e-18	-1.30104e-18	1.92593e-34	line=b1, ('y', 'ip2'), val=1.92593e-34, ...
1	ON		True	4.33681e-18	4.33681e-18	1.92593e-34	line=b2, ('y', 'ip2'), val=1.92593e-34, ...
2	ON		True	-8.13152e-20	0.00017	0.00017	line=b1, ('py', 'ip2'), val=0.00017, tol ...
3	ON		True	-5.42101e-20	-0.00017	-0.00017	line=b2, ('py', 'ip2'), val=-0.00017, to ...
4	ON		True	6.77138e-17	6.77138e-17	1.50786e-33	line=b1, ('y', 'e.ds.r2.b1'), val=1.5078 ...
5	ON		True	-2.92645e-16	-2.92645e-16	-8.41186e-35	line=b2, ('y', 'e.ds.r2.b2'), val=-8.411 ...
6	ON		True	2.90985e-18	2.90985e-18	-1.76265e-35	line=b1, ('py', 'e.ds.r2.b1'), val=-1.76 ...
7	ON		True	-1.24512e-17	-1.24512e-17	-4.22528e-35	line=b2, ('py', 'e.ds.r2.b2'), val=-4.22 ...

Matching: model call n. 3

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit
0	ON	OK		acbxv1.l2_from_on_x2v	None	7.67993e-08	None
7.67993e-08				1e-09	1		
1	ON	OK		acbxv1.r2_from_on_x2v	None	-7.77214e-08	None
-7.77214e-08				1e-09	1		
2	ON	OK		acbxv2.l2_from_on_x2v	None	1.20934e-07	None
1.20934e-07				1e-09	1		
3	ON	OK		acbxv2.r2_from_on_x2v	None	-1.24572e-07	None

-1.24572e-07			1e-09	1		
4 ON	OK	acbxv3.l2_from_on_x2v	None		2.57965e-08	None
2.57965e-08			1e-09	1		
5 ON	OK	acbxv3.r2_from_on_x2v	None		-2.6051e-08	None
-2.6051e-08			1e-09	1		
6 ON	OK	acbcvs5.r2b1_from_on_x2v	None		2.61451e-07	None
2.61451e-07			1e-09	1		
7 ON	OK	acbyvs4.l2b1_from_on_x2v	None		-3.23819e-07	None
-3.23819e-07			1e-09	1		
8 ON	OK	acbyvs4.r2b1_from_on_x2v	None		-1.17612e-08	None
-1.17612e-08			1e-09	1		
9 ON	OK	acbyvs5.l2b1_from_on_x2v	None		-6.30358e-08	None
-6.30358e-08			1e-09	1		
10 ON	OK	acbcvs5.r2b2_from_on_x2v	None		-7.4145e-08	None
-7.4145e-08			1e-09	1		
11 ON	OK	acbyvs4.l2b2_from_on_x2v	None		8.12127e-08	None
8.12127e-08			1e-09	1		
12 ON	OK	acbyvs4.r2b2_from_on_x2v	None		-3.15817e-07	None
-3.15817e-07			1e-09	1		
13 ON	OK	acbyvs5.l2b2_from_on_x2v	None		2.1818e-07	None
2.1818e-07			1e-09	1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	-2.43599e-15	0.001	0.001	line=b1, ('y', 'ip2'), val=0.001, tol=1e ...
1	ON		True	3.81466e-15	-0.001	-0.001	line=b2, ('y', 'ip2'), val=-0.001, tol=1 ...
2	ON		True	-3.45149e-17	-3.45149e-17	0	line=b1, ('py', 'ip2'), val=0, tol=1e-10 ...
3	ON		True	4.37543e-17	4.37543e-17	0	line=b2, ('py', 'ip2'), val=0, tol=1e-10 ...
4	ON		True	4.3321e-11	4.3321e-11	1.50786e-33	line=b1, ('y', 'e.ds.r2.b1'), val=1.5078 ...
5	ON		True	-1.26215e-10	-1.26215e-10	-8.41186e-35	line=b2, ('y', 'e.ds.r2.b2'), val=-8.411 ...
6	ON		True	-5.09666e-12	-5.09666e-12	-1.76265e-35	line=b1, ('py', 'e.ds.r2.b1'), val=-1.76 ...
7	ON		True	-5.69376e-12	-5.69376e-12	-4.22528e-35	line=b2, ('py', 'e.ds.r2.b2'), val=-4.22 ...

Matching: model call n. 3

Vary status:

id	state	tag	met	name	lower_limit	current_val
upper_limit	val_at_iter_0	step	weight			
0	ON	OK	acbxv1.l2_from_on_sep2v	None	7.02406e-06	None
7.02406e-06			1e-09	1		
1	ON	OK	acbxv1.r2_from_on_sep2v	None	6.94041e-06	None
6.94041e-06			1e-09	1		

2	ON	OK	acbxv2.l2_from_on_sep2v	None	4.59879e-06	None
4.59879e-06			1e-09	1		
3	ON	OK	acbxv2.r2_from_on_sep2v	None	4.33524e-06	None
4.33524e-06			1e-09	1		
4	ON	OK	acbxv3.l2_from_on_sep2v	None	9.65688e-06	None
9.65688e-06			1e-09	1		
5	ON	OK	acbxv3.r2_from_on_sep2v	None	1.00696e-05	None
1.00696e-05			1e-09	1		
6	ON	OK	acbcvs5.r2b1_from_on_sep2v	None	-6.40778e-06	None
-6.40778e-06			1e-09	1		
7	ON	OK	acbyvs4.l2b1_from_on_sep2v	None	6.73593e-06	None
6.73593e-06			1e-09	1		
8	ON	OK	acbyvs4.r2b1_from_on_sep2v	None	1.94826e-05	None
1.94826e-05			1e-09	1		
9	ON	OK	acbyvs5.l2b1_from_on_sep2v	None	5.30644e-06	None
5.30644e-06			1e-09	1		
10	ON	OK	acbcvs5.r2b2_from_on_sep2v	None	-7.70876e-06	None
-7.70876e-06			1e-09	1		
11	ON	OK	acbyvs4.l2b2_from_on_sep2v	None	-1.77437e-05	None
-1.77437e-05			1e-09	1		
12	ON	OK	acbyvs4.r2b2_from_on_sep2v	None	-5.0184e-06	None
-5.0184e-06			1e-09	1		
13	ON	OK	acbyvs5.l2b2_from_on_sep2v	None	5.56158e-06	None
5.56158e-06			1e-09	1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	-4.76214e-18	-4.06684e-16	-4.01922e-16	line=b1, ('x', 'ip2'), val=-4.01922e-16, ...
1	ON		True	-6.39993e-18	-2.96963e-16	-2.90563e-16	line=b2, ('x', 'ip2'), val=-2.90563e-16, ...
2	ON		True	3.65918e-19	3e-05	3e-05	line=b1, ('px', 'ip2'), val=3e-05, tol=1 ...
3	ON		True	-1.82959e-19	3e-05	3e-05	line=b2, ('px', 'ip2'), val=3e-05, tol=1 ...
4	ON		True	-1.06544e-12	-1.06559e-12	-1.42314e-16	line=b1, ('x', 'e.ds.r2.b1'), val=-1.423 ...
5	ON		True	-2.09534e-12	-2.09534e-12	-4.94421e-18	line=b2, ('x', 'e.ds.r2.b2'), val=-4.944 ...
6	ON		True	-4.57971e-14	-4.57893e-14	7.78283e-18	line=b1, ('px', 'e.ds.r2.b1'), val=7.782 ...
7	ON		True	3.46162e-13	3.46166e-13	4.43542e-18	line=b2, ('px', 'e.ds.r2.b2'), val=4.435 ...

Matching: model call n. 3

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit
val_at_iter_0			step	weight			
0	ON		OK	acbchs5.r2b1_from_on_a2	None	1.06133e-06	None

1.06133e-06			1e-09		1		
1 ON	OK	acbyhs4.l2b1_from_on_a2	None			5.5493e-07	None
5.5493e-07			1e-09		1		
2 ON	OK	acbyhs4.r2b1_from_on_a2	None			-3.43953e-07	None
-3.43953e-07			1e-09		1		
3 ON	OK	acbyhs5.l2b1_from_on_a2	None			-5.39676e-07	None
-5.39676e-07			1e-09		1		
4 ON	OK	acbchs5.r2b2_from_on_a2	None			6.68541e-07	None
6.68541e-07			1e-09		1		
5 ON	OK	acbyhs4.l2b2_from_on_a2	None			1.65661e-07	None
1.65661e-07			1e-09		1		
6 ON	OK	acbyhs4.r2b2_from_on_a2	None			-7.81752e-07	None
-7.81752e-07			1e-09		1		
7 ON	OK	acbyhs5.l2b2_from_on_a2	None			-6.86628e-07	None
-6.86628e-07			1e-09		1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	-1.4962e-17	0.001	0.001	line=b1, ('x', 'ip2'), val=0.001, tol=1e ...
1	ON		True	-1.99493e-17	0.001	0.001	line=b2, ('x', 'ip2'), val=0.001, tol=1e ...
2	ON		True	-1.67848e-19	-5.94278e-18	-5.77494e-18	line=b1, ('px', 'ip2'), val=-5.77494e-18 ...
3	ON		True	-4.07317e-19	-3.31461e-17	-3.27388e-17	line=b2, ('px', 'ip2'), val=-3.27388e-17 ...
4	ON		True	-1.40512e-13	-1.40655e-13	-1.42314e-16	line=b1, ('x', 'e.ds.r2.b1'), val=-1.423 ...
5	ON		True	-3.89168e-11	-3.89168e-11	-4.94421e-18	line=b2, ('x', 'e.ds.r2.b2'), val=-4.944 ...
6	ON		True	-1.03928e-14	-1.0385e-14	7.78283e-18	line=b1, ('px', 'e.ds.r2.b1'), val=7.782 ...
7	ON		True	-2.00205e-12	-2.00205e-12	4.43542e-18	line=b2, ('px', 'e.ds.r2.b2'), val=4.435 ...

Matching: model call n. 3

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit
0	ON	OK		acbch6.r2b1_from_on_oh2	None	-7.47586e-06	None
-7.47586e-06				step			
				weight			
1	ON	OK		acbch7.l2b1_from_on_oh2	None	-1.45564e-05	None
-1.45564e-05				step			
				weight			
2	ON	OK		acbchs5.r2b1_from_on_oh2	None	-2.84758e-05	None
-2.84758e-05				step			
				weight			
3	ON	OK		acbyh4.r2b1_from_on_oh2	None	1.74393e-05	None
1.74393e-05				step			
				weight			
4	ON	OK		acbyh5.l2b1_from_on_oh2	None	-7.35667e-06	None
-7.35667e-06				step			
				weight			

5	ON	OK	acbyhs4.l2b1_from_on_oh2	None	4.23831e-05	None
4.23831e-05			1e-09	1		
6	ON	OK	acbyhs4.r2b1_from_on_oh2	None	1.73036e-05	None
1.73036e-05			1e-09	1		
7	ON	OK	acbyhs5.l2b1_from_on_oh2	None	-7.24504e-06	None
-7.24504e-06			1e-09	1		
8	ON	OK	acbch5.r2b2_from_on_oh2	None	-9.51981e-06	None
-9.51981e-06			1e-09	1		
9	ON	OK	acbch6.l2b2_from_on_oh2	None	-5.67035e-06	None
-5.67035e-06			1e-09	1		
10	ON	OK	acbch7.r2b2_from_on_oh2	None	-1.64992e-05	None
-1.64992e-05			1e-09	1		
11	ON	OK	acbchs5.r2b2_from_on_oh2	None	-9.53137e-06	None
-9.53137e-06			1e-09	1		
12	ON	OK	acbyh4.l2b2_from_on_oh2	None	1.89644e-05	None
1.89644e-05			1e-09	1		
13	ON	OK	acbyhs4.l2b2_from_on_oh2	None	1.8861e-05	None
1.8861e-05			1e-09	1		
14	ON	OK	acbyhs4.r2b2_from_on_oh2	None	4.16976e-05	None
4.16976e-05			1e-09	1		
15	ON	OK	acbyhs5.l2b2_from_on_oh2	None	-2.64336e-05	None
-2.64336e-05			1e-09	1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	-5.85469e-18	0.001	0.001	line=b2, ('x', 'ip2'), val=0.001, tol=1e ...
1	ON		True	3.88894e-19	-3.23499e-17	-3.27388e-17	line=b2, ('px', 'ip2'), val=-3.27388e-17 ...
2	ON		True	-5.22571e-11	-5.22572e-11	-4.94421e-18	line=b2, ('x', 'e.ds.r2.b2'), val=-4.944 ...
3	ON		True	-1.15339e-12	-1.15339e-12	4.43542e-18	line=b2, ('px', 'e.ds.r2.b2'), val=4.435 ...

Matching: model call n. 3

Vary status:

id	state	tag	met	name	lower_limit	current_val
upper_limit	val_at_iter_0	step	weight			
0	ON	OK		acbch5.r2b2_from_on_xip2b2	None	-4.74257e-05
-4.74257e-05			1e-09	1		
1	ON	OK		acbyh4.l2b2_from_on_xip2b2	None	4.67216e-05
4.67216e-05			1e-09	1		
2	ON	OK		acbyhs4.r2b2_from_on_xip2b2	None	0.000103603
0.000103603			1e-09	1		
3	ON	OK		acbyhs5.l2b2_from_on_xip2b2	None	-4.75048e-05
-4.75048e-05			1e-09	1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	-2.47198e-17	0.001	0.001	line=b1, ('x',

```

'ip2'), val=0.001, tol=1e ...
 1 ON          True -2.52551e-19 -6.02749e-18 -5.77494e-18 line=b1, ('px',
'ip2'), val=-5.77494e-18 ...
 2 ON          True -1.33108e-13 -1.3325e-13 -1.42314e-16 line=b1, ('x',
'e.ds.r2.b1'), val=-1.423 ...
 3 ON          True -6.94407e-15 -6.93629e-15 7.78283e-18 line=b1, ('px',
'e.ds.r2.b1'), val=7.782 ...
Matching: model call n. 3

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Vary status:

id	state	tag	met	name	lower_limit	current_val
0	ON	OK	acbchs5.r2b1_from_on_xip2b1	None	-7.45159e-05	None
			val_at_iter_0	step	weight	
			1e-09	1		
1	ON	OK	acbyh4.r2b1_from_on_xip2b1	None	5.94607e-05	None
			1e-09	1		
2	ON	OK	acbyh5.l2b1_from_on_xip2b1	None	-4.15667e-05	None
			1e-09	1		
3	ON	OK	acbyhs4.l2b1_from_on_xip2b1	None	9.20179e-05	None
			1e-09	1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON	True	-6.50521e-19	0.001	0.001	0.001	line=b1, ('y',
							'ip2'), val=0.001, tol=1e ...
1	ON	True	-6.50521e-19	0.001	0.001	0.001	line=b2, ('y',
							'ip2'), val=0.001, tol=1e ...
2	ON	True	2.03288e-20	2.03288e-20	0	0	line=b1, ('py',
							'ip2'), val=0, tol=1e-10 ...
3	ON	True	4.06576e-20	4.06576e-20	0	0	line=b2, ('py',
							'ip2'), val=0, tol=1e-10 ...
4	ON	True	2.22071e-18	2.22071e-18	1.50786e-33	1.50786e-33	line=b1, ('y',
							'e.ds.r2.b1'), val=1.5078 ...
5	ON	True	2.29078e-19	2.29078e-19	-8.41186e-35	-8.41186e-35	line=b2, ('y',
							'e.ds.r2.b2'), val=-8.411 ...
6	ON	True	-2.66202e-20	-2.66202e-20	-1.76265e-35	-1.76265e-35	line=b1, ('py',
							'e.ds.r2.b1'), val=-1.76 ...
7	ON	True	5.97299e-20	5.97299e-20	-4.22528e-35	-4.22528e-35	line=b2, ('py',
							'e.ds.r2.b2'), val=-4.22 ...

Matching: model call n. 3

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit
0	ON	OK	acbcvs5.r2b1_from_on_o2	None	-5.12907e-05	None	
			val_at_iter_0	step	weight		
			1e-09	1			
1	ON	OK	acbyvs4.l2b1_from_on_o2	None	4.13439e-05	None	
			1e-09	1			
2	ON	OK	acbyvs4.r2b1_from_on_o2	None	0.000107233	None	

0.000107233		1e-09	1		
3 ON	OK	acbyvs5.12b1_from_on_o2	None	-4.53408e-05	None
-4.53408e-05		1e-09	1		
4 ON	OK	acbcvs5.r2b2_from_on_o2	None	-6.9353e-05	None
-6.9353e-05		1e-09	1		
5 ON	OK	acbyvs4.12b2_from_on_o2	None	8.6589e-05	None
8.6589e-05		1e-09	1		
6 ON	OK	acbyvs4.r2b2_from_on_o2	None	5.79093e-05	None
5.79093e-05		1e-09	1		
7 ON	OK	acbyvs5.12b2_from_on_o2	None	-4.15064e-05	None
-4.15064e-05		1e-09	1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	-6.50521e-19	0.001	0.001	line=b1, ('y', 'ip2'), val=0.001, tol=1e ...
1	ON		True	0	0.001	0.001	line=b2, ('y', 'ip2'), val=0.001, tol=1e ...
2	ON		True	9.14796e-20	9.14796e-20	0	line=b1, ('py', 'ip2'), val=0, tol=1e-10 ...
3	ON		True	-2.03288e-20	-2.03288e-20	0	line=b2, ('py', 'ip2'), val=0, tol=1e-10 ...
4	ON		True	7.45028e-18	7.45028e-18	1.50786e-33	line=b1, ('y', 'e.ds.r2.b1'), val=1.5078 ...
5	ON		True	-1.67072e-18	-1.67072e-18	-8.41186e-35	line=b2, ('y', 'e.ds.r2.b2'), val=-8.411 ...
6	ON		True	-7.55024e-20	-7.55024e-20	-1.76265e-35	line=b1, ('py', 'e.ds.r2.b1'), val=-1.76 ...
7	ON		True	-1.58393e-19	-1.58393e-19	-4.22528e-35	line=b2, ('py', 'e.ds.r2.b2'), val=-4.22 ...

Matching: model call n. 3

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit
val_at_iter_0				step			
0	ON	OK		acbcv5.r2b1_from_on_ov2	None	-7.72858e-06	None
-7.72858e-06				1e-09	1		
1	ON	OK		acbcv6.12b1_from_on_ov2	None	-1.89747e-06	None
-1.89747e-06				1e-09	1		
2	ON	OK		acbcv7.r2b1_from_on_ov2	None	-1.62699e-05	None
-1.62699e-05				1e-09	1		
3	ON	OK		acbcvs5.r2b1_from_on_ov2	None	-7.81187e-06	None
-7.81187e-06				1e-09	1		
4	ON	OK		acbyv4.12b1_from_on_ov2	None	1.94852e-05	None
1.94852e-05				1e-09	1		
5	ON	OK		acbyvs4.12b1_from_on_ov2	None	1.92653e-05	None
1.92653e-05				1e-09	1		
6	ON	OK		acbyvs4.r2b1_from_on_ov2	None	4.13635e-05	None
4.13635e-05				1e-09	1		

7	ON	OK	acbyvs5.l2b1_from_on_ov2	None	-3.98092e-05	None
-3.98092e-05			1e-09	1		
8	ON	OK	acbcv6.r2b2_from_on_ov2	None	-6.52296e-06	None
-6.52296e-06			1e-09	1		
9	ON	OK	acbcv7.l2b2_from_on_ov2	None	-1.50812e-05	None
-1.50812e-05			1e-09	1		
10	ON	OK	acbcvs5.r2b2_from_on_ov2	None	-3.32049e-05	None
-3.32049e-05			1e-09	1		
11	ON	OK	acbyv4.r2b2_from_on_ov2	None	1.90898e-05	None
1.90898e-05			1e-09	1		
12	ON	OK	acbyv5.l2b2_from_on_ov2	None	-5.67118e-06	None
-5.67118e-06			1e-09	1		
13	ON	OK	acbyvs4.l2b2_from_on_ov2	None	3.8174e-05	None
3.8174e-05			1e-09	1		
14	ON	OK	acbyvs4.r2b2_from_on_ov2	None	1.89329e-05	None
1.89329e-05			1e-09	1		
15	ON	OK	acbyvs5.l2b2_from_on_ov2	None	-5.49064e-06	None
-5.49064e-06			1e-09	1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	1.51788e-18	0.001	0.001	line=b1, ('y', 'ip2'), val=0.001, tol=1e ...
1	ON		True	5.75982e-20	5.75982e-20	0	line=b1, ('py', 'ip2'), val=0, tol=1e-10 ...
2	ON		True	-4.82195e-18	-4.82195e-18	1.50786e-33	line=b1, ('y', 'e.ds.r2.b1'), val=1.5078 ...
3	ON		True	5.124e-20	5.124e-20	-1.76265e-35	line=b1, ('py', 'e.ds.r2.b1'), val=-1.76 ...

Matching: model call n. 3

Vary status:

id	state	tag	met	name	lower_limit	current_val
upper_limit	val_at_iter_0	step	weight			
0	ON	OK		acbcv5.r2b1_from_on_yip2b1	None	-4.73818e-05
-4.73818e-05			1e-09	1		
1	ON	OK		acbyv4.l2b1_from_on_yip2b1	None	4.18356e-05
4.18356e-05			1e-09	1		
2	ON	OK		acbyvs4.r2b1_from_on_yip2b1	None	0.000103824
0.000103824			1e-09	1		
3	ON	OK		acbyvs5.l2b1_from_on_yip2b1	None	-4.76723e-05
-4.76723e-05			1e-09	1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	0	0.001	0.001	line=b2, ('y', 'ip2'), val=0.001, tol=1e ...
1	ON		True	1.35525e-20	1.35525e-20	0	line=b2, ('py', 'ip2'), val=0, tol=1e-10 ...
2	ON		True	-3.8217e-19	-3.8217e-19	-8.41186e-35	line=b2, ('y',

'e.ds.r2.b2'), val=-8.411 ...
 3 ON True 1.37752e-21 1.37752e-21 -4.22528e-35 line=b2, ('py',
 'e.ds.r2.b2'), val=-4.22 ...
 Matching: model call n. 3

Vary status:

id	state	tag	met	name	lower_limit	current_val
0	ON	OK		acbcvs5.r2b2_from_on_yip2b2	None	-7.44532e-05
				upper_limit val_at_iter_0	step	weight
				-7.44532e-05	1e-09	1
1	ON	OK		acbyv4.r2b2_from_on_yip2b2	None	5.98306e-05
				5.98306e-05	1e-09	1
2	ON	OK		acbyv5.l2b2_from_on_yip2b2	None	-4.1782e-05
				-4.1782e-05	1e-09	1
3	ON	OK		acbyvs4.l2b2_from_on_yip2b2	None	8.90223e-05
				8.90223e-05	1e-09	1

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		False	1.80466e-05	1.80466e-05	1.11187e-16	line=b1, ('x', 'ip5'), val=1.11187e-16, ...
1	ON		False	8.44039e-06	8.44039e-06	-1.75955e-16	line=b2, ('x', 'ip5'), val=-1.75955e-16, ...
2	ON		False	7.60191e-07	0.00017076	0.00017	line=b1, ('px', 'ip5'), val=0.00017, tol ...
3	ON		False	-5.17878e-07	-0.000170518	-0.00017	line=b2, ('px', 'ip5'), val=-0.00017, to ...
4	ON		False	-8.49231e-05	-8.49231e-05	-2.78623e-15	line=b1, ('x', 'e.ds.r5.b1'), val=-2.786 ...
5	ON		False	-2.07951e-05	-2.07951e-05	-1.25738e-15	line=b2, ('x', 'e.ds.r5.b2'), val=-1.257 ...
6	ON		False	1.07241e-06	1.07241e-06	4.67287e-17	line=b1, ('px', 'e.ds.r5.b1'), val=4.672 ...
7	ON		False	7.05164e-07	7.05164e-07	-4.30367e-18	line=b2, ('px', 'e.ds.r5.b2'), val=-4.30 ...

Matching: model call n. 34

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit
0	ON	OK		acbxh1.l5_from_on_x5_h	None	4.51271e-08	None
				val_at_iter_0	step	weight	
				4.61607e-08	1e-09	1	
1	ON	OK		acbxh1.r5_from_on_x5_h	None	-4.42152e-08	None
				-4.52673e-08	1e-09	1	
2	ON	OK		acbxh2.l5_from_on_x5_h	None	4.92973e-08	None
				5.23952e-08	1e-09	1	
3	ON	OK		acbxh2.r5_from_on_x5_h	None	-4.65857e-08	None
				-4.96809e-08	1e-09	1	
4	ON	OK		acbxh3.l5_from_on_x5_h	None	2.54809e-08	None

2.23918e-08		1e-09	1		
5 ON	OK	acbxh3.r5_from_on_x5_h	None	-2.66913e-08	None
-2.36409e-08		1e-09	1		
6 ON	OK	acbch5.r5b1_from_on_x5_h	None	9.44585e-08	None
9.39539e-08		1e-09	1		
7 ON	OK	acbch6.l5b1_from_on_x5_h	None	-1.36326e-07	None
-1.37308e-07		1e-09	1		
8 ON	OK	acbyhs4.l5b1_from_on_x5_h	None	-7.65951e-08	None
-7.52089e-08		1e-09	1		
9 ON	OK	acbyhs4.r5b1_from_on_x5_h	None	2.50217e-07	None
2.51437e-07		1e-09	1		
10 ON	OK	acbch5.l5b2_from_on_x5_h	None	1.07489e-07	None
1.07144e-07		1e-09	1		
11 ON	OK	acbch6.r5b2_from_on_x5_h	None	-1.34792e-07	None
-1.35767e-07		1e-09	1		
12 ON	OK	acbyhs4.l5b2_from_on_x5_h	None	2.35695e-07	None
2.36837e-07		1e-09	1		
13 ON	OK	acbyhs4.r5b2_from_on_x5_h	None	-7.51576e-08	None
-7.36845e-08		1e-09	1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		False	1.47257e-06	-0.000998527	-0.001	line=b1, ('x', 'ip5'), val=-0.001, tol=1 ...
1	ON		False	-1.93481e-06	0.000998065	0.001	line=b2, ('x', 'ip5'), val=0.001, tol=1e ...
2	ON		False	1.76842e-07	1.76842e-07	-7.50512e-17	line=b1, ('px', 'ip5'), val=-7.50512e-17 ...
3	ON		False	-2.13068e-07	-2.13068e-07	-1.07605e-17	line=b2, ('px', 'ip5'), val=-1.07605e-17 ...
4	ON		False	3.40508e-06	3.40508e-06	-2.78623e-15	line=b1, ('x', 'e.ds.r5.b1'), val=-2.786 ...
5	ON		False	-3.08331e-06	-3.08331e-06	-1.25738e-15	line=b2, ('x', 'e.ds.r5.b2'), val=-1.257 ...
6	ON		False	-9.43904e-08	-9.43904e-08	4.67287e-17	line=b1, ('px', 'e.ds.r5.b1'), val=4.672 ...
7	ON		False	-8.78964e-08	-8.78964e-08	-4.30367e-18	line=b2, ('px', 'e.ds.r5.b2'), val=-4.30 ...

Matching: model call n. 18

Vary status:

id	state	tag	met	name	lower_limit	current_val	
upper_limit	val_at_iter_0	step	weight				
0	ON	OK		acbxh1.l5_from_on_sep5_h	None	-8.236e-06	None
-8.21668e-06		1e-09	1				
1	ON	OK		acbxh1.r5_from_on_sep5_h	None	-8.29218e-06	None
-8.27054e-06		1e-09	1				
2	ON	OK		acbxh2.l5_from_on_sep5_h	None	-7.73186e-06	None
-7.72515e-06		1e-09	1				

3	ON	OK	acbxh2.r5_from_on_sep5_h	None	-8.02304e-06	None
-8.00945e-06			1e-09	1		
4	ON	OK	acbxh3.l5_from_on_sep5_h	None	-8.67717e-06	None
-8.63894e-06			1e-09	1		
5	ON	OK	acbxh3.r5_from_on_sep5_h	None	-8.36852e-06	None
-8.33878e-06			1e-09	1		
6	ON	OK	acbch5.r5b1_from_on_sep5_h	None	1.02457e-05	None
1.01986e-05			1e-09	1		
7	ON	OK	acbch6.l5b1_from_on_sep5_h	None	-8.59515e-06	None
-8.60945e-06			1e-09	1		
8	ON	OK	acbyhs4.l5b1_from_on_sep5_h	None	4.61172e-06	None
4.59359e-06			1e-09	1		
9	ON	OK	acbyhs4.r5b1_from_on_sep5_h	None	-2.0773e-05	None
-2.07969e-05			1e-09	1		
10	ON	OK	acbch5.l5b2_from_on_sep5_h	None	-1.16566e-05	None
-1.16157e-05			1e-09	1		
11	ON	OK	acbch6.r5b2_from_on_sep5_h	None	8.44255e-06	None
8.45629e-06			1e-09	1		
12	ON	OK	acbyhs4.l5b2_from_on_sep5_h	None	2.2222e-05	None
2.22401e-05			1e-09	1		
13	ON	OK	acbyhs4.r5b2_from_on_sep5_h	None	-4.59954e-06	None
-4.58671e-06			1e-09	1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		False	-8.54128e-06	-8.54128e-06	0	line=b1, ('y', 'ip5'), val=0, tol=1e-08, ...
1	ON		False	-1.78921e-05	-1.78921e-05	0	line=b2, ('y', 'ip5'), val=0, tol=1e-08, ...
2	ON		False	5.31221e-07	0.000170531	0.00017	line=b1, ('py', 'ip5'), val=0.00017, tol ...
3	ON		False	-7.55248e-07	-0.000170755	-0.00017	line=b2, ('py', 'ip5'), val=-0.00017, to ...
4	ON		False	1.08743e-05	1.08743e-05	0	line=b1, ('y', 'e.ds.r5.b1'), val=0, tol ...
5	ON		False	7.99536e-05	7.99536e-05	0	line=b2, ('y', 'e.ds.r5.b2'), val=0, tol ...
6	ON		False	-5.81456e-07	-5.81456e-07	0	line=b1, ('py', 'e.ds.r5.b1'), val=0, to ...
7	ON		False	-1.01303e-06	-1.01303e-06	0	line=b2, ('py', 'e.ds.r5.b2'), val=0, to ...

Matching: model call n. 18

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit
0	ON	OK		acbxv1.l5_from_on_x5_v	None	4.43026e-08	None
4.53336e-08				1e-09	1		
1	ON	OK		acbxv1.r5_from_on_x5_v	None	-4.54192e-08	None

-4.64344e-08			1e-09		1		
2 ON	OK	acbxv2.15_from_on_x5_v		None		4.59989e-08	None
4.90899e-08			1e-09		1		
3 ON	OK	acbxv2.r5_from_on_x5_v		None		-5.02314e-08	None
-5.31714e-08			1e-09		1		
4 ON	OK	acbxv3.15_from_on_x5_v		None		2.74031e-08	None
2.43104e-08			1e-09		1		
5 ON	OK	acbxv3.r5_from_on_x5_v		None		-2.45845e-08	None
-2.16126e-08			1e-09		1		
6 ON	OK	acbcv5.15b1_from_on_x5_v		None		-1.09408e-07	None
-1.09083e-07			1e-09		1		
7 ON	OK	acbcv6.r5b1_from_on_x5_v		None		1.28368e-07	None
1.29647e-07			1e-09		1		
8 ON	OK	acbyvs4.15b1_from_on_x5_v		None		-2.32566e-07	None
-2.33716e-07			1e-09		1		
9 ON	OK	acbyvs4.r5b1_from_on_x5_v		None		8.92276e-08	None
8.80508e-08			1e-09		1		
10 ON	OK	acbcv5.r5b2_from_on_x5_v		None		-9.20938e-08	None
-9.17481e-08			1e-09		1		
11 ON	OK	acbcv6.15b2_from_on_x5_v		None		1.44137e-07	None
1.45104e-07			1e-09		1		
12 ON	OK	acbyvs4.15b2_from_on_x5_v		None		6.45258e-08	None
6.31521e-08			1e-09		1		
13 ON	OK	acbyvs4.r5b2_from_on_x5_v		None		-2.53728e-07	None
-2.54995e-07			1e-09		1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	1.54341e-14	0.001	0.001	line=b1, ('y', 'ip5'), val=0.001, tol=1e ...
1	ON		True	2.07501e-14	-0.001	-0.001	line=b2, ('y', 'ip5'), val=-0.001, tol=1 ...
2	ON		True	-2.77275e-16	-2.77275e-16	0	line=b1, ('py', 'ip5'), val=0, tol=1e-10 ...
3	ON		True	1.06852e-15	1.06852e-15	0	line=b2, ('py', 'ip5'), val=0, tol=1e-10 ...
4	ON		True	-5.73391e-11	-5.73391e-11	0	line=b1, ('y', 'e.ds.r5.b1'), val=0, tol ...
5	ON		True	1.20371e-11	1.20371e-11	0	line=b2, ('y', 'e.ds.r5.b2'), val=0, tol ...
6	ON		True	-2.33991e-12	-2.33991e-12	0	line=b1, ('py', 'e.ds.r5.b1'), val=0, to ...
7	ON		True	-3.76915e-12	-3.76915e-12	0	line=b2, ('py', 'e.ds.r5.b2'), val=0, to ...

Matching: model call n. 3

Vary status:

id	state	tag	met	name	lower_limit	current_val
upper_limit	val_at_iter_0	step	weight			

0 ON	OK	acbxv1.l5_from_on_sep5_v	None	5e-06	None
5e-06		1e-09	1		
1 ON	OK	acbxv1.r5_from_on_sep5_v	None	5e-06	None
5e-06		1e-09	1		
2 ON	OK	acbxv2.l5_from_on_sep5_v	None	5e-06	None
5e-06		1e-09	1		
3 ON	OK	acbxv2.r5_from_on_sep5_v	None	5e-06	None
5e-06		1e-09	1		
4 ON	OK	acbxv3.l5_from_on_sep5_v	None	5e-06	None
5e-06		1e-09	1		
5 ON	OK	acbxv3.r5_from_on_sep5_v	None	5e-06	None
5e-06		1e-09	1		
6 ON	OK	acbcv5.l5b1_from_on_sep5_v	None	-4.02305e-05	None
-4.02305e-05		1e-09	1		
7 ON	OK	acbcv6.r5b1_from_on_sep5_v	None	-9.65205e-06	None
-9.65205e-06		1e-09	1		
8 ON	OK	acbyvs4.l5b1_from_on_sep5_v	None	6.25698e-05	None
6.25698e-05		1e-09	1		
9 ON	OK	acbyvs4.r5b1_from_on_sep5_v	None	2.17914e-05	None
2.17914e-05		1e-09	1		
10 ON	OK	acbcv5.r5b2_from_on_sep5_v	None	3.4302e-05	None
3.4302e-05		1e-09	1		
11 ON	OK	acbcv6.l5b2_from_on_sep5_v	None	1.01989e-05	None
1.01989e-05		1e-09	1		
12 ON	OK	acbyvs4.l5b2_from_on_sep5_v	None	-2.27457e-05	None
-2.27457e-05		1e-09	1		
13 ON	OK	acbyvs4.r5b2_from_on_sep5_v	None	-5.51133e-05	None
-5.51133e-05		1e-09	1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		False	-8.19109e-06	0.000991809	0.001	line=b1, ('x', 'ip5'), val=0.001, tol=1e ...
1	ON		False	8.36816e-07	8.36816e-07	-7.50512e-17	line=b1, ('px', 'ip5'), val=-7.50512e-17 ...
2	ON		False	6.45359e-05	6.45359e-05	-2.78623e-15	line=b1, ('x', 'e.ds.r5.b1'), val=-2.786 ...
3	ON		False	-8.48589e-07	-8.48589e-07	4.67287e-17	line=b1, ('px', 'e.ds.r5.b1'), val=4.672 ...

Matching: model call n. 8

Vary status:

id	state	tag	met	name	lower_limit	current_val
upper_limit	val_at_iter_0	step	weight			
0	ON	OK		acbch5.r5b1_from_on_xip5b1	None	-7.1032e-05
-7.06891e-05		1e-09	1			
1	ON	OK		acbch6.l5b1_from_on_xip5b1	None	-4.24717e-05
-4.24556e-05		1e-09	1			
2	ON	OK		acbyh4.l5b1_from_on_xip5b1	None	6.79834e-05

```

6.76713e-05      1e-09      1
 3 ON      OK  acbyhs4.r5b1_from_on_xip5b1 None      0.000108258 None
0.000108065      1e-09      1

```

Target status:

```

id state tag tol_met      residue      current_val      target_val description
0 ON      False -1.99389e-06      0.000998006      0.001 line=b2, ('x',
'ip5'), val=0.001, tol=1e ...
1 ON      False -4.82149e-07      -4.82149e-07      -1.07605e-17 line=b2, ('px',
'ip5'), val=-1.07605e-17 ...
2 ON      False  1.17977e-05      1.17977e-05      -1.25738e-15 line=b2, ('x',
'e.ds.r5.b2'), val=-1.257 ...
3 ON      False -2.12793e-07      -2.12793e-07      -4.30367e-18 line=b2, ('px',
'e.ds.r5.b2'), val=-4.30 ...

```

Matching: model call n. 8

Vary status:

```

id state tag met name      lower_limit      current_val
upper_limit val_at_iter_0      step      weight
0 ON      OK  acbch5.l5b2_from_on_xip5b2 None      -8.36246e-05 None
-8.325e-05      1e-09      1
1 ON      OK  acbch6.r5b2_from_on_xip5b2 None      -3.99399e-05 None
-3.99617e-05      1e-09      1
2 ON      OK  acbyh4.r5b2_from_on_xip5b2 None      6.5511e-05 None
6.52868e-05      1e-09      1
3 ON      OK  acbyhs4.l5b2_from_on_xip5b2 None      0.000122743 None
0.000122396      1e-09      1

```

Target status:

```

id state tag tol_met      residue      current_val      target_val description
0 ON      False -3.31131e-05      0.000966887      0.001 line=b1, ('x',
'ip5'), val=0.001, tol=1e ...
1 ON      False -2.00826e-06      0.000997992      0.001 line=b2, ('x',
'ip5'), val=0.001, tol=1e ...
2 ON      False  7.75221e-06      7.75221e-06      -7.50512e-17 line=b1, ('px',
'ip5'), val=-7.50512e-17 ...
3 ON      False -2.22586e-06      -2.22586e-06      -1.07605e-17 line=b2, ('px',
'ip5'), val=-1.07605e-17 ...
4 ON      False  0.000278305      0.000278305      -2.78623e-15 line=b1, ('x',
'e.ds.r5.b1'), val=-2.786 ...
5 ON      False  0.000111659      0.000111659      -1.25738e-15 line=b2, ('x',
'e.ds.r5.b2'), val=-1.257 ...
6 ON      False -4.13923e-06      -4.13923e-06      4.67287e-17 line=b1, ('px',
'e.ds.r5.b1'), val=4.672 ...
7 ON      False -4.50113e-07      -4.50113e-07      -4.30367e-18 line=b2, ('px',
'e.ds.r5.b2'), val=-4.30 ...

```

Matching: model call n. 30

Vary status:

