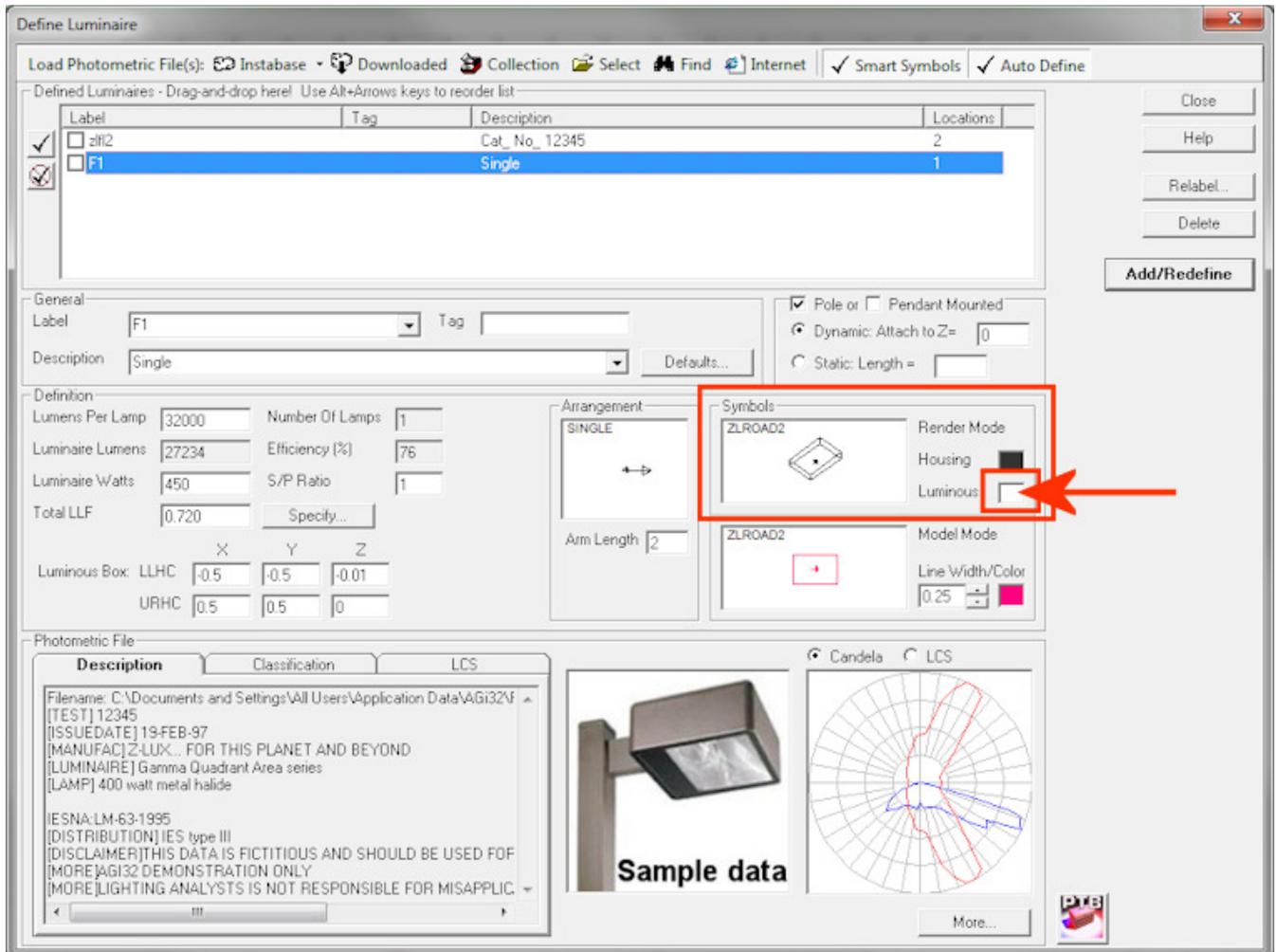


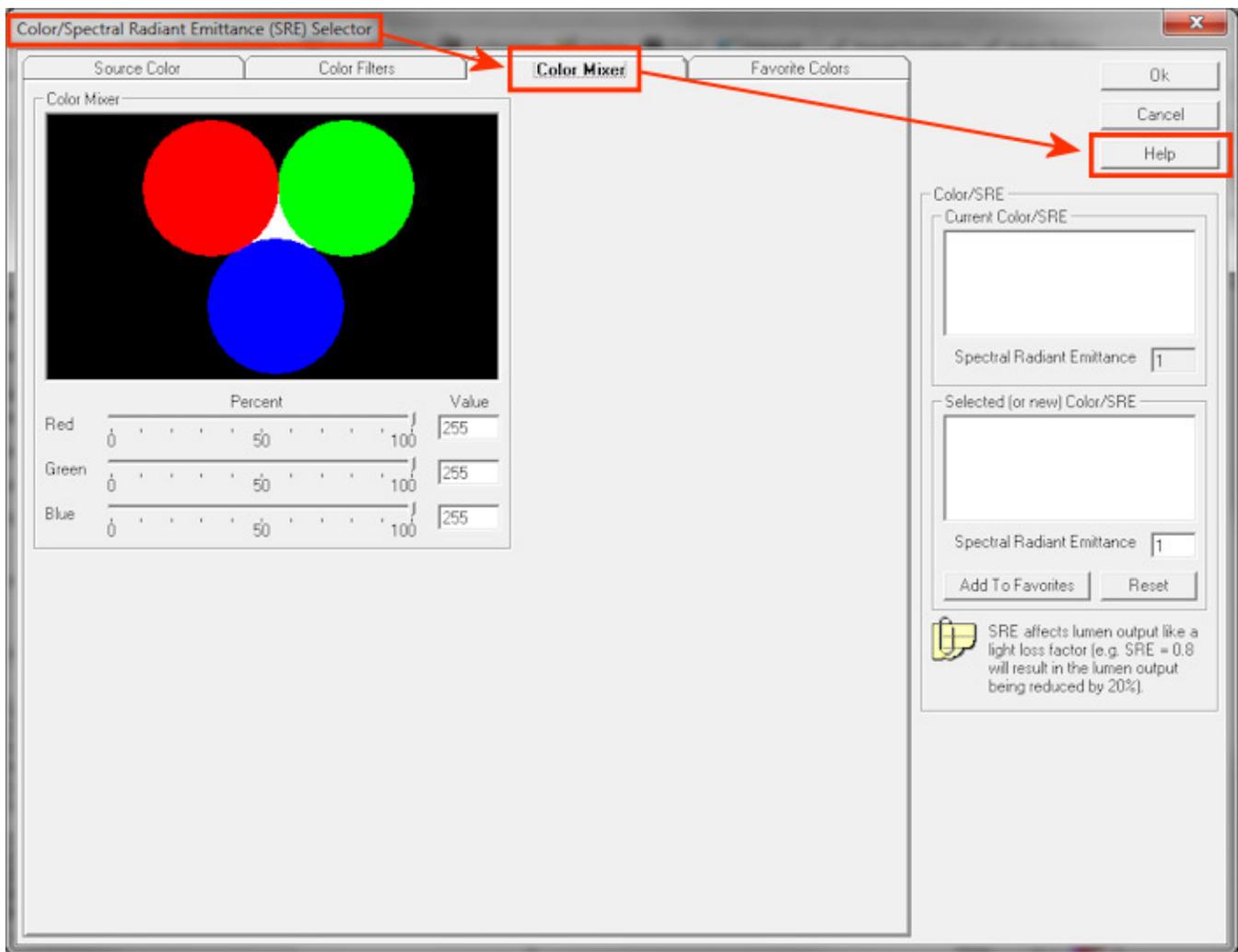
The first question that needs to be answered is if the photometric test reports (IES files) you are using were tested with the fixture emitting the color you are after or if they were tested emitting “white” light. The reason I ask is because the process to show color from luminaires in AGI32 is different if the luminaires were tested emitting the colored light versus white.

If the IES files already represent the luminaire emitting light in the color you are after then you should be able to follow the process below to render the colored light. **If the IES file does not represent the fixture tested emitting the color you are after, then the explanation of how to make it all work is much, much longer and will require a different reply e-mail.**

