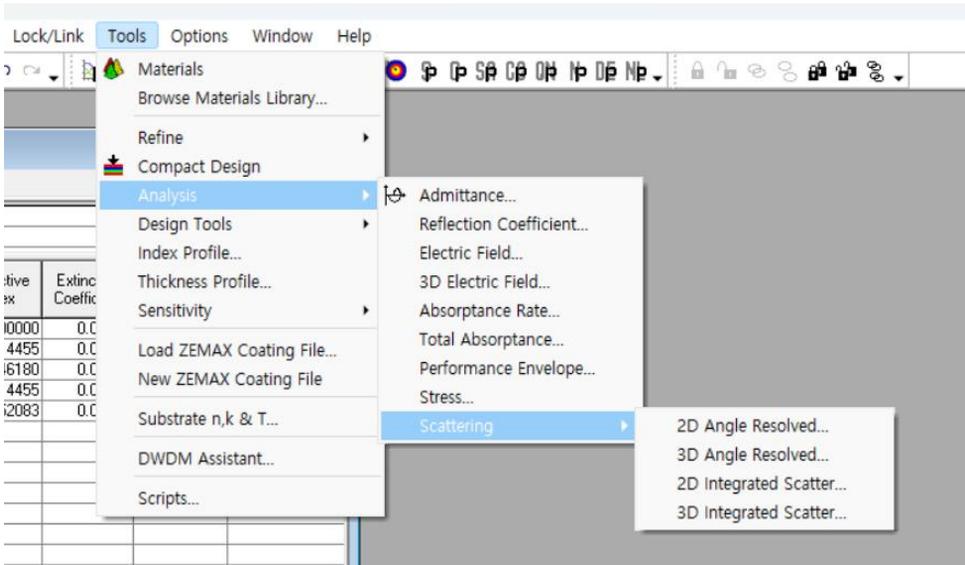


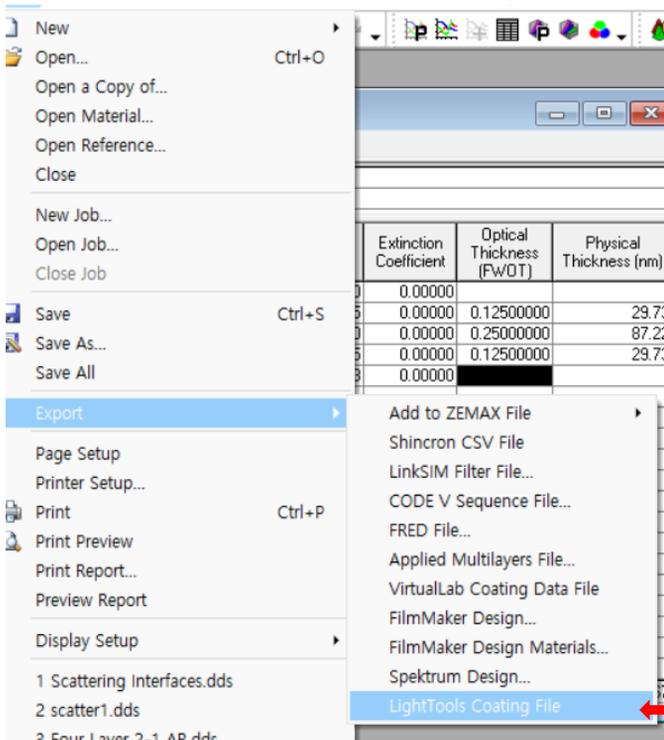
최신 버전 주요 사양

Scattering tool

BRDF/BTDF 및 angle resolved scatter 계산 가능



LightTools Coating File 작성(보내기) 가능



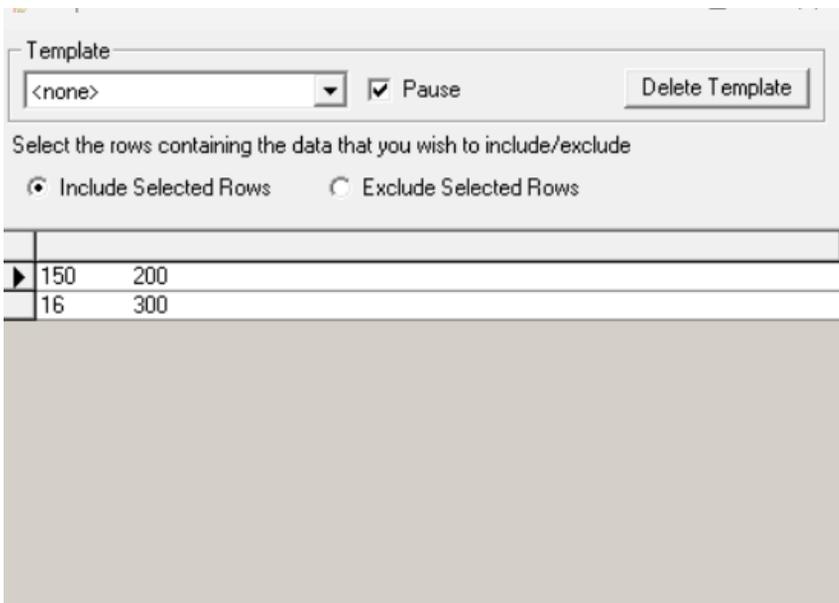
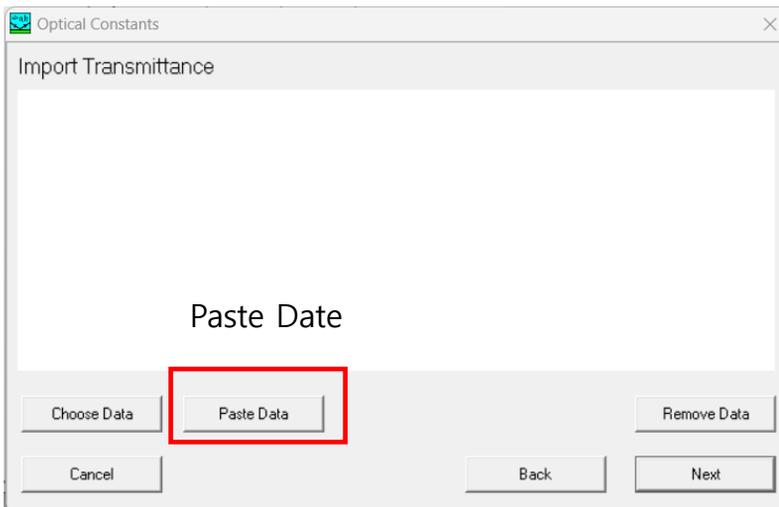
LightTools Coating File

Spectral data를 입력 가능

Spectral data를 Clipboard에 복사
(Control + C)

B	C
150	200
16	300

Optical Constants, Substrate optical constants and Reverse Engineer 작성



Clip Board에 저장된
Data가 그대로 표시됨

Yield Specification Plot

Errors

	Material	Thickness Mean Error	Thickness Standard Deviation	Minimum Thickness	Index Mean Error	Index Standard Deviation
▶	TiO2	0	0	0.00	0	0
	SiO2	0	0	0.00	0	0

Number of Cases: Include Locking
 Include Thickness Errors Include Links
 Include Index Errors Independent Index Errors
 Keep Worst Designs Number to Keep:

Estimate Yield Show Details

Statistics Table spectra stored in:

Statistics Table color data stored in:

Buttons: OK, Plot, Statistics Table, Color, Cancel

Errors Tool > yield details

Hue Angle Range 확대

Essential Macleod Options

Cones | Designs

Active Plot | Legacy | Data Sources | Windows | Plotting

Targets | Random | Observers | Sources | CRI

Update | **Color** | Print | JPEG | 3D Plot

Wavelength Interval for Performance (nm):

Wavelength Interval for Refinement (nm):