```

id state tag met name      lower_limit      current_val upper_limit

```

val_at_iter_0		step	weight		
0	ON	OK	acbch5.r5b1_from_on_oh5	None	2.85103e-05
2.87773e-05			1e-09	1	
1	ON	OK	acbch6.15b1_from_on_oh5	None	1.98644e-05
1.92465e-05			1e-09	1	
2	ON	OK	acbch7.r5b1_from_on_oh5	None	-3.39441e-05
-3.35582e-05			1e-09	1	
3	ON	OK	acbch8.15b1_from_on_oh5	None	-2.21398e-05
-2.25276e-05			1e-09	1	
4	ON	OK	acbyhs4.15b1_from_on_oh5	None	2.51317e-05
2.44344e-05			1e-09	1	
5	ON	OK	acbyhs4.r5b1_from_on_oh5	None	2.96844e-05
2.98559e-05			1e-09	1	
6	ON	OK	acbch5.15b2_from_on_oh5	None	2.87937e-05
2.89432e-05			1e-09	1	
7	ON	OK	acbch6.r5b2_from_on_oh5	None	2.00134e-05
1.9361e-05			1e-09	1	
8	ON	OK	acbch7.15b2_from_on_oh5	None	-3.10787e-05
-3.08084e-05			1e-09	1	
9	ON	OK	acbch8.r5b2_from_on_oh5	None	-2.36398e-05
-2.4075e-05			1e-09	1	
10	ON	OK	acbyhs4.15b2_from_on_oh5	None	2.97588e-05
2.98493e-05			1e-09	1	
11	ON	OK	acbyhs4.r5b2_from_on_oh5	None	2.50804e-05
2.43701e-05			1e-09	1	

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		False	-8.20914e-06	0.000991791	0.001	line=b2, ('y', 'ip5'), val=0.001, tol=1e ...
1	ON		False	7.87631e-07	7.87631e-07	0	line=b2, ('py', 'ip5'), val=0, tol=1e-10 ...
2	ON		False	4.72928e-05	4.72928e-05	0	line=b2, ('y', 'e.ds.r5.b2'), val=0, tol ...
3	ON		False	-6.65811e-07	-6.65811e-07	0	line=b2, ('py', 'e.ds.r5.b2'), val=0, to ...

Matching: model call n. 8

Vary status:

id	state	tag	met	name	lower_limit	current_val
upper_limit	val_at_iter_0	step	weight			
0	ON	OK	acbcv5.r5b2_from_on_yip5b2	None	-7.12145e-05	None
-7.08861e-05			1e-09	1		
1	ON	OK	acbcv6.15b2_from_on_yip5b2	None	-4.27617e-05	None
-4.2725e-05			1e-09	1		
2	ON	OK	acbyv4.15b2_from_on_yip5b2	None	6.86882e-05	None
6.83599e-05			1e-09	1		
3	ON	OK	acbyvs4.r5b2_from_on_yip5b2	None	0.000107908	None
0.000107549			1e-09	1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		False	-2.29583e-06	0.000997704	0.001	line=b1, ('y', 'ip5'), val=0.001, tol=1e ...
1	ON		False	-4.1521e-07	-4.1521e-07	0	line=b1, ('py', 'ip5'), val=0, tol=1e-10 ...
2	ON		False	2.9415e-05	2.9415e-05	0	line=b1, ('y', 'e.ds.r5.b1'), val=0, tol ...
3	ON		False	-4.16033e-07	-4.16033e-07	0	line=b1, ('py', 'e.ds.r5.b1'), val=0, to ...

Matching: model call n. 8

Vary status:

id	state	tag	met	name	lower_limit	current_val
0	ON	OK		acbcv5.15b1_from_on_yip5b1	None	-8.35226e-05 None
			val_at_iter_0	step	weight	
			-8.31522e-05	1e-09	1	
1	ON	OK		acbcv6.r5b1_from_on_yip5b1	None	-4.0326e-05 None
			-4.0339e-05	1e-09	1	
2	ON	OK		acbyv4.r5b1_from_on_yip5b1	None	6.45698e-05 None
			6.41097e-05	1e-09	1	
3	ON	OK		acbyvs4.15b1_from_on_yip5b1	None	0.000123389 None
			0.000123016	1e-09	1	

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		False	-1.72319e-06	0.000998277	0.001	line=b1, ('y', 'ip5'), val=0.001, tol=1e ...
1	ON		False	-3.30971e-05	0.000966903	0.001	line=b2, ('y', 'ip5'), val=0.001, tol=1e ...
2	ON		False	-2.54936e-06	-2.54936e-06	0	line=b1, ('py', 'ip5'), val=0, tol=1e-10 ...
3	ON		False	7.66647e-06	7.66647e-06	0	line=b2, ('py', 'ip5'), val=0, tol=1e-10 ...
4	ON		False	0.000121258	0.000121258	0	line=b1, ('y', 'e.ds.r5.b1'), val=0, tol ...
5	ON		False	0.000261366	0.000261366	0	line=b2, ('y', 'e.ds.r5.b2'), val=0, tol ...
6	ON		False	-7.5132e-07	-7.5132e-07	0	line=b1, ('py', 'e.ds.r5.b1'), val=0, to ...
7	ON		False	-3.91951e-06	-3.91951e-06	0	line=b2, ('py', 'e.ds.r5.b2'), val=0, to ...

Matching: model call n. 16

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit
0	ON	OK		acbcv5.15b1_from_on_ov5	None	2.85815e-05	None
			val_at_iter_0	step	weight		
			2.87686e-05	1e-09	1		

1	ON	OK	acbcv6.r5b1_from_on_ov5	None	1.89337e-05	None
1.81844e-05			1e-09	1		
2	ON	OK	acbcv7.l5b1_from_on_ov5	None	-3.16895e-05	None
-3.13915e-05			1e-09	1		
3	ON	OK	acbcv8.r5b1_from_on_ov5	None	-2.34545e-05	None
-2.3861e-05			1e-09	1		
4	ON	OK	acbyvs4.l5b1_from_on_ov5	None	2.93632e-05	None
2.9486e-05			1e-09	1		
5	ON	OK	acbyvs4.r5b1_from_on_ov5	None	2.40931e-05	None
2.32343e-05			1e-09	1		
6	ON	OK	acbcv5.r5b2_from_on_ov5	None	2.7196e-05	None
2.74121e-05			1e-09	1		
7	ON	OK	acbcv6.l5b2_from_on_ov5	None	1.9933e-05	None
1.93023e-05			1e-09	1		
8	ON	OK	acbcv7.r5b2_from_on_ov5	None	-3.41334e-05	None
-3.37094e-05			1e-09	1		
9	ON	OK	acbcv8.l5b2_from_on_ov5	None	-2.27859e-05	None
-2.31696e-05			1e-09	1		
10	ON	OK	acbyvs4.l5b2_from_on_ov5	None	2.42829e-05	None
2.3591e-05			1e-09	1		
11	ON	OK	acbyvs4.r5b2_from_on_ov5	None	2.87637e-05	None
2.88495e-05			1e-09	1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	7.24282e-18	-3.71231e-16	-3.78474e-16	line=b1, ('x', 'ip8'), val=-3.78474e-16, ...
1	ON		True	2.63994e-18	-4.01263e-16	-4.03903e-16	line=b2, ('x', 'ip8'), val=-4.03903e-16, ...
2	ON		True	-8.13152e-20	0.00017	0.00017	line=b1, ('px', 'ip8'), val=0.00017, tol ...
3	ON		True	6.77626e-19	-0.00017	-0.00017	line=b2, ('px', 'ip8'), val=-0.00017, to ...
4	ON		True	1.7469e-13	1.74577e-13	-1.13162e-16	line=b1, ('x', 'e.ds.r8.b1'), val=-1.131 ...
5	ON		True	-7.53549e-13	-7.53485e-13	6.35194e-17	line=b2, ('x', 'e.ds.r8.b2'), val=6.3519 ...
6	ON		True	5.41e-15	5.40832e-15	-1.68129e-18	line=b1, ('px', 'e.ds.r8.b1'), val=-1.68 ...
7	ON		True	-3.34148e-14	-3.34157e-14	-9.57451e-19	line=b2, ('px', 'e.ds.r8.b2'), val=-9.57 ...

Matching: model call n. 3

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit
0	ON	OK		acbxh1.l8_from_on_x8h	None	8.13712e-08	None
8.13712e-08				1e-09	1		
1	ON	OK		acbxh1.r8_from_on_x8h	None	-7.9416e-08	None

-7.9416e-08			1e-09	1		
2 ON	OK	acbxh2.l8_from_on_x8h	None		6.96537e-08	None
6.96537e-08			1e-09	1		
3 ON	OK	acbxh2.r8_from_on_x8h	None		-6.46186e-08	None
-6.46186e-08			1e-09	1		
4 ON	OK	acbxh3.l8_from_on_x8h	None		1.09126e-07	None
1.09126e-07			1e-09	1		
5 ON	OK	acbxh3.r8_from_on_x8h	None		-1.21348e-07	None
-1.21348e-07			1e-09	1		
6 ON	OK	acbchs5.l8b1_from_on_x8h	None		-2.34553e-07	None
-2.34553e-07			1e-09	1		
7 ON	OK	acbyhs4.l8b1_from_on_x8h	None		-1.15879e-07	None
-1.15879e-07			1e-09	1		
8 ON	OK	acbyhs4.r8b1_from_on_x8h	None		3.82134e-07	None
3.82134e-07			1e-09	1		
9 ON	OK	acbyhs5.r8b1_from_on_x8h	None		-1.04482e-08	None
-1.04482e-08			1e-09	1		
10 ON	OK	acbchs5.l8b2_from_on_x8h	None		-7.84732e-09	None
-7.84732e-09			1e-09	1		
11 ON	OK	acbyhs4.l8b2_from_on_x8h	None		3.79008e-07	None
3.79008e-07			1e-09	1		
12 ON	OK	acbyhs4.r8b2_from_on_x8h	None		-9.79413e-08	None
-9.79413e-08			1e-09	1		
13 ON	OK	acbyhs5.r8b2_from_on_x8h	None		-2.09856e-07	None
-2.09856e-07			1e-09	1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	1.60462e-17	0.001	0.001	line=b1, ('x', 'ip8'), val=0.001, tol=1e ...
1	ON		True	-2.81893e-18	-0.001	-0.001	line=b2, ('x', 'ip8'), val=-0.001, tol=1 ...
2	ON		True	-2.71247e-19	1.06252e-17	1.08964e-17	line=b1, ('px', 'ip8'), val=1.08964e-17, ...
3	ON		True	1.97579e-19	-1.34882e-17	-1.36857e-17	line=b2, ('px', 'ip8'), val=-1.36857e-17 ...
4	ON		True	4.1806e-15	4.06744e-15	-1.13162e-16	line=b1, ('x', 'e.ds.r8.b1'), val=-1.131 ...
5	ON		True	-2.528e-13	-2.52737e-13	6.35194e-17	line=b2, ('x', 'e.ds.r8.b2'), val=6.3519 ...
6	ON		True	2.2798e-16	2.26299e-16	-1.68129e-18	line=b1, ('px', 'e.ds.r8.b1'), val=-1.68 ...
7	ON		True	5.15529e-15	5.15433e-15	-9.57451e-19	line=b2, ('px', 'e.ds.r8.b2'), val=-9.57 ...

Matching: model call n. 3

Vary status:

id	state	tag	met	name	lower_limit	current_val
upper_limit	val_at_iter_0	step	weight			

0	ON	OK	acbxh1.l8_from_on_sep8h	None	7.20558e-06	None
7.20558e-06			1e-09	1		
1	ON	OK	acbxh1.r8_from_on_sep8h	None	7.18775e-06	None
7.18775e-06			1e-09	1		
2	ON	OK	acbxh2.l8_from_on_sep8h	None	6.57211e-06	None
6.57211e-06			1e-09	1		
3	ON	OK	acbxh2.r8_from_on_sep8h	None	6.38076e-06	None
6.38076e-06			1e-09	1		
4	ON	OK	acbxh3.l8_from_on_sep8h	None	7.1768e-06	None
7.1768e-06			1e-09	1		
5	ON	OK	acbxh3.r8_from_on_sep8h	None	7.45088e-06	None
7.45088e-06			1e-09	1		
6	ON	OK	acbchs5.l8b1_from_on_sep8h	None	-4.83403e-06	None
-4.83403e-06			1e-09	1		
7	ON	OK	acbyhs4.l8b1_from_on_sep8h	None	1.6571e-05	None
1.6571e-05			1e-09	1		
8	ON	OK	acbyhs4.r8b1_from_on_sep8h	None	7.64704e-06	None
7.64704e-06			1e-09	1		
9	ON	OK	acbyhs5.r8b1_from_on_sep8h	None	4.70166e-06	None
4.70166e-06			1e-09	1		
10	ON	OK	acbchs5.l8b2_from_on_sep8h	None	-4.77805e-06	None
-4.77805e-06			1e-09	1		
11	ON	OK	acbyhs4.l8b2_from_on_sep8h	None	-7.6169e-06	None
-7.6169e-06			1e-09	1		
12	ON	OK	acbyhs4.r8b2_from_on_sep8h	None	-1.70114e-05	None
-1.70114e-05			1e-09	1		
13	ON	OK	acbyhs5.r8b2_from_on_sep8h	None	4.36171e-06	None
4.36171e-06			1e-09	1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	1.6263e-18	1.6263e-18	-2.05834e-33	line=b1, ('y', 'ip8'), val=-2.05834e-33, ...
1	ON		True	-7.26415e-18	-7.26415e-18	-7.70372e-34	line=b2, ('y', 'ip8'), val=-7.70372e-34, ...
2	ON		True	1.6263e-19	0.00017	0.00017	line=b1, ('py', 'ip8'), val=0.00017, tol ...
3	ON		True	-1.6263e-19	-0.00017	-0.00017	line=b2, ('py', 'ip8'), val=-0.00017, to ...
4	ON		True	-3.18238e-17	-3.18238e-17	6.4895e-33	line=b1, ('y', 'e.ds.r8.b1'), val=6.4895 ...
5	ON		True	3.42979e-18	3.42979e-18	1.98822e-33	line=b2, ('y', 'e.ds.r8.b2'), val=1.9882 ...
6	ON		True	-1.58195e-17	-1.58195e-17	-1.12428e-34	line=b1, ('py', 'e.ds.r8.b1'), val=-1.12 ...
7	ON		True	6.69093e-21	6.69093e-21	9.16766e-35	line=b2, ('py', 'e.ds.r8.b2'), val=9.167 ...

Matching: model call n. 3

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit
0	ON	OK		acbxv1.l8_from_on_x8v	None	7.87006e-08	None
7.87006e-08				step			
				weight			
1	ON	OK		acbxv1.r8_from_on_x8v	None	-8.0137e-08	None
-8.0137e-08				step			
				weight			
2	ON	OK		acbxv2.l8_from_on_x8v	None	6.39868e-08	None
6.39868e-08				step			
				weight			
3	ON	OK		acbxv2.r8_from_on_x8v	None	-6.72318e-08	None
-6.72318e-08				step			
				weight			
4	ON	OK		acbxv3.l8_from_on_x8v	None	1.21876e-07	None
1.21876e-07				step			
				weight			
5	ON	OK		acbxv3.r8_from_on_x8v	None	-1.15588e-07	None
-1.15588e-07				step			
				weight			
6	ON	OK		acbcvs5.l8b1_from_on_x8v	None	7.29798e-09	None
7.29798e-09				step			
				weight			
7	ON	OK		acbyvs4.l8b1_from_on_x8v	None	-3.82908e-07	None
-3.82908e-07				step			
				weight			
8	ON	OK		acbyvs4.r8b1_from_on_x8v	None	8.27688e-08	None
8.27688e-08				step			
				weight			
9	ON	OK		acbyvs5.r8b1_from_on_x8v	None	2.17538e-07	None
2.17538e-07				step			
				weight			
10	ON	OK		acbcvs5.l8b2_from_on_x8v	None	2.15335e-07	None
2.15335e-07				step			
				weight			
11	ON	OK		acbyvs4.l8b2_from_on_x8v	None	9.72249e-08	None
9.72249e-08				step			
				weight			
12	ON	OK		acbyvs4.r8b2_from_on_x8v	None	-3.80813e-07	None
-3.80813e-07				step			
				weight			
13	ON	OK		acbyvs5.r8b2_from_on_x8v	None	9.59177e-09	None
9.59177e-09				step			
				weight			

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	1.74817e-15	0.001	0.001	line=b1, ('y', 'ip8'), val=0.001, tol=1e ...
1	ON		True	-1.01698e-16	-0.001	-0.001	line=b2, ('y', 'ip8'), val=-0.001, tol=1 ...
2	ON		True	4.34291e-17	4.34291e-17	4.81482e-35	line=b1, ('py', 'ip8'), val=4.81482e-35, ...
3	ON		True	4.30123e-17	4.30123e-17	0	line=b2, ('py', 'ip8'), val=0, tol=1e-10 ...
4	ON		True	2.90318e-12	2.90318e-12	6.4895e-33	line=b1, ('y', 'e.ds.r8.b1'), val=6.4895 ...
5	ON		True	2.53813e-12	2.53813e-12	1.98822e-33	line=b2, ('y', 'e.ds.r8.b2'), val=1.9882 ...
6	ON		True	5.40886e-14	5.40886e-14	-1.12428e-34	line=b1, ('py', 'e.ds.r8.b1'), val=-1.12 ...
7	ON		True	1.44184e-12	1.44184e-12	9.16766e-35	line=b2, ('py', 'e.ds.r8.b2'), val=9.16766e-35, ...

'e.ds.r8.b2'), val=9.167 ...
 Matching: model call n. 3

Vary status:

id	state	tag	met	name	lower_limit	current_val
upper_limit	val_at_iter_0	step	weight			
0	ON	OK		acbxv1.l8_from_on_sep8v	None	7.13354e-06 None
7.13354e-06			1e-09		1	
1	ON	OK		acbxv1.r8_from_on_sep8v	None	7.184e-06 None
7.184e-06			1e-09		1	
2	ON	OK		acbxv2.l8_from_on_sep8v	None	6.2126e-06 None
6.2126e-06			1e-09		1	
3	ON	OK		acbxv2.r8_from_on_sep8v	None	6.55056e-06 None
6.55056e-06			1e-09		1	
4	ON	OK		acbxv3.l8_from_on_sep8v	None	7.56587e-06 None
7.56587e-06			1e-09		1	
5	ON	OK		acbxv3.r8_from_on_sep8v	None	7.27623e-06 None
7.27623e-06			1e-09		1	
6	ON	OK		acbcvs5.l8b1_from_on_sep8v	None	4.03391e-06 None
4.03391e-06			1e-09		1	
7	ON	OK		acbyvs4.l8b1_from_on_sep8v	None	6.61491e-06 None
6.61491e-06			1e-09		1	
8	ON	OK		acbyvs4.r8b1_from_on_sep8v	None	1.7316e-05 None
1.7316e-05			1e-09		1	
9	ON	OK		acbyvs5.r8b1_from_on_sep8v	None	-4.50938e-06 None
-4.50938e-06			1e-09		1	
10	ON	OK		acbcvs5.l8b2_from_on_sep8v	None	4.52926e-06 None
4.52926e-06			1e-09		1	
11	ON	OK		acbyvs4.l8b2_from_on_sep8v	None	-1.70943e-05 None
-1.70943e-05			1e-09		1	
12	ON	OK		acbyvs4.r8b2_from_on_sep8v	None	-7.57394e-06 None
-7.57394e-06			1e-09		1	
13	ON	OK		acbyvs5.r8b2_from_on_sep8v	None	-4.91714e-06 None
-4.91714e-06			1e-09		1	

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	-1.27936e-17	0.001	0.001	line=b1, ('x', 'ip8'), val=0.001, tol=1e ...
1	ON		True	-1.14925e-17	0.001	0.001	line=b2, ('x', 'ip8'), val=0.001, tol=1e ...
2	ON		True	-5.86343e-19	1.03101e-17	1.08964e-17	line=b1, ('px', 'ip8'), val=1.08964e-17, ...
3	ON		True	7.02411e-19	-1.29833e-17	-1.36857e-17	line=b2, ('px', 'ip8'), val=-1.36857e-17 ...
4	ON		True	5.85225e-14	5.84093e-14	-1.13162e-16	line=b1, ('x', 'e.ds.r8.b1'), val=-1.131 ...
5	ON		True	-3.23227e-13	-3.23164e-13	6.35194e-17	line=b2, ('x', 'e.ds.r8.b2'), val=6.3519 ...

6 ON True -1.63203e-14 -1.6322e-14 -1.68129e-18 line=b1, ('px',
'e.ds.r8.b1'), val=-1.68 ...
7 ON True -4.86498e-14 -4.86507e-14 -9.57451e-19 line=b2, ('px',
'e.ds.r8.b2'), val=-9.57 ...
Matching: model call n. 3

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit
val_at_iter_0				step	weight		
0	ON		OK	acbchs5.l8b1_from_on_o8	None	-4.02217e-05	None
-4.02217e-05				1e-09	1		
1	ON		OK	acbyhs4.l8b1_from_on_o8	None	7.75798e-05	None
7.75798e-05				1e-09	1		
2	ON		OK	acbyhs4.r8b1_from_on_o8	None	3.98732e-05	None
3.98732e-05				1e-09	1		
3	ON		OK	acbyhs5.r8b1_from_on_o8	None	-4.80213e-05	None
-4.80213e-05				1e-09	1		
4	ON		OK	acbchs5.l8b2_from_on_o8	None	-4.74356e-05	None
-4.74356e-05				1e-09	1		
5	ON		OK	acbyhs4.l8b2_from_on_o8	None	3.97027e-05	None
3.97027e-05				1e-09	1		
6	ON		OK	acbyhs4.r8b2_from_on_o8	None	8.65575e-05	None
8.65575e-05				1e-09	1		
7	ON		OK	acbyhs5.r8b2_from_on_o8	None	-3.85978e-05	None
-3.85978e-05				1e-09	1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	5.63785e-18	0.001	0.001	line=b1, ('x', 'ip8'), val=0.001, tol=1e ...
1	ON		True	1.23599e-17	0.001	0.001	line=b2, ('x', 'ip8'), val=0.001, tol=1e ...
2	ON		True	-6.16836e-19	1.02796e-17	1.08964e-17	line=b1, ('px', 'ip8'), val=1.08964e-17, ...
3	ON		True	-2.56431e-19	-1.39422e-17	-1.36857e-17	line=b2, ('px', 'ip8'), val=-1.36857e-17 ...
4	ON		True	-1.8393e-12	-1.83941e-12	-1.13162e-16	line=b1, ('x', 'e.ds.r8.b1'), val=-1.131 ...
5	ON		True	-7.13352e-12	-7.13346e-12	6.35194e-17	line=b2, ('x', 'e.ds.r8.b2'), val=6.3519 ...
6	ON		True	-1.07385e-13	-1.07387e-13	-1.68129e-18	line=b1, ('px', 'e.ds.r8.b1'), val=-1.68 ...
7	ON		True	9.18632e-14	9.18623e-14	-9.57451e-19	line=b2, ('px', 'e.ds.r8.b2'), val=-9.57 ...

Matching: model call n. 3

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit
val_at_iter_0				step	weight		

0	ON	OK	acbch5.l8b1_from_on_oh8	None	-8.82936e-06	None
-8.82936e-06			1e-09	1		
1	ON	OK	acbch6.r8b1_from_on_oh8	None	-3.53823e-06	None
-3.53823e-06			1e-09	1		
2	ON	OK	acbch7.l8b1_from_on_oh8	None	-1.3135e-05	None
-1.3135e-05			1e-09	1		
3	ON	OK	acbchs5.l8b1_from_on_oh8	None	-8.49467e-06	None
-8.49467e-06			1e-09	1		
4	ON	OK	acbyh4.r8b1_from_on_oh8	None	1.7327e-05	None
1.7327e-05			1e-09	1		
5	ON	OK	acbyhs4.l8b1_from_on_oh8	None	3.91355e-05	None
3.91355e-05			1e-09	1		
6	ON	OK	acbyhs4.r8b1_from_on_oh8	None	1.71361e-05	None
1.71361e-05			1e-09	1		
7	ON	OK	acbyhs5.r8b1_from_on_oh8	None	-3.54833e-05	None
-3.54833e-05			1e-09	1		
8	ON	OK	acbch6.l8b2_from_on_oh8	None	-7.78993e-06	None
-7.78993e-06			1e-09	1		
9	ON	OK	acbch7.r8b2_from_on_oh8	None	-1.33585e-05	None
-1.33585e-05			1e-09	1		
10	ON	OK	acbchs5.l8b2_from_on_oh8	None	-2.37694e-05	None
-2.37694e-05			1e-09	1		
11	ON	OK	acbyh4.l8b2_from_on_oh8	None	1.51976e-05	None
1.51976e-05			1e-09	1		
12	ON	OK	acbyh5.r8b2_from_on_oh8	None	-6.36477e-06	None
-6.36477e-06			1e-09	1		
13	ON	OK	acbyhs4.l8b2_from_on_oh8	None	1.50939e-05	None
1.50939e-05			1e-09	1		
14	ON	OK	acbyhs4.r8b2_from_on_oh8	None	3.50134e-05	None
3.50134e-05			1e-09	1		
15	ON	OK	acbyhs5.r8b2_from_on_oh8	None	-6.25903e-06	None
-6.25903e-06			1e-09	1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	-7.37257e-18	0.001	0.001	line=b2, ('x', 'ip8'), val=0.001, tol=1e ...
1	ON		True	-2.12385e-19	-1.38981e-17	-1.36857e-17	line=b2, ('px', 'ip8'), val=-1.36857e-17 ...
2	ON		True	-2.934e-13	-2.93337e-13	6.35194e-17	line=b2, ('x', 'e.ds.r8.b2'), val=6.3519 ...
3	ON		True	-5.87608e-14	-5.87618e-14	-9.57451e-19	line=b2, ('px', 'e.ds.r8.b2'), val=-9.57 ...

Matching: model call n. 3

Vary status:

id	state	tag	met	name	lower_limit	current_val	
upper_limit	val_at_iter_0	step	weight				
0	ON	OK		acbchs5.l8b2_from_on_xip8b2	None	-4.96527e-05	None

-4.96527e-05			1e-09		1		
1 ON	OK	acbyh4.l8b2_from_on_xip8b2	None			4.00261e-05	None
4.00261e-05			1e-09		1		
2 ON	OK	acbyh5.r8b2_from_on_xip8b2	None			-3.86662e-05	None
-3.86662e-05			1e-09		1		
3 ON	OK	acbyhs4.r8b2_from_on_xip8b2	None			8.87959e-05	None
8.87959e-05			1e-09		1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	-9.32414e-18	0.001	0.001	line=b1, ('x', 'ip8'), val=0.001, tol=1e ...
1	ON		True	-2.88187e-19	1.06082e-17	1.08964e-17	line=b1, ('px', 'ip8'), val=1.08964e-17, ...
2	ON		True	2.19936e-13	2.19823e-13	-1.13162e-16	line=b1, ('x', 'e.ds.r8.b1'), val=-1.131 ...
3	ON		True	-1.12523e-14	-1.1254e-14	-1.68129e-18	line=b1, ('px', 'e.ds.r8.b1'), val=-1.68 ...

Matching: model call n. 3

Vary status:

id	state	tag	met	name	lower_limit	current_val
0	ON	OK		acbch5.l8b1_from_on_xip8b1	None	-4.02351e-05 None
-4.02351e-05						
1	ON	OK		acbch6.r8b1_from_on_xip8b1	None	-1.28684e-05 None
-1.28684e-05						
2	ON	OK		acbyh4.r8b1_from_on_xip8b1	None	1.98393e-05 None
1.98393e-05						
3	ON	OK		acbyhs4.l8b1_from_on_xip8b1	None	8.0007e-05 None
8.0007e-05						

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	5.69206e-19	5.69206e-19	-2.05834e-33	line=b1, ('y', 'ip8'), val=-2.05834e-33, ...
1	ON		True	5.96311e-19	5.96311e-19	-7.70372e-34	line=b2, ('y', 'ip8'), val=-7.70372e-34, ...
2	ON		True	-2.03288e-20	3e-05	3e-05	line=b1, ('py', 'ip8'), val=3e-05, tol=1 ...
3	ON		True	6.77626e-21	3e-05	3e-05	line=b2, ('py', 'ip8'), val=3e-05, tol=1 ...
4	ON		True	8.59681e-19	8.59681e-19	6.4895e-33	line=b1, ('y', 'e.ds.r8.b1'), val=6.4895 ...
5	ON		True	-1.54716e-18	-1.54716e-18	1.98822e-33	line=b2, ('y', 'e.ds.r8.b2'), val=1.9882 ...
6	ON		True	-1.62885e-20	-1.62885e-20	-1.12428e-34	line=b1, ('py', 'e.ds.r8.b1'), val=-1.12 ...
7	ON		True	-5.59095e-20	-5.59095e-20	9.16766e-35	line=b2, ('py', 'e.ds.r8.b2'), val=9.167 ...

Matching: model call n. 3

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit
0	ON	OK		acbcvs5.l8b1_from_on_a8	None	-5.97263e-07	None
				step	weight		
				1e-09	1		
1	ON	OK		acbyvs4.l8b1_from_on_a8	None	2.0362e-07	None
				1e-09	1		
2	ON	OK		acbyvs4.r8b1_from_on_a8	None	-8.21939e-07	None
				1e-09	1		
3	ON	OK		acbyvs5.r8b1_from_on_a8	None	6.61105e-07	None
				1e-09	1		
4	ON	OK		acbcvs5.l8b2_from_on_a8	None	-6.74072e-07	None
				1e-09	1		
5	ON	OK		acbyvs4.l8b2_from_on_a8	None	8.22823e-07	None
				1e-09	1		
6	ON	OK		acbyvs4.r8b2_from_on_a8	None	-8.85215e-09	None
				1e-09	1		
7	ON	OK		acbyvs5.r8b2_from_on_a8	None	6.29844e-07	None
				1e-09	1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	1.30104e-18	0.001	0.001	line=b1, ('y', 'ip8'), val=0.001, tol=1e ...
1	ON		True	-8.67362e-19	0.001	0.001	line=b2, ('y', 'ip8'), val=0.001, tol=1e ...
2	ON		True	4.06576e-20	4.06576e-20	4.81482e-35	line=b1, ('py', 'ip8'), val=4.81482e-35, ...
3	ON		True	6.09864e-20	6.09864e-20	0	line=b2, ('py', 'ip8'), val=0, tol=1e-10 ...
4	ON		True	-9.042e-18	-9.042e-18	6.4895e-33	line=b1, ('y', 'e.ds.r8.b1'), val=6.4895 ...
5	ON		True	2.82078e-18	2.82078e-18	1.98822e-33	line=b2, ('y', 'e.ds.r8.b2'), val=1.9882 ...
6	ON		True	1.06129e-19	1.06129e-19	-1.12428e-34	line=b1, ('py', 'e.ds.r8.b1'), val=-1.12 ...
7	ON		True	7.24439e-20	7.24439e-20	9.16766e-35	line=b2, ('py', 'e.ds.r8.b2'), val=9.167 ...

Matching: model call n. 3

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit
0	ON	OK		acbcv6.l8b1_from_on_ov8	None	-7.21862e-06	None
				step	weight		
				1e-09	1		
1	ON	OK		acbcv7.r8b1_from_on_ov8	None	-1.31108e-05	None
				1e-09	1		

2	ON	OK	acbcvs5.l8b1_from_on_ov8	None	-2.46015e-05	None
-2.46015e-05			1e-09	1		
3	ON	OK	acbyv4.l8b1_from_on_ov8	None	2.32586e-05	None
2.32586e-05			1e-09	1		
4	ON	OK	acbyv5.r8b1_from_on_ov8	None	-7.18123e-06	None
-7.18123e-06			1e-09	1		
5	ON	OK	acbyvs4.l8b1_from_on_ov8	None	2.3229e-05	None
2.3229e-05			1e-09	1		
6	ON	OK	acbyvs4.r8b1_from_on_ov8	None	3.65338e-05	None
3.65338e-05			1e-09	1		
7	ON	OK	acbyvs5.r8b1_from_on_ov8	None	-7.04116e-06	None
-7.04116e-06			1e-09	1		
8	ON	OK	acbcv5.l8b2_from_on_ov8	None	-8.81189e-06	None
-8.81189e-06			1e-09	1		
9	ON	OK	acbcv6.r8b2_from_on_ov8	None	-6.48859e-06	None
-6.48859e-06			1e-09	1		
10	ON	OK	acbcv7.l8b2_from_on_ov8	None	-1.48153e-05	None
-1.48153e-05			1e-09	1		
11	ON	OK	acbcvs5.l8b2_from_on_ov8	None	-8.81981e-06	None
-8.81981e-06			1e-09	1		
12	ON	OK	acbyv4.r8b2_from_on_ov8	None	1.48054e-05	None
1.48054e-05			1e-09	1		
13	ON	OK	acbyvs4.l8b2_from_on_ov8	None	4.31035e-05	None
4.31035e-05			1e-09	1		
14	ON	OK	acbyvs4.r8b2_from_on_ov8	None	1.46938e-05	None
1.46938e-05			1e-09	1		
15	ON	OK	acbyvs5.r8b2_from_on_ov8	None	-2.42665e-05	None
-2.42665e-05			1e-09	1		

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	1.30104e-18	0.001	0.001	line=b1, ('y', 'ip8'), val=0.001, tol=1e ...
1	ON		True	6.77626e-21	6.77626e-21	4.81482e-35	line=b1, ('py', 'ip8'), val=4.81482e-35, ...
2	ON		True	-1.5906e-17	-1.5906e-17	6.4895e-33	line=b1, ('y', 'e.ds.r8.b1'), val=6.4895 ...
3	ON		True	2.0496e-19	2.0496e-19	-1.12428e-34	line=b1, ('py', 'e.ds.r8.b1'), val=-1.12 ...

Matching: model call n. 3

Vary status:

id	state	tag	met	name	lower_limit	current_val
upper_limit	val_at_iter_0	step	weight			
0	ON	OK		acbcvs5.l8b1_from_on_yip8b1	None	-4.86159e-05
-4.86159e-05			1e-09	1		
1	ON	OK		acbyv4.l8b1_from_on_yip8b1	None	5.58862e-05
5.58862e-05			1e-09	1		
2	ON	OK		acbyv5.r8b1_from_on_yip8b1	None	-3.87374e-05

```

-3.87374e-05      1e-09      1
 3 ON      OK  acbyvs4.r8b1_from_on_yip8b1 None      8.86385e-05 None
8.86385e-05      1e-09      1

```

Target status:

```

id state tag tol_met      residue      current_val      target_val description
0 ON      True  -1.73472e-18      0.001      0.001 line=b2, ('y',
'ip8'), val=0.001, tol=1e ...
1 ON      True  4.74338e-20      4.74338e-20      0 line=b2, ('py',
'ip8'), val=0, tol=1e-10 ...
2 ON      True  4.16768e-18      4.16768e-18      1.98822e-33 line=b2, ('y',
'e.ds.r8.b2'), val=1.9882 ...
3 ON      True  1.37897e-19      1.37897e-19      9.16766e-35 line=b2, ('py',
'e.ds.r8.b2'), val=9.167 ...

```

Matching: model call n. 3

Vary status:

```

id state tag met name      lower_limit      current_val
upper_limit val_at_iter_0      step      weight
0 ON      OK  acbcv5.l8b2_from_on_yip8b2 None      -3.92229e-05 None
-3.92229e-05      1e-09      1
1 ON      OK  acbyv4.r8b2_from_on_yip8b2 None      3.99055e-05 None
3.99055e-05      1e-09      1
2 ON      OK  acbyvs4.l8b2_from_on_yip8b2 None      8.87631e-05 None
8.87631e-05      1e-09      1
3 ON      OK  acbyvs5.r8b2_from_on_yip8b2 None      -5.03698e-05 None
-5.03698e-05      1e-09      1

```

Target status:

```

id state tag tol_met      residue      current_val      target_val description
0 ON      True  1.5207e-10      62.32      62.32 line=b1, 'qx',
val=62.32, tol=1e-09, wei ...
1 ON      True  -2.13163e-14      60.32      60.32 line=b1, 'qy',
val=60.32, tol=1e-09, wei ...

```

Vary status:

```

id state tag met name      lower_limit      current_val upper_limit
val_at_iter_0      step      weight
0 ON      OK  kqtd.a23b1_from_dqx.b1_op None      -0.00134022 None
-0.00134022      1e-09      1
1 ON      OK  kqtd.a34b1_from_dqx.b1_op None      -0.00134104 None
-0.00134104      1e-09      1
2 ON      OK  kqtd.a67b1_from_dqx.b1_op None      -0.00134087 None
-0.00134087      1e-09      1
3 ON      OK  kqtd.a78b1_from_dqx.b1_op None      -0.00134054 None
-0.00134054      1e-09      1
4 ON      OK  kqtf.a23b1_from_dqx.b1_op None      0.00724109 None
0.00724109      1e-09      1
5 ON      OK  kqtf.a34b1_from_dqx.b1_op None      0.00724151 None
0.00724151      1e-09      1
6 ON      OK  kqtf.a67b1_from_dqx.b1_op None      0.0072405 None

```

```

0.0072405      1e-09      1
  7 ON          OK  kqtf.a78b1_from_dqx.b1_op None      0.00724061 None
0.00724061     1e-09      1

```

Matching: model call n. 2

Target status:

```

id state tag tol_met      residue      current_val      target_val description
  0 ON          True  1.5207e-10      62.32      62.32 line=b1, 'qx',
val=62.32, tol=1e-09, wei ...
  1 ON          True -2.13163e-14     60.32      60.32 line=b1, 'qy',
val=60.32, tol=1e-09, wei ...

```

Vary status:

```

id state tag met name      lower_limit      current_val upper_limit
val_at_iter_0      step      weight
  0 ON          OK  kqtd.a23b1_from_dqx.b1_sq None      -0.00134022 None
-0.00134022      1e-09      1
  1 ON          OK  kqtd.a34b1_from_dqx.b1_sq None      -0.00134104 None
-0.00134104      1e-09      1
  2 ON          OK  kqtd.a67b1_from_dqx.b1_sq None      -0.00134087 None
-0.00134087      1e-09      1
  3 ON          OK  kqtd.a78b1_from_dqx.b1_sq None      -0.00134054 None
-0.00134054      1e-09      1
  4 ON          OK  kqtf.a23b1_from_dqx.b1_sq None      0.00724109 None
0.00724109      1e-09      1
  5 ON          OK  kqtf.a34b1_from_dqx.b1_sq None      0.00724151 None
0.00724151      1e-09      1
  6 ON          OK  kqtf.a67b1_from_dqx.b1_sq None      0.0072405 None
0.0072405      1e-09      1
  7 ON          OK  kqtf.a78b1_from_dqx.b1_sq None      0.00724061 None
0.00724061      1e-09      1

```

Matching: model call n. 2

Target status:

```

id state tag tol_met      residue      current_val      target_val description
  0 ON          True  1.62004e-12     62.32      62.32 line=b1, 'qx',
val=62.32, tol=1e-09, wei ...
  1 ON          True  2.54374e-12     60.32      60.32 line=b1, 'qy',
val=60.32, tol=1e-09, wei ...

```

Vary status:

```

id state tag met name      lower_limit      current_val upper_limit
val_at_iter_0      step      weight
  0 ON          OK  kqtd.a12b1_from_dqx.b1 None      -0.000672671 None
-0.000672671     1e-09      1
  1 ON          OK  kqtd.a23b1_from_dqx.b1 None      -0.000672498 None
-0.000672498     1e-09      1
  2 ON          OK  kqtd.a34b1_from_dqx.b1 None      -0.000672499 None
-0.000672499     1e-09      1
  3 ON          OK  kqtd.a45b1_from_dqx.b1 None      -0.000672505 None

```

-0.000672505			1e-09		1		
4 ON	OK	kqtd.a56b1_from_dqx.b1	None			-0.000672368	None
-0.000672368			1e-09		1		
5 ON	OK	kqtd.a67b1_from_dqx.b1	None			-0.00067261	None
-0.00067261			1e-09		1		
6 ON	OK	kqtd.a78b1_from_dqx.b1	None			-0.000672484	None
-0.000672484			1e-09		1		
7 ON	OK	kqtd.a81b1_from_dqx.b1	None			-0.000672616	None
-0.000672616			1e-09		1		
8 ON	OK	kqtf.a12b1_from_dqx.b1	None			0.00386425	None
0.00386425			1e-09		1		
9 ON	OK	kqtf.a23b1_from_dqx.b1	None			0.00386438	None
0.00386438			1e-09		1		
10 ON	OK	kqtf.a34b1_from_dqx.b1	None			0.00386424	None
0.00386424			1e-09		1		
11 ON	OK	kqtf.a45b1_from_dqx.b1	None			0.00386416	None
0.00386416			1e-09		1		
12 ON	OK	kqtf.a56b1_from_dqx.b1	None			0.00386456	None
0.00386456			1e-09		1		
13 ON	OK	kqtf.a67b1_from_dqx.b1	None			0.00386423	None
0.00386423			1e-09		1		
14 ON	OK	kqtf.a78b1_from_dqx.b1	None			0.00386446	None
0.00386446			1e-09		1		
15 ON	OK	kqtf.a81b1_from_dqx.b1	None			0.0038657	None
0.0038657			1e-09		1		

Matching: model call n. 2

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	2.61409e-10	62.32	62.32	line=b2, 'qx', val=62.32, tol=1e-09, wei ...
1	ON		True	-1.20792e-13	60.32	60.32	line=b2, 'qy', val=60.32, tol=1e-09, wei ...

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit
0	ON	OK		kqtd.a23b2_from_dqx.b2_op	None	-0.00134323	None
-0.00134323				1e-09	1		
1	ON	OK		kqtd.a34b2_from_dqx.b2_op	None	-0.00134292	None
-0.00134292				1e-09	1		
2	ON	OK		kqtd.a67b2_from_dqx.b2_op	None	-0.00134361	None
-0.00134361				1e-09	1		
3	ON	OK		kqtd.a78b2_from_dqx.b2_op	None	-0.00134629	None
-0.00134629				1e-09	1		
4	ON	OK		kqtf.a23b2_from_dqx.b2_op	None	0.0072382	None
0.0072382				1e-09	1		
5	ON	OK		kqtf.a34b2_from_dqx.b2_op	None	0.00723826	None
0.00723826				1e-09	1		

```

  6 ON      OK  kqtf.a67b2_from_dqx.b2_op None          0.00723892 None
0.00723892    1e-09          1
  7 ON      OK  kqtf.a78b2_from_dqx.b2_op None          0.00723825 None
0.00723825    1e-09          1
Matching: model call n. 2

```

Target status:

```

id state tag tol_met      residue  current_val  target_val description
  0 ON      True  2.61409e-10    62.32      62.32 line=b2, 'qx',
val=62.32, tol=1e-09, wei ...
  1 ON      True -1.20792e-13    60.32      60.32 line=b2, 'qy',
val=60.32, tol=1e-09, wei ...

```

Vary status:

```

id state tag met name          lower_limit  current_val upper_limit
val_at_iter_0      step      weight
  0 ON      OK  kqtd.a23b2_from_dqx.b2_sq None          -0.00134323 None
-0.00134323    1e-09          1
  1 ON      OK  kqtd.a34b2_from_dqx.b2_sq None          -0.00134292 None
-0.00134292    1e-09          1
  2 ON      OK  kqtd.a67b2_from_dqx.b2_sq None          -0.00134361 None
-0.00134361    1e-09          1
  3 ON      OK  kqtd.a78b2_from_dqx.b2_sq None          -0.00134629 None
-0.00134629    1e-09          1
  4 ON      OK  kqtf.a23b2_from_dqx.b2_sq None           0.0072382 None
0.0072382      1e-09          1
  5 ON      OK  kqtf.a34b2_from_dqx.b2_sq None           0.00723826 None
0.00723826    1e-09          1
  6 ON      OK  kqtf.a67b2_from_dqx.b2_sq None           0.00723892 None
0.00723892    1e-09          1
  7 ON      OK  kqtf.a78b2_from_dqx.b2_sq None           0.00723825 None
0.00723825    1e-09          1

```

Matching: model call n. 2

Target status:

```

id state tag tol_met      residue  current_val  target_val description
  0 ON      True  5.68576e-11    62.32      62.32 line=b2, 'qx',
val=62.32, tol=1e-09, wei ...
  1 ON      True           0    60.32      60.32 line=b2, 'qy',
val=60.32, tol=1e-09, wei ...

```

Vary status:

```

id state tag met name          lower_limit  current_val upper_limit
val_at_iter_0      step      weight
  0 ON      OK  kqtd.a12b2_from_dqx.b2 None          -0.000673503 None
-0.000673503    1e-09          1
  1 ON      OK  kqtd.a23b2_from_dqx.b2 None          -0.000673366 None
-0.000673366    1e-09          1
  2 ON      OK  kqtd.a34b2_from_dqx.b2 None          -0.000673252 None
-0.000673252    1e-09          1

```

3 ON	OK	kqtd.a45b2_from_dqx.b2	None	-0.000673281	None
-0.000673281		1e-09	1		
4 ON	OK	kqtd.a56b2_from_dqx.b2	None	-0.00067313	None
-0.00067313		1e-09	1		
5 ON	OK	kqtd.a67b2_from_dqx.b2	None	-0.000673525	None
-0.000673525		1e-09	1		
6 ON	OK	kqtd.a78b2_from_dqx.b2	None	-0.000673256	None
-0.000673256		1e-09	1		
7 ON	OK	kqtd.a81b2_from_dqx.b2	None	-0.000673375	None
-0.000673375		1e-09	1		
8 ON	OK	kqtf.a12b2_from_dqx.b2	None	0.00362201	None
0.00362201		1e-09	1		
9 ON	OK	kqtf.a23b2_from_dqx.b2	None	0.00362209	None
0.00362209		1e-09	1		
10 ON	OK	kqtf.a34b2_from_dqx.b2	None	0.00362227	None
0.00362227		1e-09	1		
11 ON	OK	kqtf.a45b2_from_dqx.b2	None	0.00362198	None
0.00362198		1e-09	1		
12 ON	OK	kqtf.a56b2_from_dqx.b2	None	0.00362245	None
0.00362245		1e-09	1		
13 ON	OK	kqtf.a67b2_from_dqx.b2	None	0.00362227	None
0.00362227		1e-09	1		
14 ON	OK	kqtf.a78b2_from_dqx.b2	None	0.00362223	None
0.00362223		1e-09	1		
15 ON	OK	kqtf.a81b2_from_dqx.b2	None	0.0036222	None
0.0036222		1e-09	1		

Matching: model call n. 2

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	8.32642e-10	62.31	62.31	line=b1, 'qx', val=62.31, tol=1e-09, wei ...
1	ON		True	-1.49925e-12	60.33	60.33	line=b1, 'qy', val=60.33, tol=1e-09, wei ...

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit
0	ON	OK		kqtd.a23b1_from_dqy.b1_op	None	-0.00719443	None
-0.00719443				1e-09	1		
1	ON	OK		kqtd.a34b1_from_dqy.b1_op	None	-0.00719503	None
-0.00719503				1e-09	1		
2	ON	OK		kqtd.a67b1_from_dqy.b1_op	None	-0.00719513	None
-0.00719513				1e-09	1		
3	ON	OK		kqtd.a78b1_from_dqy.b1_op	None	-0.00719537	None
-0.00719537				1e-09	1		
4	ON	OK		kqtf.a23b1_from_dqy.b1_op	None	0.0013178	None
0.0013178				1e-09	1		
5	ON	OK		kqtf.a34b1_from_dqy.b1_op	None	0.00131859	None

0.00131859	1e-09	1		
6 ON	OK	kqtf.a67b1_from_dqy.b1_op	None	0.00131738 None
0.00131738	1e-09	1		
7 ON	OK	kqtf.a78b1_from_dqy.b1_op	None	0.00131682 None
0.00131682	1e-09	1		

Matching: model call n. 2

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	8.32642e-10	62.31	62.31	line=b1, 'qx', val=62.31, tol=1e-09, wei ...
1	ON		True	-1.49925e-12	60.33	60.33	line=b1, 'qy', val=60.33, tol=1e-09, wei ...

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit
val_at_iter_0				step	weight		
0	ON	OK		kqtd.a23b1_from_dqy.b1_sq	None	-0.00719443	None
-0.00719443				1e-09	1		
1	ON	OK		kqtd.a34b1_from_dqy.b1_sq	None	-0.00719503	None
-0.00719503				1e-09	1		
2	ON	OK		kqtd.a67b1_from_dqy.b1_sq	None	-0.00719513	None
-0.00719513				1e-09	1		
3	ON	OK		kqtd.a78b1_from_dqy.b1_sq	None	-0.00719537	None
-0.00719537				1e-09	1		
4	ON	OK		kqtf.a23b1_from_dqy.b1_sq	None	0.0013178	None
0.0013178				1e-09	1		
5	ON	OK		kqtf.a34b1_from_dqy.b1_sq	None	0.00131859	None
0.00131859				1e-09	1		
6	ON	OK		kqtf.a67b1_from_dqy.b1_sq	None	0.00131738	None
0.00131738				1e-09	1		
7	ON	OK		kqtf.a78b1_from_dqy.b1_sq	None	0.00131682	None
0.00131682				1e-09	1		

Matching: model call n. 2

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	-9.86873e-10	62.31	62.31	line=b1, 'qx', val=62.31, tol=1e-09, wei ...
1	ON		True	-6.39488e-14	60.33	60.33	line=b1, 'qy', val=60.33, tol=1e-09, wei ...

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit
val_at_iter_0				step	weight		
0	ON	OK		kqtd.a12b1_from_dqy.b1	None	-0.00361073	None
-0.00361073				1e-09	1		
1	ON	OK		kqtd.a23b1_from_dqy.b1	None	-0.00361078	None
-0.00361078				1e-09	1		
2	ON	OK		kqtd.a34b1_from_dqy.b1	None	-0.00361094	None

-0.00361094		1e-09	1		
3 ON	OK	kqtd.a45b1_from_dqy.b1	None	-0.00361048	None
-0.00361048		1e-09	1		
4 ON	OK	kqtd.a56b1_from_dqy.b1	None	-0.00361099	None
-0.00361099		1e-09	1		
5 ON	OK	kqtd.a67b1_from_dqy.b1	None	-0.00361048	None
-0.00361048		1e-09	1		
6 ON	OK	kqtd.a78b1_from_dqy.b1	None	-0.00361051	None
-0.00361051		1e-09	1		
7 ON	OK	kqtd.a81b1_from_dqy.b1	None	-0.00361055	None
-0.00361055		1e-09	1		
8 ON	OK	kqtf.a12b1_from_dqy.b1	None	0.000710253	None
0.000710253		1e-09	1		
9 ON	OK	kqtf.a23b1_from_dqy.b1	None	0.000710612	None
0.000710612		1e-09	1		
10 ON	OK	kqtf.a34b1_from_dqy.b1	None	0.000710624	None
0.000710624		1e-09	1		
11 ON	OK	kqtf.a45b1_from_dqy.b1	None	0.000710794	None
0.000710794		1e-09	1		
12 ON	OK	kqtf.a56b1_from_dqy.b1	None	0.000710528	None
0.000710528		1e-09	1		
13 ON	OK	kqtf.a67b1_from_dqy.b1	None	0.000710284	None
0.000710284		1e-09	1		
14 ON	OK	kqtf.a78b1_from_dqy.b1	None	0.000710406	None
0.000710406		1e-09	1		
15 ON	OK	kqtf.a81b1_from_dqy.b1	None	0.00071221	None
0.00071221		1e-09	1		

Matching: model call n. 2

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	8.42682e-10	62.31	62.31	line=b2, 'qx', val=62.31, tol=1e-09, wei ...
1	ON		True	3.97904e-13	60.33	60.33	line=b2, 'qy', val=60.33, tol=1e-09, wei ...

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit
0	ON	OK		kqtd.a23b2_from_dqy.b2_op	None	-0.00720908	None
-0.00720908				1e-09	1		
1	ON	OK		kqtd.a34b2_from_dqy.b2_op	None	-0.00721388	None
-0.00721388				1e-09	1		
2	ON	OK		kqtd.a67b2_from_dqy.b2_op	None	-0.00721368	None
-0.00721368				1e-09	1		
3	ON	OK		kqtd.a78b2_from_dqy.b2_op	None	-0.00721661	None
-0.00721661				1e-09	1		
4	ON	OK		kqtf.a23b2_from_dqy.b2_op	None	0.00131249	None
0.00131249				1e-09	1		

5 ON	OK	kqtf.a34b2_from_dqy.b2_op	None	0.00131192	None
0.00131192		1e-09	1		
6 ON	OK	kqtf.a67b2_from_dqy.b2_op	None	0.00131105	None
0.00131105		1e-09	1		
7 ON	OK	kqtf.a78b2_from_dqy.b2_op	None	0.00131104	None
0.00131104		1e-09	1		

Matching: model call n. 2

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	8.42682e-10	62.31	62.31	line=b2, 'qx', val=62.31, tol=1e-09, wei ...
1	ON		True	3.97904e-13	60.33	60.33	line=b2, 'qy', val=60.33, tol=1e-09, wei ...

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit
val_at_iter_0				step	weight		
0	ON	OK		kqtd.a23b2_from_dqy.b2_sq	None	-0.00720908	None
-0.00720908				1e-09	1		
1	ON	OK		kqtd.a34b2_from_dqy.b2_sq	None	-0.00721388	None
-0.00721388				1e-09	1		
2	ON	OK		kqtd.a67b2_from_dqy.b2_sq	None	-0.00721368	None
-0.00721368				1e-09	1		
3	ON	OK		kqtd.a78b2_from_dqy.b2_sq	None	-0.00721661	None
-0.00721661				1e-09	1		
4	ON	OK		kqtf.a23b2_from_dqy.b2_sq	None	0.00131249	None
0.00131249				1e-09	1		
5	ON	OK		kqtf.a34b2_from_dqy.b2_sq	None	0.00131192	None
0.00131192				1e-09	1		
6	ON	OK		kqtf.a67b2_from_dqy.b2_sq	None	0.00131105	None
0.00131105				1e-09	1		
7	ON	OK		kqtf.a78b2_from_dqy.b2_sq	None	0.00131104	None
0.00131104				1e-09	1		

Matching: model call n. 2

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	-6.55831e-11	62.31	62.31	line=b2, 'qx', val=62.31, tol=1e-09, wei ...
1	ON		True	1.98952e-13	60.33	60.33	line=b2, 'qy', val=60.33, tol=1e-09, wei ...

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit
val_at_iter_0				step	weight		
0	ON	OK		kqtd.a12b2_from_dqy.b2	None	-0.00361175	None
-0.00361175				1e-09	1		
1	ON	OK		kqtd.a23b2_from_dqy.b2	None	-0.00361228	None
-0.00361228				1e-09	1		

2 ON	OK	kqtd.a34b2_from_dqy.b2	None	-0.00361308	None
-0.00361308		1e-09	1		
3 ON	OK	kqtd.a45b2_from_dqy.b2	None	-0.00361178	None
-0.00361178		1e-09	1		
4 ON	OK	kqtd.a56b2_from_dqy.b2	None	-0.00361328	None
-0.00361328		1e-09	1		
5 ON	OK	kqtd.a67b2_from_dqy.b2	None	-0.00361194	None
-0.00361194		1e-09	1		
6 ON	OK	kqtd.a78b2_from_dqy.b2	None	-0.0036149	None
-0.0036149		1e-09	1		
7 ON	OK	kqtd.a81b2_from_dqy.b2	None	-0.00361168	None
-0.00361168		1e-09	1		
8 ON	OK	kqtf.a12b2_from_dqy.b2	None	0.000660803	None
0.000660803		1e-09	1		
9 ON	OK	kqtf.a23b2_from_dqy.b2	None	0.000660626	None
0.000660626		1e-09	1		
10 ON	OK	kqtf.a34b2_from_dqy.b2	None	0.000660804	None
0.000660804		1e-09	1		
11 ON	OK	kqtf.a45b2_from_dqy.b2	None	0.000663422	None
0.000663422		1e-09	1		
12 ON	OK	kqtf.a56b2_from_dqy.b2	None	0.00066385	None
0.00066385		1e-09	1		
13 ON	OK	kqtf.a67b2_from_dqy.b2	None	0.000662508	None
0.000662508		1e-09	1		
14 ON	OK	kqtf.a78b2_from_dqy.b2	None	0.000662606	None
0.000662606		1e-09	1		
15 ON	OK	kqtf.a81b2_from_dqy.b2	None	0.000661577	None
0.000661577		1e-09	1		

Matching: model call n. 2

```

Setting ksd1.a23b1_from_dqpx.b1_op := ksd_temp;
Setting ksd1.a34b1_from_dqpx.b1_op := ksd_temp;
Setting ksd1.a67b1_from_dqpx.b1_op := ksd_temp;
Setting ksd1.a78b1_from_dqpx.b1_op := ksd_temp;
Setting ksd2.a23b1_from_dqpx.b1_op := ksd_temp;
Setting ksd2.a34b1_from_dqpx.b1_op := ksd_temp;
Setting ksd2.a67b1_from_dqpx.b1_op := ksd_temp;
Setting ksd2.a78b1_from_dqpx.b1_op := ksd_temp;
Setting ksf1.a23b1_from_dqpx.b1_op := ksf_temp;
Setting ksf1.a34b1_from_dqpx.b1_op := ksf_temp;
Setting ksf1.a67b1_from_dqpx.b1_op := ksf_temp;
Setting ksf1.a78b1_from_dqpx.b1_op := ksf_temp;
Setting ksf2.a23b1_from_dqpx.b1_op := ksf_temp;
Setting ksf2.a34b1_from_dqpx.b1_op := ksf_temp;
Setting ksf2.a67b1_from_dqpx.b1_op := ksf_temp;
Setting ksf2.a78b1_from_dqpx.b1_op := ksf_temp;

```

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
----	-------	-----	---------	---------	-------------	------------	-------------

```

0 ON          False    1.5722e-05          10          10 line=b1, 'dqx',
val=10, tol=1e-05, weigh ...
1 ON          True     1.3145e-08    1.3145e-08          0 line=b1, 'dqy',
val=0, tol=1e-05, weight ...

```

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit	val_at_iter_0
step			weight					
0	ON		OK	ksf_temp	None	0.00120138	None	0.00120138
1e-09			1					
1	ON		OK	ksd_temp	None	-0.00036922	None	-0.00036922
1e-09			1					

Matching: model call n. 6

```

ksd1.a23b1          -0.00036922 !=    -0.00036922
ksd1.a34b1          -0.00036922 !=    -0.00036922
ksd1.a67b1          -0.00036922 !=    -0.00036922
ksd1.a78b1          -0.00036922 !=    -0.00036922
ksd2.a23b1          -0.00036922 !=    -0.00036922
ksd2.a34b1          -0.00036922 !=    -0.00036922
ksd2.a67b1          -0.00036922 !=    -0.00036922
ksd2.a78b1          -0.00036922 !=    -0.00036922
ksf1.a23b1          0.00120138 !=     0.00120138
ksf1.a34b1          0.00120138 !=     0.00120138
ksf1.a67b1          0.00120138 !=     0.00120138
ksf1.a78b1          0.00120138 !=     0.00120138
ksf2.a23b1          0.00120138 !=     0.00120138
ksf2.a34b1          0.00120138 !=     0.00120138
ksf2.a67b1          0.00120138 !=     0.00120138
ksf2.a78b1          0.00120138 !=     0.00120138

```