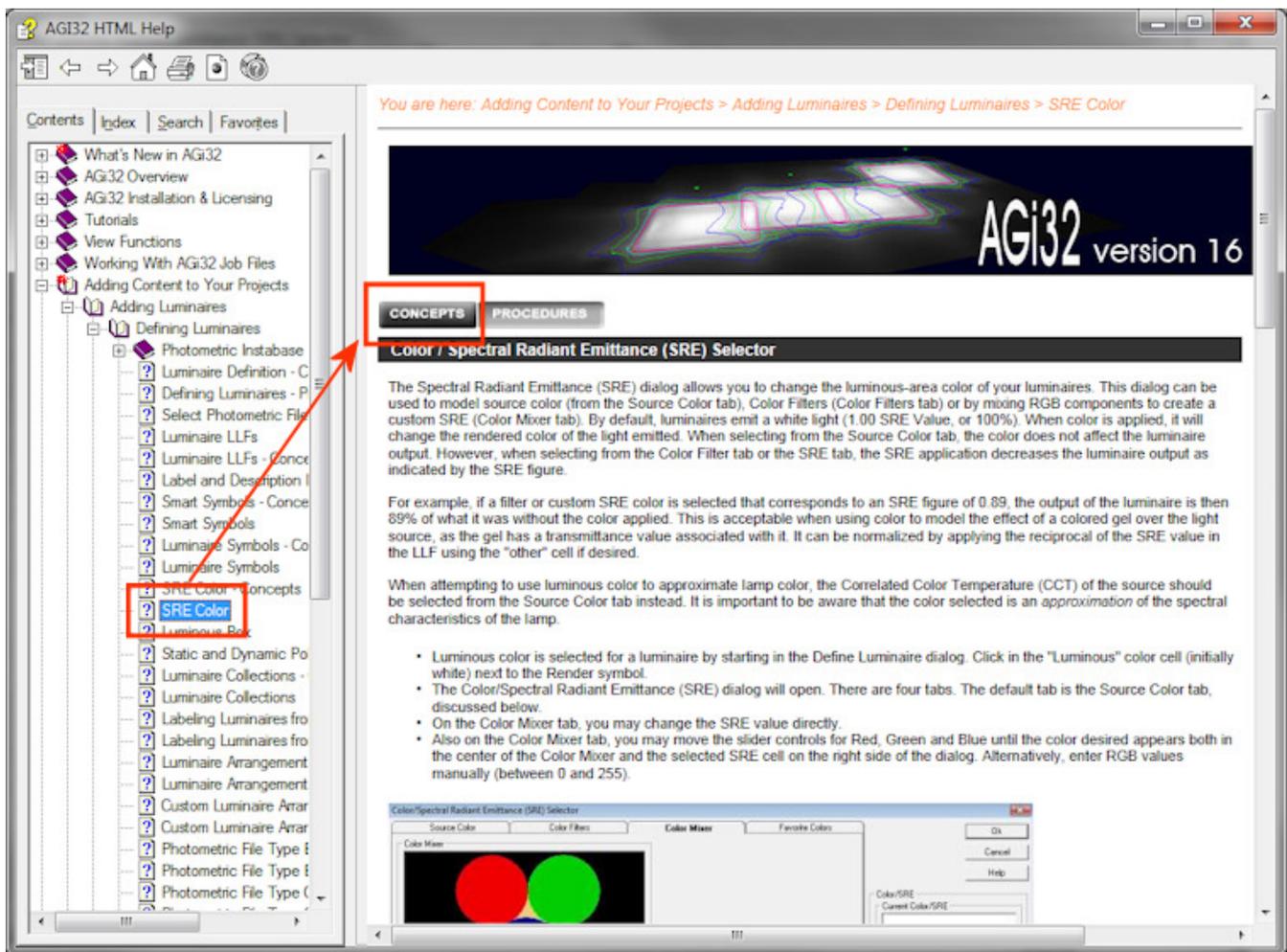
1. Define the luminaire in AGI32.
2. Look to the “Luminous” color for the Render Mode symbol in Define Luminaire and click on the color to change it.



3. In the “Color/Spectral Radiant Emittance (SRE) Selector” dialog that opens, click on the “Color Mixer” tab then click the “Help” button.



4. In the Help dialog that opens, you may notice that the “SRE Color” topic is now open. The default page is the “Procedures” page and you may want to read through all the information it contains. However, for the purposes of what I’m explaining here, click on the “Concepts” button at the top of the topic.