CIE2000 Color Difference

kL

kC

kH

Hue Angle Range

-180 .. 180

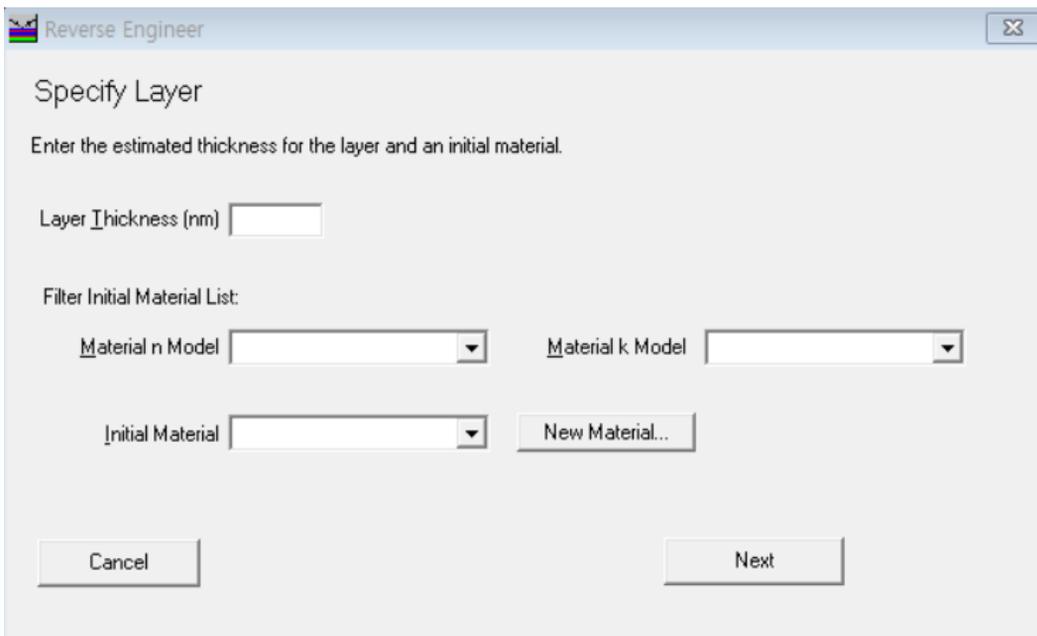
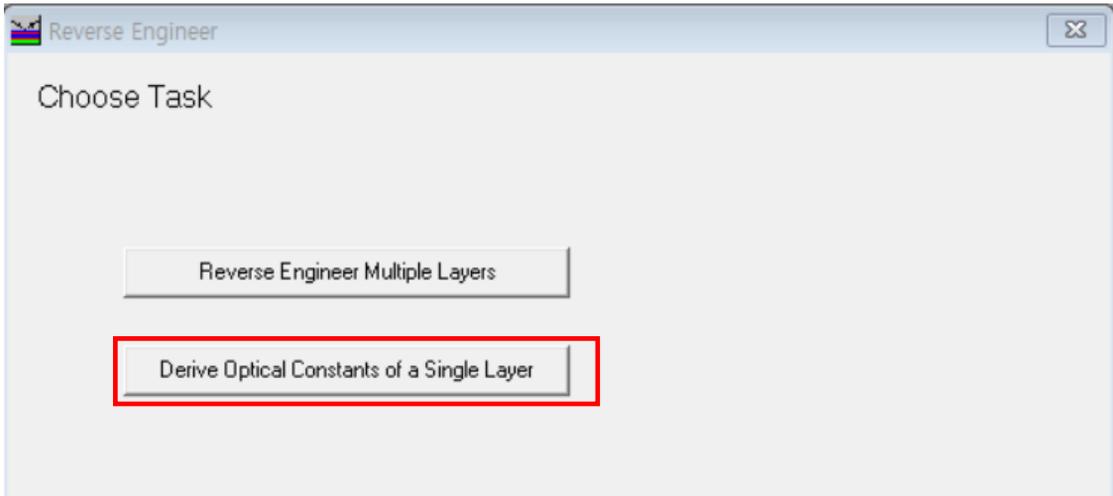
0 .. 360

Buttons: OK, Cancel

Options > General, Color Tab

REVERSE ENGINEER

single layer 광학 상수 도출 기능 추가



단일 층의 광학 상수 도출에 사용

Color Difference calculations

Color Difference calculations have been added. Both CIEDE2000 and CIE76 color difference calculations have been added. The color difference of a coating may be calculated in the Color command by clicking on the Difference tab and entering a reference set of color coordinates. Clicking on Table will display the CIE76 and CIEDE2000 values. Color difference targets may also be entered. The complete target specification requires the difference value and the reference color $L^*a^*b^*$ (or $L^*c^*h^*$) specification. The color coordinates are attached to the color difference by using the same link number for each of the targets. Creating a new row by setting the target type to CIE2000 or CIE76 will create the four rows and link them together. If Current Value has been enabled, the $L^*a^*b^*/L^*c^*h^*$ values will also be shown as well as the difference value. The Yield specification also includes color difference specifications.

Performance > Colors

The 'Color Parameters' dialog box shows the following settings:

- Source: A
- Observer: CIE 1931
- Mode: Transmittance
- Polarization: P
- Context: Normal
- Incident Angle (deg): Maximum: 0, Minimum: 0, Interval: 0
- Options: Show White Point, Show Color Patch, Absolute, Y Level: [], Show Targets
- Tabs: Plot, Table, **Difference** (highlighted), Close, Cancel
- Reference Color: $L^*a^*b^*$ / $L^*c^*h^*$
 - L^* : 0
 - a^* : 0
 - b^* : 0
- Table** (highlighted)

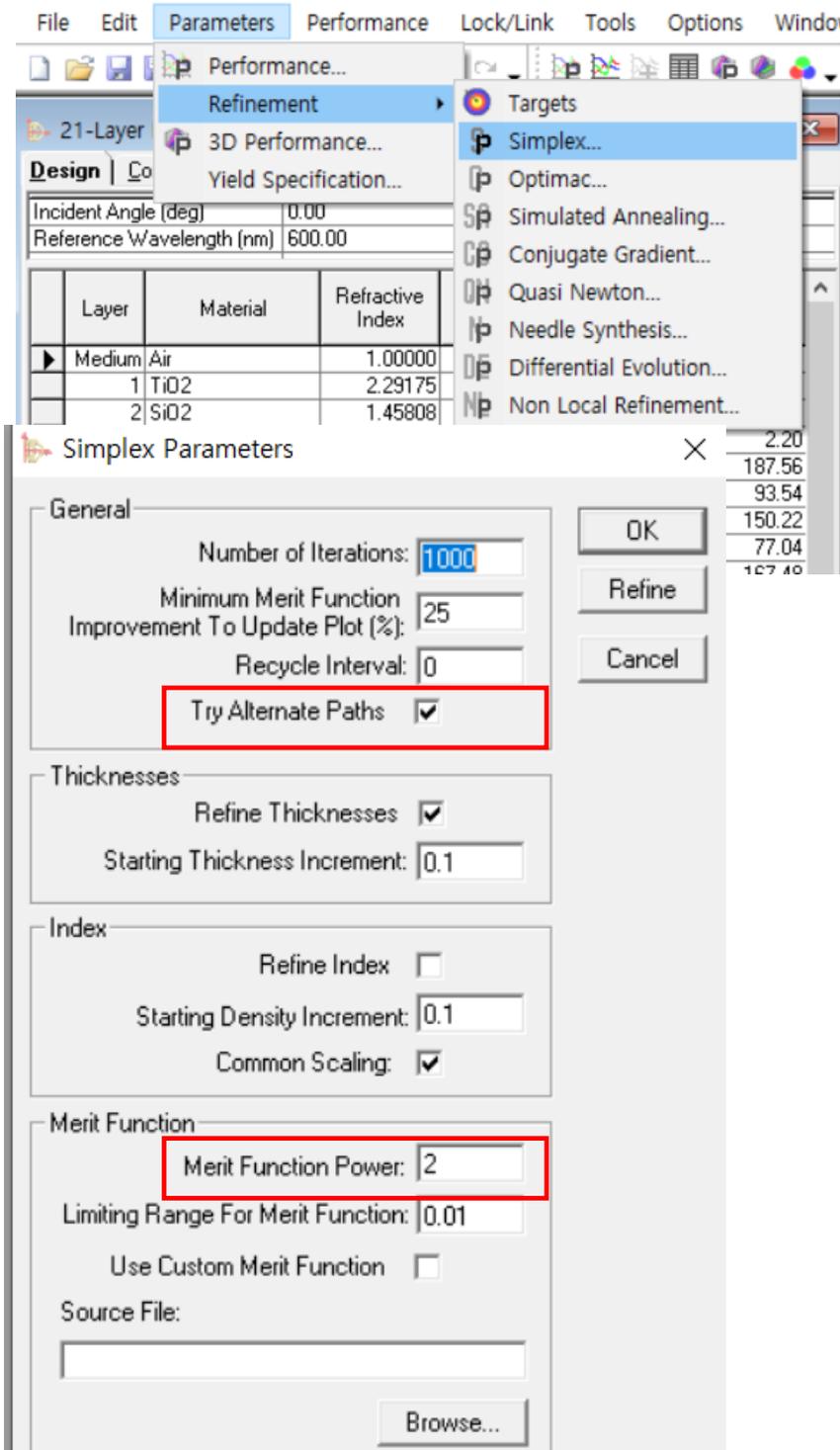
The resulting table is as follows:

Difference	Value
Reference L^*	0.0000
Reference a^*	0.0000
Reference b^*	0.0000
Coating L^*	25.0935
Coating a^*	-19.1319
Coating b^*	-88.3929
CIE 1976:	93.8564
CIE 2000:	33.8763

