TracePro

COLOR MIXING OPTIMIZATION

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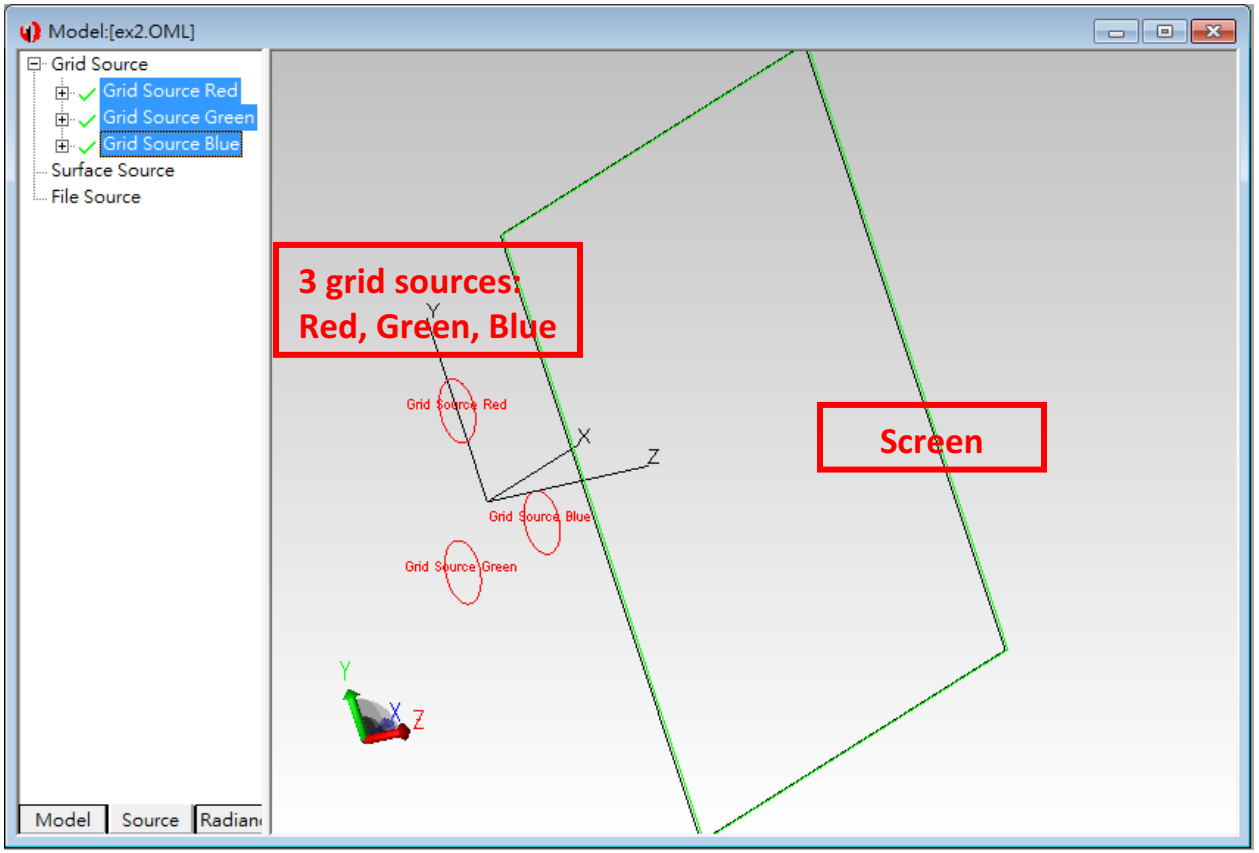
Color mixing optimization

Model in TracePro (ex2.oml)