```

Setting ksd1.a23b1_from_dqpx.b1_sq := ksd_temp;
Setting ksd1.a34b1_from_dqpx.b1_sq := ksd_temp;
Setting ksd1.a67b1_from_dqpx.b1_sq := ksd_temp;
Setting ksd1.a78b1_from_dqpx.b1_sq := ksd_temp;
Setting ksd2.a23b1_from_dqpx.b1_sq := ksd_temp;
Setting ksd2.a34b1_from_dqpx.b1_sq := ksd_temp;
Setting ksd2.a67b1_from_dqpx.b1_sq := ksd_temp;
Setting ksd2.a78b1_from_dqpx.b1_sq := ksd_temp;
Setting ksf1.a23b1_from_dqpx.b1_sq := ksf_temp;
Setting ksf1.a34b1_from_dqpx.b1_sq := ksf_temp;
Setting ksf1.a67b1_from_dqpx.b1_sq := ksf_temp;
Setting ksf1.a78b1_from_dqpx.b1_sq := ksf_temp;
Setting ksf2.a23b1_from_dqpx.b1_sq := ksf_temp;
Setting ksf2.a34b1_from_dqpx.b1_sq := ksf_temp;
Setting ksf2.a67b1_from_dqpx.b1_sq := ksf_temp;
Setting ksf2.a78b1_from_dqpx.b1_sq := ksf_temp;

```

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		False	1.5722e-05	10	10	line=b1, 'dqx',

```

val=10, tol=1e-05, weigh ...
  1 ON          True  1.3145e-08  1.3145e-08          0 line=b1, 'dqy',
val=0, tol=1e-05, weight ...

```

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit	val_at_iter_0
step			weight					
0	ON	OK	ksf_temp	None	None	0.00120138	None	0.00120138
1e-09			1					
1	ON	OK	ksd_temp	None	None	-0.00036922	None	-0.00036922
1e-09			1					

Matching: model call n. 6

```

ksd1.a23b1          -0.00036922 !=  -0.00036922
ksd1.a34b1          -0.00036922 !=  -0.00036922
ksd1.a67b1          -0.00036922 !=  -0.00036922
ksd1.a78b1          -0.00036922 !=  -0.00036922
ksd2.a23b1          -0.00036922 !=  -0.00036922
ksd2.a34b1          -0.00036922 !=  -0.00036922
ksd2.a67b1          -0.00036922 !=  -0.00036922
ksd2.a78b1          -0.00036922 !=  -0.00036922
ksf1.a23b1           0.00120138 !=   0.00120138
ksf1.a34b1           0.00120138 !=   0.00120138
ksf1.a67b1           0.00120138 !=   0.00120138
ksf1.a78b1           0.00120138 !=   0.00120138
ksf2.a23b1           0.00120138 !=   0.00120138
ksf2.a34b1           0.00120138 !=   0.00120138
ksf2.a67b1           0.00120138 !=   0.00120138
ksf2.a78b1           0.00120138 !=   0.00120138

```

```

Setting ksd1.a12b1_from_dqpx.b1 := ksd_temp;
Setting ksd1.a23b1_from_dqpx.b1 := ksd_temp;
Setting ksd1.a34b1_from_dqpx.b1 := ksd_temp;
Setting ksd1.a45b1_from_dqpx.b1 := ksd_temp;
Setting ksd1.a56b1_from_dqpx.b1 := ksd_temp;
Setting ksd1.a67b1_from_dqpx.b1 := ksd_temp;
Setting ksd1.a78b1_from_dqpx.b1 := ksd_temp;
Setting ksd1.a81b1_from_dqpx.b1 := ksd_temp;
Setting ksd2.a12b1_from_dqpx.b1 := ksd_temp;
Setting ksd2.a23b1_from_dqpx.b1 := ksd_temp;
Setting ksd2.a34b1_from_dqpx.b1 := ksd_temp;
Setting ksd2.a45b1_from_dqpx.b1 := ksd_temp;
Setting ksd2.a56b1_from_dqpx.b1 := ksd_temp;
Setting ksd2.a67b1_from_dqpx.b1 := ksd_temp;
Setting ksd2.a78b1_from_dqpx.b1 := ksd_temp;
Setting ksd2.a81b1_from_dqpx.b1 := ksd_temp;
Setting ksf1.a12b1_from_dqpx.b1 := ksf_temp;
Setting ksf1.a23b1_from_dqpx.b1 := ksf_temp;
Setting ksf1.a34b1_from_dqpx.b1 := ksf_temp;
Setting ksf1.a45b1_from_dqpx.b1 := ksf_temp;

```

```

Setting ksf1.a56b1_from_dqpx.b1 := ksf_temp;
Setting ksf1.a67b1_from_dqpx.b1 := ksf_temp;
Setting ksf1.a78b1_from_dqpx.b1 := ksf_temp;
Setting ksf1.a81b1_from_dqpx.b1 := ksf_temp;
Setting ksf2.a12b1_from_dqpx.b1 := ksf_temp;
Setting ksf2.a23b1_from_dqpx.b1 := ksf_temp;
Setting ksf2.a34b1_from_dqpx.b1 := ksf_temp;
Setting ksf2.a45b1_from_dqpx.b1 := ksf_temp;
Setting ksf2.a56b1_from_dqpx.b1 := ksf_temp;
Setting ksf2.a67b1_from_dqpx.b1 := ksf_temp;
Setting ksf2.a78b1_from_dqpx.b1 := ksf_temp;
Setting ksf2.a81b1_from_dqpx.b1 := ksf_temp;

```

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		False	0.000135988	10.0001	10	line=b1, 'dqx', val=10, tol=1e-05, weigh ...
1	ON		True	1.85764e-06	1.85764e-06	0	line=b1, 'dqy', val=0, tol=1e-05, weight ...

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit	val_at_iter_0
0	ON		OK	ksf_temp	None	0.000598403	None	0.000598403
1e-09				1				
1	ON		OK	ksd_temp	None	-0.000184856	None	-0.000184856
1e-09				1				

Matching: model call n. 6

ksd1.a12b1	-0.000184854	!=	-0.000184856
ksd1.a23b1	-0.000184854	!=	-0.000184856
ksd1.a34b1	-0.000184854	!=	-0.000184856
ksd1.a45b1	-0.000184854	!=	-0.000184856
ksd1.a56b1	-0.000184854	!=	-0.000184856
ksd1.a67b1	-0.000184854	!=	-0.000184856
ksd1.a78b1	-0.000184854	!=	-0.000184856
ksd1.a81b1	-0.000184854	!=	-0.000184856
ksd2.a12b1	-0.000184854	!=	-0.000184856
ksd2.a23b1	-0.000184854	!=	-0.000184856
ksd2.a34b1	-0.000184854	!=	-0.000184856
ksd2.a45b1	-0.000184854	!=	-0.000184856
ksd2.a56b1	-0.000184854	!=	-0.000184856
ksd2.a67b1	-0.000184854	!=	-0.000184856
ksd2.a78b1	-0.000184854	!=	-0.000184856
ksd2.a81b1	-0.000184854	!=	-0.000184856
ksf1.a12b1	0.000598395	!=	0.000598403
ksf1.a23b1	0.000598395	!=	0.000598403
ksf1.a34b1	0.000598395	!=	0.000598403
ksf1.a45b1	0.000598395	!=	0.000598403
ksf1.a56b1	0.000598395	!=	0.000598403

```

ksf1.a67b1          0.000598395 !=    0.000598403
ksf1.a78b1          0.000598395 !=    0.000598403
ksf1.a81b1          0.000598395 !=    0.000598403
ksf2.a12b1          0.000598395 !=    0.000598403
ksf2.a23b1          0.000598395 !=    0.000598403
ksf2.a34b1          0.000598395 !=    0.000598403
ksf2.a45b1          0.000598395 !=    0.000598403
ksf2.a56b1          0.000598395 !=    0.000598403
ksf2.a67b1          0.000598395 !=    0.000598403
ksf2.a78b1          0.000598395 !=    0.000598403
ksf2.a81b1          0.000598395 !=    0.000598403

```

```

Setting ksd1.a23b2_from_dqpx.b2_op := ksd_temp;
Setting ksd1.a34b2_from_dqpx.b2_op := ksd_temp;
Setting ksd1.a67b2_from_dqpx.b2_op := ksd_temp;
Setting ksd1.a78b2_from_dqpx.b2_op := ksd_temp;
Setting ksd2.a23b2_from_dqpx.b2_op := ksd_temp;
Setting ksd2.a34b2_from_dqpx.b2_op := ksd_temp;
Setting ksd2.a67b2_from_dqpx.b2_op := ksd_temp;
Setting ksd2.a78b2_from_dqpx.b2_op := ksd_temp;
Setting ksf1.a23b2_from_dqpx.b2_op := ksf_temp;
Setting ksf1.a34b2_from_dqpx.b2_op := ksf_temp;
Setting ksf1.a67b2_from_dqpx.b2_op := ksf_temp;
Setting ksf1.a78b2_from_dqpx.b2_op := ksf_temp;
Setting ksf2.a23b2_from_dqpx.b2_op := ksf_temp;
Setting ksf2.a34b2_from_dqpx.b2_op := ksf_temp;
Setting ksf2.a67b2_from_dqpx.b2_op := ksf_temp;
Setting ksf2.a78b2_from_dqpx.b2_op := ksf_temp;

```

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		False	1.15787e-05	10	10	line=b2, 'dqx', val=10, tol=1e-05, weigh ...
1	ON		True	-1.9682e-08	-1.9682e-08	0	line=b2, 'dqy', val=0, tol=1e-05, weight ...

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit	val_at_iter_0
0	ON		OK	ksf_temp	None	0.00119896	None	0.00119896
1e-09				1				
1	ON		OK	ksd_temp	None	-0.000369274	None	-0.000369274
1e-09				1				

Matching: model call n. 6

```

ksd1.a23b2          -0.000369273 !=    -0.000369274
ksd1.a34b2          -0.000369273 !=    -0.000369274
ksd1.a67b2          -0.000369273 !=    -0.000369274
ksd1.a78b2          -0.000369273 !=    -0.000369274
ksd2.a23b2          -0.000369273 !=    -0.000369274
ksd2.a34b2          -0.000369273 !=    -0.000369274

```

```

ksd2.a67b2          -0.000369273 !=    -0.000369274
ksd2.a78b2          -0.000369273 !=    -0.000369274
ksf1.a23b2           0.00119896 !=     0.00119896
ksf1.a34b2           0.00119896 !=     0.00119896
ksf1.a67b2           0.00119896 !=     0.00119896
ksf1.a78b2           0.00119896 !=     0.00119896
ksf2.a23b2           0.00119896 !=     0.00119896
ksf2.a34b2           0.00119896 !=     0.00119896
ksf2.a67b2           0.00119896 !=     0.00119896
ksf2.a78b2           0.00119896 !=     0.00119896
Setting ksd1.a23b2_from_dqpx.b2_sq := ksd_temp;
Setting ksd1.a34b2_from_dqpx.b2_sq := ksd_temp;
Setting ksd1.a67b2_from_dqpx.b2_sq := ksd_temp;
Setting ksd1.a78b2_from_dqpx.b2_sq := ksd_temp;
Setting ksd2.a23b2_from_dqpx.b2_sq := ksd_temp;
Setting ksd2.a34b2_from_dqpx.b2_sq := ksd_temp;
Setting ksd2.a67b2_from_dqpx.b2_sq := ksd_temp;
Setting ksd2.a78b2_from_dqpx.b2_sq := ksd_temp;
Setting ksf1.a23b2_from_dqpx.b2_sq := ksf_temp;
Setting ksf1.a34b2_from_dqpx.b2_sq := ksf_temp;
Setting ksf1.a67b2_from_dqpx.b2_sq := ksf_temp;
Setting ksf1.a78b2_from_dqpx.b2_sq := ksf_temp;
Setting ksf2.a23b2_from_dqpx.b2_sq := ksf_temp;
Setting ksf2.a34b2_from_dqpx.b2_sq := ksf_temp;
Setting ksf2.a67b2_from_dqpx.b2_sq := ksf_temp;
Setting ksf2.a78b2_from_dqpx.b2_sq := ksf_temp;
Target status:
id state tag tol_met      residue    current_val    target_val description
 0 ON          False  1.15787e-05      10             10 line=b2, 'dqx',
val=10, tol=1e-05, weigh ...
 1 ON          True   -1.9682e-08     -1.9682e-08    0 line=b2, 'dqy',
val=0, tol=1e-05, weight ...
Vary status:
id state tag met name      lower_limit    current_val upper_limit val_at_iter_0
step      weight
 0 ON      OK   ksf_temp None          0.00119896 None          0.00119896
1e-09      1
 1 ON      OK   ksd_temp None         -0.000369274 None         -0.000369274
1e-09      1
Matching: model call n. 6

ksd1.a23b2          -0.000369273 !=    -0.000369274
ksd1.a34b2          -0.000369273 !=    -0.000369274
ksd1.a67b2          -0.000369273 !=    -0.000369274
ksd1.a78b2          -0.000369273 !=    -0.000369274
ksd2.a23b2          -0.000369273 !=    -0.000369274
ksd2.a34b2          -0.000369273 !=    -0.000369274
ksd2.a67b2          -0.000369273 !=    -0.000369274

```

```

ksd2.a78b2          -0.000369273 !=    -0.000369274
ksf1.a23b2          0.00119896 !=     0.00119896
ksf1.a34b2          0.00119896 !=     0.00119896
ksf1.a67b2          0.00119896 !=     0.00119896
ksf1.a78b2          0.00119896 !=     0.00119896
ksf2.a23b2          0.00119896 !=     0.00119896
ksf2.a34b2          0.00119896 !=     0.00119896
ksf2.a67b2          0.00119896 !=     0.00119896
ksf2.a78b2          0.00119896 !=     0.00119896

```

```

Setting ksd1.a12b2_from_dqpx.b2 := ksd_temp;
Setting ksd1.a23b2_from_dqpx.b2 := ksd_temp;
Setting ksd1.a34b2_from_dqpx.b2 := ksd_temp;
Setting ksd1.a45b2_from_dqpx.b2 := ksd_temp;
Setting ksd1.a56b2_from_dqpx.b2 := ksd_temp;
Setting ksd1.a67b2_from_dqpx.b2 := ksd_temp;
Setting ksd1.a78b2_from_dqpx.b2 := ksd_temp;
Setting ksd1.a81b2_from_dqpx.b2 := ksd_temp;
Setting ksd2.a12b2_from_dqpx.b2 := ksd_temp;
Setting ksd2.a23b2_from_dqpx.b2 := ksd_temp;
Setting ksd2.a34b2_from_dqpx.b2 := ksd_temp;
Setting ksd2.a45b2_from_dqpx.b2 := ksd_temp;
Setting ksd2.a56b2_from_dqpx.b2 := ksd_temp;
Setting ksd2.a67b2_from_dqpx.b2 := ksd_temp;
Setting ksd2.a78b2_from_dqpx.b2 := ksd_temp;
Setting ksd2.a81b2_from_dqpx.b2 := ksd_temp;
Setting ksf1.a12b2_from_dqpx.b2 := ksf_temp;
Setting ksf1.a23b2_from_dqpx.b2 := ksf_temp;
Setting ksf1.a34b2_from_dqpx.b2 := ksf_temp;
Setting ksf1.a45b2_from_dqpx.b2 := ksf_temp;
Setting ksf1.a56b2_from_dqpx.b2 := ksf_temp;
Setting ksf1.a67b2_from_dqpx.b2 := ksf_temp;
Setting ksf1.a78b2_from_dqpx.b2 := ksf_temp;
Setting ksf1.a81b2_from_dqpx.b2 := ksf_temp;
Setting ksf2.a12b2_from_dqpx.b2 := ksf_temp;
Setting ksf2.a23b2_from_dqpx.b2 := ksf_temp;
Setting ksf2.a34b2_from_dqpx.b2 := ksf_temp;
Setting ksf2.a45b2_from_dqpx.b2 := ksf_temp;
Setting ksf2.a56b2_from_dqpx.b2 := ksf_temp;
Setting ksf2.a67b2_from_dqpx.b2 := ksf_temp;
Setting ksf2.a78b2_from_dqpx.b2 := ksf_temp;
Setting ksf2.a81b2_from_dqpx.b2 := ksf_temp;

```

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		False	8.45472e-05	10.0001	10	line=b2, 'dqx', val=10, tol=1e-05, weigh ...
1	ON		True	4.895e-06	4.895e-06	0	line=b2, 'dqy', val=0, tol=1e-05, weight ...

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit	val_at_iter_0
step			weight					
0	ON		OK	ksf_temp	None	0.000599038	None	0.000599038
1e-09				1				
1	ON		OK	ksd_temp	None	-0.000185164	None	-0.000185164
1e-09				1				

Matching: model call n. 6

ksd1.a12b2	-0.000185162	!=	-0.000185164
ksd1.a23b2	-0.000185162	!=	-0.000185164
ksd1.a34b2	-0.000185162	!=	-0.000185164
ksd1.a45b2	-0.000185162	!=	-0.000185164
ksd1.a56b2	-0.000185162	!=	-0.000185164
ksd1.a67b2	-0.000185162	!=	-0.000185164
ksd1.a78b2	-0.000185162	!=	-0.000185164
ksd1.a81b2	-0.000185162	!=	-0.000185164
ksd2.a12b2	-0.000185162	!=	-0.000185164
ksd2.a23b2	-0.000185162	!=	-0.000185164
ksd2.a34b2	-0.000185162	!=	-0.000185164
ksd2.a45b2	-0.000185162	!=	-0.000185164
ksd2.a56b2	-0.000185162	!=	-0.000185164
ksd2.a67b2	-0.000185162	!=	-0.000185164
ksd2.a78b2	-0.000185162	!=	-0.000185164
ksd2.a81b2	-0.000185162	!=	-0.000185164
ksf1.a12b2	0.000599033	!=	0.000599038
ksf1.a23b2	0.000599033	!=	0.000599038
ksf1.a34b2	0.000599033	!=	0.000599038
ksf1.a45b2	0.000599033	!=	0.000599038
ksf1.a56b2	0.000599033	!=	0.000599038
ksf1.a67b2	0.000599033	!=	0.000599038
ksf1.a78b2	0.000599033	!=	0.000599038
ksf1.a81b2	0.000599033	!=	0.000599038
ksf2.a12b2	0.000599033	!=	0.000599038
ksf2.a23b2	0.000599033	!=	0.000599038
ksf2.a34b2	0.000599033	!=	0.000599038
ksf2.a45b2	0.000599033	!=	0.000599038
ksf2.a56b2	0.000599033	!=	0.000599038
ksf2.a67b2	0.000599033	!=	0.000599038
ksf2.a78b2	0.000599033	!=	0.000599038
ksf2.a81b2	0.000599033	!=	0.000599038

Setting ksd1.a23b1_from_dqpy.b1_op := ksd_temp;
Setting ksd1.a34b1_from_dqpy.b1_op := ksd_temp;
Setting ksd1.a67b1_from_dqpy.b1_op := ksd_temp;
Setting ksd1.a78b1_from_dqpy.b1_op := ksd_temp;
Setting ksd2.a23b1_from_dqpy.b1_op := ksd_temp;
Setting ksd2.a34b1_from_dqpy.b1_op := ksd_temp;
Setting ksd2.a67b1_from_dqpy.b1_op := ksd_temp;
Setting ksd2.a78b1_from_dqpy.b1_op := ksd_temp;

```

Setting ksf1.a23b1_from_dqpy.b1_op := ksf_temp;
Setting ksf1.a34b1_from_dqpy.b1_op := ksf_temp;
Setting ksf1.a67b1_from_dqpy.b1_op := ksf_temp;
Setting ksf1.a78b1_from_dqpy.b1_op := ksf_temp;
Setting ksf2.a23b1_from_dqpy.b1_op := ksf_temp;
Setting ksf2.a34b1_from_dqpy.b1_op := ksf_temp;
Setting ksf2.a67b1_from_dqpy.b1_op := ksf_temp;
Setting ksf2.a78b1_from_dqpy.b1_op := ksf_temp;
Target status:
id state tag tol_met      residue    current_val  target_val description
 0 ON      True  -4.8523e-07 -1.22014e-06 -7.34914e-07 line=b1, 'dqx',
val=-7.34914e-07, tol=1e ...
 1 ON      True   6.92301e-06          10          10 line=b1, 'dqy',
val=10, tol=1e-05, weigh ...
Vary status:
id state tag met name      lower_limit  current_val upper_limit val_at_iter_0
step      weight
 0 ON      OK  ksf_temp None          0.000218823 None          0.000218823
1e-09          1
 1 ON      OK  ksd_temp None         -0.00200489 None         -0.00200489
1e-09          1
Matching: model call n. 3

```

```

Setting ksd1.a23b1_from_dqpy.b1_sq := ksd_temp;
Setting ksd1.a34b1_from_dqpy.b1_sq := ksd_temp;
Setting ksd1.a67b1_from_dqpy.b1_sq := ksd_temp;
Setting ksd1.a78b1_from_dqpy.b1_sq := ksd_temp;
Setting ksd2.a23b1_from_dqpy.b1_sq := ksd_temp;
Setting ksd2.a34b1_from_dqpy.b1_sq := ksd_temp;
Setting ksd2.a67b1_from_dqpy.b1_sq := ksd_temp;
Setting ksd2.a78b1_from_dqpy.b1_sq := ksd_temp;
Setting ksf1.a23b1_from_dqpy.b1_sq := ksf_temp;
Setting ksf1.a34b1_from_dqpy.b1_sq := ksf_temp;
Setting ksf1.a67b1_from_dqpy.b1_sq := ksf_temp;
Setting ksf1.a78b1_from_dqpy.b1_sq := ksf_temp;
Setting ksf2.a23b1_from_dqpy.b1_sq := ksf_temp;
Setting ksf2.a34b1_from_dqpy.b1_sq := ksf_temp;
Setting ksf2.a67b1_from_dqpy.b1_sq := ksf_temp;
Setting ksf2.a78b1_from_dqpy.b1_sq := ksf_temp;
Target status:
id state tag tol_met      residue    current_val  target_val description
 0 ON      True  -4.8523e-07 -1.22014e-06 -7.34914e-07 line=b1, 'dqx',
val=-7.34914e-07, tol=1e ...
 1 ON      True   6.92301e-06          10          10 line=b1, 'dqy',
val=10, tol=1e-05, weigh ...
Vary status:
id state tag met name      lower_limit  current_val upper_limit val_at_iter_0
step      weight
 0 ON      OK  ksf_temp None          0.000218823 None          0.000218823
1e-09          1
 1 ON      OK  ksd_temp None         -0.00200489 None         -0.00200489
1e-09          1

```

```

0 ON      OK   ksf_temp None          0.000218823 None          0.000218823
1e-09      1
1 ON      OK   ksd_temp None        -0.00200489 None        -0.00200489
1e-09      1
Matching: model call n. 3

```

```

Setting ksd1.a12b1_from_dqpy.b1 := ksd_temp;
Setting ksd1.a23b1_from_dqpy.b1 := ksd_temp;
Setting ksd1.a34b1_from_dqpy.b1 := ksd_temp;
Setting ksd1.a45b1_from_dqpy.b1 := ksd_temp;
Setting ksd1.a56b1_from_dqpy.b1 := ksd_temp;
Setting ksd1.a67b1_from_dqpy.b1 := ksd_temp;
Setting ksd1.a78b1_from_dqpy.b1 := ksd_temp;
Setting ksd1.a81b1_from_dqpy.b1 := ksd_temp;
Setting ksd2.a12b1_from_dqpy.b1 := ksd_temp;
Setting ksd2.a23b1_from_dqpy.b1 := ksd_temp;
Setting ksd2.a34b1_from_dqpy.b1 := ksd_temp;
Setting ksd2.a45b1_from_dqpy.b1 := ksd_temp;
Setting ksd2.a56b1_from_dqpy.b1 := ksd_temp;
Setting ksd2.a67b1_from_dqpy.b1 := ksd_temp;
Setting ksd2.a78b1_from_dqpy.b1 := ksd_temp;
Setting ksd2.a81b1_from_dqpy.b1 := ksd_temp;
Setting ksf1.a12b1_from_dqpy.b1 := ksf_temp;
Setting ksf1.a23b1_from_dqpy.b1 := ksf_temp;
Setting ksf1.a34b1_from_dqpy.b1 := ksf_temp;
Setting ksf1.a45b1_from_dqpy.b1 := ksf_temp;
Setting ksf1.a56b1_from_dqpy.b1 := ksf_temp;
Setting ksf1.a67b1_from_dqpy.b1 := ksf_temp;
Setting ksf1.a78b1_from_dqpy.b1 := ksf_temp;
Setting ksf1.a81b1_from_dqpy.b1 := ksf_temp;
Setting ksf2.a12b1_from_dqpy.b1 := ksf_temp;
Setting ksf2.a23b1_from_dqpy.b1 := ksf_temp;
Setting ksf2.a34b1_from_dqpy.b1 := ksf_temp;
Setting ksf2.a45b1_from_dqpy.b1 := ksf_temp;
Setting ksf2.a56b1_from_dqpy.b1 := ksf_temp;
Setting ksf2.a67b1_from_dqpy.b1 := ksf_temp;
Setting ksf2.a78b1_from_dqpy.b1 := ksf_temp;
Setting ksf2.a81b1_from_dqpy.b1 := ksf_temp;

```

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		False	-3.85837e-05	-3.93187e-05	-7.34914e-07	line=b1, 'dqx', val=-7.34914e-07, tol=1e ...
1	ON		False	9.24233e-05	10.0001	10	line=b1, 'dqy', val=10, tol=1e-05, weigh ...

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit	val_at_iter_0
0	ON		OK	ksf_temp	None	0.00010989	None	0.00010989

```
1e-09      1
1 ON      OK ksd_temp None      -0.000997476 None      -0.000997476
1e-09      1
```

Matching: model call n. 6

```
ksd1.a12b1      -0.000997468 !=      -0.000997476
ksd1.a23b1      -0.000997468 !=      -0.000997476
ksd1.a34b1      -0.000997468 !=      -0.000997476
ksd1.a45b1      -0.000997468 !=      -0.000997476
ksd1.a56b1      -0.000997468 !=      -0.000997476
ksd1.a67b1      -0.000997468 !=      -0.000997476
ksd1.a78b1      -0.000997468 !=      -0.000997476
ksd1.a81b1      -0.000997468 !=      -0.000997476
ksd2.a12b1      -0.000997468 !=      -0.000997476
ksd2.a23b1      -0.000997468 !=      -0.000997476
ksd2.a34b1      -0.000997468 !=      -0.000997476
ksd2.a45b1      -0.000997468 !=      -0.000997476
ksd2.a56b1      -0.000997468 !=      -0.000997476
ksd2.a67b1      -0.000997468 !=      -0.000997476
ksd2.a78b1      -0.000997468 !=      -0.000997476
ksd2.a81b1      -0.000997468 !=      -0.000997476
ksf1.a12b1      0.000109891 !=      0.000109891
ksf1.a23b1      0.000109891 !=      0.000109891
ksf1.a34b1      0.000109891 !=      0.000109891
ksf1.a45b1      0.000109891 !=      0.000109891
ksf1.a56b1      0.000109891 !=      0.000109891
ksf1.a67b1      0.000109891 !=      0.000109891
ksf1.a78b1      0.000109891 !=      0.000109891
ksf1.a81b1      0.000109891 !=      0.000109891
ksf2.a12b1      0.000109891 !=      0.000109891
ksf2.a23b1      0.000109891 !=      0.000109891
ksf2.a34b1      0.000109891 !=      0.000109891
ksf2.a45b1      0.000109891 !=      0.000109891
ksf2.a56b1      0.000109891 !=      0.000109891
ksf2.a67b1      0.000109891 !=      0.000109891
ksf2.a78b1      0.000109891 !=      0.000109891
ksf2.a81b1      0.000109891 !=      0.000109891
```

```
Setting ksd1.a23b2_from_dqpy.b2_op := ksd_temp;
Setting ksd1.a34b2_from_dqpy.b2_op := ksd_temp;
Setting ksd1.a67b2_from_dqpy.b2_op := ksd_temp;
Setting ksd1.a78b2_from_dqpy.b2_op := ksd_temp;
Setting ksd2.a23b2_from_dqpy.b2_op := ksd_temp;
Setting ksd2.a34b2_from_dqpy.b2_op := ksd_temp;
Setting ksd2.a67b2_from_dqpy.b2_op := ksd_temp;
Setting ksd2.a78b2_from_dqpy.b2_op := ksd_temp;
Setting ksf1.a23b2_from_dqpy.b2_op := ksf_temp;
Setting ksf1.a34b2_from_dqpy.b2_op := ksf_temp;
Setting ksf1.a67b2_from_dqpy.b2_op := ksf_temp;
```

```

Setting ksf1.a78b2_from_dqpy.b2_op := ksf_temp;
Setting ksf2.a23b2_from_dqpy.b2_op := ksf_temp;
Setting ksf2.a34b2_from_dqpy.b2_op := ksf_temp;
Setting ksf2.a67b2_from_dqpy.b2_op := ksf_temp;
Setting ksf2.a78b2_from_dqpy.b2_op := ksf_temp;
Target status:
id state tag tol_met      residue    current_val    target_val description
  0 ON      True  -3.07928e-06  -2.95238e-06  1.26903e-07 line=b2, 'dqx',
val=1.26903e-07, tol=1e- ...
  1 ON      True   6.82019e-06           10           10 line=b2, 'dqy',
val=10, tol=1e-05, weigh ...
Vary status:
id state tag met name      lower_limit    current_val upper_limit val_at_iter_0
step      weight
  0 ON      OK  ksf_temp None          0.000218931 None          0.000218931
1e-09           1
  1 ON      OK  ksd_temp None          -0.00200671 None          -0.00200671
1e-09           1
Matching: model call n. 3

```

```

Setting ksd1.a23b2_from_dqpy.b2_sq := ksd_temp;
Setting ksd1.a34b2_from_dqpy.b2_sq := ksd_temp;
Setting ksd1.a67b2_from_dqpy.b2_sq := ksd_temp;
Setting ksd1.a78b2_from_dqpy.b2_sq := ksd_temp;
Setting ksd2.a23b2_from_dqpy.b2_sq := ksd_temp;
Setting ksd2.a34b2_from_dqpy.b2_sq := ksd_temp;
Setting ksd2.a67b2_from_dqpy.b2_sq := ksd_temp;
Setting ksd2.a78b2_from_dqpy.b2_sq := ksd_temp;
Setting ksf1.a23b2_from_dqpy.b2_sq := ksf_temp;
Setting ksf1.a34b2_from_dqpy.b2_sq := ksf_temp;
Setting ksf1.a67b2_from_dqpy.b2_sq := ksf_temp;
Setting ksf1.a78b2_from_dqpy.b2_sq := ksf_temp;
Setting ksf2.a23b2_from_dqpy.b2_sq := ksf_temp;
Setting ksf2.a34b2_from_dqpy.b2_sq := ksf_temp;
Setting ksf2.a67b2_from_dqpy.b2_sq := ksf_temp;
Setting ksf2.a78b2_from_dqpy.b2_sq := ksf_temp;
Target status:
id state tag tol_met      residue    current_val    target_val description
  0 ON      True  -3.07928e-06  -2.95238e-06  1.26903e-07 line=b2, 'dqx',
val=1.26903e-07, tol=1e- ...
  1 ON      True   6.82019e-06           10           10 line=b2, 'dqy',
val=10, tol=1e-05, weigh ...
Vary status:
id state tag met name      lower_limit    current_val upper_limit val_at_iter_0
step      weight
  0 ON      OK  ksf_temp None          0.000218931 None          0.000218931
1e-09           1
  1 ON      OK  ksd_temp None          -0.00200671 None          -0.00200671
1e-09           1

```

1e-09

1

Matching: model call n. 3

Setting ksd1.a12b2_from_dqpy.b2 := ksd_temp;
Setting ksd1.a23b2_from_dqpy.b2 := ksd_temp;
Setting ksd1.a34b2_from_dqpy.b2 := ksd_temp;
Setting ksd1.a45b2_from_dqpy.b2 := ksd_temp;
Setting ksd1.a56b2_from_dqpy.b2 := ksd_temp;
Setting ksd1.a67b2_from_dqpy.b2 := ksd_temp;
Setting ksd1.a78b2_from_dqpy.b2 := ksd_temp;
Setting ksd1.a81b2_from_dqpy.b2 := ksd_temp;
Setting ksd2.a12b2_from_dqpy.b2 := ksd_temp;
Setting ksd2.a23b2_from_dqpy.b2 := ksd_temp;
Setting ksd2.a34b2_from_dqpy.b2 := ksd_temp;
Setting ksd2.a45b2_from_dqpy.b2 := ksd_temp;
Setting ksd2.a56b2_from_dqpy.b2 := ksd_temp;
Setting ksd2.a67b2_from_dqpy.b2 := ksd_temp;
Setting ksd2.a78b2_from_dqpy.b2 := ksd_temp;
Setting ksd2.a81b2_from_dqpy.b2 := ksd_temp;
Setting ksf1.a12b2_from_dqpy.b2 := ksf_temp;
Setting ksf1.a23b2_from_dqpy.b2 := ksf_temp;
Setting ksf1.a34b2_from_dqpy.b2 := ksf_temp;
Setting ksf1.a45b2_from_dqpy.b2 := ksf_temp;
Setting ksf1.a56b2_from_dqpy.b2 := ksf_temp;
Setting ksf1.a67b2_from_dqpy.b2 := ksf_temp;
Setting ksf1.a78b2_from_dqpy.b2 := ksf_temp;
Setting ksf1.a81b2_from_dqpy.b2 := ksf_temp;
Setting ksf2.a12b2_from_dqpy.b2 := ksf_temp;
Setting ksf2.a23b2_from_dqpy.b2 := ksf_temp;
Setting ksf2.a34b2_from_dqpy.b2 := ksf_temp;
Setting ksf2.a45b2_from_dqpy.b2 := ksf_temp;
Setting ksf2.a56b2_from_dqpy.b2 := ksf_temp;
Setting ksf2.a67b2_from_dqpy.b2 := ksf_temp;
Setting ksf2.a78b2_from_dqpy.b2 := ksf_temp;
Setting ksf2.a81b2_from_dqpy.b2 := ksf_temp;

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		False	-3.8339e-05	-3.82121e-05	1.26903e-07	line=b2, 'dqx', val=1.26903e-07, tol=1e- ...
1	ON		False	7.65591e-05	10.0001	10	line=b2, 'dqy', val=10, tol=1e-05, weigh ...

Vary status:

id	state	tag	met	name	lower_limit	current_val	upper_limit	val_at_iter_0
0	ON		OK	ksf_temp	None	0.000109843	None	0.000109843
1e-09				1				
1	ON		OK	ksd_temp	None	-0.000999143	None	-0.000999143
1e-09				1				

Matching: model call n. 6

ksd1.a12b2	-0.000999136	!=	-0.000999143
ksd1.a23b2	-0.000999136	!=	-0.000999143
ksd1.a34b2	-0.000999136	!=	-0.000999143
ksd1.a45b2	-0.000999136	!=	-0.000999143
ksd1.a56b2	-0.000999136	!=	-0.000999143
ksd1.a67b2	-0.000999136	!=	-0.000999143
ksd1.a78b2	-0.000999136	!=	-0.000999143
ksd1.a81b2	-0.000999136	!=	-0.000999143
ksd2.a12b2	-0.000999136	!=	-0.000999143
ksd2.a23b2	-0.000999136	!=	-0.000999143
ksd2.a34b2	-0.000999136	!=	-0.000999143
ksd2.a45b2	-0.000999136	!=	-0.000999143
ksd2.a56b2	-0.000999136	!=	-0.000999143
ksd2.a67b2	-0.000999136	!=	-0.000999143
ksd2.a78b2	-0.000999136	!=	-0.000999143
ksd2.a81b2	-0.000999136	!=	-0.000999143
ksf1.a12b2	0.000109844	!=	0.000109843
ksf1.a23b2	0.000109844	!=	0.000109843
ksf1.a34b2	0.000109844	!=	0.000109843
ksf1.a45b2	0.000109844	!=	0.000109843
ksf1.a56b2	0.000109844	!=	0.000109843
ksf1.a67b2	0.000109844	!=	0.000109843
ksf1.a78b2	0.000109844	!=	0.000109843
ksf1.a81b2	0.000109844	!=	0.000109843
ksf2.a12b2	0.000109844	!=	0.000109843
ksf2.a23b2	0.000109844	!=	0.000109843
ksf2.a34b2	0.000109844	!=	0.000109843
ksf2.a45b2	0.000109844	!=	0.000109843
ksf2.a56b2	0.000109844	!=	0.000109843
ksf2.a67b2	0.000109844	!=	0.000109843
ksf2.a78b2	0.000109844	!=	0.000109843
ksf2.a81b2	0.000109844	!=	0.000109843

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		True	0	0	0	'r', val=0, tol=1e-08, weight=1
1	ON		False	-0.0001	0	0.0001	'i', val=0.0001, tol=1e-08, weight=1

Vary status:

id	state	tag	met	name	lower_limit	current_val
0	ON	OK		kqs.a23b1_from_cmis.b1_op	-0.1	0
0.1		0		5e-05	1	
1	ON	OK		kqs.a67b1_from_cmis.b1_op	-0.1	0
0.1		0		5e-05	1	
2	ON	OK		kqs.l4b1_from_cmis.b1_op	-0.1	0

```

0.1      0      5e-05      1
 3 ON      OK kqs.l8b1_from_cmis.b1_op      -0.1      0
0.1      0      5e-05      1
 4 ON      OK kqs.r3b1_from_cmis.b1_op      -0.1      0
0.1      0      5e-05      1
 5 ON      OK kqs.r7b1_from_cmis.b1_op      -0.1      0
0.1      0      5e-05      1
Matching: model call n. 10

```

Vary status:

```

id state tag met name      lower_limit      current_val
upper_limit val_at_iter_0      step      weight
0 ON      OK kqs.a23b1_from_cmis.b1_op      -0.1      -0.0369631
0.1      0      5e-05      1
1 ON      OK kqs.a67b1_from_cmis.b1_op      -0.1      -0.0108378
0.1      0      5e-05      1
2 ON      OK kqs.l4b1_from_cmis.b1_op      -0.1      0.020874
0.1      0      5e-05      1
3 ON      OK kqs.l8b1_from_cmis.b1_op      -0.1      0.0122101
0.1      0      5e-05      1
4 ON      OK kqs.r3b1_from_cmis.b1_op      -0.1      0.0216477
0.1      0      5e-05      1
5 ON      OK kqs.r7b1_from_cmis.b1_op      -0.1      0.0154902
0.1      0      5e-05      1

```

Knob new vs old

```

kqs.a23b1      -0.0369631 !=      -0.0369631
kqs.a67b1      -0.0108378 !=      -0.0108378
kqs.l4b1      0.020874 !=      0.020874
kqs.l8b1      0.0122101 !=      0.0122101
kqs.r3b1      0.0216477 !=      0.0216477
kqs.r7b1      0.0154902 !=      0.0154902

```

Target status:

```

id state tag tol_met      residue      current_val      target_val      description
0 ON      True      0      0      0 'r', val=0,
tol=1e-08, weight=1
1 ON      False     -0.0001      0      0.0001 'i', val=0.0001,
tol=1e-08, weight=1

```

Vary status:

```

id state tag met name      lower_limit      current_val
upper_limit val_at_iter_0      step      weight
0 ON      OK kqs.a23b1_from_cmis.b1_sq      -0.1      0
0.1      0      5e-05      1
1 ON      OK kqs.a67b1_from_cmis.b1_sq      -0.1      0
0.1      0      5e-05      1
2 ON      OK kqs.l4b1_from_cmis.b1_sq      -0.1      0
0.1      0      5e-05      1
3 ON      OK kqs.l8b1_from_cmis.b1_sq      -0.1      0
0.1      0      5e-05      1

```



```

 4 ON      OK  kqs.r3b1_from_cmis.b1_sq      -0.1      0
0.1      0      5e-05      1
 5 ON      OK  kqs.r7b1_from_cmis.b1_sq      -0.1      0
0.1      0      5e-05      1

```

Matching: model call n. 10

Vary status:

```

id state tag met name      lower_limit  current_val
upper_limit val_at_iter_0      step      weight
 0 ON      OK  kqs.a23b1_from_cmis.b1_sq      -0.1      -0.0369631
0.1      0      5e-05      1
 1 ON      OK  kqs.a67b1_from_cmis.b1_sq      -0.1      -0.0108378
0.1      0      5e-05      1
 2 ON      OK  kqs.l4b1_from_cmis.b1_sq      -0.1      0.020874
0.1      0      5e-05      1
 3 ON      OK  kqs.l8b1_from_cmis.b1_sq      -0.1      0.0122101
0.1      0      5e-05      1
 4 ON      OK  kqs.r3b1_from_cmis.b1_sq      -0.1      0.0216477
0.1      0      5e-05      1
 5 ON      OK  kqs.r7b1_from_cmis.b1_sq      -0.1      0.0154902
0.1      0      5e-05      1

```

Knob new vs old

```

kqs.a23b1      -0.0369631 !=      -0.0369631
kqs.a67b1      -0.0108378 !=      -0.0108378
kqs.l4b1      0.020874 !=      0.020874
kqs.l8b1      0.0122101 !=      0.0122101
kqs.r3b1      0.0216477 !=      0.0216477
kqs.r7b1      0.0154902 !=      0.0154902

```

Target status:

```

id state tag tol_met      residue  current_val  target_val  description
 0 ON      True      0      0      0 'r', val=0,
tol=1e-08, weight=1
 1 ON      False     -0.0001      0      0.0001 'i', val=0.0001,
tol=1e-08, weight=1

```

Vary status:

```

id state tag met name      lower_limit  current_val
upper_limit val_at_iter_0      step      weight
 0 ON      OK  kqs.a23b1_from_cmis.b1      -0.1      0
0.1      0      5e-05      1
 1 ON      OK  kqs.a45b1_from_cmis.b1      -0.1      0
0.1      0      5e-05      1
 2 ON      OK  kqs.a67b1_from_cmis.b1      -0.1      0
0.1      0      5e-05      1
 3 ON      OK  kqs.a81b1_from_cmis.b1      -0.1      0
0.1      0      5e-05      1
 4 ON      OK  kqs.l2b1_from_cmis.b1      -0.1      0
0.1      0      5e-05      1
 5 ON      OK  kqs.l4b1_from_cmis.b1      -0.1      0

```

0.1	0	5e-05	1		
6 ON	OK	kqs.l6b1_from_cmis.b1		-0.1	0
0.1	0	5e-05	1		
7 ON	OK	kqs.l8b1_from_cmis.b1		-0.1	0
0.1	0	5e-05	1		
8 ON	OK	kqs.r1b1_from_cmis.b1		-0.1	0
0.1	0	5e-05	1		
9 ON	OK	kqs.r3b1_from_cmis.b1		-0.1	0
0.1	0	5e-05	1		
10 ON	OK	kqs.r5b1_from_cmis.b1		-0.1	0
0.1	0	5e-05	1		
11 ON	OK	kqs.r7b1_from_cmis.b1		-0.1	0
0.1	0	5e-05	1		

Matching: model call n. 16

Vary status:

id	state	tag	met name	lower_limit	current_val
upper_limit	val_at_iter_0	step		weight	
0 ON	OK	kqs.a23b1_from_cmis.b1		-0.1	-0.0205271
0.1	0	5e-05	1		
1 ON	OK	kqs.a45b1_from_cmis.b1		-0.1	-0.0119214
0.1	0	5e-05	1		
2 ON	OK	kqs.a67b1_from_cmis.b1		-0.1	0.00876399
0.1	0	5e-05	1		
3 ON	OK	kqs.a81b1_from_cmis.b1		-0.1	0.014754
0.1	0	5e-05	1		
4 ON	OK	kqs.l2b1_from_cmis.b1		-0.1	0.00460178
0.1	0	5e-05	1		
5 ON	OK	kqs.l4b1_from_cmis.b1		-0.1	0.00576719
0.1	0	5e-05	1		
6 ON	OK	kqs.l6b1_from_cmis.b1		-0.1	-0.00369496
0.1	0	5e-05	1		
7 ON	OK	kqs.l8b1_from_cmis.b1		-0.1	0.010355
0.1	0	5e-05	1		
8 ON	OK	kqs.r1b1_from_cmis.b1		-0.1	0.00515613
0.1	0	5e-05	1		
9 ON	OK	kqs.r3b1_from_cmis.b1		-0.1	0.0102457
0.1	0	5e-05	1		
10 ON	OK	kqs.r5b1_from_cmis.b1		-0.1	-0.0042713
0.1	0	5e-05	1		
11 ON	OK	kqs.r7b1_from_cmis.b1		-0.1	0.0107911
0.1	0	5e-05	1		

Knob new vs old

kqs.a23b1	-0.0205271 !=	-0.0205271
kqs.a45b1	-0.0119214 !=	-0.0119214
kqs.a67b1	0.00876399 !=	0.00876399
kqs.a81b1	0.014754 !=	0.014754
kqs.l2b1	0.00460178 !=	0.00460178

```

kqs.l4b1          0.00576719 !=      0.00576719
kqs.l6b1          -0.00369496 !=     -0.00369496
kqs.l8b1           0.010355 !=      0.010355
kqs.r1b1          0.00515613 !=     0.00515613
kqs.r3b1          0.0102457 !=     0.0102457
kqs.r5b1          -0.0042713 !=    -0.0042713
kqs.r7b1          0.0107911 !=     0.0107911

```

Target status:

```

id state tag tol_met      residue  current_val  target_val description
 0 ON      True           0           0           0 'r', val=0,
tol=1e-08, weight=1
 1 ON      False        -0.0001     0           0.0001 'i', val=0.0001,
tol=1e-08, weight=1

```

Vary status:

```

id state tag met name          lower_limit  current_val
upper_limit val_at_iter_0      step          weight
 0 ON      OK  kqs.a34b2_from_cmis.b2_op  -0.1         0
0.1        0           5e-05        1
 1 ON      OK  kqs.a78b2_from_cmis.b2_op  -0.1         0
0.1        0           5e-05        1
 2 ON      OK  kqs.l3b2_from_cmis.b2_op   -0.1         0
0.1        0           5e-05        1
 3 ON      OK  kqs.l7b2_from_cmis.b2_op   -0.1         0
0.1        0           5e-05        1
 4 ON      OK  kqs.r2b2_from_cmis.b2_op   -0.1         0
0.1        0           5e-05        1
 5 ON      OK  kqs.r6b2_from_cmis.b2_op   -0.1         0
0.1        0           5e-05        1

```

Matching: model call n. 10

Vary status:

```

id state tag met name          lower_limit  current_val
upper_limit val_at_iter_0      step          weight
 0 ON      OK  kqs.a34b2_from_cmis.b2_op  -0.1        -0.027573
0.1        0           5e-05        1
 1 ON      OK  kqs.a78b2_from_cmis.b2_op  -0.1         0.0327268
0.1        0           5e-05        1
 2 ON      OK  kqs.l3b2_from_cmis.b2_op   -0.1         0.0303091
0.1        0           5e-05        1
 3 ON      OK  kqs.l7b2_from_cmis.b2_op   -0.1         0.0396572
0.1        0           5e-05        1
 4 ON      OK  kqs.r2b2_from_cmis.b2_op   -0.1         0.00619873
0.1        0           5e-05        1
 5 ON      OK  kqs.r6b2_from_cmis.b2_op   -0.1         0.03562
0.1        0           5e-05        1

```

Knob new vs old

```

kqs.a34b2          -0.027573 !=     -0.027573
kqs.a78b2          0.0327268 !=    0.0327268

```

```

kqs.l3b2          0.0303091 !=      0.0303091
kqs.l7b2          0.0396572 !=      0.0396572
kqs.r2b2          0.00619873 !=     0.00619873
kqs.r6b2          0.03562 !=       0.03562

```

Target status:

```

id state tag tol_met      residue  current_val  target_val description
0 ON      True           0          0           0 'r', val=0,
tol=1e-08, weight=1
1 ON      False        -0.0001    0           0.0001 'i', val=0.0001,
tol=1e-08, weight=1

```

Vary status:

```

id state tag met name          lower_limit  current_val
upper_limit val_at_iter_0      step         weight
0 ON      OK  kqs.a34b2_from_cmis.b2_sq     -0.1         0
0.1       0          5e-05        1
1 ON      OK  kqs.a78b2_from_cmis.b2_sq     -0.1         0
0.1       0          5e-05        1
2 ON      OK  kqs.l3b2_from_cmis.b2_sq      -0.1         0
0.1       0          5e-05        1
3 ON      OK  kqs.l7b2_from_cmis.b2_sq      -0.1         0
0.1       0          5e-05        1
4 ON      OK  kqs.r2b2_from_cmis.b2_sq      -0.1         0
0.1       0          5e-05        1
5 ON      OK  kqs.r6b2_from_cmis.b2_sq      -0.1         0
0.1       0          5e-05        1

```

Matching: model call n. 10

Vary status:

