최신 버전 주요 사양

Scattering tool

BRDF/BTDF 및 angle resolved scatter 계산 가능



LightTools Coating File 작성(보내기)가능

] j	New Open Open a Copy of Open Material Open Reference	, Ctrl+O	↓ ● ■ 単 盤 韓 ■ ●	• • • •		
	Close					
	New Job Open Job Close Job		Extinction Coefficient (FWDT)	Physical Thickness (nm)		
2	Save Save As Save All	Ctrl+S	0.00000 0.12500000 0.00000 0.12500000 0.00000 0.25000000 0.00000 0.12500000 0.00000 0.12500000	29.73 87.22 29.73		
	Export	Þ	Add to ZEMAX File	· [
i i i i i i i i i i i i i i i i i i i	Page Setup Printer Setup Print Print Preview Print Report Preview Report	Ctrl+P	Shincron CSV File LinkSIM Filter File CODE V Sequence Fi FRED File Applied Multilayers F VirtualLab Coating D EilmMaker Decign	le ile ata File		
	Display Setup	•	FilmMaker Design	aterials		
	1 Scattering Interfaces.dds 2 scatter1.dds 3 Four Laver 2-1 AR.dds		Spektrum Design LightTools Coating F	le 🔶	LightTool	s Coating File

Spectral data를 입력 가능

Spectral data를 Clipboard에 복사 (Control + C)

В	С	
150	200	
16	300	

Optical Constants, Substrate optical constants and Reverse Engineer 작성

🕎 Optical Constants	×	
Import Transmittance		
Paste Date		
Choose Data Baste Data	Bemove Data	
Cancel	Back Next	
-	_	
Template	Delete Templa	
Template <none></none>	Delete Templa	te
Template <none> Pause Select the rows containing the data that you wish to inclu</none>	Delete Templa ide/exclude	te
Template <none></none>	Delete Templa ide/exclude Rows	te
Template Image: Template Image: Te	Delete Templa ide/exclude Rows	te
Template <none> ✓ <</none>	Delete Templa ide/exclude Rows	te
Template Pause Select the rows containing the data that you wish to inclu Exclude Selected ● Include Selected Rows ○ Exclude Selected ● 150 200 ● 16 300	 Delete Templa ide/exclude Rows	te
Template Pause Select the rows containing the data that you wish to inclu Exclude Selected ● Include Selected Rows ○ Exclude Selected ● 150 200 16 300	 Delete Templa ide/exclude Rows	te
Template <none> Pause Select the rows containing the data that you wish to inclu Include Selected Rows Exclude Selected 150 200 16 300</none>	Delete Templa Ide/exclude Rows	te
Template Pause Select the rows containing the data that you wish to inclu Exclude Selected ● Include Selected Rows ○ Exclude Selected ● 150 200 16 300	Delete Templa ide/exclude Rows	
Template <none> ✓ <</none>	Delete Templa Ide/exclude Rows	
Template Include Selected Rows Include Selected Rows Include Selected Rows Exclude Selected 150 200 16 300	Delete Templa ide/exclude Rows	

Clip Board에 저장된 Data가 그대로 표시됨

Yield Specification Plot

1 - E	Errors						×	
	Material	Thickness Mean Error	Thickness Standard Deviation	Minimum Thickness	Index Mean Error	Index Standard Deviation	ОК	
►	Ti02	0	0	0.00	0	0	Plot	
	Si02	0	0	0.00	0	0		
							Statistics Table	
	Number o	f Cases: 10		🗌 Inclu	de Locking			Errors Tool > vield details
	Include Thi	ckness Errors	:	□ Inclu	de Links		Color	<u> </u>
	Include Ind	ex Errors		l Indep	pendent Inde	ex Errors		
	Keep Wors	t Designs	Number to Ke	ep: 3			Cancel	
Γ	🔽 Estimate Yi	eld 🔽 🤄	Show Details	7				
	Statistics Table	spectra storec	fin:					
					Cho	oose		
	Statistics Table	color data sto	red in:					
					Cho	oose		

Hue Angle Range 확대

b Essential Macleod Options		×
Cone Designs]	
Active Plot Legacy	Data Sources Windows Plotting	OK
Targets Bandom	Observers Sources CRI	
Update Color	Print JPEG 3D Plot	Cancel
Wavelength Interval for Perform Wavelength Interval for Refine CIE2000 Color Difference kL 1 kC 1 kH 1	nance (nm): 1 ement (nm): 1 Hue Angle Range • -180 180 • 0 360	