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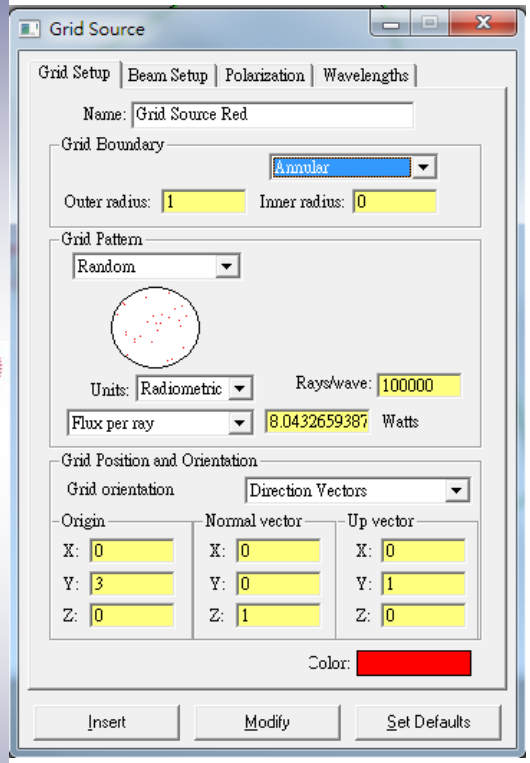
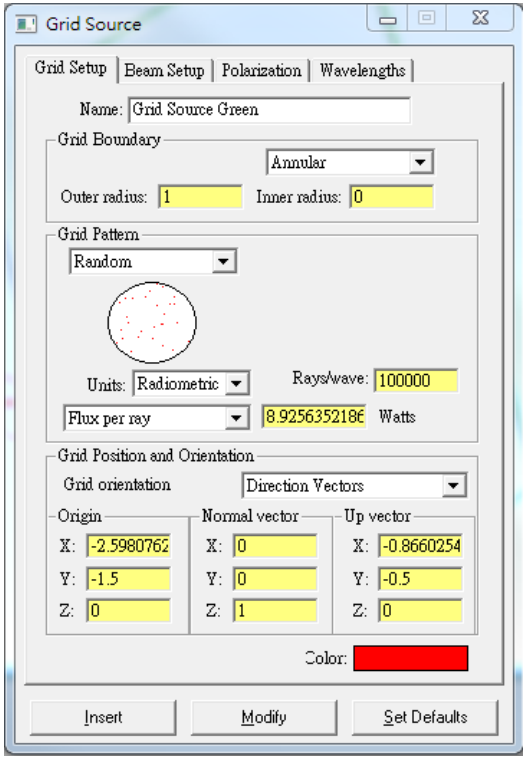
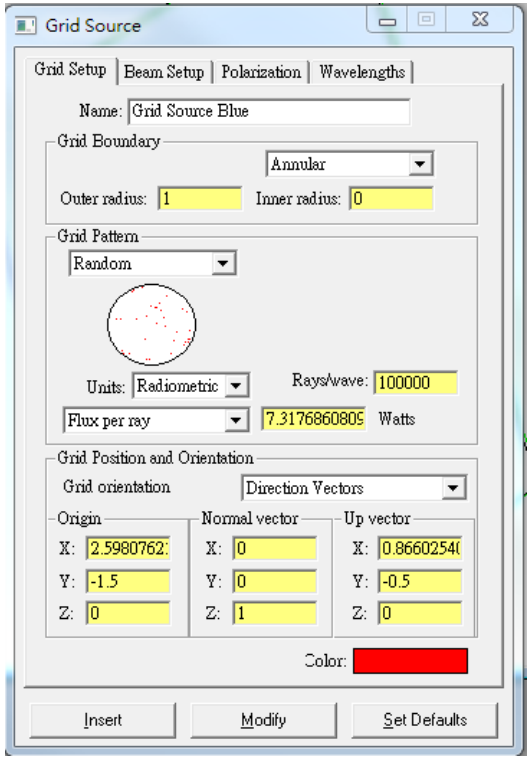
Grid sources