```

id state tag met name          lower_limit  current_val
upper_limit val_at_iter_0      step         weight
0 ON      OK  kqs.a34b2_from_cmis.b2_sq     -0.1        -0.027573
0.1       0          5e-05        1
1 ON      OK  kqs.a78b2_from_cmis.b2_sq     -0.1         0.0327268
0.1       0          5e-05        1
2 ON      OK  kqs.l3b2_from_cmis.b2_sq      -0.1         0.0303091
0.1       0          5e-05        1
3 ON      OK  kqs.l7b2_from_cmis.b2_sq      -0.1         0.0396572
0.1       0          5e-05        1
4 ON      OK  kqs.r2b2_from_cmis.b2_sq      -0.1         0.00619873
0.1       0          5e-05        1
5 ON      OK  kqs.r6b2_from_cmis.b2_sq      -0.1         0.03562
0.1       0          5e-05        1

```

Knob new vs old

```

kqs.a34b2        -0.027573 !=     -0.027573
kqs.a78b2         0.0327268 !=    0.0327268
kqs.l3b2          0.0303091 !=    0.0303091
kqs.l7b2          0.0396572 !=    0.0396572
kqs.r2b2          0.00619873 !=  0.00619873

```

```

kqs.r6b2                0.03562 !=          0.03562
Target status:
id state tag tol_met      residue  current_val  target_val description
 0 ON      True          0          0          0 'r', val=0,
tol=1e-08, weight=1
 1 ON      False        -0.0001    0          0.0001 'i', val=0.0001,
tol=1e-08, weight=1

```

```

Vary status:
id state tag met name          lower_limit  current_val
upper_limit val_at_iter_0      step        weight
 0 ON      OK   kqs.a12b2_from_cmis.b2    -0.1        0
0.1        0          5e-05        1
 1 ON      OK   kqs.a34b2_from_cmis.b2    -0.1        0
0.1        0          5e-05        1
 2 ON      OK   kqs.a56b2_from_cmis.b2    -0.1        0
0.1        0          5e-05        1
 3 ON      OK   kqs.a78b2_from_cmis.b2    -0.1        0
0.1        0          5e-05        1
 4 ON      OK   kqs.l1b2_from_cmis.b2     -0.1        0
0.1        0          5e-05        1
 5 ON      OK   kqs.l3b2_from_cmis.b2     -0.1        0
0.1        0          5e-05        1
 6 ON      OK   kqs.l5b2_from_cmis.b2     -0.1        0
0.1        0          5e-05        1
 7 ON      OK   kqs.l7b2_from_cmis.b2     -0.1        0
0.1        0          5e-05        1
 8 ON      OK   kqs.r2b2_from_cmis.b2     -0.1        0
0.1        0          5e-05        1
 9 ON      OK   kqs.r4b2_from_cmis.b2     -0.1        0
0.1        0          5e-05        1
10 ON      OK   kqs.r6b2_from_cmis.b2     -0.1        0
0.1        0          5e-05        1
11 ON      OK   kqs.r8b2_from_cmis.b2     -0.1        0
0.1        0          5e-05        1

```

Matching: model call n. 16

```

Vary status:
id state tag met name          lower_limit  current_val
upper_limit val_at_iter_0      step        weight
 0 ON      OK   kqs.a12b2_from_cmis.b2    -0.1        -0.019897
0.1        0          5e-05        1
 1 ON      OK   kqs.a34b2_from_cmis.b2    -0.1        0.00393779
0.1        0          5e-05        1
 2 ON      OK   kqs.a56b2_from_cmis.b2    -0.1        0.0144875
0.1        0          5e-05        1
 3 ON      OK   kqs.a78b2_from_cmis.b2    -0.1        0.0245252
0.1        0          5e-05        1
 4 ON      OK   kqs.l1b2_from_cmis.b2     -0.1        -0.00872844

```

0.1	0	5e-05	1		
5 ON	OK	kqs.l3b2_from_cmis.b2		-0.1	0.00470128
0.1	0	5e-05	1		
6 ON	OK	kqs.l5b2_from_cmis.b2		-0.1	0.00686365
0.1	0	5e-05	1		
7 ON	OK	kqs.l7b2_from_cmis.b2		-0.1	0.0161521
0.1	0	5e-05	1		
8 ON	OK	kqs.r2b2_from_cmis.b2		-0.1	-0.00536345
0.1	0	5e-05	1		
9 ON	OK	kqs.r4b2_from_cmis.b2		-0.1	0.00601597
0.1	0	5e-05	1		
10 ON	OK	kqs.r6b2_from_cmis.b2		-0.1	0.016061
0.1	0	5e-05	1		
11 ON	OK	kqs.r8b2_from_cmis.b2		-0.1	-0.00799804
0.1	0	5e-05	1		

Knob new vs old

kqs.a12b2	-0.019897	!=	-0.019897
kqs.a34b2	0.00393779	!=	0.00393779
kqs.a56b2	0.0144875	!=	0.0144875
kqs.a78b2	0.0245252	!=	0.0245252
kqs.l1b2	-0.00872844	!=	-0.00872844
kqs.l3b2	0.00470128	!=	0.00470128
kqs.l5b2	0.00686365	!=	0.00686365
kqs.l7b2	0.0161521	!=	0.0161521
kqs.r2b2	-0.00536345	!=	-0.00536345
kqs.r4b2	0.00601597	!=	0.00601597
kqs.r6b2	0.016061	!=	0.016061
kqs.r8b2	-0.00799804	!=	-0.00799804

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		False	-0.0001	0	0.0001	'r', val=0.0001, tol=1e-08, weight=1
1	ON		True	0	0	0	'i', val=0, tol=1e-08, weight=1

Vary status:

id	state	tag	met	name	lower_limit	current_val
0	ON	OK		kqs.a23b1_from_cmrs.b1_op	-0.1	0
0.1		0		step	weight	
0.1		0		5e-05	1	
1	ON	OK		kqs.a67b1_from_cmrs.b1_op	-0.1	0
0.1		0		5e-05	1	
2	ON	OK		kqs.l4b1_from_cmrs.b1_op	-0.1	0
0.1		0		5e-05	1	
3	ON	OK		kqs.l8b1_from_cmrs.b1_op	-0.1	0
0.1		0		5e-05	1	
4	ON	OK		kqs.r3b1_from_cmrs.b1_op	-0.1	0
0.1		0		5e-05	1	
5	ON	OK		kqs.r7b1_from_cmrs.b1_op	-0.1	0

0.1 0 5e-05 1
 Matching: model call n. 10

Vary status:

id	state	tag	met	name	lower_limit	current_val
upper_limit	val_at_iter_0	step	weight			
0	ON	OK		kqs.a23b1_from_cmrs.b1_op	-0.1	-0.00293458
0.1			0	5e-05	1	
1	ON	OK		kqs.a67b1_from_cmrs.b1_op	-0.1	0.0525802
0.1			0	5e-05	1	
2	ON	OK		kqs.l4b1_from_cmrs.b1_op	-0.1	-0.0194006
0.1			0	5e-05	1	
3	ON	OK		kqs.l8b1_from_cmrs.b1_op	-0.1	0.0138906
0.1			0	5e-05	1	
4	ON	OK		kqs.r3b1_from_cmrs.b1_op	-0.1	-0.00470243
0.1			0	5e-05	1	
5	ON	OK		kqs.r7b1_from_cmrs.b1_op	-0.1	0.0091423
0.1			0	5e-05	1	

Knob new vs old

kqs.a23b1	-0.00293458	!=	-0.00293458
kqs.a67b1	0.0525802	!=	0.0525802
kqs.l4b1	-0.0194006	!=	-0.0194006
kqs.l8b1	0.0138906	!=	0.0138906
kqs.r3b1	-0.00470243	!=	-0.00470243
kqs.r7b1	0.0091423	!=	0.0091423

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		False	-0.0001	0	0.0001	'r', val=0.0001, tol=1e-08, weight=1
1	ON		True	0	0	0	'i', val=0, tol=1e-08, weight=1

Vary status:

id	state	tag	met	name	lower_limit	current_val
upper_limit	val_at_iter_0	step	weight			
0	ON	OK		kqs.a23b1_from_cmrs.b1_sq	-0.1	0
0.1			0	5e-05	1	
1	ON	OK		kqs.a67b1_from_cmrs.b1_sq	-0.1	0
0.1			0	5e-05	1	
2	ON	OK		kqs.l4b1_from_cmrs.b1_sq	-0.1	0
0.1			0	5e-05	1	
3	ON	OK		kqs.l8b1_from_cmrs.b1_sq	-0.1	0
0.1			0	5e-05	1	
4	ON	OK		kqs.r3b1_from_cmrs.b1_sq	-0.1	0
0.1			0	5e-05	1	
5	ON	OK		kqs.r7b1_from_cmrs.b1_sq	-0.1	0
0.1			0	5e-05	1	

Matching: model call n. 10

Vary status:

id	state	tag	met	name	lower_limit	current_val
upper_limit	val_at_iter_0	step	weight			
0	ON	OK		kqs.a23b1_from_cmrs.b1_sq	-0.1	-0.00293458
0.1		0		5e-05	1	
1	ON	OK		kqs.a67b1_from_cmrs.b1_sq	-0.1	0.0525802
0.1		0		5e-05	1	
2	ON	OK		kqs.l4b1_from_cmrs.b1_sq	-0.1	-0.0194006
0.1		0		5e-05	1	
3	ON	OK		kqs.l8b1_from_cmrs.b1_sq	-0.1	0.0138906
0.1		0		5e-05	1	
4	ON	OK		kqs.r3b1_from_cmrs.b1_sq	-0.1	-0.00470243
0.1		0		5e-05	1	
5	ON	OK		kqs.r7b1_from_cmrs.b1_sq	-0.1	0.0091423
0.1		0		5e-05	1	

Knob new vs old

kqs.a23b1	-0.00293458	!=	-0.00293458
kqs.a67b1	0.0525802	!=	0.0525802
kqs.l4b1	-0.0194006	!=	-0.0194006
kqs.l8b1	0.0138906	!=	0.0138906
kqs.r3b1	-0.00470243	!=	-0.00470243
kqs.r7b1	0.0091423	!=	0.0091423

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON		False	-0.0001	0	0.0001	'r', val=0.0001, tol=1e-08, weight=1
1	ON		True	0	0	0	'i', val=0, tol=1e-08, weight=1

Vary status:

id	state	tag	met	name	lower_limit	current_val
upper_limit	val_at_iter_0	step	weight			
0	ON	OK		kqs.a23b1_from_cmrs.b1	-0.1	0
0.1		0		5e-05	1	
1	ON	OK		kqs.a45b1_from_cmrs.b1	-0.1	0
0.1		0		5e-05	1	
2	ON	OK		kqs.a67b1_from_cmrs.b1	-0.1	0
0.1		0		5e-05	1	
3	ON	OK		kqs.a81b1_from_cmrs.b1	-0.1	0
0.1		0		5e-05	1	
4	ON	OK		kqs.l2b1_from_cmrs.b1	-0.1	0
0.1		0		5e-05	1	
5	ON	OK		kqs.l4b1_from_cmrs.b1	-0.1	0
0.1		0		5e-05	1	
6	ON	OK		kqs.l6b1_from_cmrs.b1	-0.1	0
0.1		0		5e-05	1	
7	ON	OK		kqs.l8b1_from_cmrs.b1	-0.1	0
0.1		0		5e-05	1	
8	ON	OK		kqs.r1b1_from_cmrs.b1	-0.1	0

0.1	0	5e-05	1		
9 ON	OK	kqs.r3b1_from_cmrs.b1		-0.1	0
0.1	0	5e-05	1		
10 ON	OK	kqs.r5b1_from_cmrs.b1		-0.1	0
0.1	0	5e-05	1		
11 ON	OK	kqs.r7b1_from_cmrs.b1		-0.1	0
0.1	0	5e-05	1		

Matching: model call n. 16

Vary status:

id	state	tag	met	name	lower_limit	current_val
upper_limit	val_at_iter_0	step	weight			
0 ON	OK	kqs.a23b1_from_cmrs.b1		-0.1	-0.0164622	
0.1	0	5e-05	1			
1 ON	OK	kqs.a45b1_from_cmrs.b1		-0.1	0.0105394	
0.1	0	5e-05	1			
2 ON	OK	kqs.a67b1_from_cmrs.b1		-0.1	0.0337495	
0.1	0	5e-05	1			
3 ON	OK	kqs.a81b1_from_cmrs.b1		-0.1	-0.00492757	
0.1	0	5e-05	1			
4 ON	OK	kqs.l2b1_from_cmrs.b1		-0.1	-0.00763995	
0.1	0	5e-05	1			
5 ON	OK	kqs.l4b1_from_cmrs.b1		-0.1	-0.00590407	
0.1	0	5e-05	1			
6 ON	OK	kqs.l6b1_from_cmrs.b1		-0.1	0.00903697	
0.1	0	5e-05	1			
7 ON	OK	kqs.l8b1_from_cmrs.b1		-0.1	0.0147652	
0.1	0	5e-05	1			
8 ON	OK	kqs.r1b1_from_cmrs.b1		-0.1	-0.00672636	
0.1	0	5e-05	1			
9 ON	OK	kqs.r3b1_from_cmrs.b1		-0.1	0.00500612	
0.1	0	5e-05	1			
10 ON	OK	kqs.r5b1_from_cmrs.b1		-0.1	0.00816255	
0.1	0	5e-05	1			
11 ON	OK	kqs.r7b1_from_cmrs.b1		-0.1	0.0126105	
0.1	0	5e-05	1			

Knob new vs old

kqs.a23b1	-0.0164622 !=	-0.0164622
kqs.a45b1	0.0105394 !=	0.0105394
kqs.a67b1	0.0337495 !=	0.0337495
kqs.a81b1	-0.00492757 !=	-0.00492757
kqs.l2b1	-0.00763995 !=	-0.00763995
kqs.l4b1	-0.00590407 !=	-0.00590407
kqs.l6b1	0.00903697 !=	0.00903697
kqs.l8b1	0.0147652 !=	0.0147652
kqs.r1b1	-0.00672636 !=	-0.00672636
kqs.r3b1	0.00500612 !=	0.00500612
kqs.r5b1	0.00816255 !=	0.00816255

```

kqs.r7b1                0.0126105 !=      0.0126105
Target status:
id state tag tol_met      residue  current_val  target_val description
 0 ON          False    -0.0001      0          0.0001 'r', val=0.0001,
tol=1e-08, weight=1
 1 ON           True       0            0            0 'i', val=0,
tol=1e-08, weight=1

```

```

Vary status:
id state tag met name          lower_limit  current_val
upper_limit val_at_iter_0      step        weight
 0 ON          OK  kqs.a34b2_from_cmrs.b2_op    -0.1        0
0.1           0          5e-05      1
 1 ON          OK  kqs.a78b2_from_cmrs.b2_op    -0.1        0
0.1           0          5e-05      1
 2 ON          OK  kqs.l3b2_from_cmrs.b2_op     -0.1        0
0.1           0          5e-05      1
 3 ON          OK  kqs.l7b2_from_cmrs.b2_op     -0.1        0
0.1           0          5e-05      1
 4 ON          OK  kqs.r2b2_from_cmrs.b2_op     -0.1        0
0.1           0          5e-05      1
 5 ON          OK  kqs.r6b2_from_cmrs.b2_op     -0.1        0
0.1           0          5e-05      1

```

Matching: model call n. 10

```

Vary status:
id state tag met name          lower_limit  current_val
upper_limit val_at_iter_0      step        weight
 0 ON          OK  kqs.a34b2_from_cmrs.b2_op    -0.1    -0.0322953
0.1           0          5e-05      1
 1 ON          OK  kqs.a78b2_from_cmrs.b2_op    -0.1    -0.0225374
0.1           0          5e-05      1
 2 ON          OK  kqs.l3b2_from_cmrs.b2_op     -0.1     0.0166761
0.1           0          5e-05      1
 3 ON          OK  kqs.l7b2_from_cmrs.b2_op     -0.1     0.000971613
0.1           0          5e-05      1
 4 ON          OK  kqs.r2b2_from_cmrs.b2_op     -0.1     0.0165957
0.1           0          5e-05      1
 5 ON          OK  kqs.r6b2_from_cmrs.b2_op     -0.1    -0.00236529
0.1           0          5e-05      1

```

Knob new vs old

```

kqs.a34b2                -0.0322953 !=      -0.0322953
kqs.a78b2                -0.0225374 !=      -0.0225374
kqs.l3b2                 0.0166761 !=      0.0166761
kqs.l7b2                 0.000971613 !=    0.000971613
kqs.r2b2                 0.0165957 !=      0.0165957
kqs.r6b2                 -0.00236529 !=    -0.00236529

```

```

Target status:
id state tag tol_met      residue  current_val  target_val description

```

```

0 ON      False      -0.0001      0      0.0001 'r', val=0.0001,
tol=1e-08, weight=1
1 ON      True        0            0            0 'i', val=0,
tol=1e-08, weight=1

```

Vary status:

id	state	tag	met	name	lower_limit	current_val
upper_limit	val_at_iter_0	step	weight			
0	ON	OK		kqs.a34b2_from_cmrs.b2_sq	-0.1	0
0.1		0		5e-05	1	
1	ON	OK		kqs.a78b2_from_cmrs.b2_sq	-0.1	0
0.1		0		5e-05	1	
2	ON	OK		kqs.l3b2_from_cmrs.b2_sq	-0.1	0
0.1		0		5e-05	1	
3	ON	OK		kqs.l7b2_from_cmrs.b2_sq	-0.1	0
0.1		0		5e-05	1	
4	ON	OK		kqs.r2b2_from_cmrs.b2_sq	-0.1	0
0.1		0		5e-05	1	
5	ON	OK		kqs.r6b2_from_cmrs.b2_sq	-0.1	0
0.1		0		5e-05	1	

Matching: model call n. 10

Vary status:

id	state	tag	met	name	lower_limit	current_val
upper_limit	val_at_iter_0	step	weight			
0	ON	OK		kqs.a34b2_from_cmrs.b2_sq	-0.1	-0.0322953
0.1		0		5e-05	1	
1	ON	OK		kqs.a78b2_from_cmrs.b2_sq	-0.1	-0.0225374
0.1		0		5e-05	1	
2	ON	OK		kqs.l3b2_from_cmrs.b2_sq	-0.1	0.0166761
0.1		0		5e-05	1	
3	ON	OK		kqs.l7b2_from_cmrs.b2_sq	-0.1	0.000971613
0.1		0		5e-05	1	
4	ON	OK		kqs.r2b2_from_cmrs.b2_sq	-0.1	0.0165957
0.1		0		5e-05	1	
5	ON	OK		kqs.r6b2_from_cmrs.b2_sq	-0.1	-0.00236529
0.1		0		5e-05	1	

Knob new vs old

kqs.a34b2	-0.0322953	!=	-0.0322953
kqs.a78b2	-0.0225374	!=	-0.0225374
kqs.l3b2	0.0166761	!=	0.0166761
kqs.l7b2	0.000971613	!=	0.000971613
kqs.r2b2	0.0165957	!=	0.0165957
kqs.r6b2	-0.00236529	!=	-0.00236529

Target status:

id	state	tag	tol_met	residue	current_val	target_val	description
0	ON	False		-0.0001	0	0.0001	'r', val=0.0001,
tol=1e-08, weight=1							
1	ON	True		0	0	0	'i', val=0,

tol=1e-08, weight=1

Vary status:

id	state	tag	met name	lower_limit	current_val
upper_limit	val_at_iter_0	step	weight		
0	ON	OK	kqs.a12b2_from_cmrs.b2	-0.1	0
0.1		0	5e-05	1	
1	ON	OK	kqs.a34b2_from_cmrs.b2	-0.1	0
0.1		0	5e-05	1	
2	ON	OK	kqs.a56b2_from_cmrs.b2	-0.1	0
0.1		0	5e-05	1	
3	ON	OK	kqs.a78b2_from_cmrs.b2	-0.1	0
0.1		0	5e-05	1	
4	ON	OK	kqs.l1b2_from_cmrs.b2	-0.1	0
0.1		0	5e-05	1	
5	ON	OK	kqs.l3b2_from_cmrs.b2	-0.1	0
0.1		0	5e-05	1	
6	ON	OK	kqs.l5b2_from_cmrs.b2	-0.1	0
0.1		0	5e-05	1	
7	ON	OK	kqs.l7b2_from_cmrs.b2	-0.1	0
0.1		0	5e-05	1	
8	ON	OK	kqs.r2b2_from_cmrs.b2	-0.1	0
0.1		0	5e-05	1	
9	ON	OK	kqs.r4b2_from_cmrs.b2	-0.1	0
0.1		0	5e-05	1	
10	ON	OK	kqs.r6b2_from_cmrs.b2	-0.1	0
0.1		0	5e-05	1	
11	ON	OK	kqs.r8b2_from_cmrs.b2	-0.1	0
0.1		0	5e-05	1	

Matching: model call n. 16

Vary status:

id	state	tag	met name	lower_limit	current_val
upper_limit	val_at_iter_0	step	weight		
0	ON	OK	kqs.a12b2_from_cmrs.b2	-0.1	-0.00357231
0.1		0	5e-05	1	
1	ON	OK	kqs.a34b2_from_cmrs.b2	-0.1	-0.0193007
0.1		0	5e-05	1	
2	ON	OK	kqs.a56b2_from_cmrs.b2	-0.1	0.00839464
0.1		0	5e-05	1	
3	ON	OK	kqs.a78b2_from_cmrs.b2	-0.1	-0.0252774
0.1		0	5e-05	1	
4	ON	OK	kqs.l1b2_from_cmrs.b2	-0.1	-0.00295076
0.1		0	5e-05	1	
5	ON	OK	kqs.l3b2_from_cmrs.b2	-0.1	0.00631447
0.1		0	5e-05	1	
6	ON	OK	kqs.l5b2_from_cmrs.b2	-0.1	0.00453146
0.1		0	5e-05	1	
7	ON	OK	kqs.l7b2_from_cmrs.b2	-0.1	-0.00824176

```

0.1      0      5e-05      1
 8 ON    OK kqs.r2b2_from_cmrs.b2      -0.1      0.0117291
0.1      0      5e-05      1
 9 ON    OK kqs.r4b2_from_cmrs.b2      -0.1      0.00519664
0.1      0      5e-05      1
10 ON    OK kqs.r6b2_from_cmrs.b2      -0.1     -0.00996602
0.1      0      5e-05      1
11 ON    OK kqs.r8b2_from_cmrs.b2      -0.1     -0.00359044
0.1      0      5e-05      1

```

Knob new vs old

```

kqs.a12b2      -0.00357231 != -0.00357231
kqs.a34b2      -0.0193007 != -0.0193007
kqs.a56b2      0.00839464 != 0.00839464
kqs.a78b2      -0.0252774 != -0.0252774
kqs.l1b2       -0.00295076 != -0.00295076
kqs.l3b2       0.00631447 != 0.00631447
kqs.l5b2       0.00453146 != 0.00453146
kqs.l7b2       -0.00824176 != -0.00824176
kqs.r2b2       0.0117291 != 0.0117291
kqs.r4b2       0.00519664 != 0.00519664
kqs.r6b2       -0.00996602 != -0.00996602
kqs.r8b2       -0.00359044 != -0.00359044

```

```

[56]: opt.model["on_sep5_h"]=0.000
      opt.check()
      opt.model["on_sep5_h"]=0.002
      opt.check()
      opt.model["on_sep5_h"]=0.000
      opt.check()

```

```

name  betx  bety  dx  dpx  px*1e6  py*1e6  x*1e3  y*1e3
ip1   2.5000 2.5000 0.0000 -0.0000 0.0000 -0.0000 -0.0000 0.0000
ip1   2.5000 2.5000 -0.0000 0.0000 -0.0000 -0.0000 -0.0000 -0.0000
ip2  10.0000 10.0000 -0.0000 -0.0000 0.0000 0.0000 -0.0000 -0.0000
ip2  10.0000 10.0000 -0.0000 -0.0000 -0.0000 0.0000 0.0000 -0.0000
ip5   2.2000 2.2000 0.0000 -0.0000 -0.0000 0.0000 -0.0000 -0.0000
ip5   2.2000 2.2000 0.0000 0.0000 -0.0000 -0.0000 -0.0000 0.0000
ip8  10.0000 10.0000 -0.0000 0.0000 0.0000 -0.0000 0.0000 0.0000
ip8  10.0000 10.0000 -0.0000 0.0000 -0.0000 -0.0000 -0.0000 0.0000
      HB1      HB2      VB1      VB2
Tunes: 62.310000 62.310000 60.320000 60.320000
Chroma: -0.000001 0.000000 0.000000 0.000000
name  betx  bety  dx  dpx  px*1e6  py*1e6  x*1e3  y*1e3
ip1   2.5000 2.5000 0.0000 0.0000 0.0000 -0.0000 -0.0000 0.0000
ip1   2.5000 2.5000 0.0000 0.0000 0.0000 -0.0000 -0.0000 0.0000
ip2  10.0000 10.0000 0.0000 -0.0000 0.0000 0.0000 -0.0000 -0.0000
ip2  10.0000 10.0000 -0.0000 0.0000 -0.0000 -0.0000 -0.0000 0.0000
ip5   2.2000 2.2000 -0.0000 0.0000 0.0000 0.0000 -0.0020 -0.0000

```

```

ip5  2.2000  2.2000  0.0000  0.0000  0.0000 -0.0000  0.0020  0.0000
ip8 10.0000 10.0000  0.0000  0.0000 -0.0000  0.0000 -0.0000  0.0000
ip8 10.0000 10.0000 -0.0000 -0.0000 -0.0000 -0.0000 -0.0000  0.0000
      HB1      HB2      VB1      VB2
Tunes:  62.310000  62.310000  60.320000  60.320000
Chroma: -0.000017  0.000023  0.000008  -0.000013
name  betx  bety  dx  dpx  px*1e6  py*1e6  x*1e3  y*1e3
ip1  2.5000  2.5000  0.0000 -0.0000  0.0000 -0.0000 -0.0000  0.0000
ip1  2.5000  2.5000 -0.0000  0.0000 -0.0000 -0.0000 -0.0000 -0.0000
ip2 10.0000 10.0000 -0.0000 -0.0000  0.0000  0.0000 -0.0000 -0.0000
ip2 10.0000 10.0000 -0.0000 -0.0000 -0.0000  0.0000  0.0000 -0.0000
ip5  2.2000  2.2000  0.0000 -0.0000 -0.0000  0.0000 -0.0000 -0.0000
ip5  2.2000  2.2000  0.0000  0.0000 -0.0000 -0.0000 -0.0000  0.0000
ip8 10.0000 10.0000 -0.0000  0.0000  0.0000 -0.0000  0.0000  0.0000
ip8 10.0000 10.0000 -0.0000  0.0000 -0.0000 -0.0000 -0.0000  0.0000
      HB1      HB2      VB1      VB2
Tunes:  62.310000  62.310000  60.320000  60.320000
Chroma: -0.000001  0.000000  0.000000  0.000000

```

1.8 To MAD-X and OP

[57]: `opt.to_madx()`

```

! SQUEEZEVH_0

! Main Parameters
p0c          = 6800000000000.000000000000000000;
qxb1         = 62.3100000015436706;
qyb1         = 60.3199999923588450;
qxb2         = 62.3099999953596821;
qyb2         = 60.3199999933122797;
qpxb1        = -0.7741217960699487;
qpyb1        = -0.7764170563007156;
qpxb2        = -0.7746084085624716;
qpyb2        = -0.7745264064595858;
match_inj    = 0.0000000000000000;
rx_ip1       = 1.0000000000000000;
ry_ip1       = 1.0000000000000000;
rx_ip5       = 1.0000000000000000;
ry_ip5       = 1.0000000000000000;

! IR1

! Strengths of IR1
kqx.l1       = 0.008496131499484852;
kqx.r1       = -0.008496131499484852;
ktqx1.l1     = -6.889898423011464e-06;
ktqx1.r1     = 6.889898423011464e-06;

```

```

ktqx2.l1      = 0.0003149527530126195;
ktqx2.r1      = -0.0003149527530126195;
kq4.l1b1     = 0;
kq4.l1b2     = 0;
kq4.r1b1     = 0;
kq4.r1b2     = 0;
kq5.l1b1     = -0.004059373776275848;
kq5.l1b2     = 0.003898686185492149;
kq5.r1b1     = 0.004031721163958264;
kq5.r1b2     = -0.003949943413340483;
kq6.l1b1     = 0.005314951709321084;
kq6.l1b2     = -0.00532495649271619;
kq6.r1b1     = -0.005323231194886783;
kq6.r1b2     = 0.005380043537187969;
kq7.l1b1     = -0.006084901558911206;
kq7.l1b2     = 0.006062762870952789;
kq7.r1b1     = 0.006055273041905767;
kq7.r1b2     = -0.006096184601159193;
kq8.l1b1     = 0.00705312947264139;
kq8.l1b2     = -0.006753339123237782;
kq8.r1b1     = -0.007018479892425734;
kq8.r1b2     = 0.006746484495141906;
kq9.l1b1     = -0.007095065807276826;
kq9.l1b2     = 0.006823778361561372;
kq9.r1b1     = 0.006770842774689588;
kq9.r1b2     = -0.006453682846573191;
kq10.l1b1    = 0.007165666971541371;
kq10.l1b2    = -0.007065682336111915;
kq10.r1b1    = -0.007222109170990681;
kq10.r1b2    = 0.007068946392706192;
kqt11.l1b1   = -0.0003663052178825002;
kqt11.l1b2   = 0.0005309019078840152;
kqt11.r1b1   = 0.0004527860118654472;
kqt11.r1b2   = -0.000332081270597462;
kqt12.l1b1   = -0.001672010295397055;
kqt12.l1b2   = -0.001271325931515276;
kqt12.r1b1   = 0.002176222614157248;
kqt12.r1b2   = -0.0004968265771647666;
kqt13.l1b1   = 0.00460593943234303;
kqt13.l1b2   = 0.0006127876820936591;
kqt13.r1b1   = -4.525173808029764e-05;
kqt13.r1b2   = -0.004643414605862754;
kqs.l1b2     = 0;
kqs.r1b1     = 0;
acbxh1.l1    = 0;
acbxh1.r1    = 0;
acbxv1.l1    = 0;
acbxv1.r1    = -0;

```

acbxh2.l1	=	0;
acbxh2.r1	=	0;
acbxv2.l1	=	0;
acbxv2.r1	=	0;
acbxh3.l1	=	0;
acbxh3.r1	=	0;
acbxv3.l1	=	0;
acbxv3.r1	=	-0;
acbyh4.l1b1	=	0;
acbyh4.r1b2	=	0;
acbyhs4.l1b1	=	0;
acbyhs4.l1b2	=	0;
acbyhs4.r1b1	=	0;
acbyhs4.r1b2	=	0;
acbyv4.l1b2	=	0;
acbyv4.r1b1	=	0;
acbyvs4.l1b1	=	0;
acbyvs4.l1b2	=	0;
acbyvs4.r1b1	=	0;
acbyvs4.r1b2	=	0;
acbch5.l1b2	=	0;
acbch5.r1b1	=	0;
acbcv5.l1b1	=	0;
acbcv5.r1b2	=	0;
acbch6.l1b1	=	0;
acbch6.r1b2	=	0;
acbcv6.l1b2	=	0;
acbcv6.r1b1	=	0;
acbch7.l1b2	=	-0;
acbch7.r1b1	=	0;
acbcv7.l1b1	=	-0;
acbcv7.r1b2	=	-0;
acbch8.l1b1	=	-0;
acbch8.r1b2	=	-0;
acbcv8.l1b2	=	-0;
acbcv8.r1b1	=	-0;
acbch9.l1b2	=	0;
acbch9.r1b1	=	0;
acbcv9.l1b1	=	0;
acbcv9.r1b2	=	0;
acbch10.l1b1	=	0;
acbch10.r1b2	=	0;
acbcv10.l1b2	=	0;
acbcv10.r1b1	=	0;
acbh11.l1b2	=	0;
acbh11.r1b1	=	0;
acbv11.l1b1	=	0;
acbv11.r1b2	=	0;

acbh12.l1b1	=	0;
acbh12.r1b2	=	0;
acbv12.l1b2	=	0;
acbv12.r1b1	=	0;
acbh13.l1b2	=	0;
acbh13.r1b1	=	0;
acbv13.l1b1	=	0;
acbv13.r1b2	=	0;
acbh14.l1b1	=	0;
acbh14.r1b2	=	0;
acbv14.l1b2	=	0;
acbv14.r1b1	=	0;
acbh15.l1b2	=	0;
acbh15.r1b1	=	0;
acbv15.l1b1	=	0;
acbv15.r1b2	=	0;
acbh16.l1b1	=	0;
acbh16.r1b2	=	0;
acbv16.l1b2	=	0;
acbv16.r1b1	=	0;
acbh17.l1b2	=	0;
acbh17.r1b1	=	0;
acbv17.l1b1	=	0;
acbv17.r1b2	=	0;
acbh18.l1b1	=	0;
acbh18.r1b2	=	0;
acbv18.l1b2	=	0;
acbv18.r1b1	=	0;
acbh19.l1b2	=	0;
acbh19.r1b1	=	0;
acbv19.l1b1	=	0;
acbv19.r1b2	=	0;
acbh20.l1b1	=	0;
acbh20.r1b2	=	0;
acbv20.l1b2	=	0;
acbv20.r1b1	=	0;
acbh21.l1b2	=	0;
acbh21.r1b1	=	0;
acbv21.l1b1	=	0;
acbv21.r1b2	=	0;
acbh22.l1b1	=	0;
acbh22.r1b2	=	0;
acbv22.l1b2	=	0;
acbv22.r1b1	=	0;
acbh23.l1b2	=	0;
acbh23.r1b1	=	0;
acbv23.l1b1	=	0;
acbv23.r1b2	=	0;

```

acbh24.l1b1      =      0;
acbh24.r1b2      =      0;
acbv24.l1b2      =      0;
acbv24.r1b1      =      0;
acbh25.l1b2      =      0;
acbh25.r1b1      =      0;
acbv25.l1b1      =      0;
acbv25.r1b2      =      0;
acbh26.l1b1      =      0;
acbh26.r1b2      =      0;
acbv26.l1b2      =      0;
acbv26.r1b1      =      0;
acbh27.l1b2      =      0;
acbh27.r1b1      =      0;
acbv27.l1b1      =      0;
acbv27.r1b2      =      0;
acbh28.l1b1      =      0;
acbh28.r1b2      =      0;
acbv28.l1b2      =      0;
acbv28.r1b1      =      0;
acbh29.l1b2      =      0;
acbh29.r1b1      =      0;
acbv29.l1b1      =      0;
acbv29.r1b2      =      0;
acbh30.l1b1      =      0;
acbh30.r1b2      =      0;
acbv30.l1b2      =      0;
acbv30.r1b1      =      0;
acbh31.l1b2      =      0;
acbh31.r1b1      =      0;
acbv31.l1b1      =      0;
acbv31.r1b2      =      0;
acbh32.l1b1      =      0;
acbh32.r1b2      =      0;
acbv32.l1b2      =      0;
acbv32.r1b1      =      0;
acbh33.l1b2      =      0;
acbh33.r1b1      =      0;
acbv33.l1b1      =      0;
acbv33.r1b2      =      0;
acbh34.l1b1      =      0;
acbv34.l1b2      =      0;

! Parameters of IR1
betxip1b1        =      2.5;
betxip1b2        =      2.5;
betyip1b1        =      2.5;
betyip1b2        =      2.5;

```

```

alfxip1b1      =      -0;
alfxip1b2      =      -0;
alfyip1b1      =      0;
alfyip1b2      =      0;
dxip1b1        =      -0;
dxip1b2        =      0;
dpxip1b1       =      0;
dpxip1b2       =      -0;
muxip1b1       =      2.6448;
muxip1b2       =      2.6448;
muyip1b1       =      2.645;
muyip1b2       =      2.645;
muxip1b1_l     =      1.15874075;
muxip1b2_l     =      1.4926134;
muyip1b1_l     =      1.48776753;
muyip1b2_l     =      1.15885419;
muxip1b1_r     =      1.48605925;
muxip1b2_r     =      1.1521866;
muyip1b1_r     =      1.15723247;
muyip1b2_r     =      1.48614581;

```

! IR2

! Strengths of IR2

```

kqx.l2         =      0.008778555299264319;
kqx.r2         =      -0.008778555299264319;
ktqx1.l2      =      9.101946692768699e-06;
ktqx1.r2      =      -9.101946692768699e-06;
ktqx2.l2      =      -1.212932012241805e-06;
ktqx2.r2      =      1.212932012241805e-06;
kq4.l2b1      =      -0.003612189108821949;
kq4.l2b2      =      0.003191458129338099;
kq4.r2b1      =      0.003912360240170786;
kq4.r2b2      =      -0.003878433986344416;
kq5.l2b1      =      0.004222134174877924;
kq5.l2b2      =      -0.003958459031165903;
kq5.r2b1      =      -0.004363680568298006;
kq5.r2b2      =      0.004557439318673036;
kq6.l2b1      =      -0.00426525655446668;
kq6.l2b2      =      0.004097995096821227;
kq6.r2b1      =      0.00446291326946389;
kq6.r2b2      =      -0.004519781734549973;
kq7.l2b1      =      0.006967954598046633;
kq7.l2b2      =      -0.006756858482054033;
kq7.r2b1      =      -0.006761682811011273;
kq7.r2b2      =      0.007526917411767372;
kq8.l2b1      =      -0.005153644090569831;
kq8.l2b2      =      0.006914727191538733;

```

kq8.r2b1	=	0.006762815410480371;
kq8.r2b2	=	-0.005174262537469618;
kq9.l2b1	=	0.006343508752524108;
kq9.l2b2	=	-0.00657087258241421;
kq9.r2b1	=	-0.006409236221232581;
kq9.r2b2	=	0.006569183438977479;
kq10.l2b1	=	-0.005867898032853918;
kq10.l2b2	=	0.007290188297065402;
kq10.r2b1	=	0.007381680854523598;
kq10.r2b2	=	-0.005924404386742011;
kqt111.l2b1	=	0.0003837912677492139;
kqt111.l2b2	=	-0.0002911364709966523;
kqt111.r2b1	=	-0.001605816739666891;
kqt111.r2b2	=	0.0004892547236304416;
kqt12.l2b1	=	0.0008784400973083085;
kqt12.l2b2	=	-0.001690648464686879;
kqt12.r2b1	=	-0.00212537315661593;
kqt12.r2b2	=	0.00127235352692242;
kqt13.l2b1	=	-0.000345153122882373;
kqt13.l2b2	=	0.003166441559909176;
kqt13.r2b1	=	0.002337456707254898;
kqt13.r2b2	=	0.001611583588446895;
kqs.l2b1	=	0;
kqs.r2b2	=	0;
acbxh1.l2	=	0;
acbxh1.r2	=	0;
acbxv1.l2	=	0;
acbxv1.r2	=	0;
acbxh2.l2	=	0;
acbxh2.r2	=	0;
acbxv2.l2	=	0;
acbxv2.r2	=	0;
acbxh3.l2	=	0;
acbxh3.r2	=	0;
acbxv3.l2	=	0;
acbxv3.r2	=	0;
acbyh4.l2b2	=	0;
acbyh4.r2b1	=	0;
acbyhs4.l2b1	=	0;
acbyhs4.l2b2	=	0;
acbyhs4.r2b1	=	0;
acbyhs4.r2b2	=	0;
acbyv4.l2b1	=	0;
acbyv4.r2b2	=	0;
acbyvs4.l2b1	=	0;
acbyvs4.l2b2	=	0;
acbyvs4.r2b1	=	0;
acbyvs4.r2b2	=	0;

acbch5.r2b2	=	0;
acbchs5.r2b1	=	0;
acbchs5.r2b2	=	0;
acbcv5.r2b1	=	0;
acbcvs5.r2b1	=	0;
acbcvs5.r2b2	=	0;
acbyh5.l2b1	=	0;
acbyhs5.l2b1	=	0;
acbyhs5.l2b2	=	0;
acbyv5.l2b2	=	0;
acbyvs5.l2b1	=	0;
acbyvs5.l2b2	=	0;
acbch6.l2b2	=	0;
acbch6.r2b1	=	0;
acbcv6.l2b1	=	0;
acbcv6.r2b2	=	0;
acbch7.l2b1	=	0;
acbch7.r2b2	=	0;
acbcv7.l2b2	=	0;
acbcv7.r2b1	=	0;
acbch8.l2b2	=	0;
acbch8.r2b1	=	0;
acbcv8.l2b1	=	0;
acbcv8.r2b2	=	0;
acbch9.l2b1	=	0;
acbch9.r2b2	=	0;
acbcv9.l2b2	=	0;
acbcv9.r2b1	=	0;
acbch10.l2b2	=	0;
acbch10.r2b1	=	0;
acbcv10.l2b1	=	0;
acbcv10.r2b2	=	0;
acbh11.l2b1	=	0;
acbh11.r2b2	=	0;
acbv11.l2b2	=	0;
acbv11.r2b1	=	0;
acbh12.l2b2	=	0;
acbh12.r2b1	=	0;
acbv12.l2b1	=	0;
acbv12.r2b2	=	0;
acbh13.l2b1	=	0;
acbh13.r2b2	=	0;
acbv13.l2b2	=	0;
acbv13.r2b1	=	0;
acbh14.l2b2	=	0;
acbh14.r2b1	=	0;
acbv14.l2b1	=	0;
acbv14.r2b2	=	0;

acbh15.l2b1	=	0;
acbh15.r2b2	=	0;
acbv15.l2b2	=	0;
acbv15.r2b1	=	0;
acbh16.l2b2	=	0;
acbh16.r2b1	=	0;
acbv16.l2b1	=	0;
acbv16.r2b2	=	0;
acbh17.l2b1	=	0;
acbh17.r2b2	=	0;
acbv17.l2b2	=	0;
acbv17.r2b1	=	0;
acbh18.l2b2	=	0;
acbh18.r2b1	=	0;
acbv18.l2b1	=	0;
acbv18.r2b2	=	0;
acbh19.l2b1	=	0;
acbh19.r2b2	=	0;
acbv19.l2b2	=	0;
acbv19.r2b1	=	0;
acbh20.l2b2	=	0;
acbh20.r2b1	=	0;
acbv20.l2b1	=	0;
acbv20.r2b2	=	0;
acbh21.l2b1	=	0;
acbh21.r2b2	=	0;
acbv21.l2b2	=	0;
acbv21.r2b1	=	0;
acbh22.l2b2	=	0;
acbh22.r2b1	=	0;
acbv22.l2b1	=	0;
acbv22.r2b2	=	0;
acbh23.l2b1	=	0;
acbh23.r2b2	=	0;
acbv23.l2b2	=	0;
acbv23.r2b1	=	0;
acbh24.l2b2	=	0;
acbh24.r2b1	=	0;
acbv24.l2b1	=	0;
acbv24.r2b2	=	0;
acbh25.l2b1	=	0;
acbh25.r2b2	=	0;
acbv25.l2b2	=	0;
acbv25.r2b1	=	0;
acbh26.l2b2	=	0;
acbh26.r2b1	=	0;
acbv26.l2b1	=	0;
acbv26.r2b2	=	0;

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acbh27.l2b1      = 0;
acbh27.r2b2      = 0;
acbv27.l2b2      = 0;
acbv27.r2b1      = 0;
acbh28.l2b2      = 0;
acbh28.r2b1      = 0;
acbv28.l2b1      = 0;
acbv28.r2b2      = 0;
acbh29.l2b1      = 0;
acbh29.r2b2      = 0;
acbv29.l2b2      = 0;
acbv29.r2b1      = 0;
acbh30.l2b2      = 0;
acbh30.r2b1      = 0;
acbv30.l2b1      = 0;
acbv30.r2b2      = 0;
acbh31.l2b1      = 0;
acbh31.r2b2      = 0;
acbv31.l2b2      = 0;
acbv31.r2b1      = 0;
acbh32.l2b2      = 0;
acbh32.r2b1      = 0;
acbv32.l2b1      = 0;
acbv32.r2b2      = 0;
acbh33.l2b1      = 0;
acbh33.r2b2      = 0;
acbv33.l2b2      = 0;
acbv33.r2b1      = 0;
acbh34.l2b2      = 0;
acbv34.l2b1      = 0;

```

! Parameters of IR2

```

betxip2b1        = 10;
betxip2b2        = 10;
betyip2b1        = 10;
betyip2b2        = 10;
alfxip2b1        = -0;
alfxip2b2        = 0;
alfyip2b1        = 0;
alfyip2b2        = 0;
dxip2b1          = -0;
dxip2b2          = 0;
dpxip2b1         = 0;
dpxip2b2         = 0;
muxip2b1         = 2.95;
muxip2b2         = 2.95;
muyip2b1         = 2.7;
muyip2b2         = 2.7;

```

```

muxip2b1_l      =      1.48982124;
muxip2b2_l      =      1.38026666;
muyip2b1_l      =      1.24822922;
muyip2b2_l      =      1.4407472;
muxip2b1_r      =      1.46017876;
muxip2b2_r      =      1.56973334;
muyip2b1_r      =      1.45177078;
muyip2b2_r      =      1.2592528;

```

! IR3

! Strengths of IR3

```

kq4.lr3         =      0.001222252179314087;
kqt4.l3         =      0.0007293699892887602;
kqt4.r3         =      0.0007145847865015531;
kq5.lr3         =      -0.001317818520090775;
kqt5.l3         =      0.0009290768234478274;
kqt5.r3         =      0.000935286672127525;
kq6.l3b1        =      0.002557923661916106;
kq6.l3b2        =      -0.002490282901221245;
kq6.r3b1        =      -0.002462420927317673;
kq6.r3b2        =      0.002535905026519914;
kqt17.l3b1      =      -0.0008415476119027009;
kqt17.l3b2      =      0.000430569499332764;
kqt17.r3b1      =      0.002134513633787323;
kqt17.r3b2      =      0.0007722753250495516;
kqt18.l3b1      =      0.0002895653567149854;
kqt18.l3b2      =      0.00377287000498775;
kqt18.r3b1      =      0.003584060822046005;
kqt18.r3b2      =      -0.0008220476359702115;
kqt19.l3b1      =      -0.005207030467959112;
kqt19.l3b2      =      -0.0005794902609356295;
kqt19.r3b1      =      -4.958617012694205e-05;
kqt19.r3b2      =      -0.00428226913949502;
kqt110.l3b1     =      0.001035149325133346;
kqt110.l3b2     =      0.004670206459776977;
kqt110.r3b1     =      0.003973676741076092;
kqt110.r3b2     =      0.0004191987975191102;
kqt111.l3b1     =      0.001278042186872017;
kqt111.l3b2     =      -0.003338322899780036;
kqt111.r3b1     =      -0.003113247545291814;
kqt111.r3b2     =      0.0006280941576941786;
kqt12.l3b1      =      0.002640025508611561;
kqt12.l3b2      =      -0.003771962259490615;
kqt12.r3b1      =      -0.00511316337929726;
kqt12.r3b2      =      -0.0002617794668912444;
kqt13.l3b1      =      -0.002332502850273823;
kqt13.l3b2      =      -0.002557509735192415;

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kqt13.r3b1	=	-0.001921057822170629;
kqt13.r3b2	=	-0.005128674848617423;
kqs.l3b2	=	0;
kqs.r3b1	=	0;
acbwh4.l3b1	=	0;
acbwh4.r3b2	=	0;
acbwv4.l3b2	=	0;
acbwv4.r3b1	=	0;
acbwh5.l3b2	=	0;
acbwh5.r3b1	=	0;
acbwv5.l3b1	=	0;
acbwv5.r3b2	=	0;
acbch6.l3b1	=	0;
acbch6.r3b2	=	0;
acbcv6.l3b2	=	0;
acbcv6.r3b1	=	0;
acbch7.l3b2	=	0;
acbch7.r3b1	=	0;
acbcv7.l3b1	=	0;
acbcv7.r3b2	=	0;
acbch8.l3b1	=	0;
acbch8.r3b2	=	0;
acbcv8.l3b2	=	0;
acbcv8.r3b1	=	0;
acbch9.l3b2	=	0;
acbch9.r3b1	=	0;
acbcv9.l3b1	=	0;
acbcv9.r3b2	=	0;
acbch10.l3b1	=	0;
acbch10.r3b2	=	0;
acbcv10.l3b2	=	0;
acbcv10.r3b1	=	0;
acbh11.l3b2	=	0;
acbh11.r3b1	=	0;
acbv11.l3b1	=	0;
acbv11.r3b2	=	0;
acbh12.l3b1	=	0;
acbh12.r3b2	=	0;
acbv12.l3b2	=	0;
acbv12.r3b1	=	0;
acbh13.l3b2	=	0;
acbh13.r3b1	=	0;
acbv13.l3b1	=	0;
acbv13.r3b2	=	0;
acbh14.l3b1	=	0;
acbh14.r3b2	=	0;
acbv14.l3b2	=	0;
acbv14.r3b1	=	0;

acbh15.13b2	=	0;
acbh15.r3b1	=	0;
acbv15.13b1	=	0;
acbv15.r3b2	=	0;
acbh16.13b1	=	0;
acbh16.r3b2	=	0;
acbv16.13b2	=	0;
acbv16.r3b1	=	0;
acbh17.13b2	=	0;
acbh17.r3b1	=	0;
acbv17.13b1	=	0;
acbv17.r3b2	=	0;
acbh18.13b1	=	0;
acbh18.r3b2	=	0;
acbv18.13b2	=	0;
acbv18.r3b1	=	0;
acbh19.13b2	=	0;
acbh19.r3b1	=	0;
acbv19.13b1	=	0;
acbv19.r3b2	=	0;
acbh20.13b1	=	0;
acbh20.r3b2	=	0;
acbv20.13b2	=	0;
acbv20.r3b1	=	0;
acbh21.13b2	=	0;
acbh21.r3b1	=	0;
acbv21.13b1	=	0;
acbv21.r3b2	=	0;
acbh22.13b1	=	0;
acbh22.r3b2	=	0;
acbv22.13b2	=	0;
acbv22.r3b1	=	0;
acbh23.13b2	=	0;
acbh23.r3b1	=	0;
acbv23.13b1	=	0;
acbv23.r3b2	=	0;
acbh24.13b1	=	0;
acbh24.r3b2	=	0;
acbv24.13b2	=	0;
acbv24.r3b1	=	0;
acbh25.13b2	=	0;
acbh25.r3b1	=	0;
acbv25.13b1	=	0;
acbv25.r3b2	=	0;
acbh26.13b1	=	0;
acbh26.r3b2	=	0;
acbv26.13b2	=	0;
acbv26.r3b1	=	0;

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acbh27.l3b2      = 0;
acbh27.r3b1      = 0;
acbv27.l3b1      = 0;
acbv27.r3b2      = 0;
acbh28.l3b1      = 0;
acbh28.r3b2      = 0;
acbv28.l3b2      = 0;
acbv28.r3b1      = 0;
acbh29.l3b2      = 0;
acbh29.r3b1      = 0;
acbv29.l3b1      = 0;
acbv29.r3b2      = 0;
acbh30.l3b1      = 0;
acbh30.r3b2      = 0;
acbv30.l3b2      = 0;
acbv30.r3b1      = 0;
acbh31.l3b2      = 0;
acbh31.r3b1      = 0;
acbv31.l3b1      = 0;
acbv31.r3b2      = 0;
acbh32.l3b1      = 0;
acbh32.r3b2      = 0;
acbv32.l3b2      = 0;
acbv32.r3b1      = 0;
acbh33.l3b2      = 0;
acbh33.r3b1      = 0;
acbv33.l3b1      = 0;
acbv33.r3b2      = 0;
acbh34.l3b1      = 0;
acbv34.l3b2      = 0;