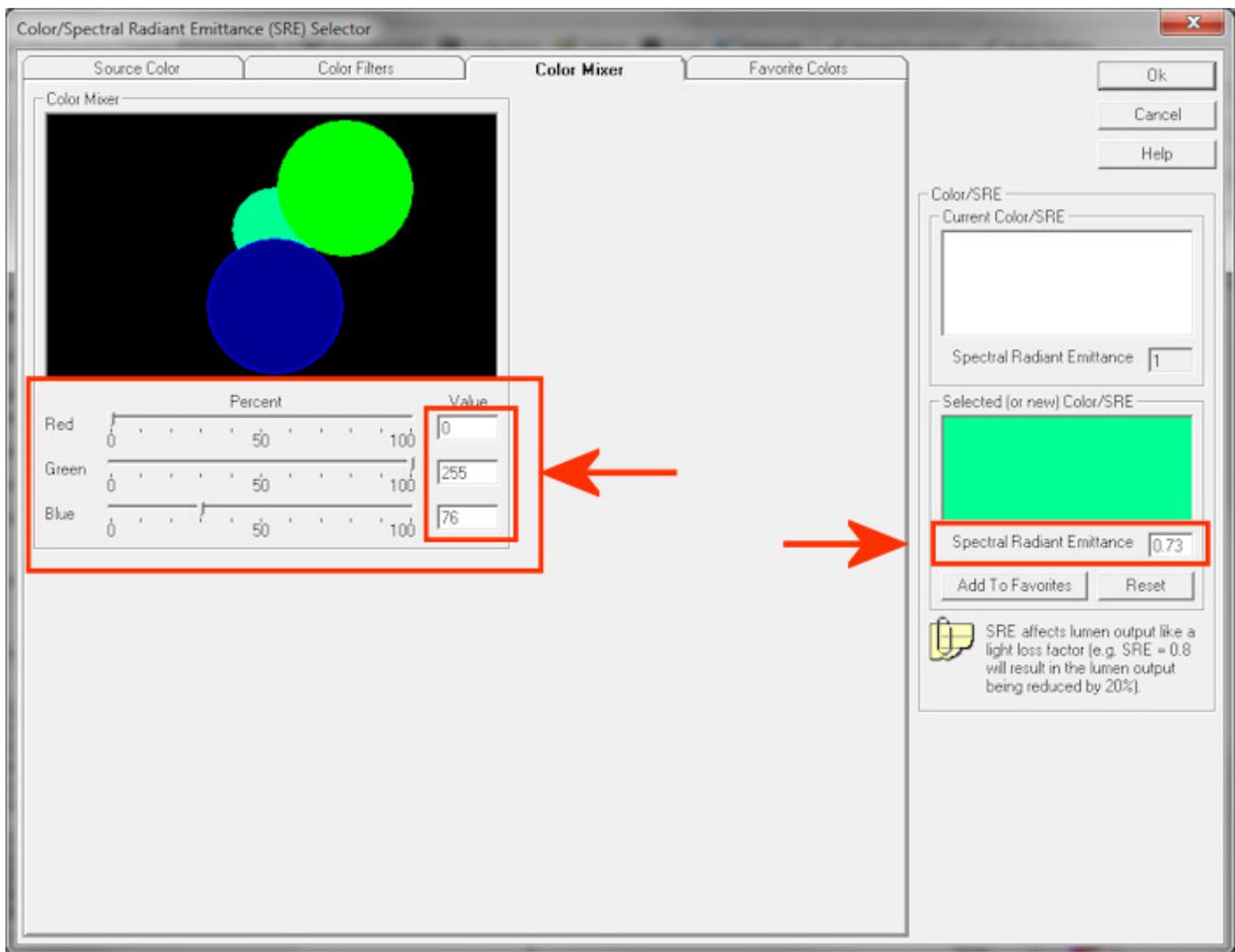
- Once you have clicked on "Concepts", you might want to read everything in this section of Help. However, if you scroll down the current topic you will see the section with generic RGB values for 7 different colors of LED. Although you may choose the one that applies to what you are doing, I am going to continue this description with the thought that I am specifying green LEDs. In the section of Help I've highlighted below, take note of the RGB values (3 numbers) to the right of the color you are specifying. Because I've chosen green for my LED color, the numbers I'm after are R=0, G=255, and B=76.

The screenshot shows the AGI32 HTML Help window. The left sidebar contains a table of contents with 'SRE Color - Concepts' selected. The main content area displays a table with two columns: 'LED Color and RGB decimal Values' and 'AGI32 Scaled RGB Values'. The 'Green' row is highlighted with a red box, and an arrow points from the text 'Green (0.00, 0.77, 0.23)' to the scaled RGB values '(0, 255, 76)'. Below this is a table of spectral radiant emittance (SRE) values.