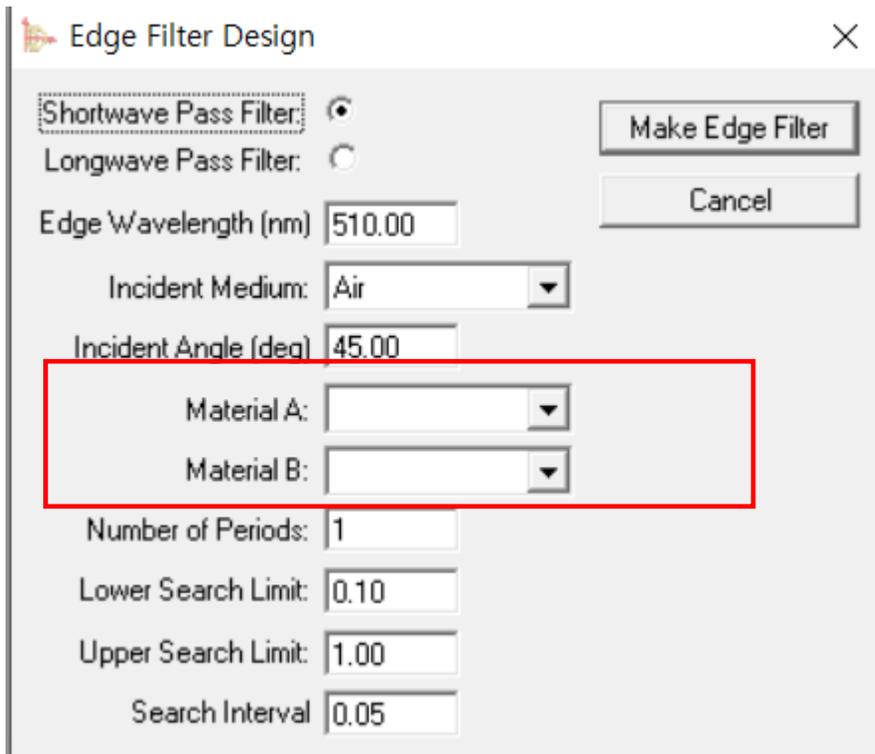
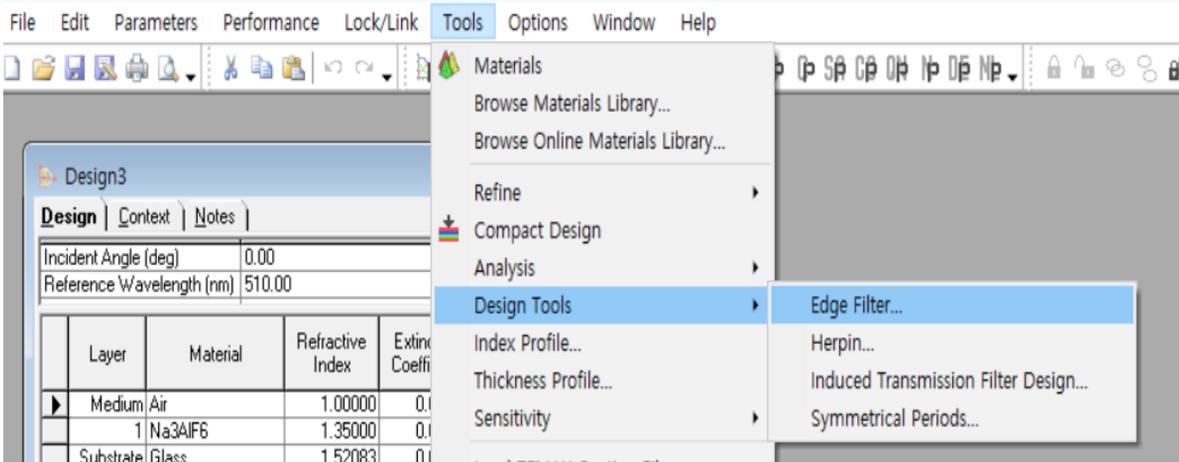
Table 형식으로 표시

Try Alternate Paths

Refinement에서 지정된 한 방식으로만 하는 것이 아니라 최적화를 위한 다른 방법도 찾아 수행 하는 기능.

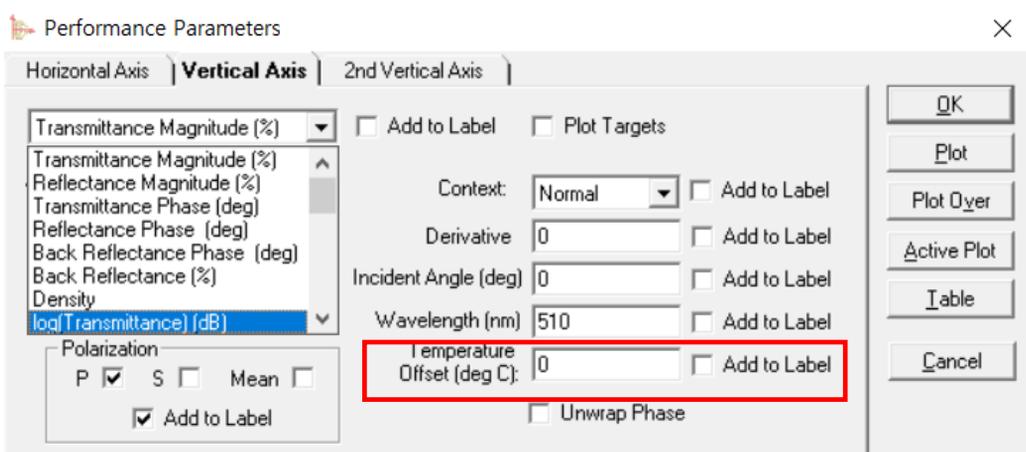
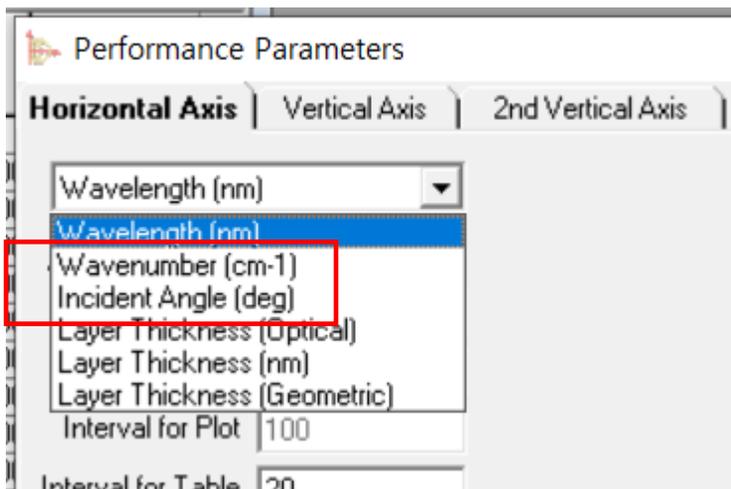
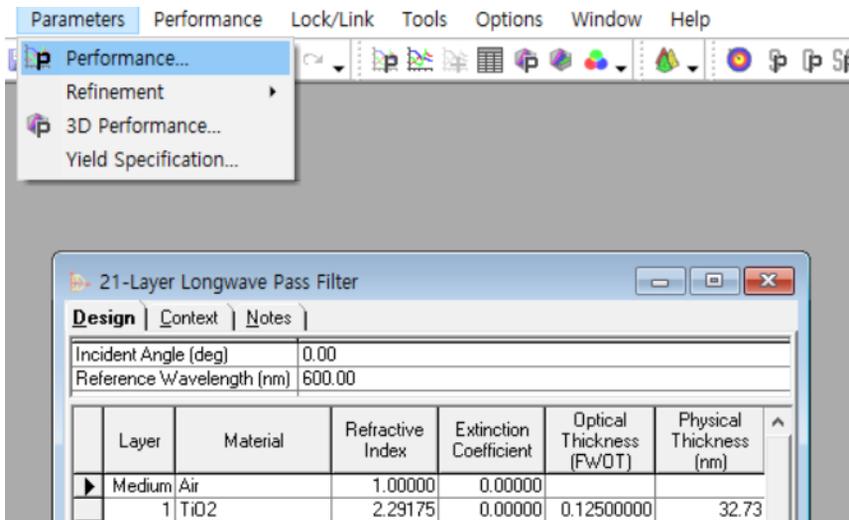