```

! Parameters of IR3

```

betxip3b1      = 125.61187899;
betxip3b2      = 127.19319773;
betyip3b1      = 87.62703642;
betyip3b2      = 111.96425964;
alfxip3b1      = 2.40611027;
alfxip3b2      = -2.43660161;
alfyip3b1      = -1.02194243;
alfyip3b2      = 0.87959917;
dxip3b1        = -0.19852837;
dxip3b2        = -0.57832816;
dpxip3b1       = -0.01208613;
dpxip3b2       = 0.00479768;
muxip3b1       = 2.25896527;
muxip3b2       = 2.19745253;
muyip3b1       = 1.91841648;
muyip3b2       = 1.92219189;

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muxip3b1_l	=	0.99483827;
muxip3b2_l	=	1.23145941;
muyip3b1_l	=	1.11484227;
muyip3b2_l	=	0.85938494;
muxip3b1_r	=	1.264127;
muxip3b2_r	=	0.96599312;
muyip3b1_r	=	0.80357421;
muyip3b2_r	=	1.06280695;
betx_tcp.6l3.b1	=	132.01309327;
bety_tcp.6l3.b1	=	289.56202913;
betx_tcsg.5l3.b1	=	57.58489564;
bety_tcsg.5l3.b1	=	536.06032048;
betx_tcsg.4r3.b1	=	24.8221953;
bety_tcsg.4r3.b1	=	170.52752843;
betx_tcsg.a5r3.b1	=	33.3485184;
bety_tcsg.a5r3.b1	=	155.96307928;
betx_tcsg.b5r3.b1	=	42.59563559;
bety_tcsg.b5r3.b1	=	145.98613446;
betx_tcla.a5r3.b1	=	139.01513945;
bety_tcla.a5r3.b1	=	106.45651242;
betx_tcla.b5r3.b1	=	148.15952803;
bety_tcla.b5r3.b1	=	104.60956281;
betx_tcla.6r3.b1	=	134.65529484;
bety_tcla.6r3.b1	=	389.03538636;
betx_tcla.7r3.b1	=	65.03787611;
bety_tcla.7r3.b1	=	241.61372387;
betx_tcp.6r3.b2	=	128.9428972;
bety_tcp.6r3.b2	=	332.2196956;
betx_tcsg.5r3.b2	=	57.37092932;
bety_tcsg.5r3.b2	=	646.27545107;
betx_tcsg.4l3.b2	=	24.87521095;
bety_tcsg.4l3.b2	=	166.71902217;
betx_tcsg.a5l3.b2	=	34.27031347;
bety_tcsg.a5l3.b2	=	142.20799776;
betx_tcsg.b5l3.b2	=	43.87245474;
bety_tcsg.b5l3.b2	=	128.50703516;
betx_tcla.a5l3.b2	=	142.20056021;
bety_tcla.a5l3.b2	=	76.27409942;
betx_tcla.b5l3.b2	=	151.47307962;
bety_tcla.b5l3.b2	=	73.99282604;
betx_tcla.6l3.b2	=	129.55624244;
bety_tcla.6l3.b2	=	319.54438952;
betx_tcla.7l3.b2	=	67.56121640000001;
bety_tcla.7l3.b2	=	211.59737473;
dx_tcp_tcsb1	=	-0.03037904;
dx_tcp_tcsb2	=	-0.03329022;

! IR4

! Strengths of IR4

kq5.l4b1	=	0.004085263869365779;
kq5.l4b2	=	-0.004239741935561434;
kq5.r4b1	=	-0.00562734505079882;
kq5.r4b2	=	0.00454732689980357;
kq6.l4b1	=	-0.004832653646615452;
kq6.l4b2	=	0.005838234099242383;
kq6.r4b1	=	0.006239232531095764;
kq6.r4b2	=	-0.006125175739581276;
kq7.l4b1	=	0.007143622878687329;
kq7.l4b2	=	-0.004850074382291886;
kq7.r4b1	=	-0.008574306636649591;
kq7.r4b2	=	0.006772719016986158;
kq8.l4b1	=	-0.004851475819184436;
kq8.l4b2	=	0.008566306048888426;
kq8.r4b1	=	0.008371027097644528;
kq8.r4b2	=	-0.007221532678002802;
kq9.l4b1	=	0.006800085819206548;
kq9.l4b2	=	-0.00505052504304971;
kq9.r4b1	=	-0.004857979709304262;
kq9.r4b2	=	0.006370790464591085;
kq10.l4b1	=	-0.005711200773540614;
kq10.l4b2	=	0.007135468772065652;
kq10.r4b1	=	0.007031497154812017;
kq10.r4b2	=	-0.005455028320052687;
kqt11.l4b1	=	0.0004176569936159368;
kqt11.l4b2	=	0.000395719389820323;
kqt11.r4b1	=	0.001303993997856306;
kqt11.r4b2	=	0.0003797039982731615;
kqt12.l4b1	=	0.0005735520018313755;
kqt12.l4b2	=	0.001799254728982023;
kqt12.r4b1	=	-0.0003976799014042433;
kqt12.r4b2	=	0.004146700701005903;
kqt13.l4b1	=	0.002502192487548024;
kqt13.l4b2	=	-0.003131967702326439;
kqt13.r4b1	=	0.001450814645936888;
kqt13.r4b2	=	-0.0008575485671942457;
kqs.l4b1	=	0;
kqs.r4b2	=	0;
acbyh5.l4b1	=	0;
acbyh5.r4b2	=	0;
acbyv5.l4b2	=	0;
acbyv5.r4b1	=	0;
acbyh6.l4b2	=	0;
acbyh6.r4b1	=	0;
acbyv6.l4b1	=	0;
acbyv6.r4b2	=	0;

acbch7.l4b1	=	0;
acbch7.r4b2	=	0;
acbcv7.l4b2	=	0;
acbcv7.r4b1	=	0;
acbch8.l4b2	=	0;
acbch8.r4b1	=	0;
acbcv8.l4b1	=	0;
acbcv8.r4b2	=	0;
acbch9.l4b1	=	0;
acbch9.r4b2	=	0;
acbcv9.l4b2	=	0;
acbcv9.r4b1	=	0;
acbch10.l4b2	=	0;
acbch10.r4b1	=	0;
acbcv10.l4b1	=	0;
acbcv10.r4b2	=	0;
acbh11.l4b1	=	0;
acbh11.r4b2	=	0;
acbv11.l4b2	=	0;
acbv11.r4b1	=	0;
acbh12.l4b2	=	0;
acbh12.r4b1	=	0;
acbv12.l4b1	=	0;
acbv12.r4b2	=	0;
acbh13.l4b1	=	0;
acbh13.r4b2	=	0;
acbv13.l4b2	=	0;
acbv13.r4b1	=	0;
acbh14.l4b2	=	0;
acbh14.r4b1	=	0;
acbv14.l4b1	=	0;
acbv14.r4b2	=	0;
acbh15.l4b1	=	0;
acbh15.r4b2	=	0;
acbv15.l4b2	=	0;
acbv15.r4b1	=	0;
acbh16.l4b2	=	0;
acbh16.r4b1	=	0;
acbv16.l4b1	=	0;
acbv16.r4b2	=	0;
acbh17.l4b1	=	0;
acbh17.r4b2	=	0;
acbv17.l4b2	=	0;
acbv17.r4b1	=	0;
acbh18.l4b2	=	0;
acbh18.r4b1	=	0;
acbv18.l4b1	=	0;
acbv18.r4b2	=	0;

acbh19.l4b1	=	0;
acbh19.r4b2	=	0;
acbv19.l4b2	=	0;
acbv19.r4b1	=	0;
acbh20.l4b2	=	0;
acbh20.r4b1	=	0;
acbv20.l4b1	=	0;
acbv20.r4b2	=	0;
acbh21.l4b1	=	0;
acbh21.r4b2	=	0;
acbv21.l4b2	=	0;
acbv21.r4b1	=	0;
acbh22.l4b2	=	0;
acbh22.r4b1	=	0;
acbv22.l4b1	=	0;
acbv22.r4b2	=	0;
acbh23.l4b1	=	0;
acbh23.r4b2	=	0;
acbv23.l4b2	=	0;
acbv23.r4b1	=	0;
acbh24.l4b2	=	0;
acbh24.r4b1	=	0;
acbv24.l4b1	=	0;
acbv24.r4b2	=	0;
acbh25.l4b1	=	0;
acbh25.r4b2	=	0;
acbv25.l4b2	=	0;
acbv25.r4b1	=	0;
acbh26.l4b2	=	0;
acbh26.r4b1	=	0;
acbv26.l4b1	=	0;
acbv26.r4b2	=	0;
acbh27.l4b1	=	0;
acbh27.r4b2	=	0;
acbv27.l4b2	=	0;
acbv27.r4b1	=	0;
acbh28.l4b2	=	0;
acbh28.r4b1	=	0;
acbv28.l4b1	=	0;
acbv28.r4b2	=	0;
acbh29.l4b1	=	0;
acbh29.r4b2	=	0;
acbv29.l4b2	=	0;
acbv29.r4b1	=	0;
acbh30.l4b2	=	0;
acbh30.r4b1	=	0;
acbv30.l4b1	=	0;
acbv30.r4b2	=	0;

```

acbh31.l4b1      =          0;
acbh31.r4b2      =          0;
acbv31.l4b2      =          0;
acbv31.r4b1      =          0;
acbh32.l4b2      =          0;
acbh32.r4b1      =          0;
acbv32.l4b1      =          0;
acbv32.r4b2      =          0;
acbh33.l4b1      =          0;
acbh33.r4b2      =          0;
acbv33.l4b2      =          0;
acbv33.r4b1      =          0;
acbh34.l4b2      =          0;
acbv34.l4b1      =          0;

```

! Parameters of IR4

```

betxip4b1        =      236.18025798;
betxip4b2        =      236.14847298;
betyip4b1        =      306.196759;
betyip4b2        =      320.924308;
alfxip4b1        =          0.446206;
alfxip4b2        =      -0.446562;
alfyip4b1        =      -0.403407;
alfyip4b2        =          0.596012;
dxip4b1          =          8e-06;
dxip4b2          =      -3.7e-05;
dpxip4b1         =          0;
dpxip4b2         =          -0;
muxip4b1         =          2.16;
muxip4b2         =          2.16;
muyip4b1         =          1.72;
muyip4b2         =          1.72;
muxip4b1_l       =      1.04912333;
muxip4b2_l       =      1.17109352;
muyip4b1_l       =      0.71701346;
muyip4b2_l       =      0.74994231;
muxip4b1_r       =      1.11087667;
muxip4b2_r       =      0.98890648;
muyip4b1_r       =      1.00298654;
muyip4b2_r       =      0.97005769;

```

! IR5

! Strengths of IR5

```

kqx.l5          =      -0.008739072804775334;
kqx.r5          =          0.008739072804775334;
ktqx1.l5        =      -7.029749802259575e-05;
ktqx1.r5        =          7.029749802259575e-05;

```


ktqx2.15	=	-2.56800856012679e-05;
ktqx2.r5	=	2.56800856012679e-05;
kq4.15b1	=	0.002429101068128253;
kq4.15b2	=	-0.002316976148657165;
kq4.r5b1	=	-0.002396666416706371;
kq4.r5b2	=	0.002342044099010709;
kq5.15b1	=	-0.002890708885384751;
kq5.15b2	=	0.002760775026868022;
kq5.r5b1	=	0.002804941987763738;
kq5.r5b2	=	-0.002951735942842947;
kq6.15b1	=	0.004012051542072416;
kq6.15b2	=	-0.004097844757680534;
kq6.r5b1	=	-0.004196748592410674;
kq6.r5b2	=	0.004213983924411677;
kq7.15b1	=	-0.00608160201123004;
kq7.15b2	=	0.006109141435384983;
kq7.r5b1	=	0.006047316735162586;
kq7.r5b2	=	-0.006114615812925132;
kq8.15b1	=	0.007321228414893592;
kq8.15b2	=	-0.00708129887889668;
kq8.r5b1	=	-0.006726865683306845;
kq8.r5b2	=	0.007119137621867931;
kq9.15b1	=	-0.007233700647601438;
kq9.15b2	=	0.006993943058769495;
kq9.r5b1	=	0.006916437359280578;
kq9.r5b2	=	-0.007007781540834136;
kq10.15b1	=	0.007238580622950143;
kq10.15b2	=	-0.007203674456666774;
kq10.r5b1	=	-0.007048089297681115;
kq10.r5b2	=	0.007233527199286948;
kqt111.15b1	=	-0.0004341211001457493;
kqt111.15b2	=	0.0002881469368280679;
kqt111.r5b1	=	0.0003490939429523442;
kqt111.r5b2	=	-8.181518082989955e-05;
kqt12.15b1	=	-0.001284151549993744;
kqt12.15b2	=	-0.001252608141518144;
kqt12.r5b1	=	-0.002215973989929003;
kqt12.r5b2	=	-0.001659124220919668;
kqt13.15b1	=	0.002833233574465531;
kqt13.15b2	=	0.001173529919673838;
kqt13.r5b1	=	0.001407884868475235;
kqt13.r5b2	=	0.0006205676728746333;
kqs.15b2	=	0;
kqs.r5b1	=	0;
acbxh1.15	=	0;
acbxh1.r5	=	-0;
acbxv1.15	=	0;
acbxv1.r5	=	0;

acbxh2.15	=	0;
acbxh2.r5	=	-0;
acbxv2.15	=	0;
acbxv2.r5	=	0;
acbxh3.15	=	0;
acbxh3.r5	=	-0;
acbxv3.15	=	0;
acbxv3.r5	=	0;
acbyh4.15b1	=	0;
acbyh4.r5b2	=	0;
acbyhs4.15b1	=	0;
acbyhs4.15b2	=	0;
acbyhs4.r5b1	=	0;
acbyhs4.r5b2	=	0;
acbyv4.15b2	=	0;
acbyv4.r5b1	=	0;
acbyvs4.15b1	=	0;
acbyvs4.15b2	=	0;
acbyvs4.r5b1	=	0;
acbyvs4.r5b2	=	0;
acbch5.15b2	=	0;
acbch5.r5b1	=	0;
acbcv5.15b1	=	0;
acbcv5.r5b2	=	0;
acbch6.15b1	=	0;
acbch6.r5b2	=	0;
acbcv6.15b2	=	0;
acbcv6.r5b1	=	0;
acbch7.15b2	=	-0;
acbch7.r5b1	=	-0;
acbcv7.15b1	=	-0;
acbcv7.r5b2	=	-0;
acbch8.15b1	=	-0;
acbch8.r5b2	=	-0;
acbcv8.15b2	=	-0;
acbcv8.r5b1	=	-0;
acbch9.15b2	=	0;
acbch9.r5b1	=	0;
acbcv9.15b1	=	0;
acbcv9.r5b2	=	0;
acbch10.15b1	=	0;
acbch10.r5b2	=	0;
acbcv10.15b2	=	0;
acbcv10.r5b1	=	0;
acbh11.15b2	=	0;
acbh11.r5b1	=	0;
acbv11.15b1	=	0;
acbv11.r5b2	=	0;

acbh12.15b1	=	0;
acbh12.r5b2	=	0;
acbv12.15b2	=	0;
acbv12.r5b1	=	0;
acbh13.15b2	=	0;
acbh13.r5b1	=	0;
acbv13.15b1	=	0;
acbv13.r5b2	=	0;
acbh14.15b1	=	0;
acbh14.r5b2	=	0;
acbv14.15b2	=	0;
acbv14.r5b1	=	0;
acbh15.15b2	=	0;
acbh15.r5b1	=	0;
acbv15.15b1	=	0;
acbv15.r5b2	=	0;
acbh16.15b1	=	0;
acbh16.r5b2	=	0;
acbv16.15b2	=	0;
acbv16.r5b1	=	0;
acbh17.15b2	=	0;
acbh17.r5b1	=	0;
acbv17.15b1	=	0;
acbv17.r5b2	=	0;
acbh18.15b1	=	0;
acbh18.r5b2	=	0;
acbv18.15b2	=	0;
acbv18.r5b1	=	0;
acbh19.15b2	=	0;
acbh19.r5b1	=	0;
acbv19.15b1	=	0;
acbv19.r5b2	=	0;
acbh20.15b1	=	0;
acbh20.r5b2	=	0;
acbv20.15b2	=	0;
acbv20.r5b1	=	0;
acbh21.15b2	=	0;
acbh21.r5b1	=	0;
acbv21.15b1	=	0;
acbv21.r5b2	=	0;
acbh22.15b1	=	0;
acbh22.r5b2	=	0;
acbv22.15b2	=	0;
acbv22.r5b1	=	0;
acbh23.15b2	=	0;
acbh23.r5b1	=	0;
acbv23.15b1	=	0;
acbv23.r5b2	=	0;

```

acbh24.15b1      =      0;
acbh24.r5b2      =      0;
acbv24.15b2      =      0;
acbv24.r5b1      =      0;
acbh25.15b2      =      0;
acbh25.r5b1      =      0;
acbv25.15b1      =      0;
acbv25.r5b2      =      0;
acbh26.15b1      =      0;
acbh26.r5b2      =      0;
acbv26.15b2      =      0;
acbh27.15b2      =      0;
acbh27.r5b1      =      0;
acbv27.15b1      =      0;
acbv27.r5b2      =      0;
acbh28.15b1      =      0;
acbh28.r5b2      =      0;
acbv28.15b2      =      0;
acbv28.r5b1      =      0;
acbh29.15b2      =      0;
acbh29.r5b1      =      0;
acbv29.15b1      =      0;
acbv29.r5b2      =      0;
acbh30.15b1      =      0;
acbh30.r5b2      =      0;
acbv30.15b2      =      0;
acbv30.r5b1      =      0;
acbh31.15b2      =      0;
acbh31.r5b1      =      0;
acbv31.15b1      =      0;
acbv31.r5b2      =      0;
acbh32.15b1      =      0;
acbh32.r5b2      =      0;
acbv32.15b2      =      0;
acbv32.r5b1      =      0;
acbh33.15b2      =      0;
acbh33.r5b1      =      0;
acbv33.15b1      =      0;
acbv33.r5b2      =      0;
acbh34.15b1      =      0;
acbv34.15b2      =      0;

! Parameters of IR5
betxip5b1        =      2.2;
betxip5b2        =      2.2;
betyip5b1        =      2.2;
betyip5b2        =      2.2;
alfxip5b1        =      -0;

```

```

alfxip5b2      = 0;
alfyip5b1      = 0;
alfyip5b2      = 0;
dxip5b1        = 0;
dxip5b2        = 0;
dpxip5b1       = -0;
dpxip5b2       = -0;
muxip5b1       = 2.6448;
muxip5b2       = 2.6448;
muyip5b1       = 2.645;
muyip5b2       = 2.645;
muxip5b1_1     = 1.16586324;
muxip5b2_1     = 1.48731052;
muyip5b1_1     = 1.4853783;
muyip5b2_1     = 1.16767069;
muxip5b1_r     = 1.47893676;
muxip5b2_r     = 1.15748948;
muyip5b1_r     = 1.1596217;
muyip5b2_r     = 1.47732931;

```

! IR6

! Strengths of IR6

```

kq4.l6b1      = -0.004881414734;
kq4.l6b2      = 0.005749478265040696;
kq4.r6b1      = 0.005730369236006879;
kq4.r6b2      = -0.00483383773;
kq5.l6b1      = 0.006466586455519687;
kq5.l6b2      = -0.006712949974411552;
kq5.r6b1      = -0.006676458862561881;
kq5.r6b2      = 0.006438647147083813;
kq8.l6b1      = -0.005050194441261296;
kq8.l6b2      = 0.007675377676898134;
kq8.r6b1      = 0.007596791750764171;
kq8.r6b2      = -0.005118842964288683;
kq9.l6b1      = 0.006697976138223453;
kq9.l6b2      = -0.007064948380274568;
kq9.r6b1      = -0.006464888431334318;
kq9.r6b2      = 0.006668485456536516;
kq10.l6b1     = -0.007727559775040437;
kq10.l6b2     = 0.00716734858702691;
kq10.r6b1     = 0.00710313418306493;
kq10.r6b2     = -0.007402599576242386;
kqt11.l6b1    = 0.0008575980992521328;
kqt11.l6b2    = -0.001732259812193928;
kqt11.r6b1    = -0.0003107353132775671;
kqt11.r6b2    = 0.000382323229323118;
kqt12.l6b1    = -0.003489501747064703;

```

```

kqt12.l6b2      = -9.231950522174649e-05;
kqt12.r6b1      = -0.001918844134336195;
kqt12.r6b2      = 0.004205741110343228;
kqt13.l6b1      = 0.0003009061939243893;
kqt13.l6b2      = 0.00240804890626002;
kqt13.r6b1      = 0.0002648278435878266;
kqt13.r6b2      = -0.001271952175641347;
kqs.l6b1        = 0;
kqs.r6b2        = 0;
acbyh4.l6b2     = 0;
acbyh4.r6b1     = 0;
acbyv4.l6b1     = 0;
acbyv4.r6b2     = 0;
acbyh5.l6b1     = 0;
acbyh5.r6b2     = 0;
acbyv5.l6b2     = 0;
acbyv5.r6b1     = 0;
acbch8.l6b2     = 0;
acbch8.r6b1     = 0;
acbcv8.l6b1     = 0;
acbcv8.r6b2     = 0;
acbch9.l6b1     = 0;
acbch9.r6b2     = 0;
acbcv9.l6b2     = 0;
acbcv9.r6b1     = 0;
acbch10.l6b2    = 0;
acbch10.r6b1    = 0;
acbcv10.l6b1    = 0;
acbcv10.r6b2    = 0;
acbh11.l6b1     = 0;
acbh11.r6b2     = 0;
acbv11.l6b2     = 0;
acbv11.r6b1     = 0;
acbh12.l6b2     = 0;
acbh12.r6b1     = 0;
acbv12.l6b1     = 0;
acbv12.r6b2     = 0;
acbh13.l6b1     = 0;
acbh13.r6b2     = 0;
acbv13.l6b2     = 0;
acbv13.r6b1     = 0;
acbh14.l6b2     = 0;
acbh14.r6b1     = 0;
acbv14.l6b1     = 0;
acbv14.r6b2     = 0;
acbh15.l6b1     = 0;
acbh15.r6b2     = 0;
acbv15.l6b2     = 0;

```

acbv15.r6b1	=	0;
acbh16.l6b2	=	0;
acbh16.r6b1	=	0;
acbv16.l6b1	=	0;
acbv16.r6b2	=	0;
acbh17.l6b1	=	0;
acbh17.r6b2	=	0;
acbv17.l6b2	=	0;
acbv17.r6b1	=	0;
acbh18.l6b2	=	0;
acbh18.r6b1	=	0;
acbv18.l6b1	=	0;
acbv18.r6b2	=	0;
acbh19.l6b1	=	0;
acbh19.r6b2	=	0;
acbv19.l6b2	=	0;
acbv19.r6b1	=	0;
acbh20.l6b2	=	0;
acbh20.r6b1	=	0;
acbv20.l6b1	=	0;
acbv20.r6b2	=	0;
acbh21.l6b1	=	0;
acbh21.r6b2	=	0;
acbv21.l6b2	=	0;
acbv21.r6b1	=	0;
acbh22.l6b2	=	0;
acbh22.r6b1	=	0;
acbv22.l6b1	=	0;
acbv22.r6b2	=	0;
acbh23.l6b1	=	0;
acbh23.r6b2	=	0;
acbv23.l6b2	=	0;
acbv23.r6b1	=	0;
acbh24.l6b2	=	0;
acbh24.r6b1	=	0;
acbv24.l6b1	=	0;
acbv24.r6b2	=	0;
acbh25.l6b1	=	0;
acbh25.r6b2	=	0;
acbv25.l6b2	=	0;
acbv25.r6b1	=	0;
acbh26.l6b2	=	0;
acbh26.r6b1	=	0;
acbv26.l6b1	=	0;
acbv26.r6b2	=	0;
acbh27.l6b1	=	0;
acbh27.r6b2	=	0;
acbv27.l6b2	=	0;

```

acbv27.r6b1      = 0;
acbh28.l6b2     = 0;
acbh28.r6b1     = 0;
acbv28.l6b1     = 0;
acbv28.r6b2     = 0;
acbh29.l6b1     = 0;
acbh29.r6b2     = 0;
acbv29.l6b2     = 0;
acbv29.r6b1     = 0;
acbh30.l6b2     = 0;
acbh30.r6b1     = 0;
acbv30.l6b1     = 0;
acbv30.r6b2     = 0;
acbh31.l6b1     = 0;
acbh31.r6b2     = 0;
acbv31.l6b2     = 0;
acbv31.r6b1     = 0;
acbh32.l6b2     = 0;
acbh32.r6b1     = 0;
acbv32.l6b1     = 0;
acbv32.r6b2     = 0;
acbh33.l6b1     = 0;
acbh33.r6b2     = 0;
acbv33.l6b2     = 0;
acbv33.r6b1     = 0;
acbh34.l6b2     = 0;
acbv34.l6b1     = 0;

```

! Parameters of IR6

```

betxip6b1      = 188.43819901;
betxip6b2      = 189.33422852;
betyip6b1      = 175.62994655;
betyip6b2      = 181.9689224;
alfxip6b1      = -0.55353931;
alfxip6b2      = 0.56860148;
alfyip6b1      = 0.66760608;
alfyip6b2      = -0.62695942;
dxip6b1        = -0.33163774;
dxip6b2        = -0.30498991;
dpxip6b1       = -0.00125;
dpxip6b2       = 0.00045141;
muxip6b1       = 2.16;
muxip6b2       = 2.16;
muyip6b1       = 1.98;
muyip6b2       = 1.98;
muxip6b1_1     = 1.04365174;
muxip6b2_1     = 1.12333829;
muyip6b1_1     = 0.96092911;

```



```

muyip6b2_l           =           1.0627059;
muxip6b1_r           =           1.11634826;
muxip6b2_r           =           1.03666171;
muyip6b1_r           =           1.01907089;
muyip6b2_r           =           0.9172941;

```

! IR7

! Strengths of IR7

```

kq4.lr7              =    0.001153898795297967;
kqt4.l7              =    0.001201870039982933;
kqt4.r7              =    0.00126801426193728;
kq5.lr7              =   -0.001195892367047066;
kq6.l7b1             =    0.00312934590183992;
kq6.l7b2             =   -0.003165664004799721;
kq6.r7b1             =   -0.003113166697809403;
kq6.r7b2             =    0.003200818763480431;
kqt17.l7b1          =   -0.001971489985692227;
kqt17.l7b2          =    0.0007278300884200287;
kqt17.r7b1          =    0.0008467721470801987;
kqt17.r7b2          =   -0.001231235587669593;
kqt18.l7b1          =   -0.002145480291481724;
kqt18.l7b2          =    0.00237315377879432;
kqt18.r7b1          =    0.002659002839974157;
kqt18.r7b2          =   -0.003694732051803569;
kqt19.l7b1          =   -0.003255934860968859;
kqt19.l7b2          =    0.003228834779641374;
kqt19.r7b1          =    0.003276633623068134;
kqt19.r7b2          =   -0.003322283488168046;
kqt110.l7b1         =    0.004623710626216559;
kqt110.l7b2         =   -0.003515754680108996;
kqt110.r7b1         =   -0.003475022058180606;
kqt110.r7b2         =    0.004956338298530726;
kqt111.l7b1         =    0.002788564635363807;
kqt111.l7b2         =    0.0008977855648777329;
kqt111.r7b1         =    0.001062052017245536;
kqt111.r7b2         =    0.002300210357883619;
kqt12.l7b1          =   -0.004953072195470026;
kqt12.l7b2          =   -0.003539556551585349;
kqt12.r7b1          =   -0.002785329534126177;
kqt12.r7b2          =   -0.004910887000196726;
kqt13.l7b1          =   -0.004921619578524716;
kqt13.l7b2          =   -0.004335218123799497;
kqt13.r7b1          =   -0.001472058954038324;
kqt13.r7b2          =   -0.004915597013710534;
kqs.l7b2            =           0;
kqs.r7b1            =           0;
acbwh4.l7b1         =           0;

```

acbwh4.r7b2	=	0;
acbwv4.l7b2	=	0;
acbwv4.r7b1	=	0;
acbwh5.l7b2	=	0;
acbwh5.r7b1	=	0;
acbwv5.l7b1	=	0;
acbwv5.r7b2	=	0;
acbch6.l7b1	=	0;
acbch6.r7b2	=	0;
acbcv6.l7b2	=	0;
acbcv6.r7b1	=	0;
acbch7.l7b2	=	0;
acbch7.r7b1	=	0;
acbcv7.l7b1	=	0;
acbcv7.r7b2	=	0;
acbch8.l7b1	=	0;
acbch8.r7b2	=	0;
acbcv8.l7b2	=	0;
acbcv8.r7b1	=	0;
acbch9.l7b2	=	0;
acbch9.r7b1	=	0;
acbcv9.l7b1	=	0;
acbcv9.r7b2	=	0;
acbch10.l7b1	=	0;
acbch10.r7b2	=	0;
acbcv10.l7b2	=	0;
acbcv10.r7b1	=	0;
acbh11.l7b2	=	0;
acbh11.r7b1	=	0;
acbv11.l7b1	=	0;
acbv11.r7b2	=	0;
acbh12.l7b1	=	0;
acbh12.r7b2	=	0;
acbv12.l7b2	=	0;
acbv12.r7b1	=	0;
acbh13.l7b2	=	0;
acbh13.r7b1	=	0;
acbv13.l7b1	=	0;
acbv13.r7b2	=	0;
acbh14.l7b1	=	0;
acbh14.r7b2	=	0;
acbv14.l7b2	=	0;
acbv14.r7b1	=	0;
acbh15.l7b2	=	0;
acbh15.r7b1	=	0;
acbv15.l7b1	=	0;
acbv15.r7b2	=	0;
acbh16.l7b1	=	0;

acbh16.r7b2	=	0;
acbv16.l7b2	=	0;
acbv16.r7b1	=	0;
acbh17.l7b2	=	0;
acbh17.r7b1	=	0;
acbv17.l7b1	=	0;
acbv17.r7b2	=	0;
acbh18.l7b1	=	0;
acbh18.r7b2	=	0;
acbv18.l7b2	=	0;
acbv18.r7b1	=	0;
acbh19.l7b2	=	0;
acbh19.r7b1	=	0;
acbv19.l7b1	=	0;
acbv19.r7b2	=	0;
acbh20.l7b1	=	0;
acbh20.r7b2	=	0;
acbv20.l7b2	=	0;
acbv20.r7b1	=	0;
acbh21.l7b2	=	0;
acbh21.r7b1	=	0;
acbv21.l7b1	=	0;
acbv21.r7b2	=	0;
acbh22.l7b1	=	0;
acbh22.r7b2	=	0;
acbv22.l7b2	=	0;
acbv22.r7b1	=	0;
acbh23.l7b2	=	0;
acbh23.r7b1	=	0;
acbv23.l7b1	=	0;
acbv23.r7b2	=	0;
acbh24.l7b1	=	0;
acbh24.r7b2	=	0;
acbv24.l7b2	=	0;
acbv24.r7b1	=	0;
acbh25.l7b2	=	0;
acbh25.r7b1	=	0;
acbv25.l7b1	=	0;
acbv25.r7b2	=	0;
acbh26.l7b1	=	0;
acbh26.r7b2	=	0;
acbv26.l7b2	=	0;
acbv26.r7b1	=	0;
acbh27.l7b2	=	0;
acbh27.r7b1	=	0;
acbv27.l7b1	=	0;
acbv27.r7b2	=	0;
acbh28.l7b1	=	0;

```

acbh28.r7b2      =      0;
acbv28.l7b2      =      0;
acbv28.r7b1      =      0;
acbh29.l7b2      =      0;
acbh29.r7b1      =      0;
acbv29.l7b1      =      0;
acbv29.r7b2      =      0;
acbh30.l7b1      =      0;
acbh30.r7b2      =      0;
acbv30.l7b2      =      0;
acbv30.r7b1      =      0;
acbh31.l7b2      =      0;
acbv31.l7b1      =      0;
acbv31.r7b2      =      0;
acbh32.l7b1      =      0;
acbh32.r7b2      =      0;
acbv32.l7b2      =      0;
acbv32.r7b1      =      0;
acbh33.l7b2      =      0;
acbh33.r7b1      =      0;
acbv33.l7b1      =      0;
acbv33.r7b2      =      0;
acbh34.l7b1      =      0;
acbv34.l7b2      =      0;

```

! Parameters of IR7

```

betxip7b1        =      94.25820729;
betxip7b2        =      112.8416136;
betyip7b1        =      251.25754629;
betyip7b2        =      270.46500087;
alfxip7b1        =      0.23518723;
alfxip7b2        =      -0.30861096;
alfyip7b1        =      -0.14816486;
alfyip7b2        =      0.10878767;
dxip7b1          =      0.03908675;
dxip7b2          =      0.08978999;
dpxip7b1         =      0.00108754;
dpxip7b2         =      0.00072039;
muxip7b1         =      2.28095491;
muxip7b2         =      2.2717081;
muyip7b1         =      2.06152208;
muyip7b2         =      2.0836549;
muxip7b1_l       =      1.17220527;
muxip7b2_l       =      1.08497483;
muyip7b1_l       =      0.96682777;
muyip7b2_l       =      1.11976874;
muxip7b1_r       =      1.10874964;
muxip7b2_r       =      1.18673327;

```

```

muyip7b1_r           =           1.09469431;
muyip7b2_r           =           0.96388616;
betx_tcp.c6l7.b1     =           322.83926368;
bety_tcp.c6l7.b1     =           325.43358567;
betx_tcp.d6l7.b1     =           338.04907206;
bety_tcp.d6l7.b1     =           305.12986141;
betx_tcp.c6r7.b2     =           357.87149352;
bety_tcp.c6r7.b2     =           368.7771772;
betx_tcp.d6r7.b2     =           375.60071805;
bety_tcp.d6r7.b2     =           346.07170757;
betx_tcsg.a4l7.b1    =           96.04166865000001;
bety_tcsg.a4l7.b1    =           250.27021733;
betx_tcsg.a4r7.b2    =           117.2636346;
bety_tcsg.a4r7.b2    =           269.20882235;
betx_tcsg.d5r7.b1    =           343.89477117;
bety_tcsg.d5r7.b1    =           109.84647523;
betx_tcsg.d5l7.b2    =           335.17135913;
bety_tcsg.d5l7.b2    =           103.88577921;
betx_tcspm.6r7.b1    =           426.96030701;
bety_tcspm.6r7.b1    =           49.5168565;
betx_tcspm.6l7.b2    =           388.50232531;
bety_tcspm.6l7.b2    =           43.64125603;
betx_tcla.d6r7.b1    =           66.66154485;
bety_tcla.d6r7.b1    =           209.86023465;
betx_tcla.d6l7.b2    =           55.01435027;
bety_tcla.d6l7.b2    =           216.62667559;
betx_tcsg.a5l7.b1    =           72.80616324;
bety_tcsg.a5l7.b1    =           689.2173967;
betx_tcsg.a5r7.b2    =           77.02215554999999;
bety_tcsg.a5r7.b2    =           736.48753088;
dx_tcp_tcsb1         =           -0.03037904;
dx_tcp_tcsb2         =           -0.03329022;

```

! IR8

! Strengths of IR8

```

kqx.l8               =           0.008639650985309446;
kqx.r8               =           -0.008639650985309446;
ktqx1.l8            =           -0.0001195343115561307;
ktqx1.r8            =           0.0001195343115561307;
ktqx2.l8            =           8.064795714582782e-05;
ktqx2.r8            =           -8.064795714582782e-05;
kq4.l8b1            =           -0.00259545040636177;
kq4.l8b2            =           0.003893175609538645;
kq4.r8b1            =           0.003865624202271994;
kq4.r8b2            =           -0.003888377424600152;
kq5.l8b1            =           0.004383313887668266;
kq5.l8b2            =           -0.004838415343938442;

```

kq5.r8b1	=	-0.004358672867567252;
kq5.r8b2	=	0.004314232939316973;
kq6.l8b1	=	-0.004486965898519468;
kq6.l8b2	=	0.004696840348018807;
kq6.r8b1	=	0.003845376234635389;
kq6.r8b2	=	-0.003930827242305891;
kq7.l8b1	=	0.007829618849271037;
kq7.l8b2	=	-0.007553970814675032;
kq7.r8b1	=	-0.006935274353500387;
kq7.r8b2	=	0.0067417110222032;
kq8.l8b1	=	-0.005965785602641102;
kq8.l8b2	=	0.007261117156577722;
kq8.r8b1	=	0.007087645774589782;
kq8.r8b2	=	-0.005978964580221039;
kq9.l8b1	=	0.006741751150384454;
kq9.l8b2	=	-0.006054221023413285;
kq9.r8b1	=	-0.006797522744465014;
kq9.r8b2	=	0.00681398823367322;
kq10.l8b1	=	-0.006768048016149432;
kq10.l8b2	=	0.00726513221317341;
kq10.r8b1	=	0.007301255723578003;
kq10.r8b2	=	-0.006491941039968013;
kqt11.l8b1	=	0.0005994786523900752;
kqt11.l8b2	=	0.0007222914431225354;
kqt11.r8b1	=	0.0003946202171935691;
kqt11.r8b2	=	0.0006003802532557898;
kqt12.l8b1	=	0.003082637610847888;
kqt12.l8b2	=	-0.00214091158359762;
kqt12.r8b1	=	-0.002511774452647801;
kqt12.r8b2	=	0.002687554347568073;
kqt13.l8b1	=	0.0005708815904458651;
kqt13.l8b2	=	0.004748592073419164;
kqt13.r8b1	=	-0.0009038911002098625;
kqt13.r8b2	=	0.002273645704105542;
kqs.l8b1	=	0;
kqs.r8b2	=	0;
acbxh1.l8	=	0;
acbxh1.r8	=	0;
acbxv1.l8	=	0;
acbxv1.r8	=	0;
acbxh2.l8	=	0;
acbxh2.r8	=	0;
acbxv2.l8	=	0;
acbxv2.r8	=	0;
acbxh3.l8	=	0;
acbxh3.r8	=	0;
acbxv3.l8	=	0;
acbxv3.r8	=	0;

acbyh4.l8b2	=	0;
acbyh4.r8b1	=	0;
acbyhs4.l8b1	=	0;
acbyhs4.l8b2	=	0;
acbyhs4.r8b1	=	0;
acbyhs4.r8b2	=	0;
acbyv4.l8b1	=	0;
acbyv4.r8b2	=	0;
acbyvs4.l8b1	=	0;
acbyvs4.l8b2	=	0;
acbyvs4.r8b1	=	0;
acbyvs4.r8b2	=	0;
acbch5.l8b1	=	0;
acbchs5.l8b1	=	0;
acbchs5.l8b2	=	0;
acbcv5.l8b2	=	0;
acbcvs5.l8b1	=	0;
acbcvs5.l8b2	=	0;
acbyh5.r8b2	=	0;
acbyhs5.r8b1	=	0;
acbyhs5.r8b2	=	0;
acbyv5.r8b1	=	0;
acbyvs5.r8b1	=	0;
acbyvs5.r8b2	=	0;
acbch6.l8b2	=	-0;
acbch6.r8b1	=	-0;
acbcv6.l8b1	=	-0;
acbcv6.r8b2	=	-0;
acbch7.l8b1	=	-0;
acbch7.r8b2	=	-0;
acbcv7.l8b2	=	-0;
acbcv7.r8b1	=	-0;
acbch8.l8b2	=	0;
acbch8.r8b1	=	0;
acbcv8.l8b1	=	0;
acbcv8.r8b2	=	0;
acbch9.l8b1	=	0;
acbch9.r8b2	=	0;
acbcv9.l8b2	=	0;
acbcv9.r8b1	=	0;
acbch10.l8b2	=	0;
acbch10.r8b1	=	0;
acbcv10.l8b1	=	0;
acbcv10.r8b2	=	0;
acbh11.l8b1	=	0;
acbh11.r8b2	=	0;
acbv11.l8b2	=	0;
acbv11.r8b1	=	0;

acbh12.l8b2	=	0;
acbh12.r8b1	=	0;
acbv12.l8b1	=	0;
acbv12.r8b2	=	0;
acbh13.l8b1	=	0;
acbh13.r8b2	=	0;
acbv13.l8b2	=	0;
acbv13.r8b1	=	0;
acbh14.l8b2	=	0;
acbh14.r8b1	=	0;
acbv14.l8b1	=	0;
acbv14.r8b2	=	0;
acbh15.l8b1	=	0;
acbh15.r8b2	=	0;
acbv15.l8b2	=	0;
acbv15.r8b1	=	0;
acbh16.l8b2	=	0;
acbh16.r8b1	=	0;
acbv16.l8b1	=	0;
acbv16.r8b2	=	0;
acbh17.l8b1	=	0;
acbh17.r8b2	=	0;
acbv17.l8b2	=	0;
acbv17.r8b1	=	0;
acbh18.l8b2	=	0;
acbh18.r8b1	=	0;
acbv18.l8b1	=	0;
acbv18.r8b2	=	0;
acbh19.l8b1	=	0;
acbh19.r8b2	=	0;
acbv19.l8b2	=	0;
acbv19.r8b1	=	0;
acbh20.l8b2	=	0;
acbh20.r8b1	=	0;
acbv20.l8b1	=	0;
acbv20.r8b2	=	0;
acbh21.l8b1	=	0;
acbh21.r8b2	=	0;
acbv21.l8b2	=	0;
acbv21.r8b1	=	0;
acbh22.l8b2	=	0;
acbh22.r8b1	=	0;
acbv22.l8b1	=	0;
acbv22.r8b2	=	0;
acbh23.l8b1	=	0;
acbh23.r8b2	=	0;
acbv23.l8b2	=	0;
acbv23.r8b1	=	0;


```

acbh24.l8b2      = 0;
acbh24.r8b1      = 0;
acbv24.l8b1      = 0;
acbv24.r8b2      = 0;
acbh25.l8b1      = 0;
acbh25.r8b2      = 0;
acbv25.l8b2      = 0;
acbv25.r8b1      = 0;
acbh26.l8b2      = 0;
acbh26.r8b1      = 0;
acbv26.l8b1      = 0;
acbv26.r8b2      = 0;
acbh27.l8b1      = 0;
acbh27.r8b2      = 0;
acbv27.l8b2      = 0;
acbv27.r8b1      = 0;
acbh28.l8b2      = 0;
acbh28.r8b1      = 0;
acbv28.l8b1      = 0;
acbv28.r8b2      = 0;
acbh29.l8b1      = 0;
acbh29.r8b2      = 0;
acbv29.l8b2      = 0;
acbv29.r8b1      = 0;
acbh30.l8b2      = 0;
acbh30.r8b1      = 0;
acbv30.l8b1      = 0;
acbv30.r8b2      = 0;
acbh31.l8b1      = 0;
acbh31.r8b2      = 0;
acbv31.l8b2      = 0;
acbv31.r8b1      = 0;
acbh32.l8b2      = 0;
acbh32.r8b1      = 0;
acbv32.l8b1      = 0;
acbv32.r8b2      = 0;
acbh33.l8b1      = 0;
acbh33.r8b2      = 0;
acbv33.l8b2      = 0;
acbv33.r8b1      = 0;
acbh34.l8b2      = 0;
acbv34.l8b1      = 0;

! Parameters of IR8
betxip8b1        = 10;
betxip8b2        = 10;
betyip8b1        = 10;
betyip8b2        = 10;

```

```

alfxip8b1      =      -0;
alfxip8b2      =      -0;
alfyip8b1      =      0;
alfyip8b2      =      0;
dxip8b1        =      -0;
dxip8b2        =      -0;
dpxip8b1       =      0;
dpxip8b2       =      0;
muxip8b1       =      3.02;
muxip8b2       =      3.02;
muyip8b1       =      2.8;
muyip8b2       =      2.8;
muxip8b1_1     =      1.55960928;
muxip8b2_1     =      1.45919211;
muyip8b1_1     =      1.2566719;
muyip8b2_1     =      1.42649174;
muxip8b1_r     =      1.46039072;
muxip8b2_r     =      1.56080789;
muyip8b1_r     =      1.5433281;
muyip8b2_r     =      1.37350826;

```

! A12

! Strengths of A12

```

kqd.a12        =      -0.008711627100284499;
kqf.a12        =      0.008729116183979731;
kqtd.a12b1     =      -2.321949063648202e-05;
kqtd.a12b2     =      2.321949063648202e-05;
kqtf.a12b1     =      -0.0001233997316375452;
kqtf.a12b2     =      0.0001233997316375452;
kqs.a12b2      =      0;
ksd1.a12b1     =      -0.1098496186878622;
ksd1.a12b2     =      -0.109773061889665;
ksd2.a12b1     =      -0.1098496186878622;
ksd2.a12b2     =      -0.109773061889665;
ksf1.a12b1     =      0.06564828747256604;
ksf1.a12b2     =      0.06568917444192469;
ksf2.a12b1     =      0.06564828747256604;
ksf2.a12b2     =      0.06568917444192469;
kod.a12b1      =      0;
kod.a12b2      =      0;
kof.a12b1      =      0;
kof.a12b2      =      0;

```

! Parameters of A12

```

muxa12b1       =      5.262550315933622;
muya12b1       =      5.222027362299652;
muxa12b2       =      5.24512324526958;

```

```

muya12b2           =      5.244305908077825;
muxcell12b1        =      0.2510925686853112;
muxcell12b2        =      0.25107444466178823;
muycell12b1        =      0.2501031022057911;
muycell12b2        =      0.2500850330229718;

```

! A23

! Strengths of A23

```

kqd.a23            =     -0.008560509770778784;
kqf.a23            =      0.008765850588073243;
kqtd.a23b1         =      0.0008937434870532713;
kqtd.a23b2         =     -0.0008937434870532713;
kqtf.a23b1         =     -0.0008869781158460519;
kqtf.a23b2         =      0.0008869781158460519;
kqs.a23b1          =                                     0;
ksd1.a23b1         =     -0.1098496186878622;
ksd1.a23b2         =     -0.109773061889665;
ksd2.a23b1         =     -0.1098496186878622;
ksd2.a23b2         =     -0.109773061889665;
ksf1.a23b1         =      0.06564828747256604;
ksf1.a23b2         =      0.06568917444192469;
ksf2.a23b1         =      0.06564828747256604;
ksf2.a23b2         =      0.06568917444192469;
kod.a23b1          =                                     0;
kod.a23b2          =                                     0;
kof.a23b1          =                                     0;
kof.a23b2          =                                     0;

```

! Parameters of A23