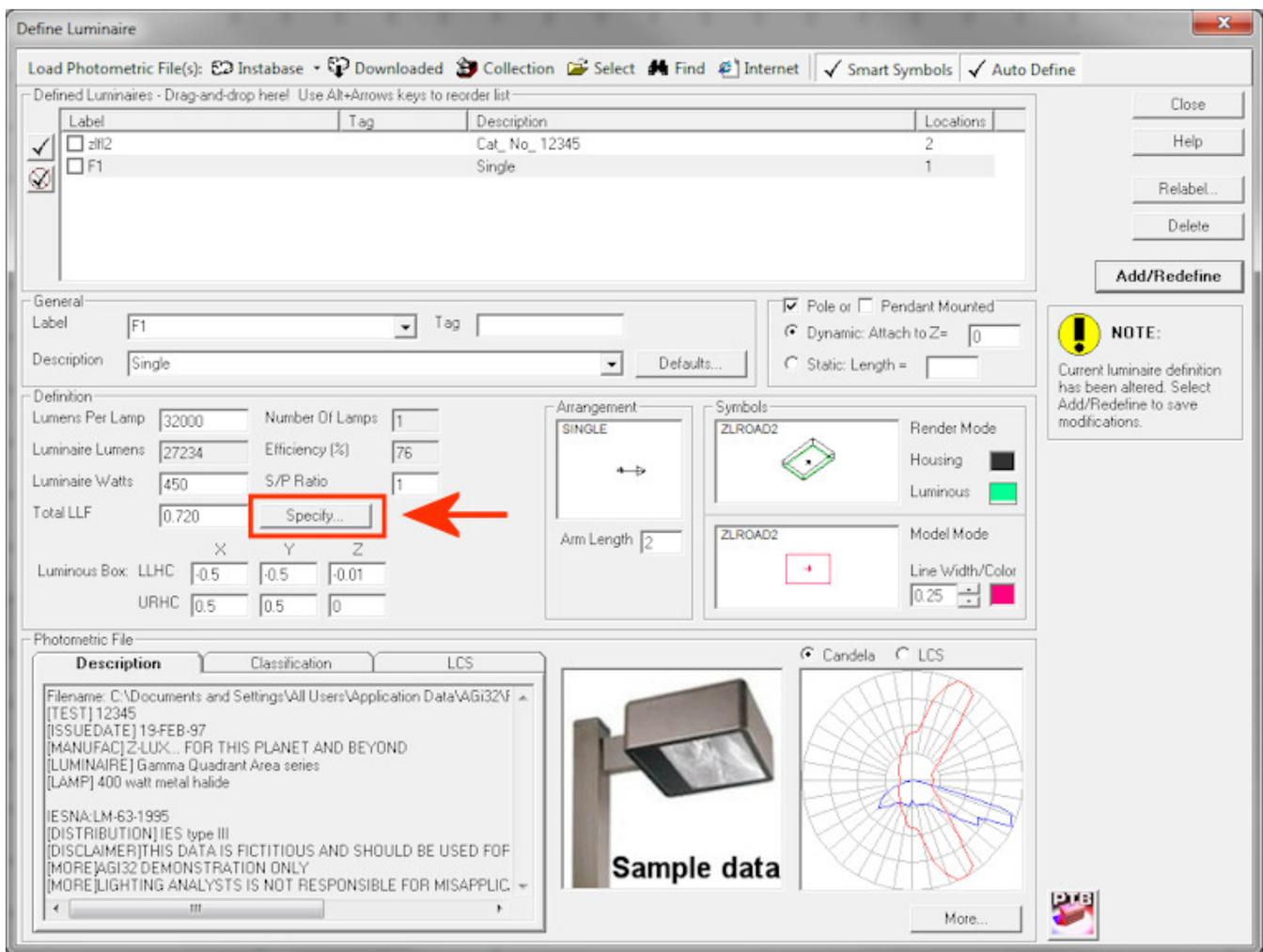
LED Color and RGB decimal Values			AGI32 Scaled RGB Values		
Royal Blue (0.05, 0.00, 0.95)			(13, 0, 255)		
Blue (0.00, 0.11, 0.89)			(0, 31, 255)		
Cyan (0.00, 0.63, 0.37)			(0, 255, 149)		
Green (0.00, 0.77, 0.23)			(0, 255, 76)		
Amber (0.70, 0.30, 0.00)			(255, 109, 0)		
Red-Orange (0.97, 0.00, 0.03)			(255, 0, 8)		
Red (0.92, 0.00, 0.08)			(255, 0, 22)		