Red(0.6328um) **Green(0.5461um)** **Blue(0.45um)**

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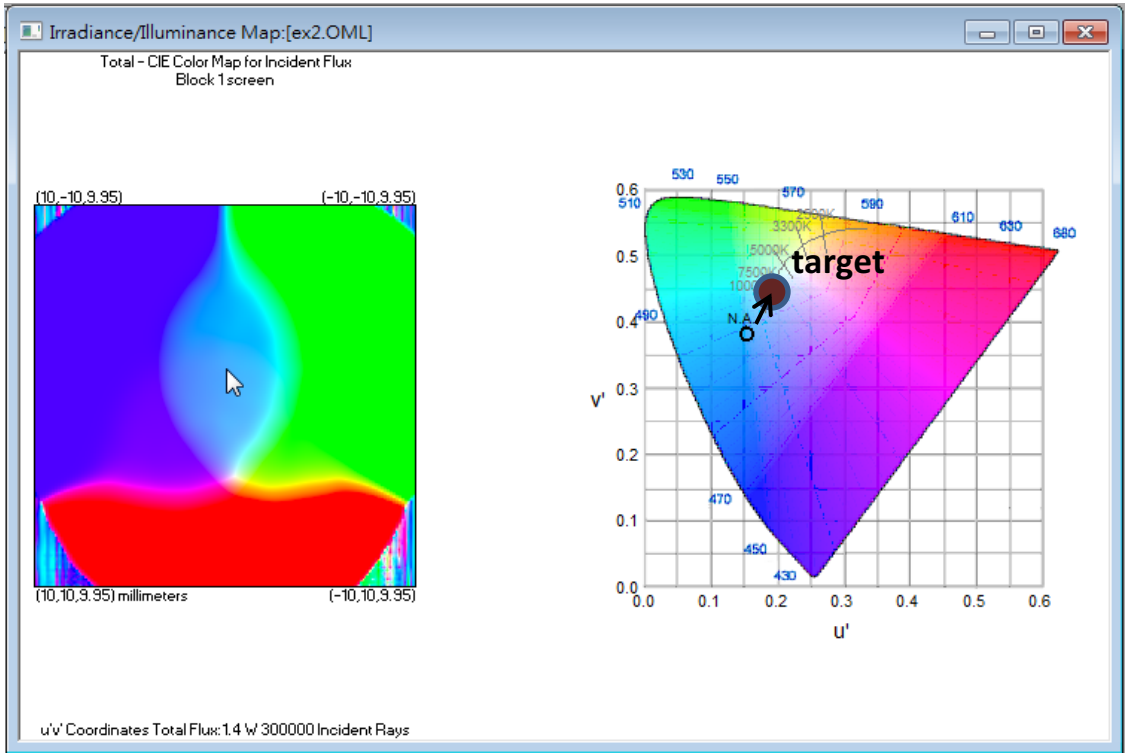
Target

– Adjust the flux of each grid source to make the color in the central area is close to white (u’,v’)=(0.2,0.466)



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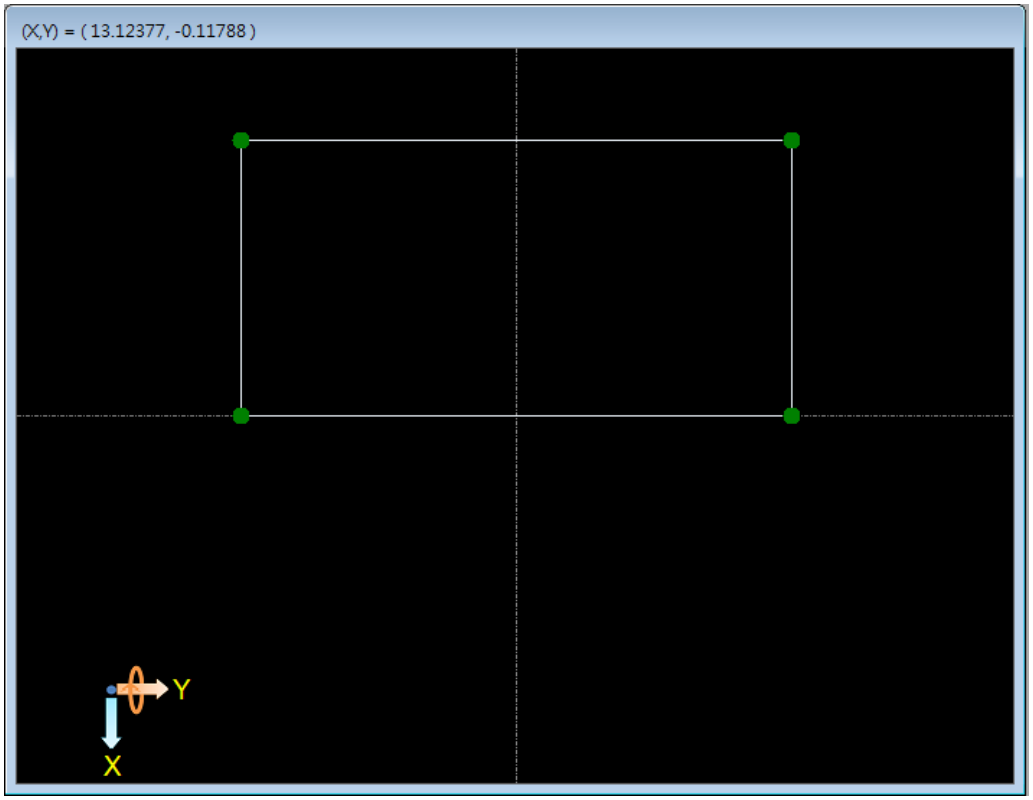
Start a new design in the Interactive Optimizer. No need to make any change to the initial object, since in this example, the goal is not to optimize the optics but the flux of each grid source.