```

muxa23b1           =      5.273647907591354;
muya23b1           =      5.072461407954685;
muxa23b2           =      5.352010116703277;
muya23b2           =      5.100966405736718;
muxcell123b1       =      0.2538694089593356;
muxcell123b2       =      0.2538875665609055;
muycell123b1       =      0.2430646976670077;
muycell123b2       =      0.2430822745950394;

```

! A34

! Strengths of A34

```

kqd.a34            =     -0.008560589051616843;
kqf.a34            =      0.008766298574758231;
kqtd.a34b1         =      0.0008952766518357923;
kqtd.a34b2         =     -0.0008952766518357923;
kqtf.a34b1         =     -0.0009015566372921609;
kqtf.a34b2         =      0.0009015566372921609;

```

```

kqs.a34b2           = 0;
ksd1.a34b1         = -0.1098496186878622;
ksd1.a34b2         = -0.109773061889665;
ksd2.a34b1         = -0.1098496186878622;
ksd2.a34b2         = -0.109773061889665;
ksf1.a34b1         = 0.06564828747256604;
ksf1.a34b2         = 0.06568917444192469;
ksf2.a34b1         = 0.06564828747256604;
ksf2.a34b2         = 0.06568917444192469;
kod.a34b1          = 0;
kod.a34b2          = 0;
kof.a34b1          = 0;
kof.a34b2          = 0;

```

! Parameters of A34

```

muxa34b1           = 5.299816812290264;
muya34b1           = 5.046503716742225;
muxa34b2           = 5.32456532535153;
muya34b2           = 5.124908416732616;
muxcell34b1        = 0.2538885453410842;
muxcell34b2        = 0.2539067046893044;
muycell34b1        = 0.2430645762160091;
muycell34b2        = 0.2430821537043566;

```

! A45

! Strengths of A45

```

kqd.a45            = -0.0087116210669158;
kqf.a45            = 0.008729083932656014;
kqtd.a45b1         = -2.272754176586406e-05;
kqtd.a45b2         = 2.272754176586406e-05;
kqtf.a45b1         = -0.0001166216305827875;
kqtf.a45b2         = 0.0001166216305827875;
kqs.a45b1          = 0;
ksd1.a45b1         = -0.1098496186878622;
ksd1.a45b2         = -0.109773061889665;
ksd2.a45b1         = -0.1098496186878622;
ksd2.a45b2         = -0.109773061889665;
ksf1.a45b1         = 0.06564828747256604;
ksf1.a45b2         = 0.06568917444192469;
ksf2.a45b1         = 0.06564828747256604;
ksf2.a45b2         = 0.06568917444192469;
kod.a45b1          = 0;
kod.a45b2          = 0;
kof.a45b1          = 0;
kof.a45b2          = 0;

```

! Parameters of A45

```

muxa45b1      =      5.236278304140843;
muya45b1     =      5.247544436720363;
muxa45b2     =      5.271395263106617;
muya45b2     =      5.218788833659127;
muxcell45b1  =      0.251073061543841;
muxcell45b2  =      0.2510911835113867;
muycell45b1  =      0.2500850172016014;
muycell45b2  =      0.2501030863311802;

```

! A56

! Strengths of A56

```

kqd.a56      =     -0.008711627100419832;
kqf.a56      =      0.008729116184746743;
kqtd.a56b1   =     -2.321949104727476e-05;
kqtd.a56b2   =      2.321949104727476e-05;
kqtf.a56b1   =     -0.000123399729520761;
kqtf.a56b2   =      0.000123399729520761;
kqs.a56b2    =      0;
ksd1.a56b1   =     -0.1098496186878622;
ksd1.a56b2   =     -0.109773061889665;
ksd2.a56b1   =     -0.1098496186878622;
ksd2.a56b2   =     -0.109773061889665;
ksf1.a56b1   =      0.06564828747256604;
ksf1.a56b2   =      0.06568917444192469;
ksf2.a56b1   =      0.06564828747256604;
ksf2.a56b2   =      0.06568917444192469;
kod.a56b1    =      0;
kod.a56b2    =      0;
kof.a56b1    =      0;
kof.a56b2    =      0;

```

! Parameters of A56

```

muxa56b1     =      5.262550316724537;
muya56b1     =      5.222027362299825;
muxa56b2     =      5.245123245863696;
muya56b2     =      5.244305908078068;
muxcell56b1  =      0.2510925687234398;
muxcell56b2  =      0.2510744466507742;
muycell56b1  =      0.2501031022058284;
muycell56b2  =      0.2500850330230127;

```

! A67

! Strengths of A67

```

kqd.a67      =     -0.008866297635869838;
kqf.a67      =      0.008797759986559708;
kqtd.a67b1   =     -0.0009548879096836451;

```

```

kqtd.a67b2      = 0.0009548879096836451;
kqtf.a67b1      = 0.0006425781121450797;
kqtf.a67b2      = -0.0006425781121450797;
kqs.a67b1       = 0;
ksd1.a67b1      = -0.1098496186878622;
ksd1.a67b2      = -0.109773061889665;
ksd2.a67b1      = -0.1098496186878622;
ksd2.a67b2      = -0.109773061889665;
ksf1.a67b1      = 0.06564828747256604;
ksf1.a67b2      = 0.06568917444192469;
ksf2.a67b1      = 0.06564828747256604;
ksf2.a67b2      = 0.06568917444192469;
kod.a67b1       = 0;
kod.a67b2       = 0;
kof.a67b1       = 0;
kof.a67b2       = 0;

```

! Parameters of A67

```

muxa67b1      = 5.295912649162004;
muya67b1      = 5.411082173183734;
muxa67b2      = 5.289150642370826;
muya67b2      = 5.322745432897982;
muxcell67b1   = 0.2529597628608724;
muxcell67b2   = 0.2529412954476373;
muycell67b1   = 0.256464705150997;
muycell67b2   = 0.2564460311285033;

```

! A78

! Strengths of A78

```

kqd.a78       = -0.008866329629713275;
kqf.a78       = 0.008797608689824312;
kqtd.a78b1    = -0.0009585933729644539;
kqtd.a78b2    = 0.0009585933729644539;
kqtf.a78b1    = 0.0006410433696060052;
kqtf.a78b2    = -0.0006410433696060052;
kqs.a78b2     = 0;
ksd1.a78b1    = -0.1098496186878622;
ksd1.a78b2    = -0.109773061889665;
ksd2.a78b1    = -0.1098496186878622;
ksd2.a78b2    = -0.109773061889665;
ksf1.a78b1    = 0.06564828747256604;
ksf1.a78b2    = 0.06568917444192469;
ksf2.a78b1    = 0.06564828747256604;
ksf2.a78b2    = 0.06568917444192469;
kod.a78b1     = 0;
kod.a78b2     = 0;
kof.a78b1     = 0;

```

kof.a78b2 = 0;

! Parameters of A78

muxa78b1 = 5.323445209805982;
muya78b1 = 5.380870536552347;
muxa78b2 = 5.262476263646047;
muya78b2 = 5.349343464495538;
muxcell78b1 = 0.2529527494628185;
muxcell78b2 = 0.2529342826377889;
muycell78b1 = 0.2564672663947771;
muycell78b2 = 0.2564485923623976;

! A81

! Strengths of A81

kqd.a81 = -0.00871163648997687;
kqf.a81 = 0.008727594517098787;
kqtd.a81b1 = -2.270733244939127e-05;
kqtd.a81b2 = 2.270733244939127e-05;
kqtf.a81b1 = -0.0001555787454909479;
kqtf.a81b2 = 0.0001555787454909479;
kqs.a81b1 = 0;
ksd1.a81b1 = -0.1098496186878622;
ksd1.a81b2 = -0.109773061889665;
ksd2.a81b1 = -0.1098496186878622;
ksd2.a81b2 = -0.109773061889665;
ksf1.a81b1 = 0.06564828747256604;
ksf1.a81b2 = 0.06568917444192469;
ksf2.a81b1 = 0.06564828747256604;
ksf2.a81b2 = 0.06568917444192469;
kod.a81b1 = 0;
kod.a81b2 = 0;
kof.a81b1 = 0;
kof.a81b2 = 0;

! Parameters of A81

muxa81b1 = 5.236278305773229;
muya81b1 = 5.247544436712507;
muxa81b2 = 5.271395262790014;
muya81b2 = 5.218788833656818;
muxcell81b1 = 0.2510068085561152;
muxcell81b2 = 0.2510249253064187;
muycell81b1 = 0.2500973562211626;
muycell81b2 = 0.250115424456872;

! Knobs

on_x1_h = 0;
on_sep1_h = 0;

```
on_x1_v = 0;
on_sep1_v = 0;
on_xip1b1 = 0;
on_xip1b2 = 0;
on_oh1 = 0;
on_yip1b2 = 0;
on_yip1b1 = 0;
on_ov1 = 0;
on_x2h = 0;
on_sep2h = 0;
on_x2v = 0;
on_sep2v = 0;
on_a2 = 0;
on_oh2 = 0;
on_xip2b2 = 0;
on_xip2b1 = 0;
on_o2 = 0;
on_ov2 = 0;
on_yip2b1 = 0;
on_yip2b2 = 0;
on_x5_h = 0;
on_sep5_h = 0;
on_x5_v = 0;
on_sep5_v = 0;
on_xip5b1 = 0;
on_xip5b2 = 0;
on_oh5 = 0;
on_yip5b2 = 0;
on_yip5b1 = 0;
on_ov5 = 0;
on_x8h = 0;
on_sep8h = 0;
on_x8v = 0;
on_sep8v = 0;
on_o8 = 0;
on_oh8 = 0;
on_xip8b2 = 0;
on_xip8b1 = 0;
on_a8 = 0;
on_ov8 = 0;
on_yip8b1 = 0;
on_yip8b2 = 0;
dqx.b1_op = 0;
dqx.b1_sq = 0;
dqx.b1 = 0;
dqx.b2_op = 0;
dqx.b2_sq = 0;
dqx.b2 = 0;
```



```

dqy.b1_op = 0;
dqy.b1_sq = 0;
dqy.b1 = 0;
dqy.b2_op = 0;
dqy.b2_sq = 0;
dqy.b2 = 0;
dqpx.b1_op = 0;
dqpx.b1_sq = 0;
dqpx.b1 = 0;
dqpx.b2_op = 0;
dqpx.b2_sq = 0;
dqpx.b2 = 0;
dqpy.b1_op = 0;
dqpy.b1_sq = 0;
dqpy.b1 = 0;
dqpy.b2_op = 0;
dqpy.b2_sq = 0;
dqpy.b2 = 0;
cmis.b1_op = 0;
cmis.b1_sq = 0;
cmis.b1 = 0;
cmis.b2_op = 0;
cmis.b2_sq = 0;
cmis.b2 = 0;
cmrs.b1_op = 0;
cmrs.b1_sq = 0;
cmrs.b1 = 0;
cmrs.b2_op = 0;
cmrs.b2_sq = 0;
cmrs.b2 = 0;
phase_change.b1 = 0;
phase_change.b2 = 0;
dp_trim.b1 = 0;
dp_trim.b2 = 0;
on_ssep1_h = 0;
on_xx1_v = 0;
on_ssep5_v = 0;
on_xx5_h = 0;
acbch5.l1b2 :=
+0
+2.86068041209942e-08 * on_x1_h
-1.37104642206737e-05 * on_sep1_h
-0.000105602286952771 * on_xiplb2
+2.00017649735586e-05 * on_oh1
+8.10000000000001e-07 * dp_trim.b2;
acbch5.r1b1 :=
+0
+3.88865497111835e-08 * on_x1_h

```

```

+1.60397726898135e-05 * on_sep1_h
-0.000122308800275767 * on_xip1b1
+1.64412872809212e-05 * on_oh1
+3.89e-06 * dp_trim.b1;
acbch6.l1b1 :=
+0
-9.95650329828769e-08 * on_x1_h
-1.91556696849962e-06 * on_sep1_h
-2.78483613951011e-05 * on_xip1b1
+2.52403982524177e-05 * on_oh1
-3.25e-06 * dp_trim.b1;
acbch6.r1b2 :=
+0
-1.02732707746174e-07 * on_x1_h
+2.07473987172011e-06 * on_sep1_h
-2.93553186792092e-05 * on_xip1b2
+2.41968821409605e-05 * on_oh1
-3.89e-06 * dp_trim.b2;
acbxh1.l1 :=
+0
+1.82239801645671e-08 * on_x1_h
+9.1454242425332e-06 * on_sep1_h;
acbxh1.r1 :=
+0
-1.80626276382308e-08 * on_x1_h
+9.15808159639535e-06 * on_sep1_h;
acbxh2.l1 :=
+0
-7.28347539260681e-08 * on_x1_h
+1.16984485453406e-05 * on_sep1_h;
acbxh2.r1 :=
+0
+7.55933792263318e-08 * on_x1_h
+1.17745355035233e-05 * on_sep1_h;
acbxh3.l1 :=
+0
+1.82523336747686e-07 * on_x1_h
+4.66277949111447e-06 * on_sep1_h;
acbxh3.r1 :=
+0
-1.8572152680756e-07 * on_x1_h
+4.5653080169851e-06 * on_sep1_h;
acbyhs4.l1b1 :=
+0
-2.10533683542446e-07 * on_x1_h
+1.14376143157755e-05 * on_sep1_h
+2.32172812082346e-05 * on_oh1;
acbyhs4.l1b2 :=

```

```

+0
+2.50674491458342e-07 * on_x1_h
+8.46503930703532e-06 * on_sep1_h
+0.000135315953425777 * on_xip1b2
+2.40386904199203e-05 * on_oh1
+1e-06 * dp_trim.b2;
acbyhs4.r1b1 :=
+0
+2.3777507333874e-07 * on_x1_h
-1.15947232401904e-05 * on_sep1_h
+0.000157979788381777 * on_xip1b1
+2.04921977738831e-05 * on_oh1
+1.94e-06 * dp_trim.b1;
acbyhs4.r1b2 :=
+0
-2.08634020767107e-07 * on_x1_h
-1.17190985789385e-05 * on_sep1_h
+2.10720607385013e-05 * on_oh1;
acbcv5.l1b1 :=
+0
-2.86272997652287e-08 * on_x1_v
-1.37218236503266e-05 * on_sep1_v
-0.000105831049679182 * on_yip1b1
+1.85685563518213e-05 * on_ov1;
acbcv5.r1b2 :=
+0
-3.8876812042089e-08 * on_x1_v
+1.60394628525916e-05 * on_sep1_v
-0.000122308710105361 * on_yip1b2
+1.73107260100691e-05 * on_ov1;
acbcv6.l1b2 :=
+0
+1.00845062666617e-07 * on_x1_v
-1.94331451530457e-06 * on_sep1_v
-2.81237309381044e-05 * on_yip1b2
+2.47905464324248e-05 * on_ov1;
acbcv6.r1b1 :=
+0
+1.02142970330185e-07 * on_x1_v
+2.06062838672554e-06 * on_sep1_v
-2.9221199346645e-05 * on_yip1b1
+2.4478909149276e-05 * on_ov1;
acbxv1.l1 :=
+0
+1.83253240173096e-08 * on_x1_v
-9.14676458962966e-06 * on_sep1_v;
acbxv1.r1 :=
-0

```

```

-1.80088521389882e-08 * on_x1_v
-9.15493202560445e-06 * on_sep1_v;
acbxv2.l1 :=
+0
-7.26802936721839e-08 * on_x1_v
-1.16985564699109e-05 * on_sep1_v;
acbxv2.r1 :=
+0
+7.56378483568161e-08 * on_x1_v
-1.17729975122889e-05 * on_sep1_v;
acbxv3.l1 :=
+0
+1.82166336668885e-07 * on_x1_v
-4.65582754351409e-06 * on_sep1_v;
acbxv3.r1 :=
-0
-1.85857155235276e-07 * on_x1_v
-4.57145671470163e-06 * on_sep1_v;
acbyvs4.l1b1 :=
+0
-2.50696581394225e-07 * on_x1_v
+8.43862279549958e-06 * on_sep1_v
+0.000135287647779957 * on_yip1b1
+2.26056267244255e-05 * on_ov1;
acbyvs4.l1b2 :=
+0
+2.10915695935515e-07 * on_x1_v
+1.14368407408451e-05 * on_sep1_v
+2.22247056319123e-05 * on_ov1;
acbyvs4.r1b1 :=
+0
+2.08458126657789e-07 * on_x1_v
-1.17169854447801e-05 * on_sep1_v
+2.21231612631115e-05 * on_ov1;
acbyvs4.r1b2 :=
+0
-2.37802127621182e-07 * on_x1_v
-1.15949507750186e-05 * on_sep1_v
+0.000157979266581003 * on_yip1b2
+2.12075111841935e-05 * on_ov1;
acbyh4.l1b1 :=
+0
+6.57306423876743e-05 * on_xip1b1
-5e-08 * dp_trim.b1;
acbyh4.r1b2 :=
+0
+6.77416513444986e-05 * on_xip1b2
-2.15e-06 * dp_trim.b2;

```

```

acbch7.l1b2 :=
  -0
  -4.25407399007082e-05 * on_oh1
  -1.91e-06 * dp_trim.b2;
acbch7.r1b1 :=
  +0
  -4.32055879728743e-05 * on_oh1
  +3.93e-06 * dp_trim.b1;
acbch8.l1b1 :=
  -0
  -2.65736621874139e-05 * on_oh1
  -6.77e-06 * dp_trim.b1;
acbch8.r1b2 :=
  -0
  -2.62938651088356e-05 * on_oh1
  -5.9e-06 * dp_trim.b2;
acbyv4.l1b2 :=
  +0
  +6.54285731242148e-05 * on_yip1b2;
acbyv4.r1b1 :=
  +0
  +6.78736038412458e-05 * on_yip1b1;
acbcv7.l1b1 :=
  -0
  -4.30077704382629e-05 * on_ov1;
acbcv7.r1b2 :=
  -0
  -4.28290979710838e-05 * on_ov1;
acbcv8.l1b2 :=
  -0
  -2.68326498038668e-05 * on_ov1;
acbcv8.r1b1 :=
  -0
  -2.60117734864938e-05 * on_ov1;
acbch5.r2b2 :=
  +0
  +0 * on_x2h
  +0 * on_sep2h
  +0 * on_a2
  -9.51981448938663e-06 * on_oh2
  -4.74257169094161e-05 * on_xip2b2
  +4.92e-06 * dp_trim.b2;
acbchs5.r2b1 :=
  +0
  +7.52683619805514e-08 * on_x2h
  +7.81203826219102e-06 * on_sep2h
  +1.06132834185549e-06 * on_a2
  -2.84757555000529e-05 * on_oh2

```

```

-7.45159149319279e-05 * on_xip2b1
+2.20000000000001e-07 * dp_trim.b1;
acbchs5.r2b2 :=
+0
-2.65035596706258e-07 * on_x2h
+6.47351363521036e-06 * on_sep2h
+6.68541026390502e-07 * on_a2
-9.53136796696946e-06 * on_oh2;
acbxh1.l2 :=
+0
+0 * on_x2h
+0 * on_sep2h;
acbxh1.r2 :=
+0
-7.83514408020596e-08 * on_x2h
+6.94064852856784e-06 * on_sep2h;
acbxh2.l2 :=
+0
+1.62853360377787e-07 * on_x2h
+7.89974673564409e-06 * on_sep2h;
acbxh2.r2 :=
+0
-1.25169636881299e-07 * on_x2h
+4.38783825188077e-06 * on_sep2h;
acbxh3.l2 :=
+0
+4.77777798057755e-08 * on_x2h
+1.4181066101192e-05 * on_sep2h;
acbxh3.r2 :=
+0
-2.3899485177101e-08 * on_x2h
+1.0012017928048e-05 * on_sep2h;
acbyh4.l2b2 :=
+0
+0 * on_x2h
+0 * on_sep2h
+0 * on_a2
+1.89643729863477e-05 * on_oh2
+4.67216010337525e-05 * on_xip2b2
+1.84e-06 * dp_trim.b2;
acbyh4.r2b1 :=
+0
+0 * on_x2h
+0 * on_sep2h
+0 * on_a2
+1.74393479666929e-05 * on_oh2
+5.94607014751251e-05 * on_xip2b1
+1.93e-06 * dp_trim.b1;

```

```

acbyh5.l2b1 :=
+0
+0 * on_x2h
+0 * on_sep2h
+0 * on_a2
-7.35667312090385e-06 * on_oh2
-4.15666647826389e-05 * on_xip2b1
+4.93e-06 * dp_trim.b1;
acbyhs4.l2b1 :=
+0
-6.01615276801132e-08 * on_x2h
+9.26856853987738e-06 * on_sep2h
+5.5492950558826e-07 * on_a2
+4.23830884304979e-05 * on_oh2
+9.20178638900854e-05 * on_xip2b1
+2.11e-06 * dp_trim.b1;
acbyhs4.l2b2 :=
+0
+3.17711193874638e-07 * on_x2h
-3.48974633458769e-06 * on_sep2h
+1.65661131602043e-07 * on_a2
+1.88609895621662e-05 * on_oh2;
acbyhs4.r2b1 :=
+0
+3.15187503831836e-07 * on_x2h
+4.99972049270524e-06 * on_sep2h
-3.43953182411986e-07 * on_a2
+1.73035702110764e-05 * on_oh2;
acbyhs4.r2b2 :=
+0
+1.78078806812687e-08 * on_x2h
-1.95873072630569e-05 * on_sep2h
-7.81751765426295e-07 * on_a2
+4.16975650815503e-05 * on_oh2
+0.000103602518300823 * on_xip2b2
+2.19e-06 * dp_trim.b2;
acbyhs5.l2b1 :=
+0
-2.30691328782381e-07 * on_x2h
-2.30177881793188e-06 * on_sep2h
-5.39675793260142e-07 * on_a2
-7.24504081230013e-06 * on_oh2;
acbyhs5.l2b2 :=
+0
+7.11387452468128e-08 * on_x2h
-7.53931420304492e-06 * on_sep2h
-6.86628047999555e-07 * on_a2
-2.64336294388745e-05 * on_oh2

```

```

-4.7504764808089e-05 * on_xip2b2
-5.40000000000002e-07 * dp_trim.b2;
acbcv5.r2b1 :=
+0
+0 * on_x2v
+0 * on_sep2v
+0 * on_o2
-7.72858234543547e-06 * on_ov2
-4.73818025532277e-05 * on_yip2b1;
acbcvs5.r2b1 :=
+0
+2.61451107558715e-07 * on_x2v
-6.40777525125753e-06 * on_sep2v
-5.12906791097845e-05 * on_o2
-7.81187043601643e-06 * on_ov2;
acbcvs5.r2b2 :=
+0
-7.41450253516737e-08 * on_x2v
-7.70876264350209e-06 * on_sep2v
-6.93530447077619e-05 * on_o2
-3.32049118783976e-05 * on_ov2
-7.44531503459613e-05 * on_yip2b2;
acbxv1.l2 :=
+0
+7.67993490897259e-08 * on_x2v
+7.02405956592715e-06 * on_sep2v;
acbxv1.r2 :=
+0
-7.77214426749262e-08 * on_x2v
+6.94041493972138e-06 * on_sep2v;
acbxv2.l2 :=
+0
+1.20934351590334e-07 * on_x2v
+4.59879466259949e-06 * on_sep2v;
acbxv2.r2 :=
+0
-1.24572434765972e-07 * on_x2v
+4.33524490523106e-06 * on_sep2v;
acbxv3.l2 :=
+0
+2.57964764039306e-08 * on_x2v
+9.65688179194479e-06 * on_sep2v;
acbxv3.r2 :=
+0
-2.60509831656924e-08 * on_x2v
+1.00696276162112e-05 * on_sep2v;
acbyv4.l2b1 :=
+0

```



```

+0 * on_x2v
+0 * on_sep2v
+0 * on_o2
+1.94852256331794e-05 * on_ov2
+4.18355702688886e-05 * on_yip2b1;
acbyv4.r2b2 :=
+0
+0 * on_x2v
+0 * on_sep2v
+0 * on_o2
+1.90898102617643e-05 * on_ov2
+5.98305824777513e-05 * on_yip2b2;
acbyv5.l2b2 :=
+0
+0 * on_x2v
+0 * on_sep2v
+0 * on_o2
-5.67117774692214e-06 * on_ov2
-4.17819573466454e-05 * on_yip2b2;
acbyvs4.l2b1 :=
+0
-3.23818757106857e-07 * on_x2v
+6.73592939395031e-06 * on_sep2v
+4.13439117584066e-05 * on_o2
+1.92652791827896e-05 * on_ov2;
acbyvs4.l2b2 :=
+0
+8.12127396479453e-08 * on_x2v
-1.77437471710871e-05 * on_sep2v
+8.65890409946371e-05 * on_o2
+3.81739663312661e-05 * on_ov2
+8.90223028926317e-05 * on_yip2b2;
acbyvs4.r2b1 :=
+0
-1.17611508153595e-08 * on_x2v
+1.94826479810451e-05 * on_sep2v
+0.000107233481382498 * on_o2
+4.13635275654641e-05 * on_ov2
+0.000103823637221253 * on_yip2b1;
acbyvs4.r2b2 :=
+0
-3.15817327152124e-07 * on_x2v
-5.01839659099989e-06 * on_sep2v
+5.79092562008877e-05 * on_o2
+1.89328859365269e-05 * on_ov2;
acbyvs5.l2b1 :=
+0
-6.303576142753e-08 * on_x2v

```

```

+5.30644022495513e-06 * on_sep2v
-4.53408060867175e-05 * on_o2
-3.98091933148969e-05 * on_ov2
-4.76722519687819e-05 * on_yip2b1;
acbyvs5.l2b2 :=
+0
+2.18180351865916e-07 * on_x2v
+5.5615769766729e-06 * on_sep2v
-4.15064481767323e-05 * on_o2
-5.4906444429406e-06 * on_ov2;
acbch6.l2b2 :=
+0
-5.67034774610274e-06 * on_oh2
-5.37e-06 * dp_trim.b2;
acbch6.r2b1 :=
+0
-7.47585683719466e-06 * on_oh2
-5.99e-06 * dp_trim.b1;
acbch7.l2b1 :=
+0
-1.45564114253511e-05 * on_oh2
-3.91e-06 * dp_trim.b1;
acbch7.r2b2 :=
+0
-1.64991618107168e-05 * on_oh2
-4.01e-06 * dp_trim.b2;
acbcv6.l2b1 :=
+0
-1.89747224729512e-06 * on_ov2;
acbcv6.r2b2 :=
+0
-6.5229630558057e-06 * on_ov2;
acbcv7.l2b2 :=
+0
-1.50812041768685e-05 * on_ov2;
acbcv7.r2b1 :=
+0
-1.62698556082605e-05 * on_ov2;
acbch5.l5b2 :=
+0
+1.07143640772558e-07 * on_x5_h
-1.16157160214261e-05 * on_sep5_h
-8.32500171237853e-05 * on_xip5b2
+2.89432442187048e-05 * on_oh5
+1.08e-06 * dp_trim.b2;
acbch5.r5b1 :=
+0
+9.39538737572797e-08 * on_x5_h

```

```

+1.01985699530558e-05 * on_sep5_h
-7.06891027440353e-05 * on_xip5b1
+2.87772598366603e-05 * on_oh5
+1.05e-06 * dp_trim.b1;
acbch6.l5b1 :=
+0
-1.37307802639794e-07 * on_x5_h
-8.6094492280341e-06 * on_sep5_h
-4.24556077719875e-05 * on_xip5b1
+1.92464917662582e-05 * on_oh5
-3.38e-06 * dp_trim.b1;
acbch6.r5b2 :=
+0
-1.35766673098221e-07 * on_x5_h
+8.45628821198324e-06 * on_sep5_h
-3.99616985306705e-05 * on_xip5b2
+1.93609521002958e-05 * on_oh5
-4.11e-06 * dp_trim.b2;
acbxh1.l5 :=
+0
+4.61606598692279e-08 * on_x5_h
-8.21668241578203e-06 * on_sep5_h;
acbxh1.r5 :=
-0
-4.52672764668815e-08 * on_x5_h
-8.27053605292245e-06 * on_sep5_h;
acbxh2.l5 :=
+0
+5.23952158579572e-08 * on_x5_h
-7.72514936696943e-06 * on_sep5_h;
acbxh2.r5 :=
-0
-4.96809112987717e-08 * on_x5_h
-8.00945455239769e-06 * on_sep5_h;
acbxh3.l5 :=
+0
+2.23918445596027e-08 * on_x5_h
-8.6389443575936e-06 * on_sep5_h;
acbxh3.r5 :=
-0
-2.36409021774173e-08 * on_x5_h
-8.33877735535088e-06 * on_sep5_h;
acbyhs4.l5b1 :=
+0
-7.5208943174363e-08 * on_x5_h
+4.59359264297359e-06 * on_sep5_h
+2.44343814048215e-05 * on_oh5;
acbyhs4.l5b2 :=

```

```

+0
+2.36837202892835e-07 * on_x5_h
+2.22400664852964e-05 * on_sep5_h
+0.000122395597168931 * on_xip5b2
+2.98492578964503e-05 * on_oh5
+9.69999999999999e-07 * dp_trim.b2;
acbyhs4.r5b1 :=
+0
+2.5143747552428e-07 * on_x5_h
-2.07968590599623e-05 * on_sep5_h
+0.000108065101497714 * on_xip5b1
+2.9855865930895e-05 * on_oh5
+7.59999999999999e-07 * dp_trim.b1;
acbyhs4.r5b2 :=
+0
-7.36845354154041e-08 * on_x5_h
-4.58670750587474e-06 * on_sep5_h
+2.43701079954041e-05 * on_oh5;
acbcv5.l5b1 :=
+0
-1.09082768309967e-07 * on_x5_v
-4.02305258700469e-05 * on_sep5_v
-8.31521520432147e-05 * on_yip5b1
+2.87686454642276e-05 * on_ov5;
acbcv5.r5b2 :=
+0
-9.17480913717962e-08 * on_x5_v
+3.43020037111841e-05 * on_sep5_v
-7.08860976124361e-05 * on_yip5b2
+2.74120988766663e-05 * on_ov5;
acbcv6.l5b2 :=
+0
+1.45104313220473e-07 * on_x5_v
+1.0198861586595e-05 * on_sep5_v
-4.27250469875643e-05 * on_yip5b2
+1.93022769136396e-05 * on_ov5;
acbcv6.r5b1 :=
+0
+1.29647357752399e-07 * on_x5_v
-9.65204945620041e-06 * on_sep5_v
-4.03390339722527e-05 * on_yip5b1
+1.81844497136978e-05 * on_ov5;
acbxv1.l5 :=
+0
+4.5333601957917e-08 * on_x5_v
+5e-06 * on_sep5_v;
acbxv1.r5 :=
+0

```

```

-4.64343525091157e-08 * on_x5_v
+5e-06 * on_sep5_v;
acbxv2.15 :=
+0
+4.90898668970894e-08 * on_x5_v
+5e-06 * on_sep5_v;
acbxv2.r5 :=
+0
-5.31714048201414e-08 * on_x5_v
+5e-06 * on_sep5_v;
acbxv3.15 :=
+0
+2.43104409535021e-08 * on_x5_v
+5e-06 * on_sep5_v;
acbxv3.r5 :=
+0
-2.16126393926799e-08 * on_x5_v
+5e-06 * on_sep5_v;
acbyvs4.15b1 :=
+0
-2.33716418964812e-07 * on_x5_v
+6.2569818669078e-05 * on_sep5_v
+0.000123015926745608 * on_yip5b1
+2.9485969804779e-05 * on_ov5;
acbyvs4.15b2 :=
+0
+6.31520566529428e-08 * on_x5_v
-2.27457430902676e-05 * on_sep5_v
+2.35910230575877e-05 * on_ov5;
acbyvs4.r5b1 :=
+0
+8.8050818627599e-08 * on_x5_v
+2.1791388215567e-05 * on_sep5_v
+2.32343125152613e-05 * on_ov5;
acbyvs4.r5b2 :=
+0
-2.54995295413668e-07 * on_x5_v
-5.51133280325797e-05 * on_sep5_v
+0.000107549159199542 * on_yip5b2
+2.88495362002538e-05 * on_ov5;
acbyh4.15b1 :=
+0
+6.76713162076673e-05 * on_xip5b1
-8.6e-07 * dp_trim.b1;
acbyh4.r5b2 :=
+0
+6.52868146233278e-05 * on_xip5b2
-2.27e-06 * dp_trim.b2;

```

```

acbch7.l5b2 :=
  -0
  -3.08083575478905e-05 * on_oh5
  -2.35e-06 * dp_trim.b2;
acbch7.r5b1 :=
  -0
  -3.35581841149503e-05 * on_oh5
  -3.04e-06 * dp_trim.b1;
acbch8.l5b1 :=
  -0
  -2.25276050074711e-05 * on_oh5
  -6.75e-06 * dp_trim.b1;
acbch8.r5b2 :=
  -0
  -2.40749545209423e-05 * on_oh5
  -5.9e-06 * dp_trim.b2;
acbyv4.l5b2 :=
  +0
  +6.83598778026034e-05 * on_yip5b2;
acbyv4.r5b1 :=
  +0
  +6.41096906636729e-05 * on_yip5b1;
acbcv7.l5b1 :=
  -0
  -3.13915414037111e-05 * on_ov5;
acbcv7.r5b2 :=
  -0
  -3.3709432843534e-05 * on_ov5;
acbcv8.l5b2 :=
  -0
  -2.31696155262131e-05 * on_ov5;
acbcv8.r5b1 :=
  -0
  -2.38609909240994e-05 * on_ov5;
acbch5.l8b1 :=
  +0
  +0 * on_x8h
  +0 * on_sep8h
  +0 * on_o8
  -8.82935596653419e-06 * on_oh8
  -4.02351388921603e-05 * on_xip8b1
  +3.78e-06 * dp_trim.b1;
acbchs5.l8b1 :=
  +0
  -2.34552812424266e-07 * on_x8h
  -4.83403281469317e-06 * on_sep8h
  -4.02217456127702e-05 * on_o8
  -8.49466769941013e-06 * on_oh8;

```

```

acbchs5.l8b2 :=
+0
-7.84731808523242e-09 * on_x8h
-4.77805038731738e-06 * on_sep8h
-4.74356462958432e-05 * on_o8
-2.37693800411266e-05 * on_oh8
-4.96527112379852e-05 * on_xip8b2
-9.4e-07 * dp_trim.b2;
acbxh1.l8 :=
+0
+8.13712009478531e-08 * on_x8h
+7.20558398162787e-06 * on_sep8h;
acbxh1.r8 :=
+0
-7.94160305056685e-08 * on_x8h
+7.18775486874974e-06 * on_sep8h;
acbxh2.l8 :=
+0
+6.96536882349124e-08 * on_x8h
+6.57210840908164e-06 * on_sep8h;
acbxh2.r8 :=
+0
-6.461858405227e-08 * on_x8h
+6.38076241665165e-06 * on_sep8h;
acbxh3.l8 :=
+0
+1.09125657336988e-07 * on_x8h
+7.17680097982848e-06 * on_sep8h;
acbxh3.r8 :=
+0
-1.21347777437047e-07 * on_x8h
+7.450877029662e-06 * on_sep8h;
acbyh4.l8b2 :=
+0
+0 * on_x8h
+0 * on_sep8h
+0 * on_o8
+1.51975849185893e-05 * on_oh8
+4.00261370553816e-05 * on_xip8b2
+1.69e-06 * dp_trim.b2;
acbyh4.r8b1 :=
+0
+0 * on_x8h
+0 * on_sep8h
+0 * on_o8
+1.73269766123355e-05 * on_oh8
+1.98393485813166e-05 * on_xip8b1
+5.08e-06 * dp_trim.b1;

```

```

acbyh5.r8b2 :=
+0
+0 * on_x8h
+0 * on_sep8h
+0 * on_o8
-6.36477180795605e-06 * on_oh8
-3.86662205059951e-05 * on_xip8b2
+4.52e-06 * dp_trim.b2;
acbyhs4.l8b1 :=
+0
-1.15879429306679e-07 * on_x8h
+1.65709898854166e-05 * on_sep8h
+7.75797687229833e-05 * on_o8
+3.91354797223067e-05 * on_oh8
+8.00069528605037e-05 * on_xip8b1
+2.37e-06 * dp_trim.b1;
acbyhs4.l8b2 :=
+0
+3.79008498669204e-07 * on_x8h
-7.61690389185835e-06 * on_sep8h
+3.97026800735873e-05 * on_o8
+1.5093912218407e-05 * on_oh8;
acbyhs4.r8b1 :=
+0
+3.82133671665743e-07 * on_x8h
+7.64703694593636e-06 * on_sep8h
+3.9873172577711e-05 * on_o8
+1.71360906251729e-05 * on_oh8;
acbyhs4.r8b2 :=
+0
-9.79413239369631e-08 * on_x8h
-1.70114408120282e-05 * on_sep8h
+8.65575157140834e-05 * on_o8
+3.50133644443569e-05 * on_oh8
+8.87958808538589e-05 * on_xip8b2
+1.76e-06 * dp_trim.b2;
acbyhs5.r8b1 :=
+0
-1.04481806855082e-08 * on_x8h
+4.70165513086086e-06 * on_sep8h
-4.80212666444072e-05 * on_o8
-3.54832749413386e-05 * on_oh8;
acbyhs5.r8b2 :=
+0
-2.09856097387154e-07 * on_x8h
+4.36170884828092e-06 * on_sep8h
-3.85978308143824e-05 * on_o8
-6.25903161991023e-06 * on_oh8;

```



```

acbcv5.l8b2 :=
+0
+0 * on_x8v
+0 * on_sep8v
+0 * on_a8
-8.81188708284801e-06 * on_ov8
-3.92229477816356e-05 * on_yip8b2;
acbcvs5.l8b1 :=
+0
+7.29797870026234e-09 * on_x8v
+4.03390581292954e-06 * on_sep8v
-5.97263195536963e-07 * on_a8
-2.46014519717296e-05 * on_ov8
-4.86158626675703e-05 * on_yip8b1;
acbcvs5.l8b2 :=
+0
+2.15335475725383e-07 * on_x8v
+4.52925894353194e-06 * on_sep8v
-6.7407220609632e-07 * on_a8
-8.81980863937712e-06 * on_ov8;
acbxv1.l8 :=
+0
+7.87005560217657e-08 * on_x8v
+7.13354419195418e-06 * on_sep8v;
acbxv1.r8 :=
+0
-8.01369609880851e-08 * on_x8v
+7.18399841169475e-06 * on_sep8v;
acbxv2.l8 :=
+0
+6.39868433368973e-08 * on_x8v
+6.2125962902381e-06 * on_sep8v;
acbxv2.r8 :=
+0
-6.72318164090315e-08 * on_x8v
+6.55056442689889e-06 * on_sep8v;
acbxv3.l8 :=
+0
+1.21875569817565e-07 * on_x8v
+7.56587172069653e-06 * on_sep8v;
acbxv3.r8 :=
+0
-1.15587526672889e-07 * on_x8v
+7.27622509929669e-06 * on_sep8v;
acbyv4.l8b1 :=
+0
+0 * on_x8v
+0 * on_sep8v

```

```

+0 * on_a8
+2.32586183075681e-05 * on_ov8
+5.58861799140425e-05 * on_yip8b1;
acbyv4.r8b2 :=
+0
+0 * on_x8v
+0 * on_sep8v
+0 * on_a8
+1.48053588394925e-05 * on_ov8
+3.99054864729442e-05 * on_yip8b2;
acbyv5.r8b1 :=
+0
+0 * on_x8v
+0 * on_sep8v
+0 * on_a8
-7.18123047943412e-06 * on_ov8
-3.87373960749848e-05 * on_yip8b1;
acbyvs4.l8b1 :=
+0
-3.82907845281327e-07 * on_x8v
+6.61491493529072e-06 * on_sep8v
+2.03620245322087e-07 * on_a8
+2.32289793059474e-05 * on_ov8;
acbyvs4.l8b2 :=
+0
+9.72248724178049e-08 * on_x8v
-1.70943474070217e-05 * on_sep8v
+8.22822524966229e-07 * on_a8
+4.31035378636153e-05 * on_ov8
+8.87630570565541e-05 * on_yip8b2;
acbyvs4.r8b1 :=
+0
+8.27688162558669e-08 * on_x8v
+1.73159542233187e-05 * on_sep8v
-8.21938751723184e-07 * on_a8
+3.65338186936838e-05 * on_ov8
+8.86385032080368e-05 * on_yip8b1;
acbyvs4.r8b2 :=
+0
-3.8081278994767e-07 * on_x8v
-7.57394019967872e-06 * on_sep8v
-8.85215185765827e-09 * on_a8
+1.46937548702547e-05 * on_ov8;
acbyvs5.r8b1 :=
+0
+2.17538310029701e-07 * on_x8v
-4.50938432148697e-06 * on_sep8v
+6.61104558722446e-07 * on_a8

```

```

-7.04115920075072e-06 * on_ov8;
acbyvs5.r8b2 :=
+0
+9.59177212729283e-09 * on_x8v
-4.91714058562787e-06 * on_sep8v
+6.29844063369491e-07 * on_a8
-2.42665029016881e-05 * on_ov8
-5.0369790470012e-05 * on_yip8b2;
acbch6.l8b2 :=
-0
-7.7899335175966e-06 * on_oh8
-5.67e-06 * dp_trim.b2;
acbch6.r8b1 :=
-0
-3.53823371580725e-06 * on_oh8
-1.28683905206505e-05 * on_xip8b1
-4.36e-06 * dp_trim.b1;
acbch7.l8b1 :=
-0
-1.31349952927171e-05 * on_oh8
-3.23e-06 * dp_trim.b1;
acbch7.r8b2 :=
-0
-1.33585170766189e-05 * on_oh8
-1.61e-06 * dp_trim.b2;
acbcv6.l8b1 :=
-0
-7.21861850172787e-06 * on_ov8;
acbcv6.r8b2 :=
-0
-6.48859205294229e-06 * on_ov8;
acbcv7.l8b2 :=
-0
-1.48153109039335e-05 * on_ov8;
acbcv7.r8b1 :=
-0
-1.31108310131767e-05 * on_ov8;
kqtd.a12b1 :=
-2.3219490636482e-05
+0 * dqx.b1_op
+0 * dqx.b1_sq
-0.000672671207087619 * dqx.b1
+0 * dgy.b1_op
+0 * dgy.b1_sq
-0.00361073287785668 * dgy.b1
-0.000143719 * phase_change.b1
-0.000384180612176483 * dp_trim.b1;
kqtd.a23b1 :=

```

```

+0.000893743487053271
-0.00134021520703678 * dqx.b1_op
-0.00134021520703678 * dqx.b1_sq
-0.000672498351925851 * dqx.b1
-0.00719443108577478 * dxy.b1_op
-0.00719443108577478 * dxy.b1_sq
-0.00361078158729873 * dxy.b1
+0.001061974842 * phase_change.b1
-0.000384180612176483 * dp_trim.b1;
kqtd.a34b1 :=
+0.000895276651835792
-0.0013410387179015 * dqx.b1_op
-0.0013410387179015 * dqx.b1_sq
-0.000672499374832626 * dqx.b1
-0.0071950335816215 * dxy.b1_op
-0.0071950335816215 * dxy.b1_sq
-0.00361094229356038 * dxy.b1
+0.0001529048423 * phase_change.b1
-0.000384180612176483 * dp_trim.b1;
kqtd.a45b1 :=
-2.27275417658641e-05
+0 * dqx.b1_op
+0 * dqx.b1_sq
-0.00067250496956159 * dqx.b1
+0 * dxy.b1_op
+0 * dxy.b1_sq
-0.00361048301879309 * dxy.b1
-0.000489133 * phase_change.b1
-0.000384180612176483 * dp_trim.b1;
kqtd.a56b1 :=
-2.32194910472748e-05
+0 * dqx.b1_op
+0 * dqx.b1_sq
-0.000672367966911087 * dqx.b1
+0 * dxy.b1_op
+0 * dxy.b1_sq
-0.00361099189593758 * dxy.b1
+0.00084196 * phase_change.b1
-0.000384180612176483 * dp_trim.b1;
kqtd.a67b1 :=
-0.000954887909683645
-0.00134086871094109 * dqx.b1_op
-0.00134086871094109 * dqx.b1_sq
-0.000672610043469888 * dqx.b1
-0.00719512816292674 * dxy.b1_op
-0.00719512816292674 * dxy.b1_sq
-0.00361047958668808 * dxy.b1
+0.001607272254 * phase_change.b1

```

```

-0.000384180612176483 * dp_trim.b1;
kqtd.a78b1 :=
-0.000958593372964454
-0.0013405417704132 * dqx.b1_op
-0.0013405417704132 * dqx.b1_sq
-0.000672483620994901 * dqx.b1
-0.00719536800884484 * dgy.b1_op
-0.00719536800884484 * dgy.b1_sq
-0.00361050657439778 * dgy.b1
-0.001369616746 * phase_change.b1
-0.000384180612176483 * dp_trim.b1;
kqtd.a81b1 :=
-2.27073324493913e-05
+0 * dqx.b1_op
+0 * dqx.b1_sq
-0.000672616302289113 * dqx.b1
+0 * dgy.b1_op
+0 * dgy.b1_sq
-0.00361054855817811 * dgy.b1
-0.00164254 * phase_change.b1
-0.000384180612176483 * dp_trim.b1;
kqtf.a12b1 :=
-0.000123399731637545
+0 * dqx.b1_op
+0 * dqx.b1_sq
+0.00386425003535044 * dqx.b1
+0 * dgy.b1_op
+0 * dgy.b1_sq
+0.000710253252307119 * dgy.b1
-0.00224772 * phase_change.b1
+0.00034769150988755 * dp_trim.b1;
kqtf.a23b1 :=
-0.000886978115846052
+0.00724109314872632 * dqx.b1_op
+0.00724109314872632 * dqx.b1_sq
+0.00386438198838829 * dqx.b1
+0.00131780124079086 * dgy.b1_op
+0.00131780124079086 * dgy.b1_sq
+0.000710612197213331 * dgy.b1
-0.000610902667 * phase_change.b1
+0.00034769150988755 * dp_trim.b1;
kqtf.a34b1 :=
-0.000901556637292161
+0.00724151405907539 * dqx.b1_op
+0.00724151405907539 * dqx.b1_sq
+0.00386424418218925 * dqx.b1
+0.00131858722725765 * dgy.b1_op
+0.00131858722725765 * dgy.b1_sq

```

```

+0.000710623751119816 * dgy.b1
-0.000674072667 * phase_change.b1
+0.00034769150988755 * dp_trim.b1;
kqtf.a45b1 :=
-0.000116621630582788
+0 * dqx.b1_op
+0 * dqx.b1_sq
+0.00386416330299023 * dqx.b1
+0 * dgy.b1_op
+0 * dgy.b1_sq
+0.000710793782347424 * dgy.b1
+0.00152229 * phase_change.b1
+0.00034769150988755 * dp_trim.b1;
kqtf.a56b1 :=
-0.000123399729520761
+0 * dqx.b1_op
+0 * dqx.b1_sq
+0.0038645577533824 * dqx.b1
+0 * dgy.b1_op
+0 * dgy.b1_sq
+0.000710527617341936 * dgy.b1
+0.00111893 * phase_change.b1
+0.00034769150988755 * dp_trim.b1;
kqtf.a67b1 :=
+0.00064257811214508
+0.00724050165147455 * dqx.b1_op
+0.00724050165147455 * dqx.b1_sq
+0.00386422800743119 * dqx.b1
+0.00131737552579886 * dgy.b1_op
+0.00131737552579886 * dgy.b1_sq
+0.000710283734295998 * dgy.b1
+0.002038776394 * phase_change.b1
+0.000347691509887549 * dp_trim.b1;
kqtf.a78b1 :=
+0.000641043369606005
+0.00724060694323727 * dqx.b1_op
+0.00724060694323727 * dqx.b1_sq
+0.00386445987999219 * dqx.b1
+0.00131681847019526 * dgy.b1_op
+0.00131681847019526 * dgy.b1_sq
+0.000710405899689257 * dgy.b1
-0.001101030607 * phase_change.b1
+0.000347691509887549 * dp_trim.b1;
kqtf.a81b1 :=
-0.000155578745490948
+0 * dqx.b1_op
+0 * dqx.b1_sq
+0.00386570444045799 * dqx.b1

```