Edge Filter 물질 Data 범위 확대



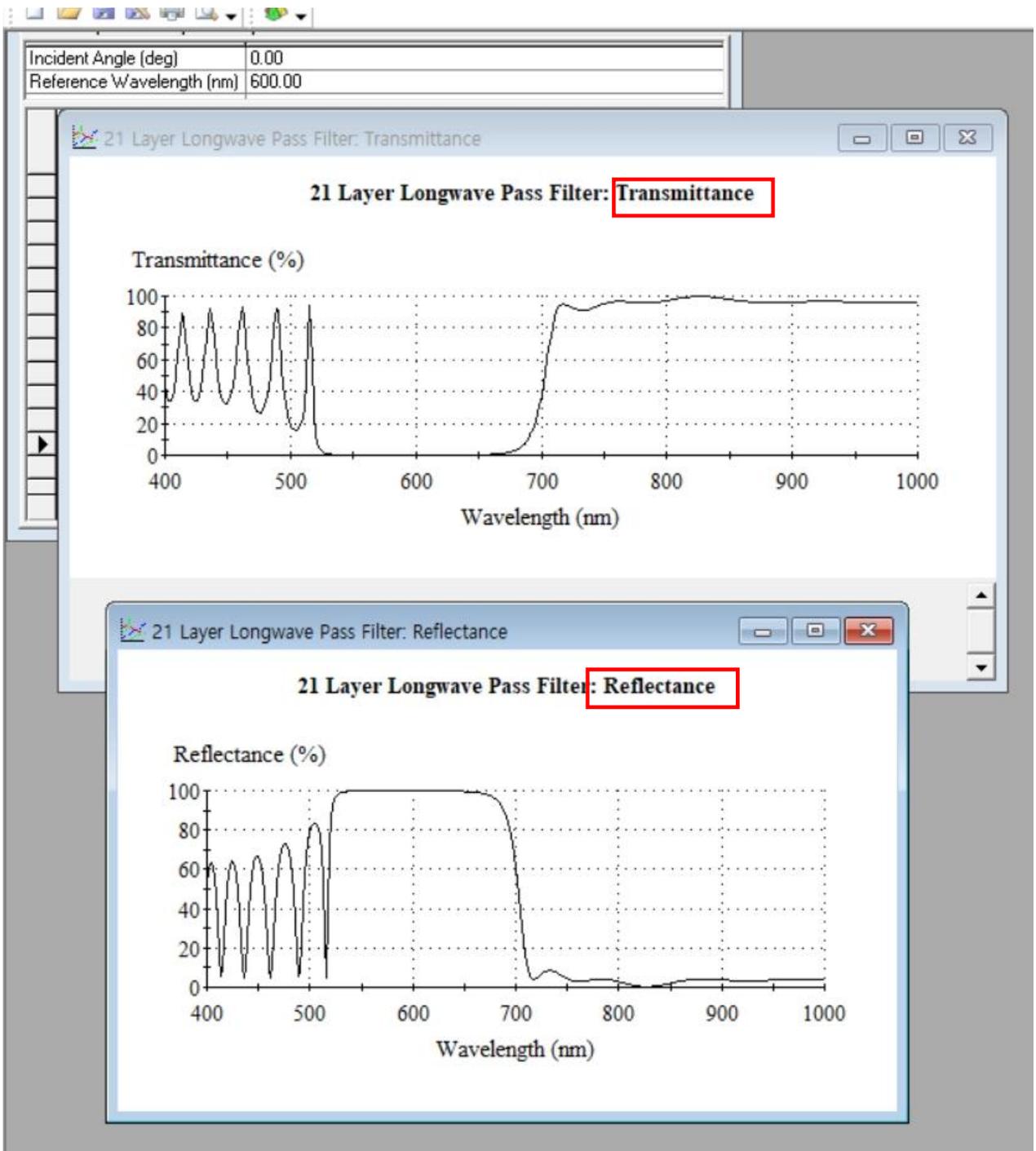
Various plot parameters

보강된 Plot data



복수의 Active Plot

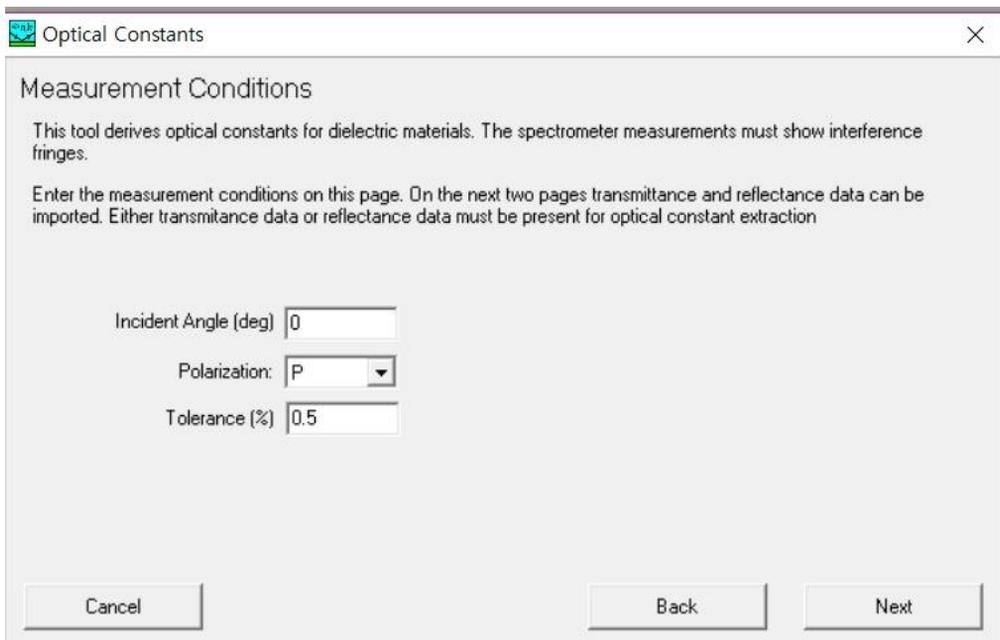
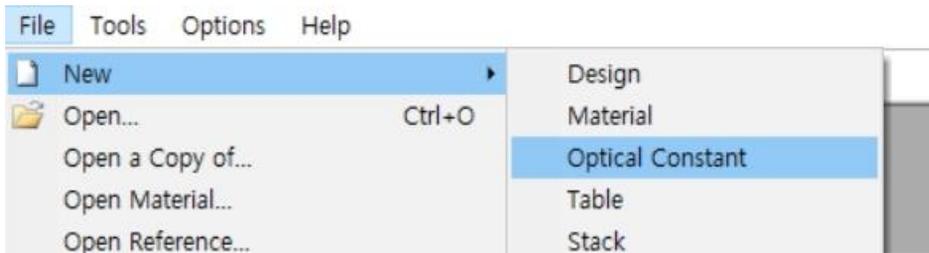
Active Plot을 다른 조건으로 복수의 Plot이 가능

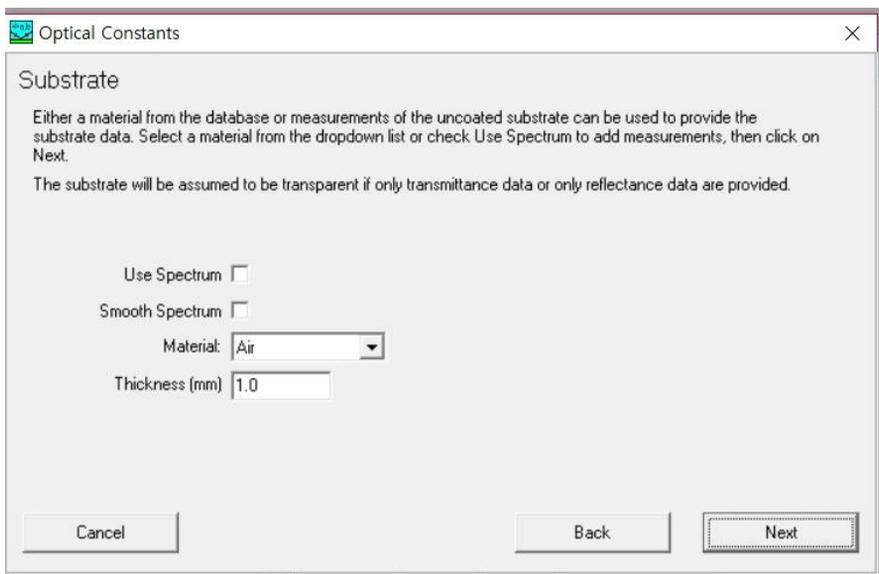
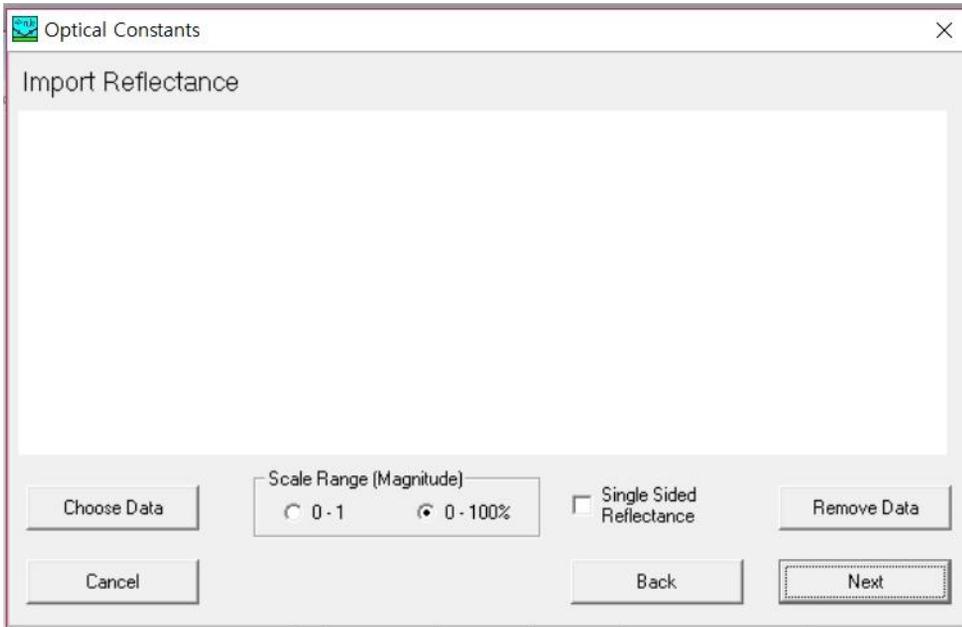
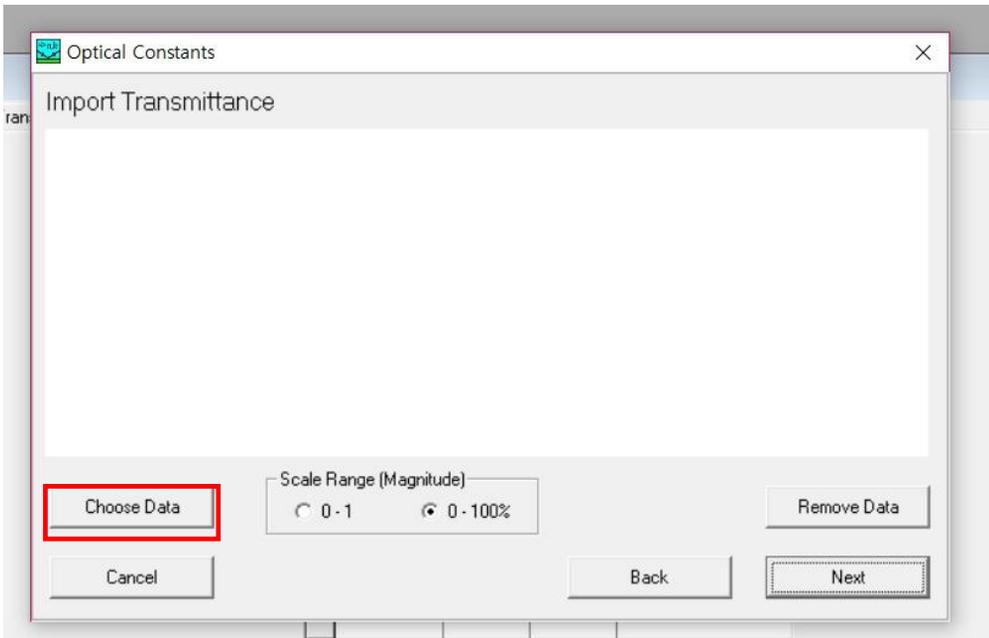