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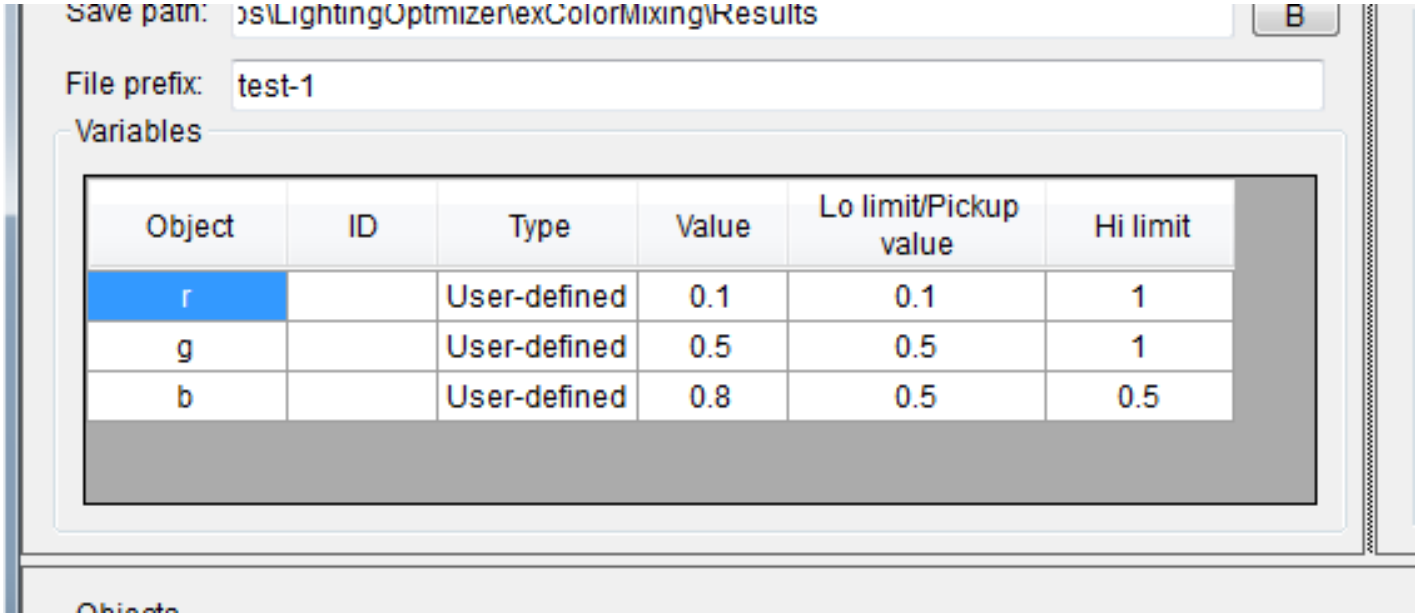
Launch the Optimization window.
In the Variables grid view, insert three user-defined variables and name them as “r”, “g” and “b”. Set the initial values and lower/upper limits are follows.