```

+0 * dqy.b1_op
+0 * dqy.b1_sq
+0.000712209612938419 * dqy.b1
-0.000130025 * phase_change.b1
+0.00034769150988755 * dp_trim.b1;
kqtd.a12b2 :=
+2.3219490636482e-05
+0 * dqx.b2_op
+0 * dqx.b2_sq
-0.000673502917369777 * dqx.b2
+0 * dqy.b2_op
+0 * dqy.b2_sq
-0.00361174927713906 * dqy.b2
-0.000604701 * phase_change.b2
-0.000385963767473488 * dp_trim.b2;
kqtd.a23b2 :=
-0.000893743487053271
-0.00134322660997493 * dqx.b2_op
-0.00134322660997493 * dqx.b2_sq
-0.000673365872091525 * dqx.b2
-0.00720908020282668 * dqy.b2_op
-0.00720908020282668 * dqy.b2_sq
-0.00361227850266949 * dqy.b2
+0.0007281687569 * phase_change.b2
-0.000385963767473488 * dp_trim.b2;
kqtd.a34b2 :=
-0.000895276651835792
-0.00134292360767782 * dqx.b2_op
-0.00134292360767782 * dqx.b2_sq
-0.000673252328425365 * dqx.b2
-0.00721387685945008 * dqy.b2_op
-0.00721387685945008 * dqy.b2_sq
-0.00361307633622402 * dqy.b2
+0.001554813657 * phase_change.b2
-0.000385963767473488 * dp_trim.b2;
kqtd.a45b2 :=
+2.27275417658641e-05
+0 * dqx.b2_op
+0 * dqx.b2_sq
-0.000673280961631438 * dqx.b2
+0 * dqy.b2_op
+0 * dqy.b2_sq
-0.00361178089693283 * dqy.b2
-0.000344118 * phase_change.b2
-0.000385963767473488 * dp_trim.b2;
kqtd.a56b2 :=
+2.32194910472748e-05
+0 * dqx.b2_op

```

```

+0 * dqx.b2_sq
-0.000673130258818621 * dqx.b2
+0 * dqy.b2_op
+0 * dqy.b2_sq
-0.00361328039876569 * dqy.b2
+0.000252779 * phase_change.b2
-0.000385963767473488 * dp_trim.b2;
kqtd.a67b2 :=
+0.000954887909683645
-0.00134360979325844 * dqx.b2_op
-0.00134360979325844 * dqx.b2_sq
-0.000673524944739065 * dqx.b2
-0.00721367924302286 * dqy.b2_op
-0.00721367924302286 * dqy.b2_sq
-0.00361194417825372 * dqy.b2
-0.002434551755 * phase_change.b2
-0.000385963767473488 * dp_trim.b2;
kqtd.a78b2 :=
+0.000958593372964454
-0.00134628822102359 * dqx.b2_op
-0.00134628822102359 * dqx.b2_sq
-0.000673256485327879 * dqx.b2
-0.00721660605102837 * dqy.b2_op
-0.00721660605102837 * dqy.b2_sq
-0.00361490009536749 * dqy.b2
-0.0006010707552 * phase_change.b2
-0.000385963767473488 * dp_trim.b2;
kqtd.a81b2 :=
+2.27073324493913e-05
+0 * dqx.b2_op
+0 * dqx.b2_sq
-0.000673374883662517 * dqx.b2
+0 * dqy.b2_op
+0 * dqy.b2_sq
-0.00361167999253442 * dqy.b2
+0.00142397 * phase_change.b2
-0.000385963767473488 * dp_trim.b2;
kqtf.a12b2 :=
+0.000123399731637545
+0 * dqx.b2_op
+0 * dqx.b2_sq
+0.00362201135616474 * dqx.b2
+0 * dqy.b2_op
+0 * dqy.b2_sq
+0.000660803061485821 * dqy.b2
-0.00150003 * phase_change.b2
+0.000326847864640442 * dp_trim.b2;
kqtf.a23b2 :=

```



```

+0.000886978115846052
+0.00723819657487269 * dqx.b2_op
+0.00723819657487269 * dqx.b2_sq
+0.00362209141398909 * dqx.b2
+0.00131248995149388 * dxy.b2_op
+0.00131248995149388 * dxy.b2_sq
+0.000660626188112784 * dxy.b2
-0.002608099978 * phase_change.b2
+0.000326847864640442 * dp_trim.b2;
kqtf.a34b2 :=
+0.000901556637292161
+0.00723826249758447 * dqx.b2_op
+0.00723826249758447 * dqx.b2_sq
+0.00362226513882487 * dqx.b2
+0.00131192165548106 * dxy.b2_op
+0.00131192165548106 * dxy.b2_sq
+0.000660804410030877 * dxy.b2
+0.000229292022 * phase_change.b2
+0.000326847864640442 * dp_trim.b2;
kqtf.a45b2 :=
+0.000116621630582788
+0 * dqx.b2_op
+0 * dqx.b2_sq
+0.00362198483474346 * dqx.b2
+0 * dxy.b2_op
+0 * dxy.b2_sq
+0.000663422294942121 * dxy.b2
+0.0018962 * phase_change.b2
+0.000326847864640442 * dp_trim.b2;
kqtf.a56b2 :=
+0.000123399729520761
+0 * dqx.b2_op
+0 * dqx.b2_sq
+0.0036224464237048 * dqx.b2
+0 * dxy.b2_op
+0 * dxy.b2_sq
+0.000663850483694629 * dxy.b2
+0.00272665 * phase_change.b2
+0.000326847864640442 * dp_trim.b2;
kqtf.a67b2 :=
-0.00064257811214508
+0.00723892122915008 * dqx.b2_op
+0.00723892122915008 * dqx.b2_sq
+0.00362227208741065 * dqx.b2
+0.00131104659727539 * dxy.b2_op
+0.00131104659727539 * dxy.b2_sq
+0.000662507861432098 * dxy.b2
-0.0005254090387 * phase_change.b2

```

```

+0.000326847864640442 * dp_trim.b2;
kqtf.a78b2 :=
-0.000641043369606005
+0.00723824909232395 * dqx.b2_op
+0.00723824909232395 * dqx.b2_sq
+0.00362222920765245 * dqx.b2
+0.00131104365535462 * dxy.b2_op
+0.00131104365535462 * dxy.b2_sq
+0.000662606365179117 * dxy.b2
-0.0006960890387 * phase_change.b2
+0.000326847864640442 * dp_trim.b2;
kqtf.a81b2 :=
+0.000155578745490948
+0 * dqx.b2_op
+0 * dqx.b2_sq
+0.00362220177330699 * dqx.b2
+0 * dxy.b2_op
+0 * dxy.b2_sq
+0.000661577480989044 * dxy.b2
+0.00049397 * phase_change.b2
+0.000326847864640442 * dp_trim.b2;
ksd1.a12b1 :=
-0.109849618687862
+0 * dqpx.b1_op
+0 * dqpx.b1_sq
-0.00018485612285896 * dqpx.b1
+0 * dqpy.b1_op
+0 * dqpy.b1_sq
-0.000997476286966637 * dqpy.b1;
ksd1.a23b1 :=
-0.109849618687862
-0.000369220176049089 * dqpx.b1_op
-0.000369220176049089 * dqpx.b1_sq
-0.00018485612285896 * dqpx.b1
-0.00200488807567932 * dqpy.b1_op
-0.00200488807567932 * dqpy.b1_sq
-0.000997476286966637 * dqpy.b1;
ksd1.a34b1 :=
-0.109849618687862
-0.000369220176049089 * dqpx.b1_op
-0.000369220176049089 * dqpx.b1_sq
-0.00018485612285896 * dqpx.b1
-0.00200488807567932 * dqpy.b1_op
-0.00200488807567932 * dqpy.b1_sq
-0.000997476286966637 * dqpy.b1;
ksd1.a45b1 :=
-0.109849618687862
+0 * dqpx.b1_op

```

```

+0 * dqpx.b1_sq
-0.00018485612285896 * dqpx.b1
+0 * dqpy.b1_op
+0 * dqpy.b1_sq
-0.000997476286966637 * dqpy.b1;
ksd1.a56b1 :=
-0.109849618687862
+0 * dqpx.b1_op
+0 * dqpx.b1_sq
-0.00018485612285896 * dqpx.b1
+0 * dqpy.b1_op
+0 * dqpy.b1_sq
-0.000997476286966637 * dqpy.b1;
ksd1.a67b1 :=
-0.109849618687862
-0.000369220176049089 * dqpx.b1_op
-0.000369220176049089 * dqpx.b1_sq
-0.00018485612285896 * dqpx.b1
-0.00200488807567932 * dqpy.b1_op
-0.00200488807567932 * dqpy.b1_sq
-0.000997476286966637 * dqpy.b1;
ksd1.a78b1 :=
-0.109849618687862
-0.000369220176049089 * dqpx.b1_op
-0.000369220176049089 * dqpx.b1_sq
-0.00018485612285896 * dqpx.b1
-0.00200488807567932 * dqpy.b1_op
-0.00200488807567932 * dqpy.b1_sq
-0.000997476286966637 * dqpy.b1;
ksd1.a81b1 :=
-0.109849618687862
+0 * dqpx.b1_op
+0 * dqpx.b1_sq
-0.00018485612285896 * dqpx.b1
+0 * dqpy.b1_op
+0 * dqpy.b1_sq
-0.000997476286966637 * dqpy.b1;
ksd2.a12b1 :=
-0.109849618687862
+0 * dqpx.b1_op
+0 * dqpx.b1_sq
-0.00018485612285896 * dqpx.b1
+0 * dqpy.b1_op
+0 * dqpy.b1_sq
-0.000997476286966637 * dqpy.b1;
ksd2.a23b1 :=
-0.109849618687862
-0.000369220176049089 * dqpx.b1_op

```

```

-0.000369220176049089 * dqpx.b1_sq
-0.00018485612285896 * dqpx.b1
-0.00200488807567932 * dqpy.b1_op
-0.00200488807567932 * dqpy.b1_sq
-0.000997476286966637 * dqpy.b1;
ksd2.a34b1 :=
-0.109849618687862
-0.000369220176049089 * dqpx.b1_op
-0.000369220176049089 * dqpx.b1_sq
-0.00018485612285896 * dqpx.b1
-0.00200488807567932 * dqpy.b1_op
-0.00200488807567932 * dqpy.b1_sq
-0.000997476286966637 * dqpy.b1;
ksd2.a45b1 :=
-0.109849618687862
+0 * dqpx.b1_op
+0 * dqpx.b1_sq
-0.00018485612285896 * dqpx.b1
+0 * dqpy.b1_op
+0 * dqpy.b1_sq
-0.000997476286966637 * dqpy.b1;
ksd2.a56b1 :=
-0.109849618687862
+0 * dqpx.b1_op
+0 * dqpx.b1_sq
-0.00018485612285896 * dqpx.b1
+0 * dqpy.b1_op
+0 * dqpy.b1_sq
-0.000997476286966637 * dqpy.b1;
ksd2.a67b1 :=
-0.109849618687862
-0.000369220176049089 * dqpx.b1_op
-0.000369220176049089 * dqpx.b1_sq
-0.00018485612285896 * dqpx.b1
-0.00200488807567932 * dqpy.b1_op
-0.00200488807567932 * dqpy.b1_sq
-0.000997476286966637 * dqpy.b1;
ksd2.a78b1 :=
-0.109849618687862
-0.000369220176049089 * dqpx.b1_op
-0.000369220176049089 * dqpx.b1_sq
-0.00018485612285896 * dqpx.b1
-0.00200488807567932 * dqpy.b1_op
-0.00200488807567932 * dqpy.b1_sq
-0.000997476286966637 * dqpy.b1;
ksd2.a81b1 :=
-0.109849618687862
+0 * dqpx.b1_op

```

```

+0 * dqpx.b1_sq
-0.00018485612285896 * dqpx.b1
+0 * dqpy.b1_op
+0 * dqpy.b1_sq
-0.000997476286966637 * dqpy.b1;
ksf1.a12b1 :=
+0.065648287472566
+0 * dqpx.b1_op
+0 * dqpx.b1_sq
+0.000598403130451537 * dqpx.b1
+0 * dqpy.b1_op
+0 * dqpy.b1_sq
+0.000109890134624715 * dqpy.b1;
ksf1.a23b1 :=
+0.065648287472566
+0.00120138144448906 * dqpx.b1_op
+0.00120138144448906 * dqpx.b1_sq
+0.000598403130451537 * dqpx.b1
+0.000218822931394558 * dqpy.b1_op
+0.000218822931394558 * dqpy.b1_sq
+0.000109890134624715 * dqpy.b1;
ksf1.a34b1 :=
+0.065648287472566
+0.00120138144448906 * dqpx.b1_op
+0.00120138144448906 * dqpx.b1_sq
+0.000598403130451537 * dqpx.b1
+0.000218822931394558 * dqpy.b1_op
+0.000218822931394558 * dqpy.b1_sq
+0.000109890134624715 * dqpy.b1;
ksf1.a45b1 :=
+0.065648287472566
+0 * dqpx.b1_op
+0 * dqpx.b1_sq
+0.000598403130451537 * dqpx.b1
+0 * dqpy.b1_op
+0 * dqpy.b1_sq
+0.000109890134624715 * dqpy.b1;
ksf1.a56b1 :=
+0.065648287472566
+0 * dqpx.b1_op
+0 * dqpx.b1_sq
+0.000598403130451537 * dqpx.b1
+0 * dqpy.b1_op
+0 * dqpy.b1_sq
+0.000109890134624715 * dqpy.b1;
ksf1.a67b1 :=
+0.065648287472566
+0.00120138144448906 * dqpx.b1_op

```

```

+0.00120138144448906 * dqpx.b1_sq
+0.000598403130451537 * dqpx.b1
+0.000218822931394558 * dqpy.b1_op
+0.000218822931394558 * dqpy.b1_sq
+0.000109890134624715 * dqpy.b1;
ksf1.a78b1 :=
+0.065648287472566
+0.00120138144448906 * dqpx.b1_op
+0.00120138144448906 * dqpx.b1_sq
+0.000598403130451537 * dqpx.b1
+0.000218822931394558 * dqpy.b1_op
+0.000218822931394558 * dqpy.b1_sq
+0.000109890134624715 * dqpy.b1;
ksf1.a81b1 :=
+0.065648287472566
+0 * dqpx.b1_op
+0 * dqpx.b1_sq
+0.000598403130451537 * dqpx.b1
+0 * dqpy.b1_op
+0 * dqpy.b1_sq
+0.000109890134624715 * dqpy.b1;
ksf2.a12b1 :=
+0.065648287472566
+0 * dqpx.b1_op
+0 * dqpx.b1_sq
+0.000598403130451537 * dqpx.b1
+0 * dqpy.b1_op
+0 * dqpy.b1_sq
+0.000109890134624715 * dqpy.b1;
ksf2.a23b1 :=
+0.065648287472566
+0.00120138144448906 * dqpx.b1_op
+0.00120138144448906 * dqpx.b1_sq
+0.000598403130451537 * dqpx.b1
+0.000218822931394558 * dqpy.b1_op
+0.000218822931394558 * dqpy.b1_sq
+0.000109890134624715 * dqpy.b1;
ksf2.a34b1 :=
+0.065648287472566
+0.00120138144448906 * dqpx.b1_op
+0.00120138144448906 * dqpx.b1_sq
+0.000598403130451537 * dqpx.b1
+0.000218822931394558 * dqpy.b1_op
+0.000218822931394558 * dqpy.b1_sq
+0.000109890134624715 * dqpy.b1;
ksf2.a45b1 :=
+0.065648287472566
+0 * dqpx.b1_op

```

```

+0 * dqpx.b1_sq
+0.000598403130451537 * dqpx.b1
+0 * dqpy.b1_op
+0 * dqpy.b1_sq
+0.000109890134624715 * dqpy.b1;
ksf2.a56b1 :=
+0.065648287472566
+0 * dqpx.b1_op
+0 * dqpx.b1_sq
+0.000598403130451537 * dqpx.b1
+0 * dqpy.b1_op
+0 * dqpy.b1_sq
+0.000109890134624715 * dqpy.b1;
ksf2.a67b1 :=
+0.065648287472566
+0.00120138144448906 * dqpx.b1_op
+0.00120138144448906 * dqpx.b1_sq
+0.000598403130451537 * dqpx.b1
+0.000218822931394558 * dqpy.b1_op
+0.000218822931394558 * dqpy.b1_sq
+0.000109890134624715 * dqpy.b1;
ksf2.a78b1 :=
+0.065648287472566
+0.00120138144448906 * dqpx.b1_op
+0.00120138144448906 * dqpx.b1_sq
+0.000598403130451537 * dqpx.b1
+0.000218822931394558 * dqpy.b1_op
+0.000218822931394558 * dqpy.b1_sq
+0.000109890134624715 * dqpy.b1;
ksf2.a81b1 :=
+0.065648287472566
+0 * dqpx.b1_op
+0 * dqpx.b1_sq
+0.000598403130451537 * dqpx.b1
+0 * dqpy.b1_op
+0 * dqpy.b1_sq
+0.000109890134624715 * dqpy.b1;
ksd1.a12b2 :=
-0.109773061889665
+0 * dqpx.b2_op
+0 * dqpx.b2_sq
-0.000185163987402203 * dqpx.b2
+0 * dqpy.b2_op
+0 * dqpy.b2_sq
-0.000999142995207293 * dqpy.b2;
ksd1.a23b2 :=
-0.109773061889665
-0.000369273891399548 * dqpx.b2_op

```

```

-0.000369273891399548 * dqpx.b2_sq
-0.000185163987402203 * dqpx.b2
-0.0020067072047858 * dqpy.b2_op
-0.0020067072047858 * dqpy.b2_sq
-0.000999142995207293 * dqpy.b2;
ksd1.a34b2 :=
-0.109773061889665
-0.000369273891399548 * dqpx.b2_op
-0.000369273891399548 * dqpx.b2_sq
-0.000185163987402203 * dqpx.b2
-0.0020067072047858 * dqpy.b2_op
-0.0020067072047858 * dqpy.b2_sq
-0.000999142995207293 * dqpy.b2;
ksd1.a45b2 :=
-0.109773061889665
+0 * dqpx.b2_op
+0 * dqpx.b2_sq
-0.000185163987402203 * dqpx.b2
+0 * dqpy.b2_op
+0 * dqpy.b2_sq
-0.000999142995207293 * dqpy.b2;
ksd1.a56b2 :=
-0.109773061889665
+0 * dqpx.b2_op
+0 * dqpx.b2_sq
-0.000185163987402203 * dqpx.b2
+0 * dqpy.b2_op
+0 * dqpy.b2_sq
-0.000999142995207293 * dqpy.b2;
ksd1.a67b2 :=
-0.109773061889665
-0.000369273891399548 * dqpx.b2_op
-0.000369273891399548 * dqpx.b2_sq
-0.000185163987402203 * dqpx.b2
-0.0020067072047858 * dqpy.b2_op
-0.0020067072047858 * dqpy.b2_sq
-0.000999142995207293 * dqpy.b2;
ksd1.a78b2 :=
-0.109773061889665
-0.000369273891399548 * dqpx.b2_op
-0.000369273891399548 * dqpx.b2_sq
-0.000185163987402203 * dqpx.b2
-0.0020067072047858 * dqpy.b2_op
-0.0020067072047858 * dqpy.b2_sq
-0.000999142995207293 * dqpy.b2;
ksd1.a81b2 :=
-0.109773061889665
+0 * dqpx.b2_op

```



```

+0 * dqpx.b2_sq
-0.000185163987402203 * dqpx.b2
+0 * dqpy.b2_op
+0 * dqpy.b2_sq
-0.000999142995207293 * dqpy.b2;
ksd2.a12b2 :=
-0.109773061889665
+0 * dqpx.b2_op
+0 * dqpx.b2_sq
-0.000185163987402203 * dqpx.b2
+0 * dqpy.b2_op
+0 * dqpy.b2_sq
-0.000999142995207293 * dqpy.b2;
ksd2.a23b2 :=
-0.109773061889665
-0.000369273891399548 * dqpx.b2_op
-0.000369273891399548 * dqpx.b2_sq
-0.000185163987402203 * dqpx.b2
-0.0020067072047858 * dqpy.b2_op
-0.0020067072047858 * dqpy.b2_sq
-0.000999142995207293 * dqpy.b2;
ksd2.a34b2 :=
-0.109773061889665
-0.000369273891399548 * dqpx.b2_op
-0.000369273891399548 * dqpx.b2_sq
-0.000185163987402203 * dqpx.b2
-0.0020067072047858 * dqpy.b2_op
-0.0020067072047858 * dqpy.b2_sq
-0.000999142995207293 * dqpy.b2;
ksd2.a45b2 :=
-0.109773061889665
+0 * dqpx.b2_op
+0 * dqpx.b2_sq
-0.000185163987402203 * dqpx.b2
+0 * dqpy.b2_op
+0 * dqpy.b2_sq
-0.000999142995207293 * dqpy.b2;
ksd2.a56b2 :=
-0.109773061889665
+0 * dqpx.b2_op
+0 * dqpx.b2_sq
-0.000185163987402203 * dqpx.b2
+0 * dqpy.b2_op
+0 * dqpy.b2_sq
-0.000999142995207293 * dqpy.b2;
ksd2.a67b2 :=
-0.109773061889665
-0.000369273891399548 * dqpx.b2_op

```

```

-0.000369273891399548 * dqpx.b2_sq
-0.000185163987402203 * dqpx.b2
-0.0020067072047858 * dqpy.b2_op
-0.0020067072047858 * dqpy.b2_sq
-0.000999142995207293 * dqpy.b2;
ksd2.a78b2 :=
-0.109773061889665
-0.000369273891399548 * dqpx.b2_op
-0.000369273891399548 * dqpx.b2_sq
-0.000185163987402203 * dqpx.b2
-0.0020067072047858 * dqpy.b2_op
-0.0020067072047858 * dqpy.b2_sq
-0.000999142995207293 * dqpy.b2;
ksd2.a81b2 :=
-0.109773061889665
+0 * dqpx.b2_op
+0 * dqpx.b2_sq
-0.000185163987402203 * dqpx.b2
+0 * dqpy.b2_op
+0 * dqpy.b2_sq
-0.000999142995207293 * dqpy.b2;
ksf1.a12b2 :=
+0.0656891744419247
+0 * dqpx.b2_op
+0 * dqpx.b2_sq
+0.000599037646394724 * dqpx.b2
+0 * dqpy.b2_op
+0 * dqpy.b2_sq
+0.000109843182354835 * dqpy.b2;
ksf1.a23b2 :=
+0.0656891744419247
+0.00119895682553016 * dqpx.b2_op
+0.00119895682553016 * dqpx.b2_sq
+0.000599037646394724 * dqpx.b2
+0.000218930549404082 * dqpy.b2_op
+0.000218930549404082 * dqpy.b2_sq
+0.000109843182354835 * dqpy.b2;
ksf1.a34b2 :=
+0.0656891744419247
+0.00119895682553016 * dqpx.b2_op
+0.00119895682553016 * dqpx.b2_sq
+0.000599037646394724 * dqpx.b2
+0.000218930549404082 * dqpy.b2_op
+0.000218930549404082 * dqpy.b2_sq
+0.000109843182354835 * dqpy.b2;
ksf1.a45b2 :=
+0.0656891744419247
+0 * dqpx.b2_op

```

```

+0 * dqpx.b2_sq
+0.000599037646394724 * dqpx.b2
+0 * dqpy.b2_op
+0 * dqpy.b2_sq
+0.000109843182354835 * dqpy.b2;
ksf1.a56b2 :=
+0.0656891744419247
+0 * dqpx.b2_op
+0 * dqpx.b2_sq
+0.000599037646394724 * dqpx.b2
+0 * dqpy.b2_op
+0 * dqpy.b2_sq
+0.000109843182354835 * dqpy.b2;
ksf1.a67b2 :=
+0.0656891744419247
+0.00119895682553016 * dqpx.b2_op
+0.00119895682553016 * dqpx.b2_sq
+0.000599037646394724 * dqpx.b2
+0.000218930549404082 * dqpy.b2_op
+0.000218930549404082 * dqpy.b2_sq
+0.000109843182354835 * dqpy.b2;
ksf1.a78b2 :=
+0.0656891744419247
+0.00119895682553016 * dqpx.b2_op
+0.00119895682553016 * dqpx.b2_sq
+0.000599037646394724 * dqpx.b2
+0.000218930549404082 * dqpy.b2_op
+0.000218930549404082 * dqpy.b2_sq
+0.000109843182354835 * dqpy.b2;
ksf1.a81b2 :=
+0.0656891744419247
+0 * dqpx.b2_op
+0 * dqpx.b2_sq
+0.000599037646394724 * dqpx.b2
+0 * dqpy.b2_op
+0 * dqpy.b2_sq
+0.000109843182354835 * dqpy.b2;
ksf2.a12b2 :=
+0.0656891744419247
+0 * dqpx.b2_op
+0 * dqpx.b2_sq
+0.000599037646394724 * dqpx.b2
+0 * dqpy.b2_op
+0 * dqpy.b2_sq
+0.000109843182354835 * dqpy.b2;
ksf2.a23b2 :=
+0.0656891744419247
+0.00119895682553016 * dqpx.b2_op

```

```

+0.00119895682553016 * dqpx.b2_sq
+0.000599037646394724 * dqpx.b2
+0.000218930549404082 * dqpy.b2_op
+0.000218930549404082 * dqpy.b2_sq
+0.000109843182354835 * dqpy.b2;
ksf2.a34b2 :=
+0.0656891744419247
+0.00119895682553016 * dqpx.b2_op
+0.00119895682553016 * dqpx.b2_sq
+0.000599037646394724 * dqpx.b2
+0.000218930549404082 * dqpy.b2_op
+0.000218930549404082 * dqpy.b2_sq
+0.000109843182354835 * dqpy.b2;
ksf2.a45b2 :=
+0.0656891744419247
+0 * dqpx.b2_op
+0 * dqpx.b2_sq
+0.000599037646394724 * dqpx.b2
+0 * dqpy.b2_op
+0 * dqpy.b2_sq
+0.000109843182354835 * dqpy.b2;
ksf2.a56b2 :=
+0.0656891744419247
+0 * dqpx.b2_op
+0 * dqpx.b2_sq
+0.000599037646394724 * dqpx.b2
+0 * dqpy.b2_op
+0 * dqpy.b2_sq
+0.000109843182354835 * dqpy.b2;
ksf2.a67b2 :=
+0.0656891744419247
+0.00119895682553016 * dqpx.b2_op
+0.00119895682553016 * dqpx.b2_sq
+0.000599037646394724 * dqpx.b2
+0.000218930549404082 * dqpy.b2_op
+0.000218930549404082 * dqpy.b2_sq
+0.000109843182354835 * dqpy.b2;
ksf2.a78b2 :=
+0.0656891744419247
+0.00119895682553016 * dqpx.b2_op
+0.00119895682553016 * dqpx.b2_sq
+0.000599037646394724 * dqpx.b2
+0.000218930549404082 * dqpy.b2_op
+0.000218930549404082 * dqpy.b2_sq
+0.000109843182354835 * dqpy.b2;
ksf2.a81b2 :=
+0.0656891744419247
+0 * dqpx.b2_op

```

```

+0 * dqpx.b2_sq
+0.000599037646394724 * dqpx.b2
+0 * dqpy.b2_op
+0 * dqpy.b2_sq
+0.000109843182354835 * dqpy.b2;
kqs.a23b1 :=
+0
-0.0369631295358672 * cmis.b1_op
-0.0369631295358672 * cmis.b1_sq
-0.0205271415882115 * cmis.b1
-0.00293458144665583 * cmrs.b1_op
-0.00293458144665583 * cmrs.b1_sq
-0.0164621922717725 * cmrs.b1;
kqs.a45b1 :=
+0
+0 * cmis.b1_op
+0 * cmis.b1_sq
-0.0119213510730044 * cmis.b1
+0 * cmrs.b1_op
+0 * cmrs.b1_sq
+0.0105393981107264 * cmrs.b1;
kqs.a67b1 :=
+0
-0.0108377820902431 * cmis.b1_op
-0.0108377820902431 * cmis.b1_sq
+0.00876399288094731 * cmis.b1
+0.052580212450448 * cmrs.b1_op
+0.052580212450448 * cmrs.b1_sq
+0.0337494827778415 * cmrs.b1;
kqs.a81b1 :=
+0
+0 * cmis.b1_op
+0 * cmis.b1_sq
+0.0147539611170408 * cmis.b1
+0 * cmrs.b1_op
+0 * cmrs.b1_sq
-0.00492756804064348 * cmrs.b1;
kqs.l2b1 :=
+0
+0 * cmis.b1_op
+0 * cmis.b1_sq
+0.00460178139597206 * cmis.b1
+0 * cmrs.b1_op
+0 * cmrs.b1_sq
-0.00763995080266712 * cmrs.b1;
kqs.l4b1 :=
+0
+0.0208739702765818 * cmis.b1_op

```

```

+0.0208739702765818 * cmis.b1_sq
+0.00576718898460067 * cmis.b1
-0.0194006113427959 * cmrs.b1_op
-0.0194006113427959 * cmrs.b1_sq
-0.00590406514622372 * cmrs.b1;
kqs.l6b1 :=
+0
+0 * cmis.b1_op
+0 * cmis.b1_sq
-0.00369495918427791 * cmis.b1
+0 * cmrs.b1_op
+0 * cmrs.b1_sq
+0.00903696815681468 * cmrs.b1;
kqs.l8b1 :=
+0
+0.0122100842232216 * cmis.b1_op
+0.0122100842232216 * cmis.b1_sq
+0.0103549973686963 * cmis.b1
+0.0138905747839311 * cmrs.b1_op
+0.0138905747839311 * cmrs.b1_sq
+0.0147651778460614 * cmrs.b1;
kqs.r1b1 :=
+0
+0 * cmis.b1_op
+0 * cmis.b1_sq
+0.00515613378465839 * cmis.b1
+0 * cmrs.b1_op
+0 * cmrs.b1_sq
-0.00672635971048708 * cmrs.b1;
kqs.r3b1 :=
+0
+0.0216477127911286 * cmis.b1_op
+0.0216477127911286 * cmis.b1_sq
+0.0102456732098012 * cmis.b1
-0.00470242773000583 * cmrs.b1_op
-0.00470242773000583 * cmrs.b1_sq
+0.00500611792019091 * cmrs.b1;
kqs.r5b1 :=
+0
+0 * cmis.b1_op
+0 * cmis.b1_sq
-0.0042713047074475 * cmis.b1
+0 * cmrs.b1_op
+0 * cmrs.b1_sq
+0.00816254558446454 * cmrs.b1;
kqs.r7b1 :=
+0
+0.0154901500290786 * cmis.b1_op

```

```

+0.0154901500290786 * cmis.b1_sq
+0.010791059437978 * cmis.b1
+0.00914230352678484 * cmrs.b1_op
+0.00914230352678484 * cmrs.b1_sq
+0.012610482101284 * cmrs.b1;
kqs.a12b2 :=
+0
+0 * cmis.b2_op
+0 * cmis.b2_sq
-0.0198969724484143 * cmis.b2
+0 * cmrs.b2_op
+0 * cmrs.b2_sq
-0.00357231470998708 * cmrs.b2;
kqs.a34b2 :=
+0
-0.02757303785404 * cmis.b2_op
-0.02757303785404 * cmis.b2_sq
+0.00393778969901382 * cmis.b2
-0.0322952797852876 * cmrs.b2_op
-0.0322952797852876 * cmrs.b2_sq
-0.0193007092188993 * cmrs.b2;
kqs.a56b2 :=
+0
+0 * cmis.b2_op
+0 * cmis.b2_sq
+0.0144874761425078 * cmis.b2
+0 * cmrs.b2_op
+0 * cmrs.b2_sq
+0.0083946354261318 * cmrs.b2;
kqs.a78b2 :=
+0
+0.0327267938236327 * cmis.b2_op
+0.0327267938236327 * cmis.b2_sq
+0.0245252423357628 * cmis.b2
-0.0225373813970749 * cmrs.b2_op
-0.0225373813970749 * cmrs.b2_sq
-0.0252774211304023 * cmrs.b2;
kqs.l1b2 :=
+0
+0 * cmis.b2_op
+0 * cmis.b2_sq
-0.00872844009577231 * cmis.b2
+0 * cmrs.b2_op
+0 * cmrs.b2_sq
-0.00295075541413415 * cmrs.b2;
kqs.l3b2 :=
+0
+0.030309090194561 * cmis.b2_op

```

```

+0.030309090194561 * cmis.b2_sq
+0.00470128019063555 * cmis.b2
+0.0166761460517533 * cmrs.b2_op
+0.0166761460517533 * cmrs.b2_sq
+0.00631447267688594 * cmrs.b2;
kqs.l5b2 :=
+0
+0 * cmis.b2_op
+0 * cmis.b2_sq
+0.00686364675573715 * cmis.b2
+0 * cmrs.b2_op
+0 * cmrs.b2_sq
+0.00453145724035949 * cmrs.b2;
kqs.l7b2 :=
+0
+0.0396572049837888 * cmis.b2_op
+0.0396572049837888 * cmis.b2_sq
+0.0161520681418961 * cmis.b2
+0.000971612859714074 * cmrs.b2_op
+0.000971612859714074 * cmrs.b2_sq
-0.00824176284669042 * cmrs.b2;
kqs.r2b2 :=
+0
+0.00619873374218507 * cmis.b2_op
+0.00619873374218507 * cmis.b2_sq
-0.00536344672922931 * cmis.b2
+0.016595684962886 * cmrs.b2_op
+0.016595684962886 * cmrs.b2_sq
+0.0117291381058383 * cmrs.b2;
kqs.r4b2 :=
+0
+0 * cmis.b2_op
+0 * cmis.b2_sq
+0.00601596903815907 * cmis.b2
+0 * cmrs.b2_op
+0 * cmrs.b2_sq
+0.00519663921942135 * cmrs.b2;
kqs.r6b2 :=
+0
+0.0356200141626607 * cmis.b2_op
+0.0356200141626607 * cmis.b2_sq
+0.0160610241576276 * cmis.b2
-0.00236528851365059 * cmrs.b2_op
-0.00236528851365059 * cmrs.b2_sq
-0.00996601737380167 * cmrs.b2;
kqs.r8b2 :=
+0
+0 * cmis.b2_op

```



```

+0 * cmis.b2_sq
-0.00799804257671511 * cmis.b2
+0 * cmrs.b2_op
+0 * cmrs.b2_sq
-0.00359044315786175 * cmrs.b2;
acbch10.l1b1 :=
+0
-1.843e-05 * dp_trim.b1;
acbch10.l3b1 :=
+0
-2.387e-05 * dp_trim.b1;
acbch10.l5b1 :=
+0
-1.914e-05 * dp_trim.b1;
acbch10.l7b1 :=
+0
-2.036e-05 * dp_trim.b1;
acbch10.r2b1 :=
+0
-1.913e-05 * dp_trim.b1;
acbch10.r4b1 :=
+0
-1.6e-05 * dp_trim.b1;
acbch10.r6b1 :=
+0
-1.485e-05 * dp_trim.b1;
acbch10.r8b1 :=
+0
-1.832e-05 * dp_trim.b1;
acbch6.l3b1 :=
+0
-4.98e-06 * dp_trim.b1;
acbch6.l7b1 :=
+0
-5.91e-06 * dp_trim.b1;
acbch7.l4b1 :=
+0
-5.17e-06 * dp_trim.b1;
acbch7.r3b1 :=
+0
-4.74e-06 * dp_trim.b1;
acbch7.r7b1 :=
+0
-5.66e-06 * dp_trim.b1;
acbch8.l3b1 :=
+0
-4.43e-06 * dp_trim.b1;
acbch8.l7b1 :=

```

```

+0
-3.3e-06 * dp_trim.b1;
acbch8.r2b1 :=
+0
-4.04e-06 * dp_trim.b1;
acbch8.r4b1 :=
+0
-6.83e-06 * dp_trim.b1;
acbch8.r6b1 :=
+0
-6.19e-06 * dp_trim.b1;
acbch8.r8b1 :=
+0
-4.44e-06 * dp_trim.b1;
acbch9.l2b1 :=
+0
-4.53e-06 * dp_trim.b1;
acbch9.l4b1 :=
+0
-3.26e-06 * dp_trim.b1;
acbch9.l6b1 :=
+0
-7.7e-06 * dp_trim.b1;
acbch9.l8b1 :=
+0
-4.23e-06 * dp_trim.b1;
acbch9.r1b1 :=
+0
-2.88e-06 * dp_trim.b1;
acbch9.r3b1 :=
+0
-3.75e-06 * dp_trim.b1;
acbch9.r5b1 :=
+0
-6.29e-06 * dp_trim.b1;
acbch9.r7b1 :=
+0
-2.62e-06 * dp_trim.b1;
acbh11.l2b1 :=
+0
-1.551e-05 * dp_trim.b1;
acbh11.l4b1 :=
+0
-1.499e-05 * dp_trim.b1;
acbh11.l6b1 :=
+0
-1.534e-05 * dp_trim.b1;
acbh11.l8b1 :=

```

```

+0
-1.554e-05 * dp_trim.b1;
acbh11.r3b1 :=
+0
-2.088e-05 * dp_trim.b1;
acbh11.r5b1 :=
+0
-1.542e-05 * dp_trim.b1;
acbh11.r7b1 :=
+0
-1.668e-05 * dp_trim.b1;
acbh12.11b1 :=
+0
-1.566e-05 * dp_trim.b1
+0 * on_ssep1_h;
acbh12.13b1 :=
+0
-1.92e-05 * dp_trim.b1;
acbh12.15b1 :=
+0
-1.596e-05 * dp_trim.b1
+0 * on_xx5_h;
acbh12.17b1 :=
+0
-1.896e-05 * dp_trim.b1;
acbh12.r2b1 :=
+0
-1.899e-05 * dp_trim.b1;
acbh12.r4b1 :=
+0
-1.648e-05 * dp_trim.b1;
acbh12.r6b1 :=
+0
-1.793e-05 * dp_trim.b1;
acbh12.r8b1 :=
+0
-1.797e-05 * dp_trim.b1;
acbh13.12b1 :=
+0
-1.828e-05 * dp_trim.b1
+0 * on_ssep1_h;
acbh13.14b1 :=
+0
-2.045e-05 * dp_trim.b1;
acbh13.16b1 :=
+0
-1.662e-05 * dp_trim.b1
+0 * on_xx5_h;

```

```

acbh13.l8b1 :=
+0
-1.938e-05 * dp_trim.b1;
acbh13.r1b1 :=
+0
-1.998e-05 * dp_trim.b1
+0 * on_ssep1_h;
acbh13.r3b1 :=
+0
-1.834e-05 * dp_trim.b1;
acbh13.r5b1 :=
+0
-1.707e-05 * dp_trim.b1
+0 * on_xx5_h;
acbh13.r7b1 :=
+0
-2.047e-05 * dp_trim.b1;
acbh14.l1b1 :=
+0
-2.394e-05 * dp_trim.b1
+0 * on_ssep1_h;
acbh14.l3b1 :=
+0
-2.169e-05 * dp_trim.b1;
acbh14.l5b1 :=
+0
-2.403e-05 * dp_trim.b1
+0 * on_xx5_h;
acbh14.l7b1 :=
+0
-2.234e-05 * dp_trim.b1;
acbh14.r2b1 :=
+0
-2.301e-05 * dp_trim.b1;
acbh14.r4b1 :=
+0
-2.484e-05 * dp_trim.b1
+0 * on_xx5_h;
acbh14.r6b1 :=
+0
-2.619e-05 * dp_trim.b1;
acbh14.r8b1 :=
+0
-2.382e-05 * dp_trim.b1
+0 * on_ssep1_h;
acbh15.l2b1 :=
+0
-2.554e-05 * dp_trim.b1

```

```

+0 * on_ssep1_h;
acbh15.l4b1 :=
+0
-2.503e-05 * dp_trim.b1;
acbh15.l6b1 :=
+0
-2.607e-05 * dp_trim.b1
+0 * on_xx5_h;
acbh15.l8b1 :=
+0
-2.538e-05 * dp_trim.b1;
acbh15.r1b1 :=
+0
-1.955e-05 * dp_trim.b1
+0 * on_ssep1_h;
acbh15.r3b1 :=
+0
-2.273e-05 * dp_trim.b1;
acbh15.r5b1 :=
+0
-2.611e-05 * dp_trim.b1
+0 * on_xx5_h;
acbh15.r7b1 :=
+0
-2.408e-05 * dp_trim.b1;
acbh16.l1b1 :=
+0
-2.24e-05 * dp_trim.b1;
acbh16.l3b1 :=
+0
-2.289e-05 * dp_trim.b1;
acbh16.l5b1 :=
+0
-2.236e-05 * dp_trim.b1;
acbh16.l7b1 :=
+0
-2.384e-05 * dp_trim.b1;
acbh16.r2b1 :=
+0
-2.218e-05 * dp_trim.b1;
acbh16.r4b1 :=
+0
-2.257e-05 * dp_trim.b1
+0 * on_xx5_h;
acbh16.r6b1 :=
+0
-2.241e-05 * dp_trim.b1;
acbh16.r8b1 :=

```

```

+0
-2.237e-05 * dp_trim.b1
+0 * on_ssep1_h;
acbh17.12b1 :=
+0
-2.332e-05 * dp_trim.b1;
acbh17.14b1 :=
+0
-2.311e-05 * dp_trim.b1;
acbh17.16b1 :=
+0
-2.275e-05 * dp_trim.b1;
acbh17.18b1 :=
+0
-2.293e-05 * dp_trim.b1;
acbh17.r1b1 :=
+0
-2.287e-05 * dp_trim.b1;
acbh17.r3b1 :=
+0
-2.327e-05 * dp_trim.b1;
acbh17.r5b1 :=
+0
-2.287e-05 * dp_trim.b1;
acbh17.r7b1 :=
+0
-2.53e-05 * dp_trim.b1;
acbh18.11b1 :=
+0
-2.079e-05 * dp_trim.b1;
acbh18.13b1 :=
+0
-2.127e-05 * dp_trim.b1;
acbh18.15b1 :=
+0
-2.114e-05 * dp_trim.b1;
acbh18.17b1 :=
+0
-2.273e-05 * dp_trim.b1;
acbh18.r2b1 :=
+0
-2.196e-05 * dp_trim.b1;
acbh18.r4b1 :=
+0
-2.166e-05 * dp_trim.b1;
acbh18.r6b1 :=
+0
-2.336e-05 * dp_trim.b1;

```

```

acbh18.r8b1 :=
+0
-2.153e-05 * dp_trim.b1;
acbh19.12b1 :=
+0
-2.374e-05 * dp_trim.b1;
acbh19.14b1 :=
+0
-2.421e-05 * dp_trim.b1;
acbh19.16b1 :=
+0
-2.396e-05 * dp_trim.b1;
acbh19.18b1 :=
+0
-2.491e-05 * dp_trim.b1;
acbh19.r1b1 :=
+0
-2.505e-05 * dp_trim.b1;
acbh19.r3b1 :=
+0
-2.273e-05 * dp_trim.b1;
acbh19.r5b1 :=
+0
-2.378e-05 * dp_trim.b1;
acbh19.r7b1 :=
+0
-2.588e-05 * dp_trim.b1;
acbh20.11b1 :=
+0
-2.352e-05 * dp_trim.b1;
acbh20.13b1 :=
+0
-2.212e-05 * dp_trim.b1;
acbh20.15b1 :=
+0
-2.388e-05 * dp_trim.b1;
acbh20.17b1 :=
+0
-2.298e-05 * dp_trim.b1;
acbh20.r2b1 :=
+0
-2.272e-05 * dp_trim.b1;
acbh20.r4b1 :=
+0
-2.352e-05 * dp_trim.b1;
acbh20.r6b1 :=
+0
-2.316e-05 * dp_trim.b1;

```

```

acbh20.r8b1 :=
  +0
  -2.288e-05 * dp_trim.b1;
acbh21.12b1 :=
  +0
  -2.442e-05 * dp_trim.b1;
acbh21.14b1 :=
  +0
  -2.297e-05 * dp_trim.b1;
acbh21.16b1 :=
  +0
  -2.46e-05 * dp_trim.b1;
acbh21.18b1 :=
  +0
  -2.411e-05 * dp_trim.b1;
acbh21.r1b1 :=
  +0
  -2.393e-05 * dp_trim.b1;
acbh21.r3b1 :=
  +0
  -2.398e-05 * dp_trim.b1;
acbh21.r5b1 :=
  +0
  -2.451e-05 * dp_trim.b1;
acbh21.r7b1 :=
  +0
  -2.356e-05 * dp_trim.b1;
acbh22.11b1 :=
  +0
  -2.067e-05 * dp_trim.b1;
acbh22.13b1 :=
  +0
  -2.231e-05 * dp_trim.b1;
acbh22.15b1 :=
  +0
  -2.107e-05 * dp_trim.b1;
acbh22.17b1 :=
  +0
  -2.289e-05 * dp_trim.b1;
acbh22.r2b1 :=
  +0
  -2.168e-05 * dp_trim.b1;
acbh22.r4b1 :=
  +0
  -2.082e-05 * dp_trim.b1;
acbh22.r6b1 :=
  +0
  -2.094e-05 * dp_trim.b1;

```



```

acbh22.r8b1 :=
+0
-2.034e-05 * dp_trim.b1;
acbh23.12b1 :=
+0
-2.157e-05 * dp_trim.b1;
acbh23.14b1 :=
+0
-2.146e-05 * dp_trim.b1;
acbh23.16b1 :=
+0
-2.087e-05 * dp_trim.b1;
acbh23.18b1 :=
+0
-2.356e-05 * dp_trim.b1;
acbh23.r1b1 :=
+0
-2.2e-05 * dp_trim.b1;
acbh23.r3b1 :=
+0
-2.251e-05 * dp_trim.b1;
acbh23.r5b1 :=
+0
-2.081e-05 * dp_trim.b1;
acbh23.r7b1 :=
+0
-2.619e-05 * dp_trim.b1;
acbh24.11b1 :=
+0
-2.018e-05 * dp_trim.b1;
acbh24.13b1 :=
+0
-2.145e-05 * dp_trim.b1;
acbh24.15b1 :=
+0
-2.127e-05 * dp_trim.b1;
acbh24.17b1 :=
+0
-2.156e-05 * dp_trim.b1;
acbh24.r2b1 :=
+0
-2.194e-05 * dp_trim.b1;
acbh24.r4b1 :=
+0
-2.111e-05 * dp_trim.b1;
acbh24.r6b1 :=
+0
-2.253e-05 * dp_trim.b1;

```

```

acbh24.r8b1 :=
  +0
  -2.043e-05 * dp_trim.b1;
acbh25.12b1 :=
  +0
  -2.217e-05 * dp_trim.b1;
acbh25.14b1 :=
  +0
  -2.246e-05 * dp_trim.b1;
acbh25.16b1 :=
  +0
  -2.252e-05 * dp_trim.b1;
acbh25.18b1 :=
  +0
  -2.483e-05 * dp_trim.b1;
acbh25.r1b1 :=
  +0
  -2.238e-05 * dp_trim.b1;
acbh25.r3b1 :=
  +0
  -2.185e-05 * dp_trim.b1;
acbh25.r5b1 :=
  +0
  -2.241e-05 * dp_trim.b1;
acbh25.r7b1 :=
  +0
  -2.207e-05 * dp_trim.b1;
acbh26.11b1 :=
  +0
  -2.181e-05 * dp_trim.b1;
acbh26.13b1 :=
  +0
  -2.23e-05 * dp_trim.b1;
acbh26.15b1 :=
  +0
  -2.249e-05 * dp_trim.b1;
acbh26.17b1 :=
  +0
  -2.21e-05 * dp_trim.b1;
acbh26.r2b1 :=
  +0
  -2.208e-05 * dp_trim.b1;
acbh26.r4b1 :=
  +0
  -2.231e-05 * dp_trim.b1;
acbh26.r6b1 :=
  +0
  -2.188e-05 * dp_trim.b1;

```

```

acbh26.r8b1 :=
  +0
  -2.141e-05 * dp_trim.b1;
acbh27.12b1 :=
  +0
  -2.216e-05 * dp_trim.b1;
acbh27.14b1 :=
  +0
  -2.151e-05 * dp_trim.b1;
acbh27.16b1 :=
  +0
  -2.198e-05 * dp_trim.b1;
acbh27.18b1 :=
  +0
  -2.244e-05 * dp_trim.b1;
acbh27.r1b1 :=
  +0
  -2.188e-05 * dp_trim.b1;
acbh27.r3b1 :=
  +0
  -2.252e-05 * dp_trim.b1;
acbh27.r5b1 :=
  +0
  -2.214e-05 * dp_trim.b1;
acbh27.r7b1 :=
  +0
  -1.256e-05 * dp_trim.b1;
acbh28.11b1 :=
  +0
  -1.989e-05 * dp_trim.b1;
acbh28.13b1 :=
  +0
  -2.199e-05 * dp_trim.b1;
acbh28.15b1 :=
  +0
  -2.042e-05 * dp_trim.b1;
acbh28.17b1 :=
  +0
  -2.221e-05 * dp_trim.b1;
acbh28.r2b1 :=
  +0
  -2.15e-05 * dp_trim.b1;
acbh28.r4b1 :=
  +0
  -2.063e-05 * dp_trim.b1;
acbh28.r6b1 :=
  +0
  -2.176e-05 * dp_trim.b1;

```