Spectral data & Measurement conditions 바로 입력으로 광학 상수 자동 산출

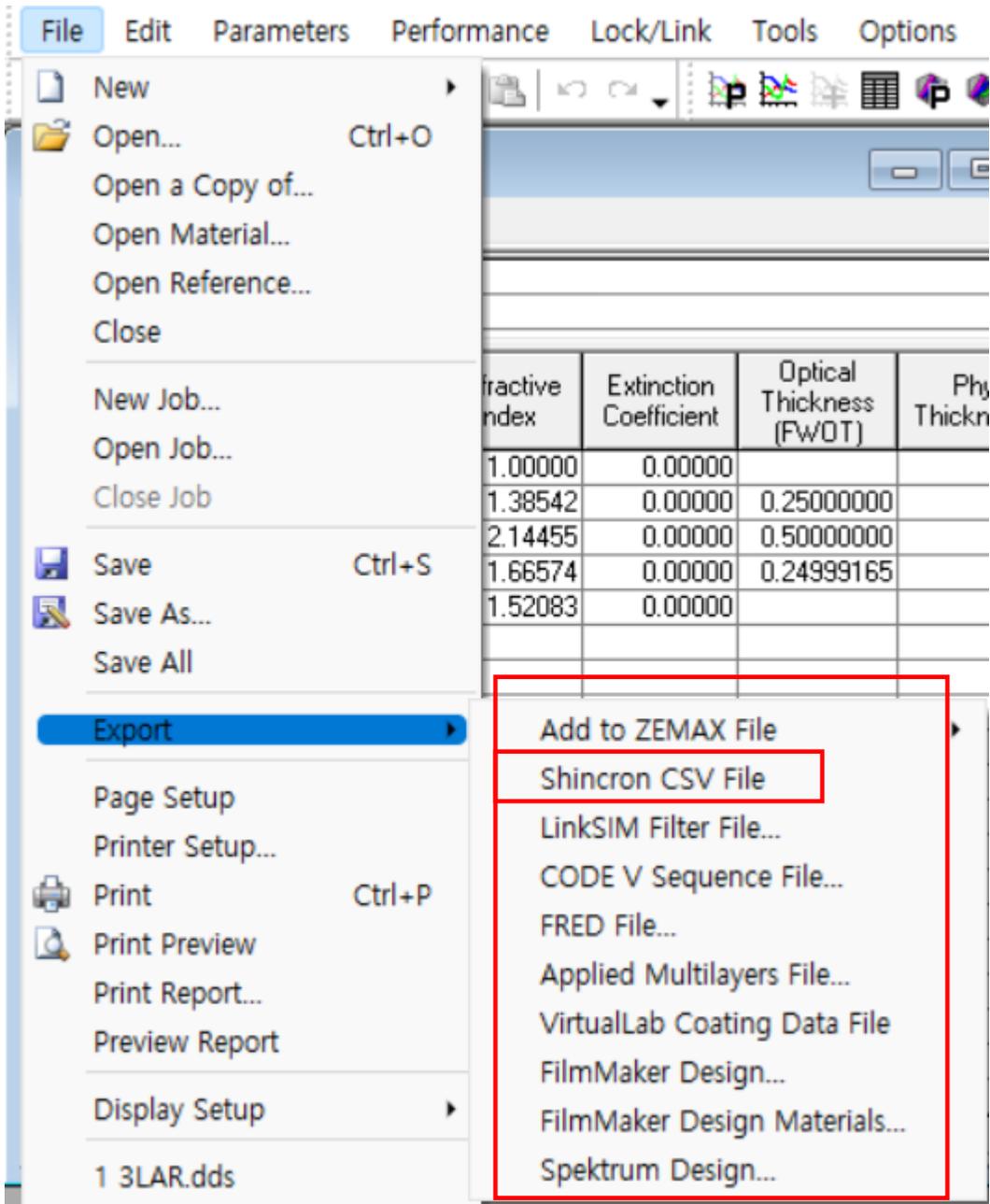
The Optical Constants tool now includes a directed data entry and automatic parameter extraction. When a new Optical Constants is started, you will be directed to enter the files containing the spectral data and provide information on the measurement conditions.

After this data has been provided, the tool will attempt to automatically extract the optical constants. The best result will be displayed. Alternative results are also available for review. Once the process has completed, the Optical Constants data can be edited in the usual way.





Export (다양한 형식의 파일 전환 출력)

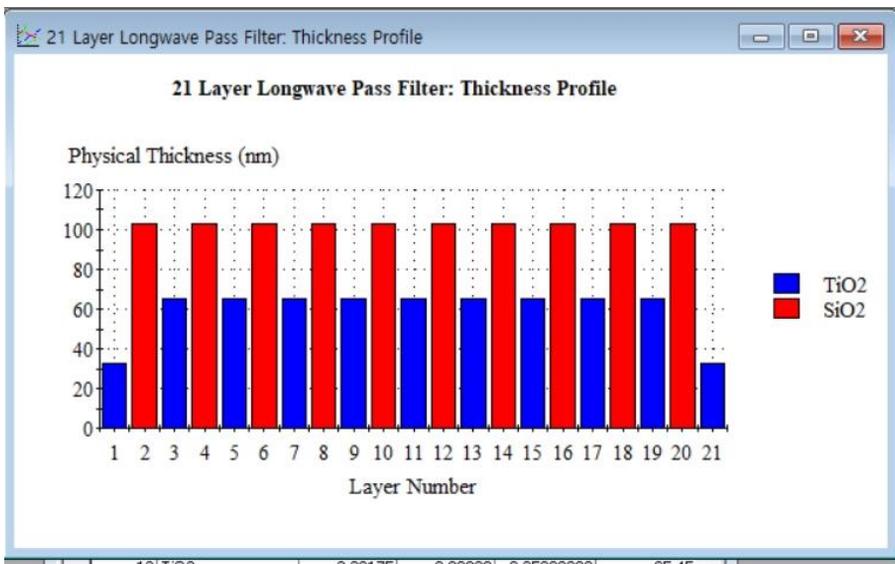
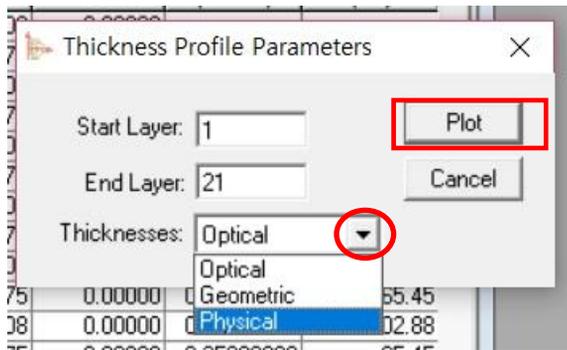
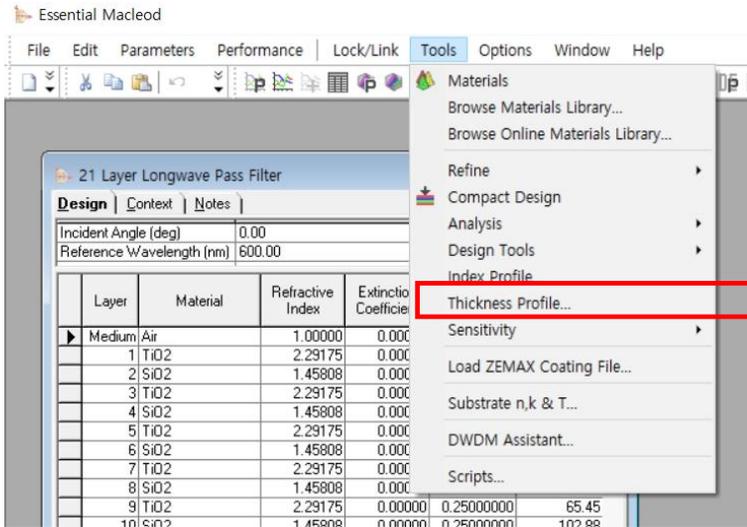


Export를 이용하여 타종의 파일과 바로 전환하여 사용이 가능합니다.

예 : Shincron CSV File 등

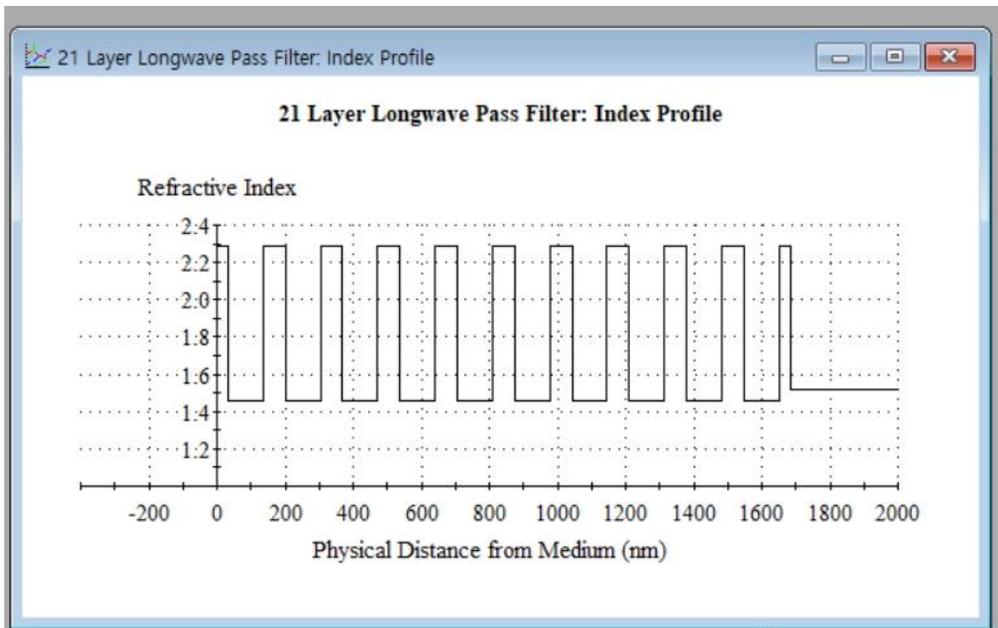
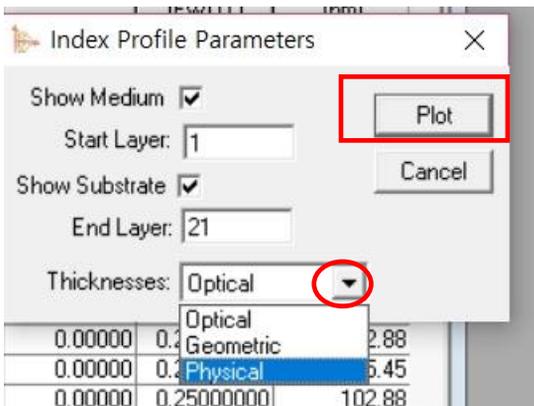
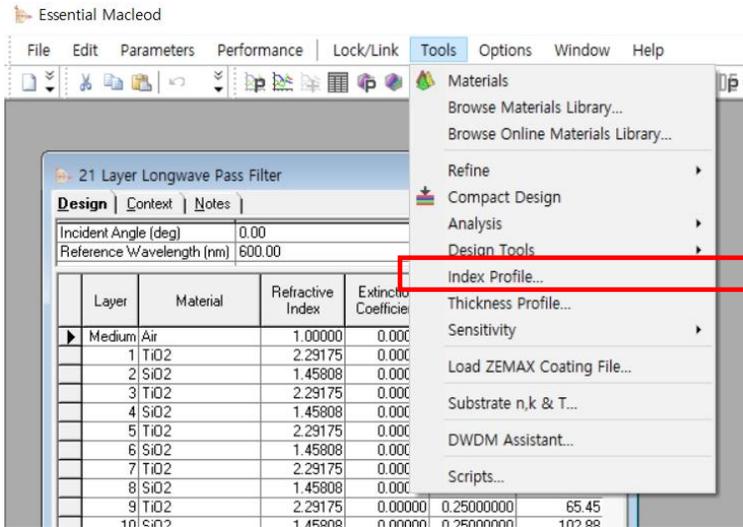
Thickness Profile

Design (in the Tools menu).



Index Profile

Design (in the Tools menu).

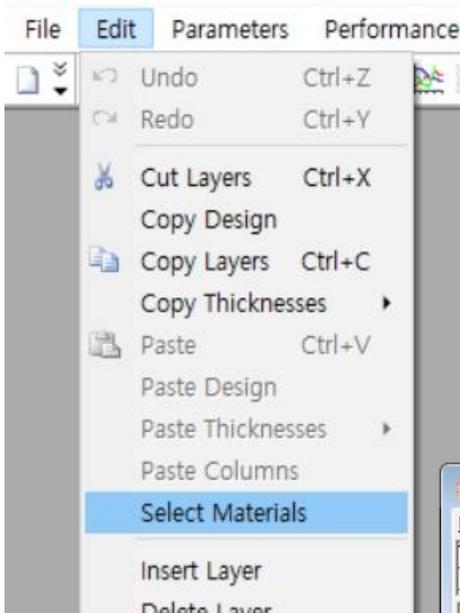


Select Materials

Select Materials (Edit menu of Designs)

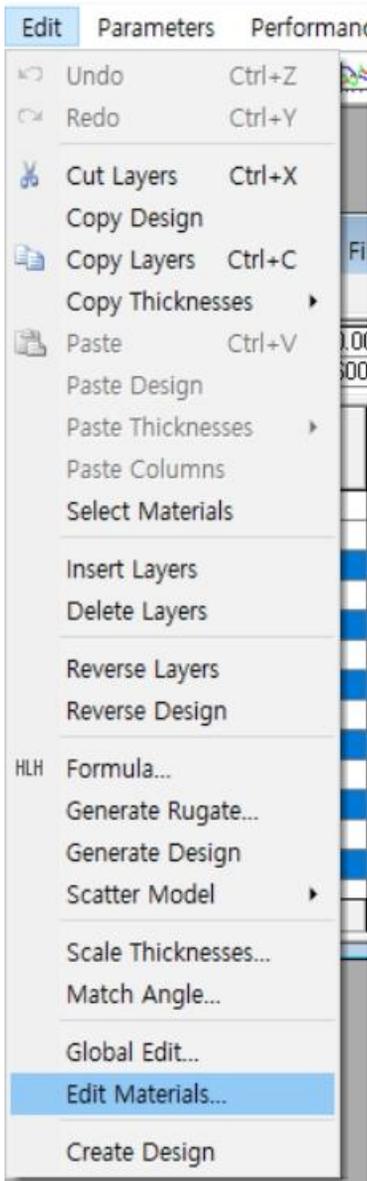
Layer	Material	Refractive Index	Extinction Coefficient	Optical Thickness (FWDT)	Physical Thickness (nm)
Medium	Air	1.00000	0.00000		
1	TiO2	2.29175	0.00000	0.12500000	32.73
2	SiO2	1.45808	0.00000	0.25000000	102.88
3	TiO2	2.29175	0.00000	0.25000000	65.45
4	SiO2	1.45808	0.00000	0.25000000	102.88
5	TiO2	2.29175	0.00000	0.25000000	65.45
6	SiO2	1.45808	0.00000	0.25000000	102.88
7	TiO2	2.29175	0.00000	0.25000000	65.45
8	SiO2	1.45808	0.00000	0.25000000	102.88
9	TiO2	2.29175	0.00000	0.25000000	65.45
10	SiO2	1.45808	0.00000	0.25000000	102.88
11	TiO2	2.29175	0.00000	0.25000000	65.45
12	SiO2	1.45808	0.00000	0.25000000	102.88
13	TiO2	2.29175	0.00000	0.25000000	65.45
				5.00000000	1683.27

해당 Materials line을 선택

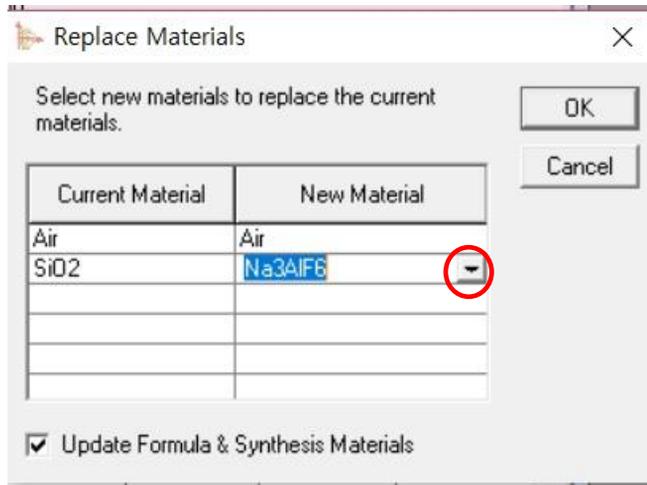


해당 물질이 모두 선택이 됩니다.

Layer	Material	Refractive Index	Extinction Coefficient	Optical Thickness (FWDT)	Physical Thickness (nm)
Medium	Air	1.00000	0.00000		
1	TiO2	2.29175	0.00000	0.12500000	32.73
2	SiO2	1.45808	0.00000	0.25000000	102.88
3	TiO2	2.29175	0.00000	0.25000000	65.45
4	SiO2	1.45808	0.00000	0.25000000	102.88
5	TiO2	2.29175	0.00000	0.25000000	65.45
6	SiO2	1.45808	0.00000	0.25000000	102.88
7	TiO2	2.29175	0.00000	0.25000000	65.45
8	SiO2	1.45808	0.00000	0.25000000	102.88
9	TiO2	2.29175	0.00000	0.25000000	65.45
10	SiO2	1.45808	0.00000	0.25000000	102.88
11	TiO2	2.29175	0.00000	0.25000000	65.45
12	SiO2	1.45808	0.00000	0.25000000	102.88
13	TiO2	2.29175	0.00000	0.25000000	65.45
				5.00000000	1683.27



해당 물질 변경 (Edit Materials)



21 Layer Longwave Pass Filter

Design | Context | Notes |

Incident Angle (deg) 0.00
Reference Wavelength (nm) 600.00

	Layer	Material	Refractive Index	Extinction Coefficient	Optical Thickness (FWOT)	Physical Thickness (nm)
	Medium	Air	1.00000	0.00000		
	1	TiO2	2.29175	0.00000	0.12500000	32.73
	2	Na3AlF6	1.35000	0.00000	0.25000000	111.11
	3	TiO2	2.29175	0.00000	0.25000000	65.45
	4	Na3AlF6	1.35000	0.00000	0.25000000	111.11
	5	TiO2	2.29175	0.00000	0.25000000	65.45
	6	Na3AlF6	1.35000	0.00000	0.25000000	111.11
	7	TiO2	2.29175	0.00000	0.25000000	65.45
	8	Na3AlF6	1.35000	0.00000	0.25000000	111.11
	9	TiO2	2.29175	0.00000	0.25000000	65.45
	10	Na3AlF6	1.35000	0.00000	0.25000000	111.11
	11	TiO2	2.29175	0.00000	0.25000000	65.45
	12	Na3AlF6	1.35000	0.00000	0.25000000	111.11
	13	TiO2	2.29175	0.00000	0.25000000	65.45
					5.00000000	1765.63

SiO2가 선정된 물질로 모두 변경 됩니다.

Context에 empty layer 넣기

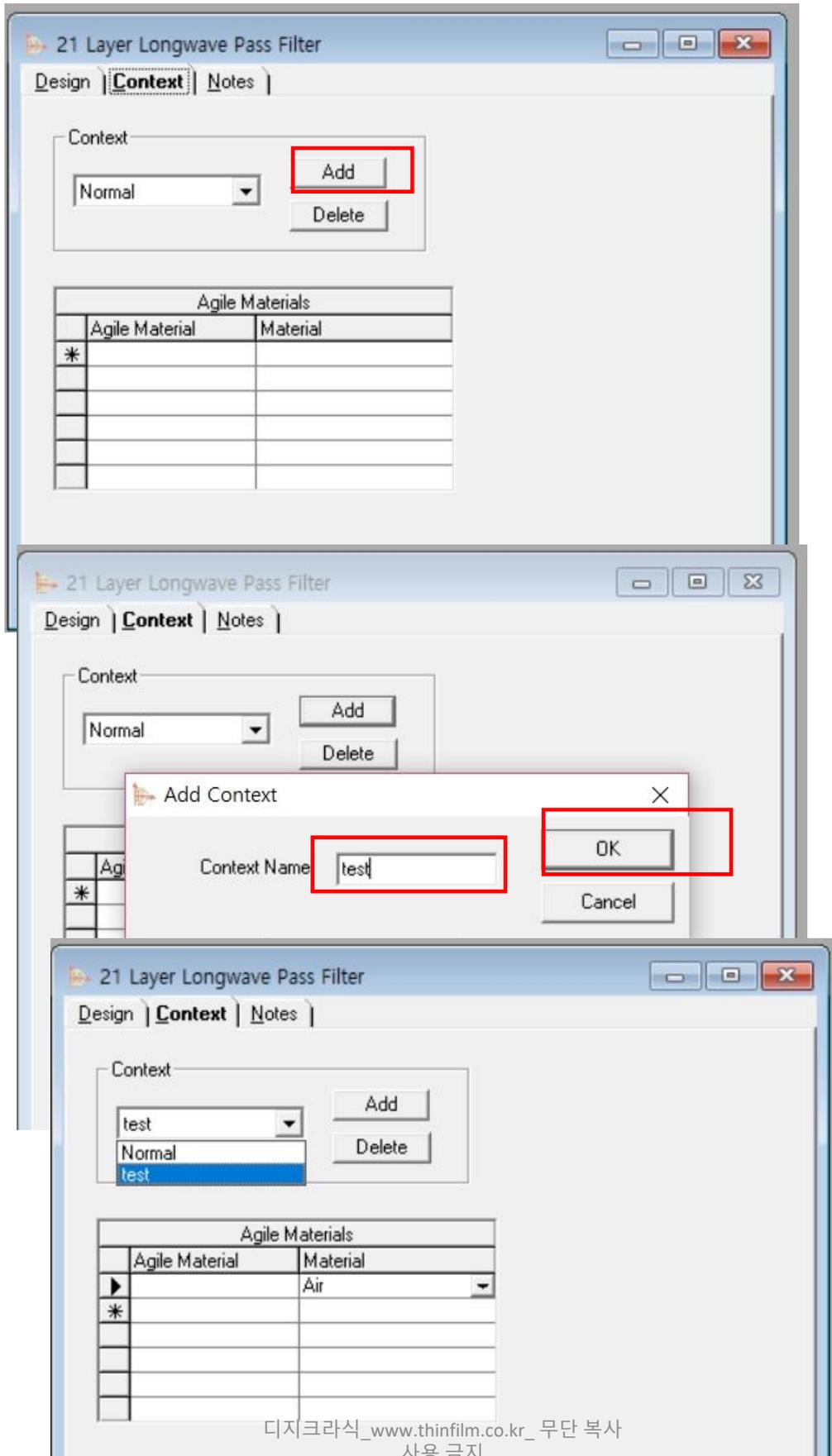


Table 파일 정렬 하기

21 Layer Longwave Pass Filter: Performance

Table | Notes

Design	21 Layer Longwave Pass Filter				
Reference Wavelength (nm)	600.00				
▶ Incident Angle (deg)	0.00				
*					
Wavelength (nm)	Reflectance (%)	Transmittance (%)	Reflectance-Phase (deg)	Transmittance-Phase (deg)	
400	51.871664	44.787088	161.478472	63.124992	
420	53.210396	44.836890	162.229789	-115.212404	
440	33.792841	64.645502	149.262548	43.640861	
▶ 460	9.804523	88.458001	-147.610396	163.522329	
480	67.678110	31.685918	-166.705384	-72.082112	
500	80.385092	19.351620	173.477937	81.466548	
520	86.108335	13.612481	166.942329	-106.958180	
540	99.765705	0.199319	-164.502298	-70.573057	
560	99.930281	0.046863	-153.145821	-56.634824	
580	99.961635	0.028754	-143.117276	-44.713299	
600	99.968128	0.031872	-132.848260	-32.929406	
620	99.918757	0.055268	-121.366500	-20.254103	
640	99.759229	0.141342	-107.531228	-5.681755	
660	99.242557	0.541960	-89.066338	12.639223	

21 Layer Longwave Pass Filter: Performance

Table | Notes

Design	21 Layer Longwave Pass Filter				
Reference Wavelength (nm)	600.00				
▶ Incident Angle (deg)	0.00				
*					
Wavelength (nm)	Reflectance (%)	Transmittance (%)	Reflectance-Phase (deg)	Transmittance-Phase (deg)	
400	51.871664	44.787088	161.478472	63.124992	
420	53.210396	44.836890	162.229789	-115.212404	
440	33.792841	64.645502	149.262548	43.640861	
▶ 460	9.804523	88.458001	-147.610396	163.522329	
480	67.678110	31.685918	-166.705384	-72.082112	
500	80.385092	19.351620	173.477937	81.466548	
520	86.108335	13.612481	166.942329	-106.958180	
540	99.765705	0.199319	-164.502298	-70.573057	
560	99.930281	0.046863	-153.145821	-56.634824	
580	99.961635	0.028754	-143.117276	-44.713299	
600	99.968128	0.031872	-132.848260	-32.929406	
620	99.918757	0.055268	-121.366500	-20.254103	
640	99.759229	0.141342	-107.531228	-5.681755	
660	99.242557	0.541960	-89.066338	12.639223	

해당 Header 선택



정렬 방식 선정

21 Layer Longwave Pass Filter: Performance

Table | Notes

Design	21 Layer Longwave			
Reference Wavelength (nm)	600.00			
Incident Angle (deg)	0.00			
*				
	Wavelength (nm)	Reflectance (%)	Transmittance (%)	Re
	820	0.451883	99.548117	
	840	0.984538	99.015462	
	800	2.783787	97.216213	
▶	760	3.015602	96.701013	
	860	3.083909	96.916091	
	920	3.307402	96.692598	
	940	3.434982	96.565018	
	900	3.792809	96.207191	
	960	3.951663	96.048337	
	780	4.089356	95.789586	
	880	4.110808	95.889192	
	1000	4.245307	95.754693	
	980	4.287673	95.712327	
	720	4.668844	94.428783	

설정대로 정렬되어 보여집니다.

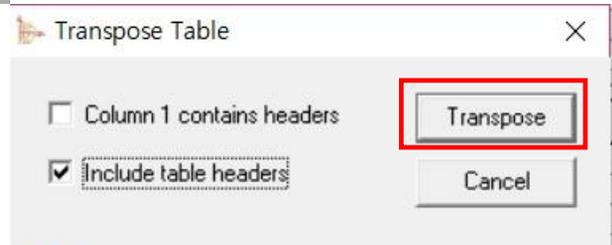
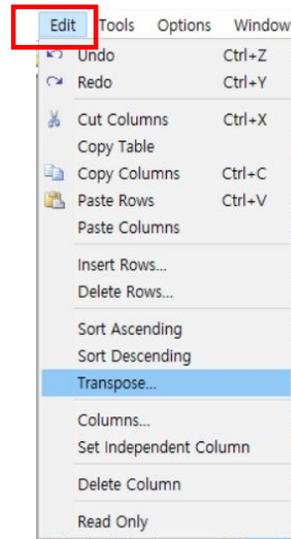
Table 파일 돌려 보기 (Transpose)

21 Layer Longwave Pass Filter: Performance

Table | Notes

Design	21 Layer Longwave		
Reference Wavelength (nm)	600.00		
Incident Angle (deg)	0.00		
*			
Wavelength (nm)	Reflectance (%)	Transmittance (%)	Re
820	0.451883	99.548117	
840	0.984538	99.015462	
800	2.783787	97.216213	
760	3.015602	96.701013	
860	3.083909	96.916091	
920	3.307402	96.692598	
940	3.434982	96.565018	
900	3.792809	96.207191	
960	3.951663	96.048337	
780	4.089356	95.789586	
880	4.110808	95.889192	
1000	4.245307	95.754693	
980	4.287673	95.712327	
720	4.668844	94.428783	

Table File이 열린 상태에서



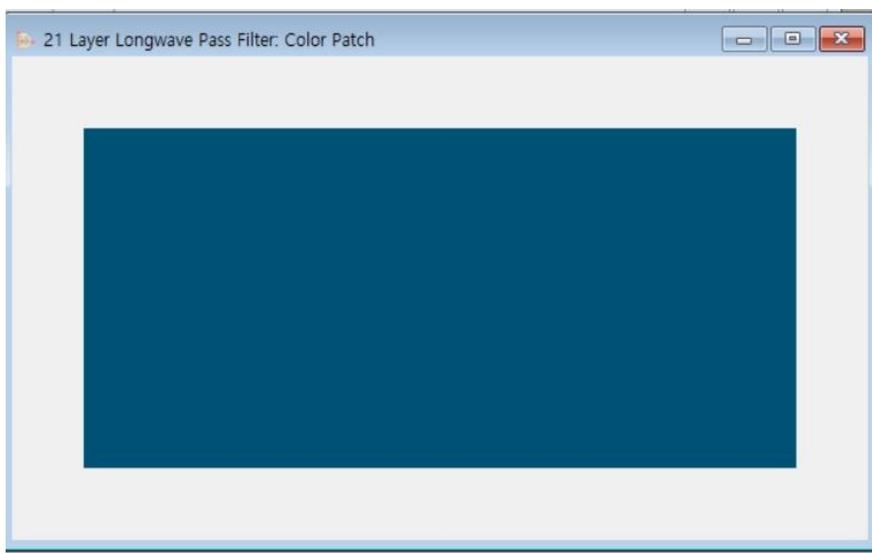
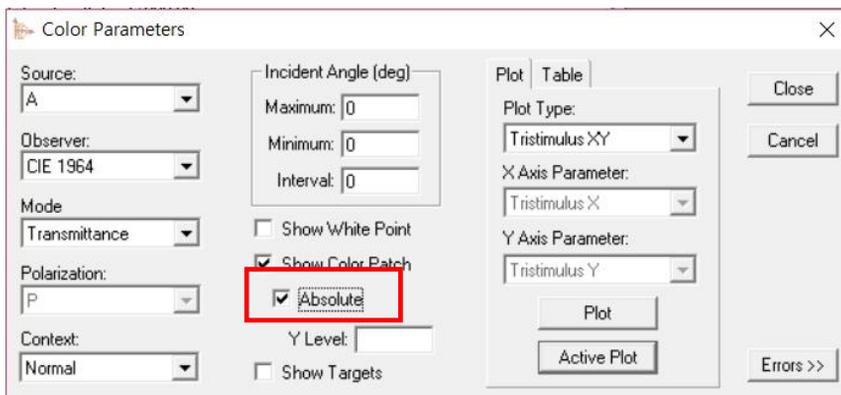
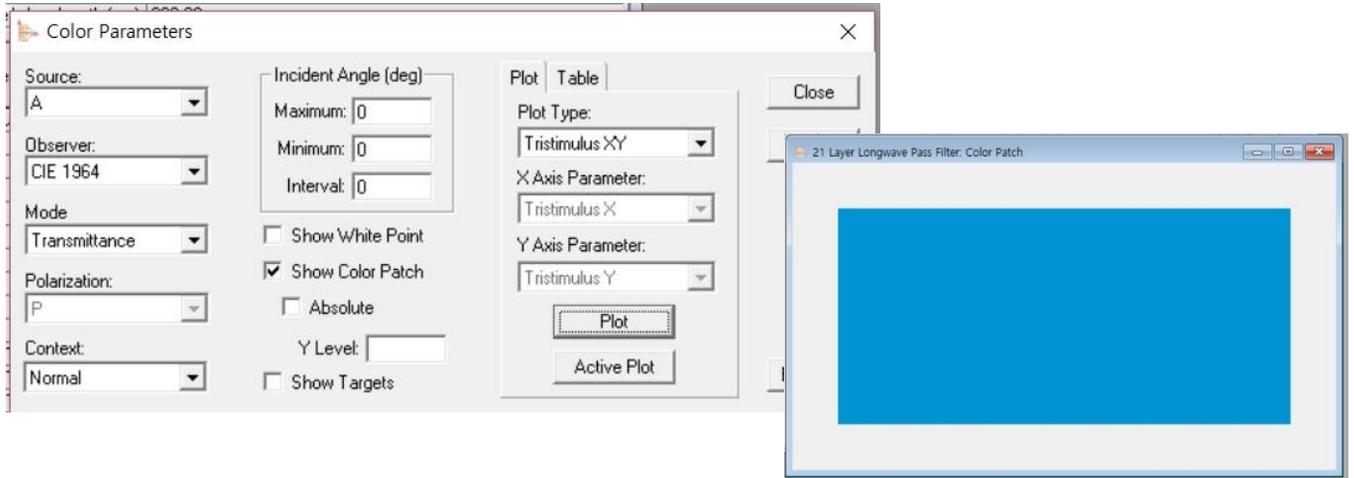
종에서 횡으로 변경되어 보여줍니다

21 Layer Longwave Pass Filter: Performance

Table | Notes

Design	21 Layer Longwave Pass Filter						
Reference Wavelength (nm)	600.00						
Incident Angle (deg)	0.00						
*							
	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Wavelength	820	840	800	760	860		
Reflectance	451883259959115	.984538173160525	2.78378702596389	3.01560178229911	3.0839093363146	3.307401	
Transmittance	99.5481167400409	99.0154618268395	97.2162129740362	96.7010127038855	96.9160906636855	96.692598	
Reflectance-Phase	-138.364027481219	155.012704243227	-143.110809176131	79.8990589755237	164.534461904369	-174.9182	
Transmittance-Phase	73.7514905749802	110.279037978791	35.009604319408	-53.795026646407	144.011756713902	-126.4933	
*							

Brightness to the color patch



Brightness가 반영된 Color Patch