Object	ID	Type	Value	Lo limit/Pickup value	Hi limit
r		User-defined	0.1	0.1	1
g		User-defined	0.5	0.5	1
b		User-defined	0.8	0.5	0.5

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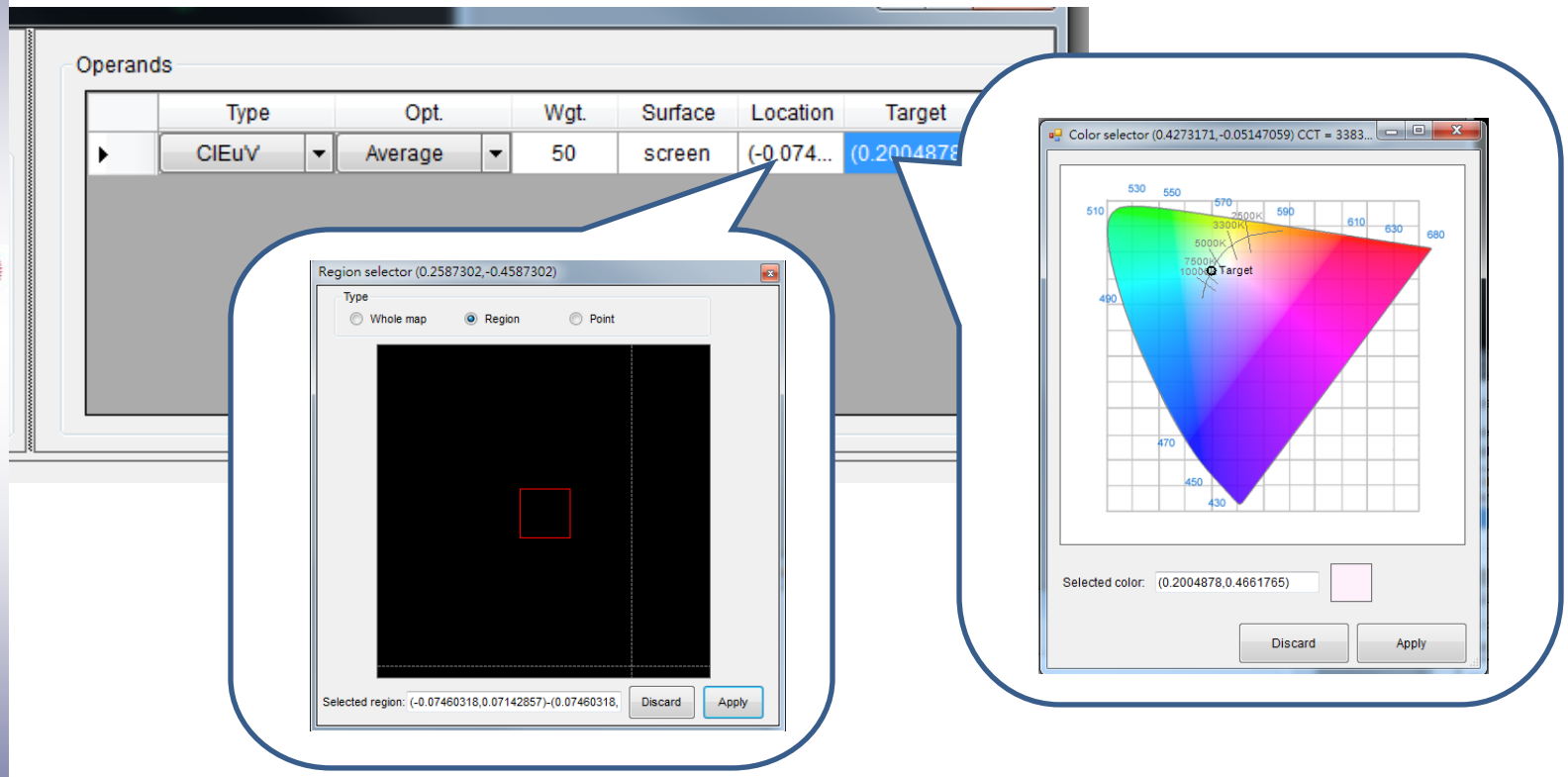
Insert a new operand as the target. In this case, we want to get a white color in the central area, so drag a rectangle as the analysis location and choose white (u',v')=(0.2, 0.46) as our target color.



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In this example, there is no need to really create any optics in TracePro. Uncheck all object and then double-click on the after-scheme cell at the 1st row to open the scheme editor. Type in the codes as the picture below.

Objects

Output?	Object ID	Name	Mat. Catalog	Mat. Property	Geo. type	Linked Obj / Length	After-scheme
		Pre-processor					(raytrace:set-grid-total...
☐	0	Object 0			RadialSym...		

Scheme editor

```
(raytrace:set-grid-total-flux $var("r")$ "Grid Source Red")
(raytrace:set-grid-total-flux $var("g")$ "Grid Source Green")
(raytrace:set-grid-total-flux $var("b")$ "Grid Source Blue")
```

Discard Apply

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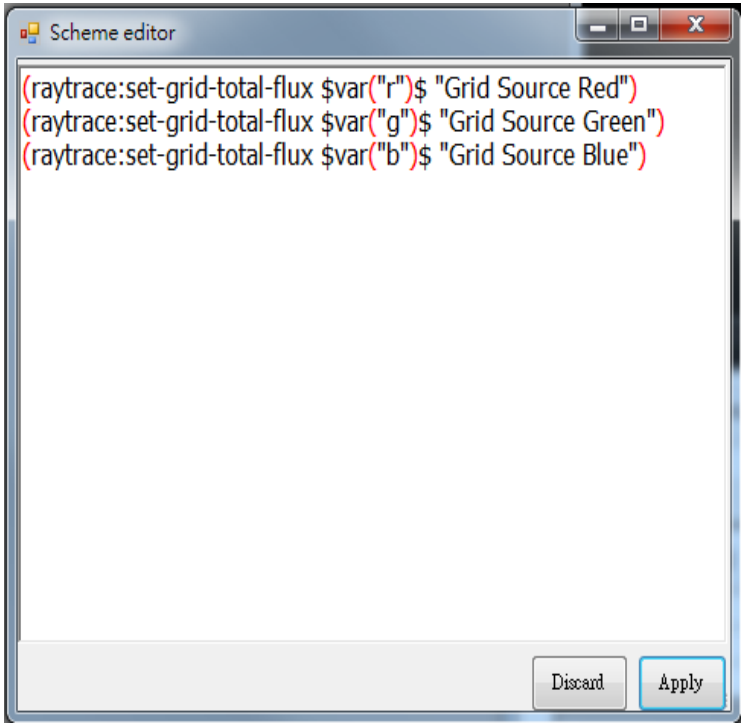

Code explanations:

(raytrace:set-grid-total-flux) is a scheme command which is to set the flux value for the specified grid source.

Interactive optimizer now can embed its own commands into a pure scheme sentence.

On this page, we had already inserted 3 user-defined variable named “r”, “g” and “b”. The built-in command var(var_name) can retrieve the corresponding user-defined value when optimizing.

But please note, a pair of dollar signs is necessary for the interpreter to recognize the embedded command.

More details about the supported commands can be referred in the document entitled “Commands of Interactive Optimization”

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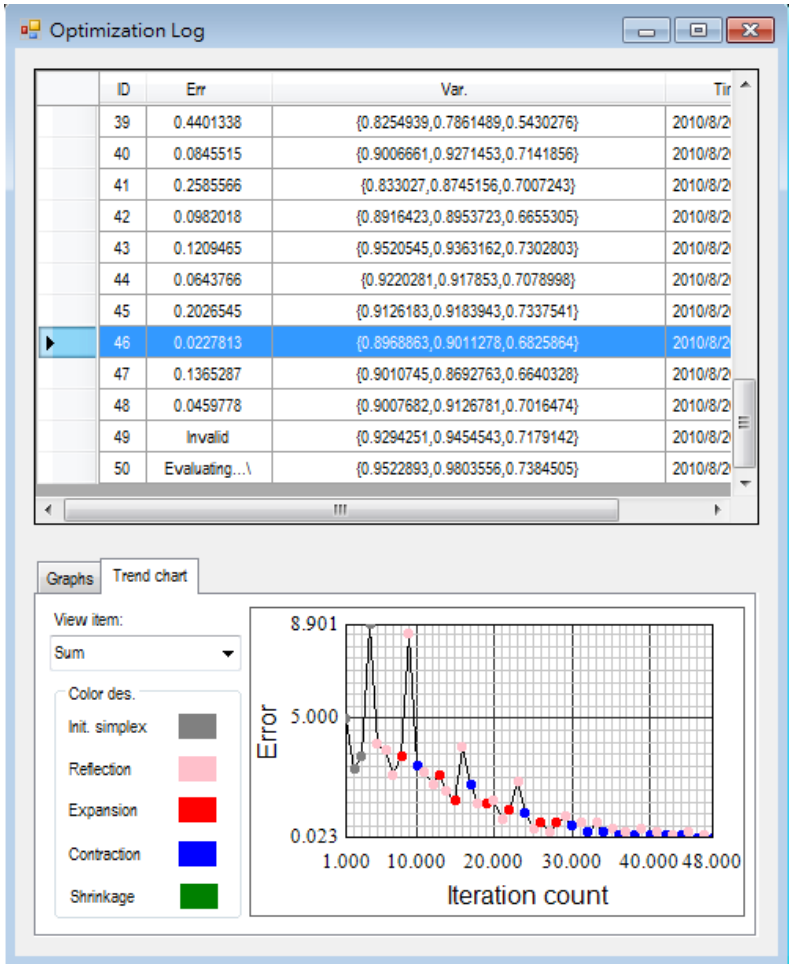

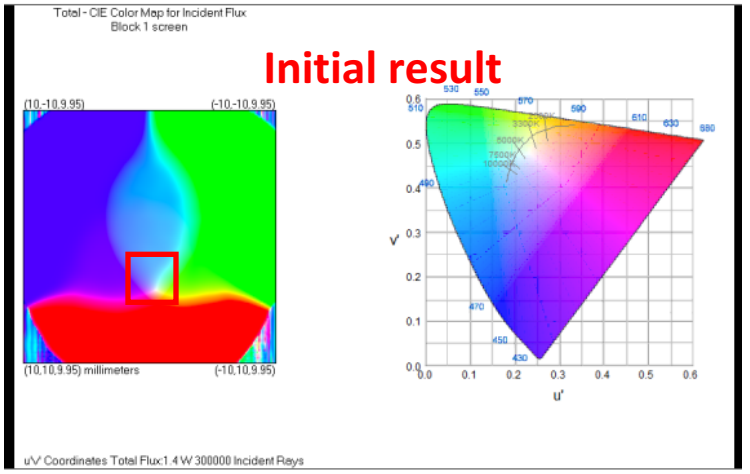

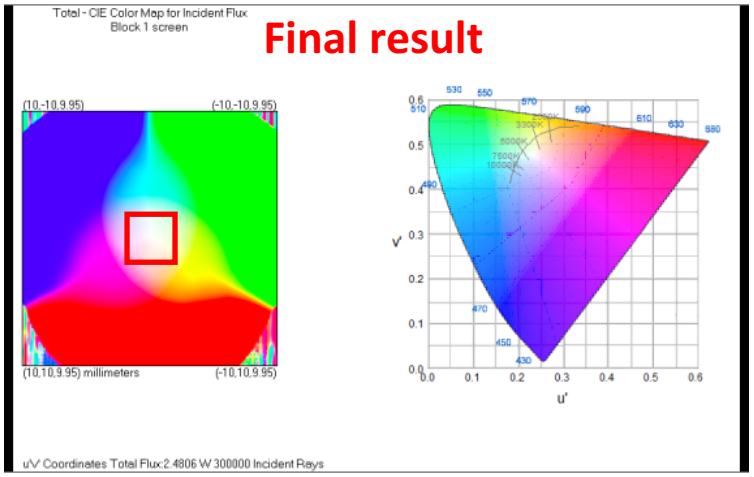

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shows a very important new possibility created by the Interactive Optimizer. Combining a user-defined variable and scheme language, the Interactive Optimizer can be an optimization platform. Users can take the advantage of using both the Scheme macro language and variables to optimize more complicated systems.

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Following this concept, we can add powerful optimization algorithms, such as Global Explorer, to search for global minima. Look for this new feature in an upcoming release of the interactive optimizer.

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