```

acbh28.r8b1 :=
  +0
  -1.997e-05 * dp_trim.b1;
acbh29.12b1 :=
  +0
  -2.16e-05 * dp_trim.b1;
acbh29.14b1 :=
  +0
  -2.24e-05 * dp_trim.b1;
acbh29.16b1 :=
  +0
  -2.12e-05 * dp_trim.b1;
acbh29.18b1 :=
  +0
  -2.571e-05 * dp_trim.b1;
acbh29.r1b1 :=
  +0
  -2.175e-05 * dp_trim.b1;
acbh29.r3b1 :=
  +0
  -2.153e-05 * dp_trim.b1;
acbh29.r5b1 :=
  +0
  -2.127e-05 * dp_trim.b1;
acbh29.r7b1 :=
  +0
  -2.32e-05 * dp_trim.b1;
acbh30.11b1 :=
  +0
  -2.139e-05 * dp_trim.b1;
acbh30.13b1 :=
  +0
  -2.172e-05 * dp_trim.b1;
acbh30.15b1 :=
  +0
  -2.201e-05 * dp_trim.b1;
acbh30.17b1 :=
  +0
  -2.177e-05 * dp_trim.b1;
acbh30.r2b1 :=
  +0
  -2.216e-05 * dp_trim.b1;
acbh30.r4b1 :=
  +0
  -2.216e-05 * dp_trim.b1;
acbh30.r6b1 :=
  +0
  -2.342e-05 * dp_trim.b1;

```

```

acbh30.r8b1 :=
  +0
  -2.185e-05 * dp_trim.b1;
acbh31.12b1 :=
  +0
  -2.35e-05 * dp_trim.b1;
acbh31.14b1 :=
  +0
  -2.347e-05 * dp_trim.b1;
acbh31.16b1 :=
  +0
  -2.41e-05 * dp_trim.b1;
acbh31.18b1 :=
  +0
  -2.274e-05 * dp_trim.b1;
acbh31.r1b1 :=
  +0
  -2.342e-05 * dp_trim.b1;
acbh31.r3b1 :=
  +0
  -2.263e-05 * dp_trim.b1;
acbh31.r5b1 :=
  +0
  -2.416e-05 * dp_trim.b1;
acbh32.11b1 :=
  +0
  -2.268e-05 * dp_trim.b1;
acbh32.13b1 :=
  +0
  -2.236e-05 * dp_trim.b1;
acbh32.15b1 :=
  +0
  -2.271e-05 * dp_trim.b1;
acbh32.17b1 :=
  +0
  -2.32e-05 * dp_trim.b1;
acbh32.r2b1 :=
  +0
  -2.191e-05 * dp_trim.b1;
acbh32.r4b1 :=
  +0
  -2.287e-05 * dp_trim.b1;
acbh32.r6b1 :=
  +0
  -2.253e-05 * dp_trim.b1;
acbh32.r8b1 :=
  +0
  -2.25e-05 * dp_trim.b1;

```

```

acbh33.l2b1 :=
+0
-2.318e-05 * dp_trim.b1;
acbh33.l4b1 :=
+0
-2.255e-05 * dp_trim.b1;
acbh33.l6b1 :=
+0
-2.297e-05 * dp_trim.b1;
acbh33.l8b1 :=
+0
-1.325e-05 * dp_trim.b1;
acbh33.r1b1 :=
+0
-2.3e-05 * dp_trim.b1;
acbh33.r3b1 :=
+0
-2.334e-05 * dp_trim.b1;
acbh33.r5b1 :=
+0
-2.31e-05 * dp_trim.b1;
acbh33.r7b1 :=
+0
-2.379e-05 * dp_trim.b1;
acbh34.l1b1 :=
+0
-2.111e-05 * dp_trim.b1;
acbh34.l3b1 :=
+0
-2.175e-05 * dp_trim.b1;
acbh34.l5b1 :=
+0
-2.12e-05 * dp_trim.b1;
acbh34.l7b1 :=
+0
-2.286e-05 * dp_trim.b1;
acbwh4.l3b1 :=
+0
+2.76e-06 * dp_trim.b1;
acbwh4.l7b1 :=
+0
+1.35e-06 * dp_trim.b1;
acbwh5.r3b1 :=
+0
+7.2e-06 * dp_trim.b1;
acbwh5.r7b1 :=
+0
+5.72e-06 * dp_trim.b1;

```

```

acbyh4.r6b1 :=
+0
+2.46e-06 * dp_trim.b1;
acbyh5.14b1 :=
+0
+5.37e-06 * dp_trim.b1;
acbyh5.16b1 :=
+0
+2.4e-07 * dp_trim.b1;
acbyh6.r4b1 :=
+0
-1.3e-07 * dp_trim.b1;
acbch10.12b2 :=
+0
-1.836e-05 * dp_trim.b2;
acbch10.14b2 :=
+0
-1.544e-05 * dp_trim.b2;
acbch10.16b2 :=
+0
-1.521e-05 * dp_trim.b2;
acbch10.18b2 :=
+0
-1.906e-05 * dp_trim.b2;
acbch10.r1b2 :=
+0
-1.887e-05 * dp_trim.b2;
acbch10.r3b2 :=
+0
-2.483e-05 * dp_trim.b2;
acbch10.r5b2 :=
+0
-2.008e-05 * dp_trim.b2;
acbch10.r7b2 :=
+0
-1.854e-05 * dp_trim.b2;
acbch6.r3b2 :=
+0
-4.67e-06 * dp_trim.b2;
acbch6.r7b2 :=
+0
-5.52e-06 * dp_trim.b2;
acbch7.13b2 :=
+0
-5.22e-06 * dp_trim.b2;
acbch7.17b2 :=
+0
-5.05e-06 * dp_trim.b2;

```

```

acbch7.r4b2 :=
  +0
  -6.96e-06 * dp_trim.b2;
acbch8.12b2 :=
  +0
  -5.03e-06 * dp_trim.b2;
acbch8.14b2 :=
  +0
  -6.71e-06 * dp_trim.b2;
acbch8.16b2 :=
  +0
  -6.07e-06 * dp_trim.b2;
acbch8.18b2 :=
  +0
  -4.7e-06 * dp_trim.b2;
acbch8.r3b2 :=
  +0
  -4.58e-06 * dp_trim.b2;
acbch8.r7b2 :=
  +0
  -2.85e-06 * dp_trim.b2;
acbch9.11b2 :=
  +0
  -4.88e-06 * dp_trim.b2;
acbch9.13b2 :=
  +0
  -3.67e-06 * dp_trim.b2;
acbch9.15b2 :=
  +0
  -4.97e-06 * dp_trim.b2;
acbch9.17b2 :=
  +0
  -2.86e-06 * dp_trim.b2;
acbch9.r2b2 :=
  +0
  -4.23e-06 * dp_trim.b2;
acbch9.r4b2 :=
  +0
  -5.4e-06 * dp_trim.b2;
acbch9.r6b2 :=
  +0
  -6.62e-06 * dp_trim.b2;
acbch9.r8b2 :=
  +0
  -2.91e-06 * dp_trim.b2;
acbh11.11b2 :=
  +0
  -1.598e-05 * dp_trim.b2;

```



```

acbh11.13b2 :=
+0
-2.014e-05 * dp_trim.b2;
acbh11.15b2 :=
+0
-1.594e-05 * dp_trim.b2;
acbh11.17b2 :=
+0
-1.565e-05 * dp_trim.b2;
acbh11.r2b2 :=
+0
-1.52e-05 * dp_trim.b2;
acbh11.r4b2 :=
+0
-1.516e-05 * dp_trim.b2;
acbh11.r6b2 :=
+0
-1.572e-05 * dp_trim.b2;
acbh11.r8b2 :=
+0
-1.7e-05 * dp_trim.b2;
acbh12.12b2 :=
+0
-1.764e-05 * dp_trim.b2;
acbh12.14b2 :=
+0
-1.878e-05 * dp_trim.b2;
acbh12.16b2 :=
+0
-1.762e-05 * dp_trim.b2;
acbh12.18b2 :=
+0
-1.818e-05 * dp_trim.b2;
acbh12.r1b2 :=
+0
-1.563e-05 * dp_trim.b2
+0 * on_ssep1_h;
acbh12.r3b2 :=
+0
-1.927e-05 * dp_trim.b2;
acbh12.r5b2 :=
+0
-1.622e-05 * dp_trim.b2
+0 * on_xx5_h;
acbh12.r7b2 :=
+0
-1.805e-05 * dp_trim.b2;
acbh13.11b2 :=

```

```

+0
-1.785e-05 * dp_trim.b2
+0 * on_ssep1_h;
acbh13.13b2 :=
+0
-1.924e-05 * dp_trim.b2;
acbh13.15b2 :=
+0
-1.784e-05 * dp_trim.b2
+0 * on_xx5_h;
acbh13.17b2 :=
+0
-1.915e-05 * dp_trim.b2;
acbh13.r2b2 :=
+0
-1.792e-05 * dp_trim.b2;
acbh13.r4b2 :=
+0
-1.818e-05 * dp_trim.b2
+0 * on_xx5_h;
acbh13.r6b2 :=
+0
-1.559e-05 * dp_trim.b2;
acbh13.r8b2 :=
+0
-2.015e-05 * dp_trim.b2
+0 * on_ssep1_h;
acbh14.12b2 :=
+0
-2.266e-05 * dp_trim.b2
+0 * on_ssep1_h;
acbh14.14b2 :=
+0
-2.632e-05 * dp_trim.b2;
acbh14.16b2 :=
+0
-2.591e-05 * dp_trim.b2
+0 * on_xx5_h;
acbh14.18b2 :=
+0
-2.276e-05 * dp_trim.b2;
acbh14.r1b2 :=
+0
-2.289e-05 * dp_trim.b2
+0 * on_ssep1_h;
acbh14.r3b2 :=
+0
-2.213e-05 * dp_trim.b2;

```

```

acbh14.r5b2 :=
+0
-2.349e-05 * dp_trim.b2
+0 * on_xx5_h;
acbh14.r7b2 :=
+0
-2.193e-05 * dp_trim.b2;
acbh15.11b2 :=
+0
-2.633e-05 * dp_trim.b2
+0 * on_ssep1_h;
acbh15.13b2 :=
+0
-2.261e-05 * dp_trim.b2;
acbh15.15b2 :=
+0
-2.633e-05 * dp_trim.b2
+0 * on_xx5_h;
acbh15.17b2 :=
+0
-2.378e-05 * dp_trim.b2;
acbh15.r2b2 :=
+0
-2.465e-05 * dp_trim.b2;
acbh15.r4b2 :=
+0
-2.467e-05 * dp_trim.b2
+0 * on_xx5_h;
acbh15.r6b2 :=
+0
-2.496e-05 * dp_trim.b2;
acbh15.r8b2 :=
+0
-2.641e-05 * dp_trim.b2
+0 * on_ssep1_h;
acbh16.12b2 :=
+0
-2.147e-05 * dp_trim.b2
+0 * on_ssep1_h;
acbh16.14b2 :=
+0
-2.29e-05 * dp_trim.b2;
acbh16.16b2 :=
+0
-2.238e-05 * dp_trim.b2
+0 * on_xx5_h;
acbh16.18b2 :=
+0

```

```

-2.154e-05 * dp_trim.b2;
acbh16.r1b2 :=
+0
-2.177e-05 * dp_trim.b2;
acbh16.r3b2 :=
+0
-2.393e-05 * dp_trim.b2;
acbh16.r5b2 :=
+0
-2.307e-05 * dp_trim.b2;
acbh16.r7b2 :=
+0
-2.244e-05 * dp_trim.b2;
acbh17.11b2 :=
+0
-2.328e-05 * dp_trim.b2;
acbh17.13b2 :=
+0
-2.204e-05 * dp_trim.b2;
acbh17.15b2 :=
+0
-2.342e-05 * dp_trim.b2;
acbh17.17b2 :=
+0
-2.34e-05 * dp_trim.b2;
acbh17.r2b2 :=
+0
-2.252e-05 * dp_trim.b2;
acbh17.r4b2 :=
+0
-2.296e-05 * dp_trim.b2;
acbh17.r6b2 :=
+0
-2.319e-05 * dp_trim.b2;
acbh17.r8b2 :=
+0
-2.334e-05 * dp_trim.b2;
acbh18.12b2 :=
+0
-2.052e-05 * dp_trim.b2;
acbh18.14b2 :=
+0
-2.349e-05 * dp_trim.b2;
acbh18.16b2 :=
+0
-2.216e-05 * dp_trim.b2;
acbh18.18b2 :=
+0

```

```

-2.117e-05 * dp_trim.b2;
acbh18.r1b2 :=
+0
-1.994e-05 * dp_trim.b2;
acbh18.r3b2 :=
+0
-2.199e-05 * dp_trim.b2;
acbh18.r5b2 :=
+0
-2.106e-05 * dp_trim.b2;
acbh18.r7b2 :=
+0
-2.152e-05 * dp_trim.b2;
acbh19.11b2 :=
+0
-2.367e-05 * dp_trim.b2;
acbh19.13b2 :=
+0
-2.263e-05 * dp_trim.b2;
acbh19.15b2 :=
+0
-2.352e-05 * dp_trim.b2;
acbh19.17b2 :=
+0
-2.355e-05 * dp_trim.b2;
acbh19.r2b2 :=
+0
-2.294e-05 * dp_trim.b2;
acbh19.r4b2 :=
+0
-2.452e-05 * dp_trim.b2;
acbh19.r6b2 :=
+0
-2.222e-05 * dp_trim.b2;
acbh19.r8b2 :=
+0
-2.347e-05 * dp_trim.b2;
acbh20.12b2 :=
+0
-2.236e-05 * dp_trim.b2;
acbh20.14b2 :=
+0
-2.359e-05 * dp_trim.b2;
acbh20.16b2 :=
+0
-2.324e-05 * dp_trim.b2;
acbh20.18b2 :=
+0

```

```

-2.233e-05 * dp_trim.b2;
acbh20.r1b2 :=
+0
-2.28e-05 * dp_trim.b2;
acbh20.r3b2 :=
+0
-2.329e-05 * dp_trim.b2;
acbh20.r5b2 :=
+0
-2.403e-05 * dp_trim.b2;
acbh20.r7b2 :=
+0
-2.219e-05 * dp_trim.b2;
acbh21.11b2 :=
+0
-2.455e-05 * dp_trim.b2;
acbh21.13b2 :=
+0
-2.286e-05 * dp_trim.b2;
acbh21.15b2 :=
+0
-2.413e-05 * dp_trim.b2;
acbh21.17b2 :=
+0
-2.238e-05 * dp_trim.b2;
acbh21.r2b2 :=
+0
-2.368e-05 * dp_trim.b2;
acbh21.r4b2 :=
+0
-2.384e-05 * dp_trim.b2;
acbh21.r6b2 :=
+0
-2.447e-05 * dp_trim.b2;
acbh21.r8b2 :=
+0
-2.343e-05 * dp_trim.b2;
acbh22.12b2 :=
+0
-2.075e-05 * dp_trim.b2;
acbh22.14b2 :=
+0
-2.112e-05 * dp_trim.b2;
acbh22.16b2 :=
+0
-2.036e-05 * dp_trim.b2;
acbh22.18b2 :=
+0

```

```

-2.096e-05 * dp_trim.b2;
acbh22.r1b2 :=
+0
-2.081e-05 * dp_trim.b2;
acbh22.r3b2 :=
+0
-2.337e-05 * dp_trim.b2;
acbh22.r5b2 :=
+0
-2.172e-05 * dp_trim.b2;
acbh22.r7b2 :=
+0
-2.161e-05 * dp_trim.b2;
acbh23.11b2 :=
+0
-2.12e-05 * dp_trim.b2;
acbh23.13b2 :=
+0
-2.146e-05 * dp_trim.b2;
acbh23.15b2 :=
+0
-2.1e-05 * dp_trim.b2;
acbh23.17b2 :=
+0
-2.146e-05 * dp_trim.b2;
acbh23.r2b2 :=
+0
-2.114e-05 * dp_trim.b2;
acbh23.r4b2 :=
+0
-2.167e-05 * dp_trim.b2;
acbh23.r6b2 :=
+0
-2.145e-05 * dp_trim.b2;
acbh23.r8b2 :=
+0
-2.098e-05 * dp_trim.b2;
acbh24.12b2 :=
+0
-2.062e-05 * dp_trim.b2;
acbh24.14b2 :=
+0
-2.256e-05 * dp_trim.b2;
acbh24.16b2 :=
+0
-2.171e-05 * dp_trim.b2;
acbh24.18b2 :=
+0

```

```

-2.126e-05 * dp_trim.b2;
acbh24.r1b2 :=
+0
-2.041e-05 * dp_trim.b2;
acbh24.r3b2 :=
+0
-2.184e-05 * dp_trim.b2;
acbh24.r5b2 :=
+0
-2.118e-05 * dp_trim.b2;
acbh24.r7b2 :=
+0
-2.094e-05 * dp_trim.b2;
acbh25.11b2 :=
+0
-2.239e-05 * dp_trim.b2;
acbh25.13b2 :=
+0
-2.21e-05 * dp_trim.b2;
acbh25.15b2 :=
+0
-2.211e-05 * dp_trim.b2;
acbh25.17b2 :=
+0
-2.159e-05 * dp_trim.b2;
acbh25.r2b2 :=
+0
-2.177e-05 * dp_trim.b2;
acbh25.r4b2 :=
+0
-2.263e-05 * dp_trim.b2;
acbh25.r6b2 :=
+0
-2.08e-05 * dp_trim.b2;
acbh25.r8b2 :=
+0
-2.245e-05 * dp_trim.b2;
acbh26.12b2 :=
+0
-2.187e-05 * dp_trim.b2;
acbh26.14b2 :=
+0
-2.23e-05 * dp_trim.b2;
acbh26.16b2 :=
+0
-2.233e-05 * dp_trim.b2;
acbh26.18b2 :=
+0

```



```

-2.172e-05 * dp_trim.b2;
acbh26.r1b2 :=
+0
-2.213e-05 * dp_trim.b2;
acbh26.r3b2 :=
+0
-2.281e-05 * dp_trim.b2;
acbh26.r5b2 :=
+0
-2.274e-05 * dp_trim.b2;
acbh26.r7b2 :=
+0
-2.157e-05 * dp_trim.b2;
acbh27.11b2 :=
+0
-2.23e-05 * dp_trim.b2;
acbh27.13b2 :=
+0
-2.167e-05 * dp_trim.b2;
acbh27.15b2 :=
+0
-2.247e-05 * dp_trim.b2;
acbh27.17b2 :=
+0
-2.074e-05 * dp_trim.b2;
acbh27.r2b2 :=
+0
-2.18e-05 * dp_trim.b2;
acbh27.r4b2 :=
+0
-2.16e-05 * dp_trim.b2;
acbh27.r6b2 :=
+0
-2.213e-05 * dp_trim.b2;
acbh27.r8b2 :=
+0
-2.231e-05 * dp_trim.b2;
acbh28.12b2 :=
+0
-2.027e-05 * dp_trim.b2;
acbh28.14b2 :=
+0
-2.188e-05 * dp_trim.b2;
acbh28.16b2 :=
+0
-2.086e-05 * dp_trim.b2;
acbh28.18b2 :=
+0

```

```

-2.092e-05 * dp_trim.b2;
acbh28.r1b2 :=
+0
-2.019e-05 * dp_trim.b2;
acbh28.r3b2 :=
+0
-2.233e-05 * dp_trim.b2;
acbh28.r5b2 :=
+0
-2.078e-05 * dp_trim.b2;
acbh28.r7b2 :=
+0
-2.103e-05 * dp_trim.b2;
acbh29.11b2 :=
+0
-2.134e-05 * dp_trim.b2;
acbh29.13b2 :=
+0
-2.147e-05 * dp_trim.b2;
acbh29.15b2 :=
+0
-2.169e-05 * dp_trim.b2;
acbh29.17b2 :=
+0
-2.203e-05 * dp_trim.b2;
acbh29.r2b2 :=
+0
-2.106e-05 * dp_trim.b2;
acbh29.r4b2 :=
+0
-2.179e-05 * dp_trim.b2;
acbh29.r6b2 :=
+0
-2.072e-05 * dp_trim.b2;
acbh29.r8b2 :=
+0
-2.205e-05 * dp_trim.b2;
acbh30.12b2 :=
+0
-2.122e-05 * dp_trim.b2;
acbh30.14b2 :=
+0
-2.368e-05 * dp_trim.b2;
acbh30.16b2 :=
+0
-2.297e-05 * dp_trim.b2;
acbh30.18b2 :=
+0

```

```

-2.174e-05 * dp_trim.b2;
acbh30.r1b2 :=
+0
-2.114e-05 * dp_trim.b2;
acbh30.r3b2 :=
+0
-2.183e-05 * dp_trim.b2;
acbh30.r5b2 :=
+0
-2.169e-05 * dp_trim.b2;
acbh30.r7b2 :=
+0
-2.117e-05 * dp_trim.b2;
acbh31.11b2 :=
+0
-2.373e-05 * dp_trim.b2;
acbh31.13b2 :=
+0
-2.282e-05 * dp_trim.b2;
acbh31.15b2 :=
+0
-2.392e-05 * dp_trim.b2;
acbh31.17b2 :=
+0
-2.283e-05 * dp_trim.b2;
acbh31.r2b2 :=
+0
-2.271e-05 * dp_trim.b2;
acbh31.r4b2 :=
+0
-2.372e-05 * dp_trim.b2;
acbh31.r6b2 :=
+0
-2.216e-05 * dp_trim.b2;
acbh31.r8b2 :=
+0
-2.419e-05 * dp_trim.b2;
acbh32.12b2 :=
+0
-2.17e-05 * dp_trim.b2;
acbh32.14b2 :=
+0
-2.283e-05 * dp_trim.b2;
acbh32.16b2 :=
+0
-2.282e-05 * dp_trim.b2;
acbh32.18b2 :=
+0

```

```

-2.166e-05 * dp_trim.b2;
acbh32.r1b2 :=
+0
-2.179e-05 * dp_trim.b2;
acbh32.r3b2 :=
+0
-2.339e-05 * dp_trim.b2;
acbh32.r5b2 :=
+0
-2.311e-05 * dp_trim.b2;
acbh32.r7b2 :=
+0
-2.182e-05 * dp_trim.b2;
acbh33.11b2 :=
+0
-2.314e-05 * dp_trim.b2;
acbh33.13b2 :=
+0
-2.211e-05 * dp_trim.b2;
acbh33.15b2 :=
+0
-2.359e-05 * dp_trim.b2;
acbh33.17b2 :=
+0
-2.211e-05 * dp_trim.b2;
acbh33.r2b2 :=
+0
-2.236e-05 * dp_trim.b2;
acbh33.r4b2 :=
+0
-2.287e-05 * dp_trim.b2;
acbh33.r6b2 :=
+0
-2.329e-05 * dp_trim.b2;
acbh33.r8b2 :=
+0
-2.309e-05 * dp_trim.b2;
acbh34.12b2 :=
+0
-2.021e-05 * dp_trim.b2;
acbh34.14b2 :=
+0
-2.273e-05 * dp_trim.b2;
acbh34.16b2 :=
+0
-2.148e-05 * dp_trim.b2;
acbh34.18b2 :=
+0

```

```

-2.118e-05 * dp_trim.b2;
acbwh4.r3b2 :=
+0
+2.15e-06 * dp_trim.b2;
acbwh4.r7b2 :=
+0
+1.92e-06 * dp_trim.b2;
acbwh5.13b2 :=
+0
+7.46e-06 * dp_trim.b2;
acbwh5.17b2 :=
+0
+5.17e-06 * dp_trim.b2;
acbyh4.16b2 :=
+0
+2.43e-06 * dp_trim.b2;
acbyh5.r4b2 :=
+0
+3.59e-06 * dp_trim.b2;
acbyh5.r6b2 :=
+0
+1e-08 * dp_trim.b2;
acbyh6.14b2 :=
+0
+1.17e-06 * dp_trim.b2;
acbv12.11b2 :=
+0
+0 * on_xx1_v;
acbv12.r1b1 :=
+0
+0 * on_xx1_v;
acbv13.11b1 :=
+0
+0 * on_xx1_v;
acbv13.12b2 :=
+0
+0 * on_xx1_v;
acbv13.r1b2 :=
+0
+0 * on_xx1_v;
acbv13.r8b1 :=
+0
+0 * on_xx1_v;
acbv14.11b2 :=
+0
+0 * on_xx1_v;
acbv14.12b1 :=
+0

```

```

+0 * on_xx1_v;
acbv14.r1b1 :=
+0
+0 * on_xx1_v;
acbv14.r8b2 :=
+0
+0 * on_xx1_v;
acbv15.l1b1 :=
+0
+0 * on_xx1_v;
acbv15.l2b2 :=
+0
+0 * on_xx1_v;
acbv15.r1b2 :=
+0
+0 * on_xx1_v;
acbv15.r8b1 :=
+0
+0 * on_xx1_v;
acbv16.l2b1 :=
+0
+0 * on_xx1_v;
acbv16.r8b2 :=
+0
+0 * on_xx1_v;
acbv12.l5b2 :=
+0
+0 * on_ssep5_v;
acbv12.r5b1 :=
+0
+0 * on_ssep5_v;
acbv13.l5b1 :=
+0
+0 * on_ssep5_v;
acbv13.l6b2 :=
+0
+0 * on_ssep5_v;
acbv13.r4b1 :=
+0
+0 * on_ssep5_v;
acbv13.r5b2 :=
+0
+0 * on_ssep5_v;
acbv14.l5b2 :=
+0
+0 * on_ssep5_v;
acbv14.l6b1 :=
+0

```

```

+0 * on_ssep5_v;
acbv14.r4b2 :=
+0
+0 * on_ssep5_v;
acbv14.r5b1 :=
+0
+0 * on_ssep5_v;
acbv15.15b1 :=
+0
+0 * on_ssep5_v;
acbv15.16b2 :=
+0
+0 * on_ssep5_v;
acbv15.r4b1 :=
+0
+0 * on_ssep5_v;
acbv15.r5b2 :=
+0
+0 * on_ssep5_v;
acbv16.16b1 :=
+0
+0 * on_ssep5_v;
acbv16.r4b2 :=
+0
+0 * on_ssep5_v;

```

! Constant definitions

```

kd1.lr1      := ad1.lr1/1.mbxw;
kd2.l1       := ad2.l5/1.mbrc ;
kd2.r1       := ad2.r5/1.mbrc ;
kd1.l2       := ad1.l2/1.mbx  ;
kd1.r2       := ad1.r2/1.mbx  ;
kd2.l2       := ad2.l2/1.mbrc ;
kd2.r2       := ad2.r2/1.mbrc ;
kd3.lr3      := ad3.lr3/1.mbw  ;
kd4.lr3      := ad4.lr3/1.mbw  ;
kd3.l4       := ad3.l4/1.mbrs ;
kd3.r4       := ad3.r4/1.mbrs ;
kd4.l4       := ad4.l4/1.mbrb ;
kd4.r4       := ad4.r4/1.mbrb ;
kd34.lr3     := ad3.lr3/1.mbw  ;
kd34.lr7     := ad3.lr7/1.mbw  ;
kd1.lr5      := ad1.lr5/1.mbxw;
kd2.l5       := ad2.l5/1.mbrc ;
kd2.r5       := ad2.r5/1.mbrc ;
kd3.lr7      := ad3.lr7/1.mbw  ;

```

```

kd4.lr7      := ad4.lr7/1.mbw ;
kd1.l18     := ad1.l18/1.mbx  ;
kd1.r8      := ad1.r8/1.mbx  ;
kd2.l18     := ad2.l18/1.mbrc ;
kd2.r8      := ad2.r8/1.mbrc ;
ksumd2.l1b2 := kd2.l1       ;
ksumd2.l2b2 := kd2.l2       ;
ksumd2.l5b2 := kd2.l5       ;
ksumd2.l8b2 := kd2.l8       ;
ksumd2.r1b2 := kd2.l1       ;
ksumd2.r2b2 := kd2.l2       ;
ksumd2.r5b2 := kd2.l5       ;
ksumd2.r8b2 := kd2.l8       ;

kb.a12      := ab.a12/1.mb   ;
kb.a23      := ab.a23/1.mb   ;
kb.a34      := ab.a34/1.mb   ;
kb.a45      := ab.a45/1.mb   ;
kb.a56      := ab.a56/1.mb   ;
kb.a67      := ab.a67/1.mb   ;
kb.a78      := ab.a78/1.mb   ;
kb.a81      := ab.a81/1.mb   ;

abas:= 12.00/ 6.0*clight/(7E12)*on_sol_atlas;
abls:= 6.05/12.1*clight/(7E12)*on_sol_alice ;
abcs:= 52.00/13.0*clight/(7E12)*on_sol_cms  ;
abxwt.l12   := -0.0000772587268993839836*on_alice ;
abwmd.l12   := +0.0001472587268993839840*on_alice ;
abaw.r2     := -0.0001335474860334838000*on_alice ;
abxwt.r2    := +0.0000635474860334838004*on_alice ;
abxws.l18   := -0.000045681598453109894*on_lhcb  ;
abxwh.l18   := +0.000180681598453109894*on_lhcb  ;
ablw.r8     := -0.000180681598453109894*on_lhcb  ;
abxws.r8    := +0.000045681598453109894*on_lhcb  ;

```

```

[58]: opt.to_madx("test.madx")

from cpymad.madx import Madx
madx=Madx()
madx.option(echo=False,warn=False)
madx.call("acc-models-lhc/lhc.seq")
madx.call("test.madx")
madx.beam(particle="proton",energy=6800,bv=1,sequence="lhcb1")
madx.use("lhcb1")
madx.twiss(chrom=True)
madx.value("table(twiss,ip5,betx)")

```



```

madx.value("table(twiss,ip5,bety)")
madx.globals["on_sep5_v"]=0.002
madx.twiss(chrom=True)
madx.value("table(twiss,ip5,y)")
madx.value("table(twiss,ip5,py)")

```

```

+++++
+   MAD-X 5.09.02 (64 bit, Linux)   +
+ Support: mad@cern.ch, http://cern.ch/mad +
+ Release date: 2024.04.18         +
+ Execution date: 2024.09.24 12:54:13 +
+++++
enter Twiss module

iteration:  1 error:  5.779013E-12 deltap:  1.000000E-06
orbit:  -2.082707E-12  1.260338E-12  0.000000E+00  0.000000E+00  0.000000E+00
0.000000E+00

iteration:  1 error:  0.000000E+00 deltap:  0.000000E+00
orbit:  0.000000E+00  0.000000E+00  0.000000E+00  0.000000E+00  0.000000E+00
0.000000E+00

+++++ table: summ

          length          orbit5          alfa          gammatr
26658.8832             -0      0.0003453923037      53.80760626

          q1             dq1             betxmax             dxmax
62.31      -0.7738203965      1110.875985      2.801876743

          dxrms          xcomax          xcorms          q2
1.484437927             0             0             60.31999999

          dq2          betymax          dymax          dyrms
-0.7634309542      1394.94577             -0             0

          ycomax          ycorms          deltap          synch_1
0             0             0             9.207773082

          synch_2          synch_3          synch_4          synch_5
0.002244883795      7.99769003e-07      1.171207121e-06      2.339606621e-08

          synch_6          synch_8          nflips          dqmin
16.51073533      0.2752725964             0             0

dqmin_phase

```

```

0
table( twiss ip5 betx ) =      2.199999999 ;
table( twiss ip5 bety ) =      2.2 ;
enter Twiss module

iteration:  1 error:  5.779009E-12 deltap:  1.000000E-06
orbit:  -2.082710E-12  1.260335E-12 -1.451061E-12 -6.964108E-13  0.000000E+00
0.000000E+00

iteration:  1 error:  4.028525E-14 deltap:  0.000000E+00
orbit:  -2.696086E-18 -3.221198E-18  2.178852E-14 -4.075753E-15  0.000000E+00
0.000000E+00

++++++ table: summ

      length          orbit5          alfa          gammatr
26658.8832             -0    0.0003453923037    53.80760626

      q1             dq1             betxmax             dxmax
62.31    -0.7738204178    1110.875985    2.801876743

      dxrms          xcomax          xcorms          q2
1.484437927    1.606139693e-16    3.978417135e-17    60.31999999

      dq2          betymax          dymax          dyrms
-0.7634309613    1394.94577    3.393984689e-05    1.0442586e-05

      ycomax          ycorms          deltap          synch_1
3.040421174e-06    1.904703801e-07    0    9.207773082

      synch_2          synch_3          synch_4          synch_5
0.002244883795    7.99769003e-07    1.171207121e-06    2.339606621e-08

      synch_6          synch_8          nflips          dqmin
16.51073533    0.2752725964    0    2.892622727e-13

      dqmin_phase
-2.563232774
table( twiss ip5 y ) =      1.999999986e-06 ;
table( twiss ip5 py ) =      7.870556057e-15 ;

```

[58]: True

1.9 Optics Transitions

```
[59]: opt.update("squeezevh/v2/squeeze_0_knobs.json").update_model()
```

[59]: <LHCOptics 'squeezevh_0'>

```
[60]: tab=opt.copy().to_table()
      for ii in range(1,21):
          tab.append(opt.copy().update(f"squeezevh/v2/squeeze_{ii}_knobs.json"))
```

[61]: tab

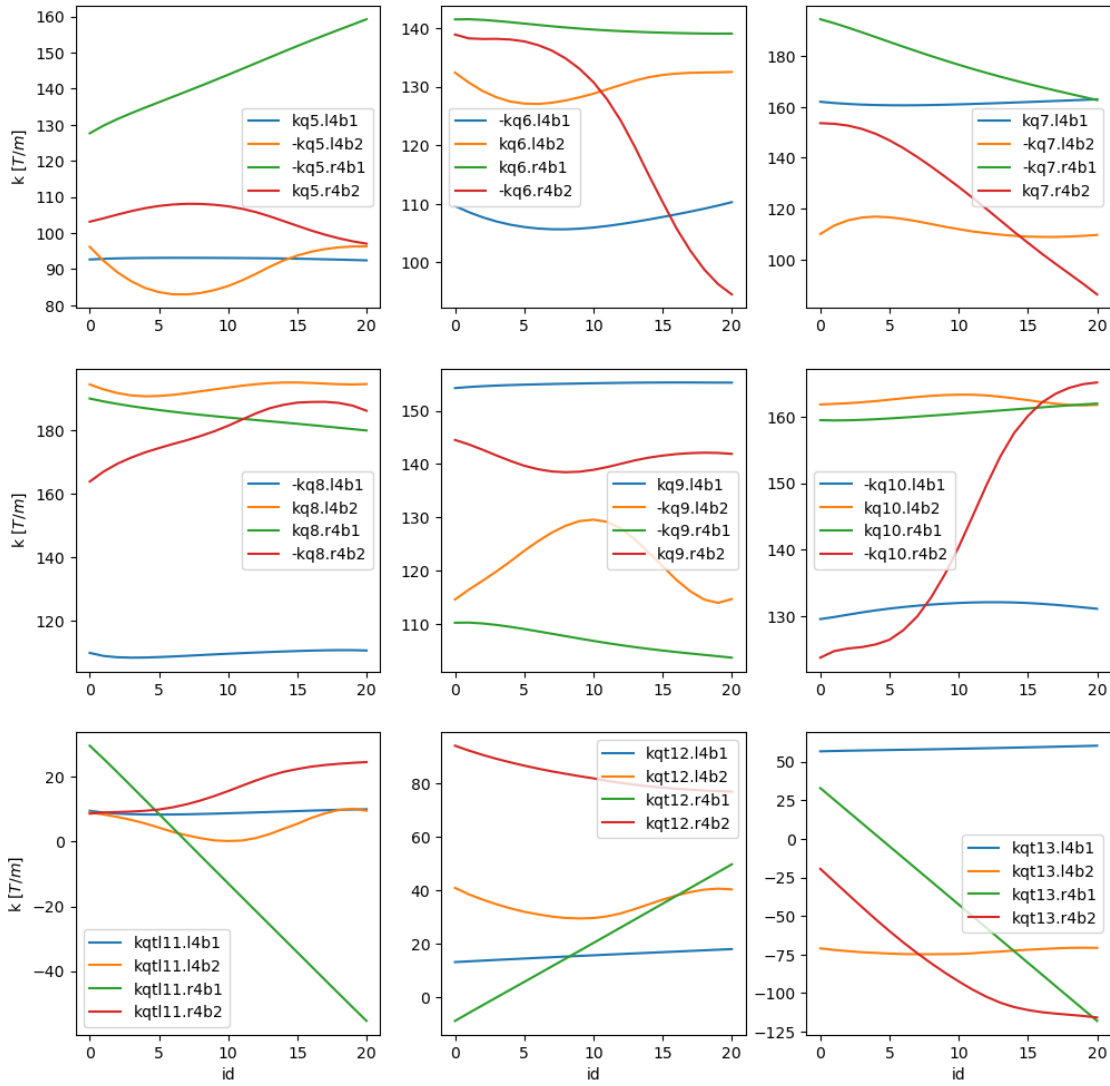
[61]: <Table LHCOptics: 21 rows>

[62]: tab.ir4

[62]: <Table LHCIR4: 21 rows>

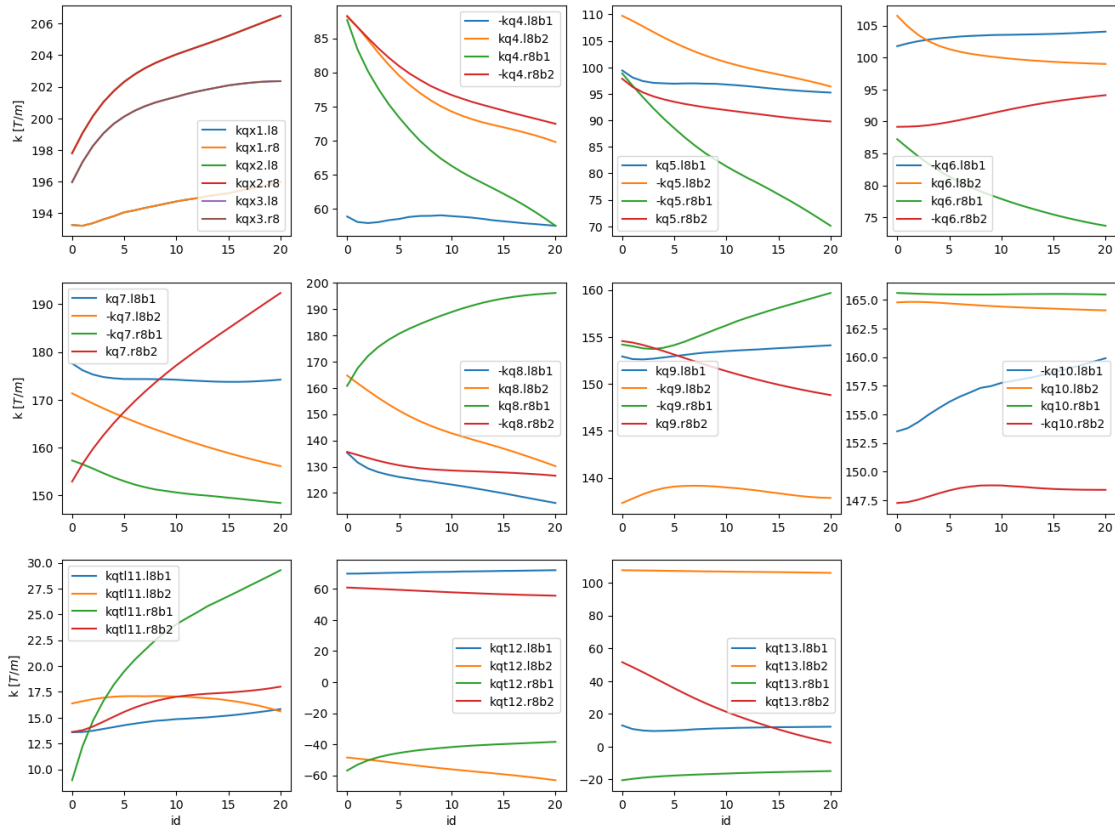
[63]: tab.ir4.plot_quads()

IR4 Quads



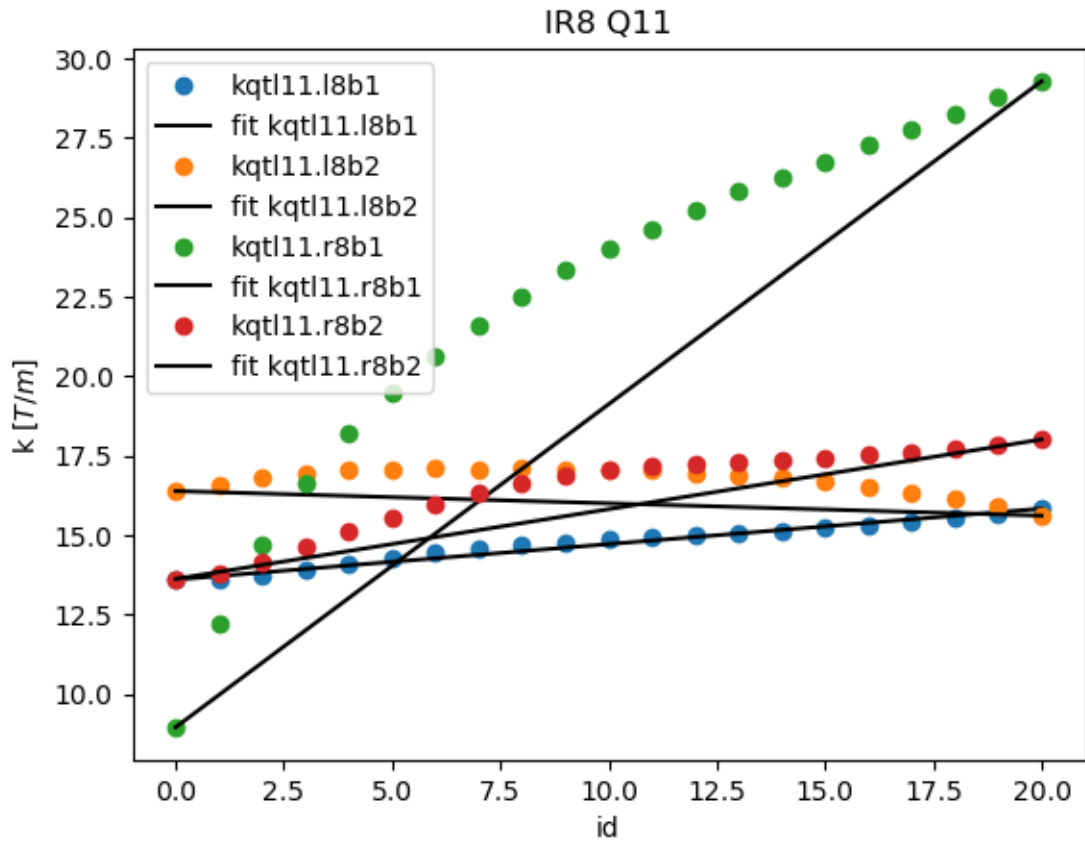
```
[64]: tab.ir8.plot_quads()
```

IR8 Quads



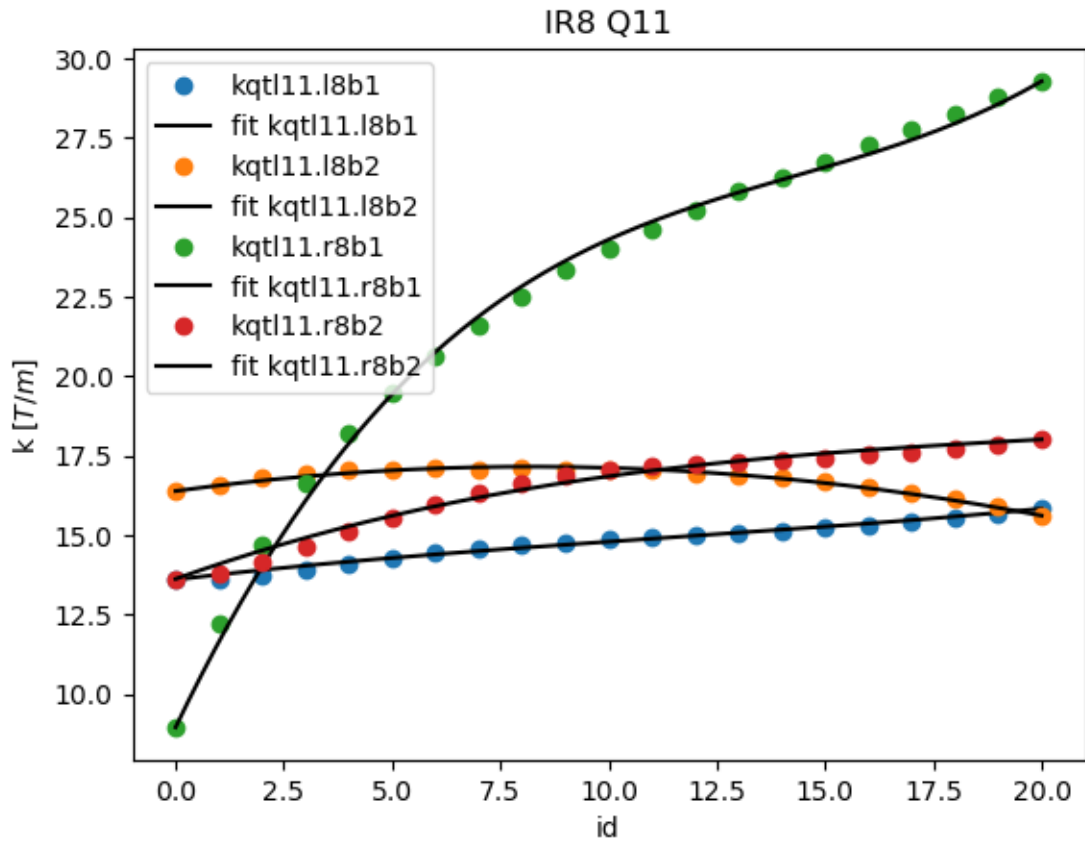
```
[65]: tab.ir8.plot_quad_fit(11,1)
```

```
residuals kqt111.l8b1 9.159724579003038e-06
residuals kqt111.l8b2 4.720262169038655e-05
residuals kqt111.r8b1 0.0002445637552683583
residuals kqt111.r8b2 5.51056125712645e-05
```



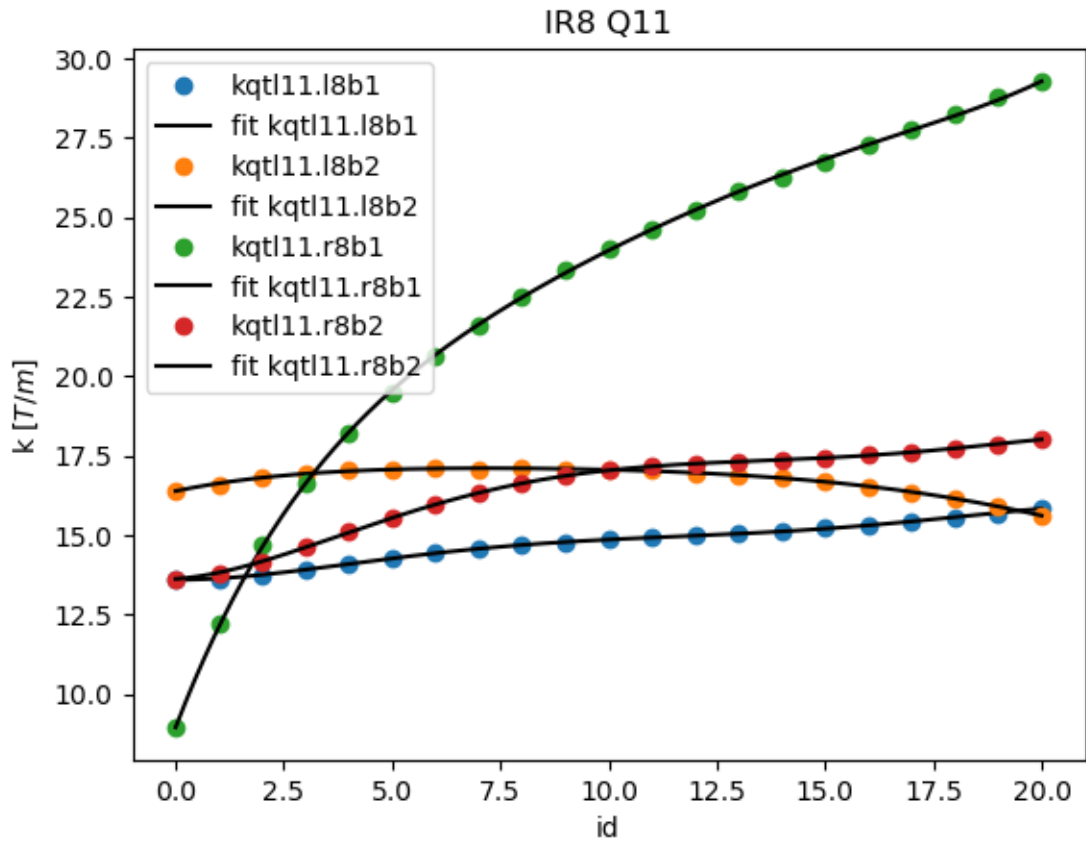
```
[66]: tab.ir8.plot_quad_fit(11,3)
```

```
residuals kqt11.l8b1 7.0633002424589026e-06
residuals kqt11.l8b2 4.169711732644873e-06
residuals kqt11.r8b1 3.0276661811266142e-05
residuals kqt11.r8b2 1.632664521190462e-05
```



```
[67]: tab.ir8.plot_quad_fit(11,5)
```

```
residuals kqt11.l8b1 6.046779213581249e-07
residuals kqt11.l8b2 1.423191763422595e-06
residuals kqt11.r8b1 5.503830981977908e-06
residuals kqt11.r8b2 1.3814756603957885e-06
```



[]: