

<b>Old (wrong) Setting Of Database In Athena Framework</b>				
Wrong hybrid RL setting				
<b>Radiation Length %Xo</b>				
<b>Module</b>				
	Outer	Middle L	Middle S	Inner
Athena	0.91	0.90	1.40	1.14
Measurement (2)	1.39	1.38		2.32
Difference	<b>0.48</b>	<b>0.48</b>		<b>1.18</b>
Relat. diff. in %	<b>34.58</b>	<b>34.53</b>		<b>50.86</b>
<b>Hybrid</b>				
	Outer	Middle L	Middle S	Inner
Athena based on (1)	0.10	0.11	0.21	0.27
Measurement (2)	0.48	0.48		1.22
Difference	<b>0.37</b>	<b>0.38</b>		<b>0.95</b>
Relat. diff. in %	<b>78.23</b>	<b>78.23</b>		<b>78.23</b>
<b>Sensors</b>				
	Outer	Middle L	Middle S	Inner
Athena	0.61	0.61	0.61	0.61
Measurement (2)	0.61	0.61		0.61
Difference	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>
Relat. diff. in %	<b>0.05</b>	<b>0.05</b>		<b>0.05</b>
<b>SpineSum</b>				
	Outer	Middle L	Middle S	Inner
Athena	0.20	0.19	0.38	0.26
Measurement (2)	0.22	0.21		0.32
Difference	<b>0.03</b>	<b>0.02</b>		<b>0.05</b>
Relat. diff. in %	<b>11.56</b>	<b>9.27</b>		<b>16.18</b>
<b>Other (washers, fan-ins, wire bonds, assy glue)</b>				
	Outer	Middle L	Middle S	Inner
Athena	0.00	0.00	0.00	0.00
Measurement (2)	0.08	0.08		0.17
Difference	<b>0.08</b>	<b>0.08</b>		<b>0.17</b>
Relat. diff. in %	<b>100.00</b>	<b>100.00</b>		<b>100.00</b>

1) Ch. Ketterer, Radiation Length of K5 with AIN plugg-ins, June 10 2002

2) Steve Snow, Claudia Fracchiolla: The Radiation Length of SCT Endcap modules, the University of Manchester, 2005 (in preparation)

**Modified parameters:**

HybridAvgRL Normalise	<b>0.408</b>
HybridAvgRL	<b>0.408</b>

<b>Old Setting Of Database In Athena Framework</b>				
Hybrid RL based on (1)				
<b>Radiation Length %Xo</b>				
<b>Module</b>				
	Outer	Middle L	Middle S	Inner
Athena	1.21	1.21	2.02	1.92
Measurement (2)	1.39	1.38		2.32
Difference	<b>0.18</b>	<b>0.17</b>		<b>0.40</b>
Relat. diff. in %	<b>12.65</b>	<b>12.18</b>		<b>17.30</b>
<b>Hybrid</b>				
	Outer	Middle L	Middle S	Inner
Athena based on (1)	0.41	0.41	0.84	1.04
Measurement (2)	0.48	0.48		1.22
Difference	<b>0.07</b>	<b>0.07</b>		<b>0.18</b>
Relat. diff. in %	<b>14.51</b>	<b>14.51</b>		<b>14.51</b>
<b>Sensors</b>				
	Outer	Middle L	Middle S	Inner
Athena	0.61	0.61	0.61	0.61
Measurement (2)	0.61	0.61		0.61
Difference	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>
Relat. diff. in %	<b>0.05</b>	<b>0.05</b>		<b>0.05</b>
<b>SpineSum</b>				
	Outer	Middle L	Middle S	Inner
Athena	0.20	0.19	0.38	0.26
Measurement (2)	0.22	0.21		0.32
Difference	<b>0.03</b>	<b>0.02</b>		<b>0.05</b>
Relat. diff. in %	<b>11.56</b>	<b>9.27</b>		<b>16.18</b>
<b>Other (washers, fan-ins, wire bonds, assy glue)</b>				
	Outer	Middle L	Middle S	Inner
Athena	0.00	0.00	0.00	0.00
Measurement (2)	0.08	0.08		0.17
Difference	<b>0.08</b>	<b>0.08</b>		<b>0.17</b>
Relat. diff. in %	<b>100.00</b>	<b>100.00</b>		<b>100.00</b>

1) Ch. Ketterer, Radiation Length of K5 with AIN plugg-ins, June 10 2002

2) Steve Snow, Claudia Fracchiolla: The Radiation Length of SCT Endcap modules, the University of Manchester, 2005 (in preparation)

**Modified parameters:**

HybridAvgRL Normali	<b>0.408</b>
HybridAvgRL	<b>1.601830273</b>

<b>New Setting 1 Of Database In Athena Framework</b>				
Correction of hybrid RL setting based on (2)				
<b>Radiation Length %Xo</b>				
<b>Module</b>				
	Outer	Middle L	Middle S	Inner
Athena	1.28	1.28	2.16	2.09
Measurement (2)	1.39	1.38		2.32
Difference	<b>0.11</b>	<b>0.10</b>		<b>0.23</b>
Relat. diff. in %	<b>7.89</b>	<b>7.33</b>		<b>10.03</b>
<b>Hybrid</b>				
	Outer	Middle L	Middle S	Inner
Athena correct to (2)	0.47	0.48	0.98	1.21
Measurement (2)	0.48	0.48		1.22
Difference	<b>0.00</b>	<b>0.00</b>		<b>0.01</b>
Relat. diff. in %	<b>0.70</b>	<b>0.70</b>		<b>0.70</b>
<b>Sensors</b>				
	Outer	Middle L	Middle S	Inner
Athena	0.61	0.61	0.61	0.61
Measurement (2)	0.61	0.61		0.61
Difference	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>
Relat. diff. in %	<b>0.05</b>	<b>0.05</b>		<b>0.05</b>
<b>SpineSum</b>				
	Outer	Middle L	Middle S	Inner
Athena	0.20	0.19	0.38	0.26
Measurement (2)	0.22	0.21		0.32
Difference	<b>0.03</b>	<b>0.02</b>		<b>0.05</b>
Relat. diff. in %	<b>11.56</b>	<b>9.27</b>		<b>16.18</b>
<b>Other (washers, fan-ins, wire bonds, assy glue)</b>				
	Outer	Middle L	Middle S	Inner
Athena	0.00	0.00	0.00	0.00
Measurement (2)	0.08	0.08		0.17
Difference	<b>0.08</b>	<b>0.08</b>		<b>0.17</b>
Relat. diff. in %	<b>100.00</b>	<b>100.00</b>		<b>100.00</b>

1) Ch. Ketterer, Radiation Length of K5 with AIN plugg-ins, June 10 2002

2) Steve Snow, Claudia Fracchiolla: The Radiation Length of SCT Endcap modules, the University of Manchester, 2005 (in preparation)

**Modified parameters:**

HybridAvgRL Normalis	<b>0.4739</b>
HybridAvgRL	<b>1.86055727</b>

<b>New Setting 2 Of Database In Athena Framework</b>				
Correction of hybrid RL setting based on final right RL of module measured in (2)				
<b>Radiation Length %Xo</b>				
<b>Module</b>				
	Outer	Middle L	Middle S	Inner
Athena	1.37	1.37	2.36	2.33
Measurement (2)	1.39	1.38		2.32
Difference	<b>0.01</b>	<b>0.00</b>		<b>-0.01</b>
Relat. diff. in %	<b>0.96</b>	<b>0.27</b>		<b>-0.57</b>
<b>Hybrid</b>				
	Outer	Middle L	Middle S	Inner
Athena	0.57	0.58	1.17	1.46
Measurement (2)	0.48	0.48		1.22
Difference	<b>-0.09</b>	<b>-0.09</b>		<b>-0.24</b>
Relat. diff. in %	<b>-19.43</b>	<b>-19.43</b>		<b>-19.43</b>
<b>Sensors</b>				
	Outer	Middle L	Middle S	Inner
Athena	0.61	0.61	0.61	0.61
Measurement (2)	0.61	0.61		0.61
Difference	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>
Relat. diff. in %	<b>0.05</b>	<b>0.05</b>		<b>0.05</b>
<b>SpineSum</b>				
	Outer	Middle L	Middle S	Inner
Athena	0.20	0.19	0.38	0.26
Measurement (2)	0.22	0.21		0.32
Difference	<b>0.03</b>	<b>0.02</b>		<b>0.05</b>
Relat. diff. in %	<b>11.56</b>	<b>9.27</b>		<b>16.18</b>
<b>Other (washers, fan-ins, wire bonds, assy glue)</b>				
	Outer	Middle L	Middle S	Inner
Athena	0.00	0.00	0.00	0.00
Measurement (2)	0.08	0.08		0.17
Difference	<b>0.08</b>	<b>0.08</b>		<b>0.17</b>
Relat. diff. in %	<b>100.00</b>	<b>100.00</b>		<b>100.00</b>

1) Ch. Ketterer, Radiation Length of K5 with AIN plugg-ins, June 10 2002

2) Steve Snow, Claudia Fracchiolla: The Radiation Length of SCT Endcap modules, the University of Manchester, 2005 (in preparation)

**Modified parameters:**

HybridAvgRL Normalised	<b>0.57</b>
HybridAvgRL	<b>2.237851117</b>

<b>New Setting 3 (Final) Of Database In Athena Framework</b>				
Correction of hybrid RL setting based on final right RL of module measured in (2), individual tuning of far (from hybrid) AIN subspines for right RL of module				
<b>Radiation Length %Xo</b>				
<b>Module</b>				
	Outer	Middle L	Middle S	Inner
Athena	1.39	1.38	2.36	2.32
Measurement	1.39	1.38		2.32
Difference	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>
Relat. diff. in %	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>
<b>Hybrid</b>				
	Outer	Middle L	Middle S	Inner
Athena	0.57	0.58	1.17	1.46
Measurement	0.48	0.48		1.22
Difference	<b>-0.09</b>	<b>-0.09</b>		<b>-0.24</b>
Relat. diff. in %	<b>-19.43</b>	<b>-19.43</b>		<b>-19.43</b>
<b>Sensors</b>				
	Outer	Middle L	Middle S	Inner
Athena	0.61	0.61	0.61	0.61
Measurement	0.61	0.61		0.61
Difference	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>
Relat. diff. in %	<b>0.05</b>	<b>0.05</b>		<b>0.05</b>
<b>SpineSum</b>				
	Outer	Middle L	Middle S	Inner
Athena	0.21	0.19	0.39	0.25
Measurement	0.22	0.21		0.32
Difference	<b>0.01</b>	<b>0.02</b>		<b>0.06</b>
Relat. diff. in %	<b>5.54</b>	<b>7.52</b>		<b>20.36</b>
<b>Other (washers, fan-ins, wire bonds, assy glue)</b>				
	Outer	Middle L	Middle S	Inner
Athena	0.00	0.00	0.00	0.00
Measurement	0.08	0.08		0.17
Difference	<b>0.08</b>	<b>0.08</b>		<b>0.17</b>
Relat. diff. in %	<b>100.00</b>	<b>100.00</b>		<b>100.00</b>

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2) Steve Snow, Claudia Fracchiolla: The Radiation Length of SCT Endcap modules, the University of Manchester, 2005 (in preparation)

**Modified parameters:**

HybridAvgRL Normalised	<b>0.57</b>
HybridAvgRL	<b>2.237851117</b>

SSpineOuterOut	<b>1.41</b>
SSpineMidLOut	<b>1.15</b>
SSpineMidSOut	<b>1.15</b>
SSpineInnerOut	<b>0.71</b>