λ_D	Color	R	G	B	λ_D	Color	R	G	B
400		37	0	255	550		4	255	0
405		37	0	255	555		25	255	0
410		37	0	255	560		53	255	0
415		37	0	255	565		91	255	0
420		35	0	255	570		133	255	0
425		34	0	255	575		194	255	0
430		34	0	255	580		255	234	0
435		31	0	255	585		255	161	0
440		29	0	255	590		255	109	0
445		26	0	255	595		255	70	0
450		22	0	255	600		255	42	0
455		16	0	255	605		255	19	0
460		8	0	255	610		255	3	0

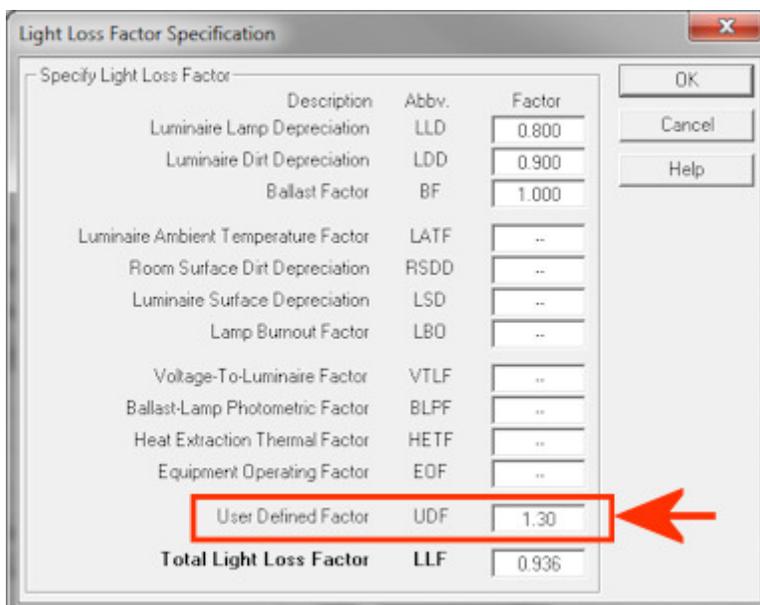
- Back in the "Color/Spectral Radiant Emittance (SRE) Selector" dialog, I now want to enter the R-G-B values I found in Help. After doing this, take note of the "Spectral Radiant Emittance" (**SRE**) value on the left side of the dialog. This value indicates that applying these RGB values will reduce the output of the luminaire to 0.73 (or 73%). I will next deal with reduced output but with the correct RGB values entered and a note made about the SRE value, click the "Ok" button to apply the change.



7. Because the output of this luminaire has been reduced to 73%, regardless of any Ballast Factor and other Light Loss Factors applied, the luminaire needs to be brought back up to the output it had before the color was applied. This will be applied as a Light Loss Factor (LLF) but will be a value greater than 1.00. To find the value that needs to be applied, divide 1.00 by the SRE value (0.73). The inverse value I get when doing this with this example's information is **1.30** [$1.00/0.73=1.3699$ which rounds to 1.30].
8. In Define Luminaire, click on the "Specify..." button to the right of the "Total LLF" listing.



9. This luminaire (which is not an LED) already has a Ballast Factor and some other LLFs applied which are already taking its output down to 72% of its as-tested full output. This doesn't matter and any other LLFs can be applied in addition to what we are doing right now. Look to the bottom of the "Light Loss Factor Specification" dialog to the "User Defined Factor" cell. Enter "1.30" (the inverse of the SRE value we calculated in Step 7) then click "Ok". Note in my example that the previous Total LLF value has now gone from "0.720" to "0.936". This is okay and the other LLFs are still being applied; again, the only reason to apply this LLF is to compensate for the loss created by assigning a color to the fixture and because the fixture was already tested emitting the color, it needs to be brought back up to its correct output.



10. Now back in Define Luminaire, click the “Add/Redefine” button to complete the redefining of the luminaire with color output.

Below are 2 images of the same model run before applying the changes above to the defined “F1” luminaire and after applying the changes. There is only 1 instance of the altered F1 fixture and the 2 luminaires on the sign are still emitting white light. If you have multiple colors of LEDs, you will need to define a separate luminaire for each color if you want multiple colors to be present in the same model.