Options > General, Color Tab

REVERSE ENGINEER

single layer 광학 상수 도출 기능 추가

Reverse Engineer	X
Choose Task	
Reverse Engineer Multiple Layers	
Derive Optical Constants of a Single Layer	
Reverse Engineer]
Specify Layer	
Enter the estimated thickness for the layer and an initial material.	
Lauer Thickness (nm)	
Layer Inickness (nin)	
Filter Initial Material List:	
Material n Model	
Initial Material New Material	
Cancel	

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



Try Alternate Paths

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

File	Edit	Parameters	Performance	Lock/Link	Tools	Options	Windo
	j 🔒 🛙	Performa	ance		de 隆 🖻	è 🔳 🍅	ي 🛖 🧶
h		Refinem	ent 🔸	🧿 Targ	ets		
<u>₽</u> + 21	-Layer	3D Perfo	ormance	🐌 Sim	olex		
Desig	jn <u>C</u> o	Yield Sp	ecification	[þ Opti	mac		
Befer	ence Wa	(deg) avelenath (nm)	0.00 600.00	SP Sim	ulated Ann	ealing	
	1	(iiii)		Conj	iugate Gra	dient	E
	Layer	Material	Refractive	Up Qua	si Newton.		Â
	Aedium A	Air	1 00000	IP Need	dle Synthe	SIS	
	1	 TiO2	2.29175	NE Nee	erential Evo	blution	
	2 9	5102	1.45808	Non	LOCAL RETI	nement	2 20
🕞 Si	mplex	Parameters	5				187.56
Ge	neral—						93.54
		Number	of Iterations: 📊	00	0		77.04
		Minimum Me	rit Eunction		Refi	ine	167 /0
l Ir	nprove	ment To Upd	ate Plot (%): 25				
		Recy	cle Interval: 🛛		Can	cel	
		Try Altern	ate Paths 🔽				
[^{Thi}	ckness	es D-G TI					
		Herine II	nicknesses 🖌				
	Starti	ing Thicknes:	Increment: [0,1				
	ev						
	- Ch	Re	fine Index 🔲				
	5	tarting Density -	Increment: [U.				
		Commo	n Scaling: 🔽				
Me	rit Func	tion					
		Merit Fund	tion Power: 2				
l li	mitina F	Bange For Me	rit Euroction: 10.0	11			
	Use	Custom Merit	Function				
So	ource F	ile:					
			Deer	1			
			BIO	vse			

Edge Filter 물질 Data 범위 확대

File Edit Pa	rameters Perform	ance Lock	/Link 1	Tools	Options	Window	Help												
🗋 💕 🛃 🚳 🕯	🗟 🗸 🛛 👗 🛍	n a 📲	- 🔤 🕻	М	aterials				þ	þ Sjá	A CØ	ġ0	þ	Dįp	Nþ.,		4	G	80
				Br Br	owse Materi owse Online	ials Library e Materials I	Library												
► Design3				Re	fine			•											
<u>D</u> esign <u>C</u>	ontext <u>N</u> otes			t Co	ompact Desi	ign													
Incident Angl	e (deg) 0.00 (avelength (nm) 510.0	i0		Ar	nalysis			•											
Inelelence w	avelengin (nin) 510.0		_	De	esign Tools			•		Edg	e Filt	er							
Layer	Material	Refractive Index	Extin Coeffi	ine Th	dex Profile ickness Prof	file				Her Indu	pin uced	Tran	smiss	ion	Filter	Desid	an		
▶ Mediu	m Air	1.00000	0.1	Se	ensitivity			•		Sym	nmet	rical	Perio	ds					
Substra	te Glass	1.35000	0.1		1.751.014	o e el				<i>.</i>	-	-	-	-	-	-	-	-	1

🐎 Edge Filter Design		×
Shortwave Pass Filter: Longwave Pass Filter:	е С	Make Edge Filter
Edge Wavelength (nm)	510.00	Cancel
Incident Medium:	Air 💌	
Incident Angle (deg)	45.00	
Material A:	•	
Material B:	-	
Number of Periods:	1	
Lower Search Limit:	0.10	
Upper Search Limit:	1.00	
Search Interval	0.05	

Various plot parameters

보강된 Plot data

	Pa	ramet	ers Pe	rformance	Lock/L	ink T	ools	Option	ns N	Window	Help				
5	þ	Perf	ormance	·	° -		22 注注	II (†	5 🏟	♣ -	≬.	0	\$Þ	(þ	Sp
	¢	Refin 3D I Yield	nement Performa d Specifi	Ance cation											
		<mark>⊨</mark> ⊷ <u>D</u> e:	21-Layer sign <u>C</u>	· Longwave Pa ontext) <u>N</u> otes	iss Filte	r							×		
l		Inci Ref	ident Ang ference W	le (deg) /avelength (nm)	0.00)									
			Layer	Material	F	Refractiv Index	e Ex Co	tinction		Optical hickness FWOT)	Physi Thickr (nm	cal ness 1)	^		
			Medium	Air		1.000	000	0.0000	0						
			1	Ti02		2.291	75	0.0000	10 0.	12500000		32.73			

Performance Parameters	
Horizontal Axis Vertical Axis 2nd Vertical Axis	
Wavelength (nm) Wavelength (nm) Wavelength (nm) Wavenumber (cm-1) Incident Angle (deg) Layer Thickness (Optical) Layer Thickness (nm) Layer Thickness (Geometric) Interval for Plot Interval for Table	
Performance Parameters	×
Horizontal Axis Vertical Axis 2nd Vertical Axis	
Transmittance Magnitude (%)	<u>0</u> K
Transmittance Magnitude (%) ▲ Reflectance Magnitude (%) ▲ Transmittance Phase (deg) ■ Back Reflectance Phase (deg) ■ Back Reflectance Phase (deg) ■ Back Reflectance (%) ■ Denixty 0 ■ Incident Angle (deg) 0 ■ Add to Label ■ ■ Incident Angle (deg) 0 ■ Polarization ■ ■ P ♥ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	<u>P</u> lot Plot 0 <u>v</u> er <u>A</u> ctive Plot <u>I</u> able <u>C</u> ancel
Add to Label	

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.



Magguramont Conditions		
Measurement Conditions		
This tool derives optical constants for dielectric materials. fringes.	The spectrometer measurements must	show interference
Enter the measurement conditions on this page. On the ne imported. Either transmitance data or reflectance data mus	ext two pages transmittance and reflec st be present for optical constant extra-	tance data can be ction
Incident Angle (deg)		
Polarization: P		
Tolerance (%) 0.5		
Cancel	Back	Next

— 🕎 Optical Constants			
			×
Import Transmittan	ice		
	Scale Range (Magnitude)		
Choose Data	C 0·1 @ 0·100%		Remove Data
Consel		Paals	Neut
		Васк	
1			
Optical Constants			
Import Reflectance	•		
	Scale Range (Magnitude)		
Choose Data	○ 0·1	Single Sided Beflectance	Remove Data
		TICHECIGHICE	
		Treffectarice	
Cancel		Back	Next
Cancel		Back	Next
Cancel		Back	Next
Cancel		Back	Next ×
Cancel		Back	×
Cancel Cancel Constants Cubstrate Either a material from the da substrate data. Select a material	tabase or measurements of the uncoated sub erial from the dropdown list or check Use Spe	Back Back	Next
Cancel Cancel Optical Constants Substrate Either a material from the da substrate data. Select a material Next.	tabase or measurements of the uncoated sub erial from the dropdown list or check Use Spe	Back Back	Next
Cancel Cancel Constants Cubstrate Either a material from the da substrate data. Select a material Next. The substrate will be assumed	tabase or measurements of the uncoated sub erial from the dropdown list or check. Use Spe ed to be transparent if only transmittance data	Back Back	e the then click on provided.
Cancel Cancel Constants Cubstrate Either a material from the da substrate data. Select a mai Next. The substrate will be assume	tabase or measurements of the uncoated sub terial from the dropdown list or check Use Spe ed to be transparent if only transmittance data	Back Back	a the then click on provided.
Cancel Cancel Constants Cubstrate Either a material from the da substrate data. Select a mat Next. The substrate will be assum Use Spectrum	tabase or measurements of the uncoated sub terial from the dropdown list or check Use Spe ed to be transparent if only transmittance data	Back Back Instrate can be used to provide a or only reflectance data are	a the then click on provided.
Cancel Cancel Constants Cubstrate Either a material from the da substrate data. Select a mai Next. The substrate will be assum Use Spectrum Smooth Spectrum	tabase or measurements of the uncoated sub ierial from the dropdown list or check Use Spe ed to be transparent if only transmittance data	Back Back	e the then click on provided.
Cancel Cancel Constants Cubstrate Either a material from the da substrate data. Select a mail Next. The substrate will be assum Use Spectrum Smooth Spectrum Material:	tabase or measurements of the uncoated sub terial from the dropdown list or check Use Spe ed to be transparent if only transmittance data	Back Back	a the then click on provided.
Cancel Cancel Constants Cubstrate Cubstrate Cubstrate data. Select a mail Next. The substrate will be assum Use Spectrum Smooth Spectrum Materiat: Thickness (mm)	tabase or measurements of the uncoated sub terial from the dropdown list or check. Use Spe ed to be transparent if only transmittance data Air	Back Back	e the then click on provided.
Cancel Cancel Constants Cubstrate Either a material from the da substrate data. Select a mail Next. The substrate will be assum Use Spectrum Smooth Spectrum Material: Thickness (mm)	tabase or measurements of the uncoated sub terial from the dropdown list or check Use Spe ed to be transparent if only transmittance data	Back Back	e the then click on provided.
Cancel Cancel Constants Cubstrate Either a material from the data Select a mail Next. The substrate will be assum Use Spectrum Smooth Spectrum Material: Thickness (mm)	tabase or measurements of the uncoated sub terial from the dropdown list or check Use Spe ed to be transparent if only transmittance data	Back Back	a the then click on provided.
Cancel Cancel Constants Cubstrate Either a material from the da substrate data. Select a mai Next. The substrate will be assum Use Spectrum Smooth Spectrum Material: Thickness (mm)	tabase or measurements of the uncoated sub terial from the dropdown list or check. Use Spe ed to be transparent if only transmittance data	Back Back estrate can be used to provide ectrum to add measurements, a or only reflectance data are	s the then click on provided.
Cancel Cancel Constants Cubstrate Either a material from the da substrate data. Select a mai Next. The substrate will be assum Use Spectrum Smooth Spectrum Material: Thickness (mm) Cancel	tabase or measurements of the uncoated sub terial from the dropdown list or check Use Spe ed to be transparent if only transmittance data	Back Back Back Back Back	e the then click on provided.

디지크라식_www.thinfilm.co.kr_ 무단 복사 사용 금지

Export (다양한 형식의 파일 전환 출력)

	File	Edit Paramete	rs Perforn	nance	Lock/Link	Tools	Ор	tions	
		New Open Open a Copy of Open Material Open Reference Close	, Ctrl+O			•			
		New Job Open Job Close Job		fractive ndex 1.00000 1.38542	Extinction Coefficient 0.00000 0.00000	Opti Thick (FW)	cal ness OT) 00000	Phy Thickn	
	2	Save Save As Save All	Ctrl+S	2.14455 1.66574 1.52083	0.00000 0.00000 0.00000	0.500 0.249	00000 99165		
		Export	•	Ado	to ZEMAX	File		•	
- 		Page Setup Printer Setup Print Print Preview Print Report Preview Report	Ctrl+P	Ctrl+P Ctrl+P Ctrl+P Shincron CSV File LinkSIM Filter File CODE V Sequence FRED File Applied Multilayers VirtualLab Coating					
		Display Setup 1 3LAR.dds	•	FilmMaker Design FilmMaker Design Materials Spektrum Design					

Export를 이용하여 타종의 파일과 바로 전환하여 사용이 가능합니다. 예 : Shincron CSV File 등

Thickness Profile

Design (in the Tools menu).

le E	dit Pa	rameters Perfor	mance Lo	ock/Link	100	Is Options	window	нер	
» •	X 🗈 🕻	<u>ا</u> ب م	p 🖄 🛱 🄳	(p 🌒 (1	Materials Browse Mater Browse Online	ials Library Materials L	ibrary	Dé
-	21 Laver	Longwave Pass F	ilter			Refine			•
De	aion) C	antaut) Matas)		-	*	Compact Des	ian		- 11
De	sign ∣ ⊡	ontext <u>N</u> otes				Analysis	5		х III
Inc	ident Angl	e (deg) 0.0	0			Analysis			1 H
Re	ference W	(avelength (nm) 60	0.00			Design Tools			· .
		1			Index Profile			_	
	Layer	Material	Refractive Index	Extinctio Coefficie		Thickness Pro	file		
I	Medium	Air	1.00000	0.000		Sensitivity			× .
	1	Ti02	2.29175	0.000		Land TELLAN			_
	2	SiO2	1.45808	0.000		LOad ZEMAX	Coating File		- 83
	3	Ti02	2.29175	0.000		Cubetrata p.k	0. T		- 11
	4	SiO2	1.45808	0.000		Substrate n,k	oc 1		- 84
	5	Ti02	2.29175	0.000		DWDM Assist	ant		- 11
	6	SiO2	1.45808	0.000		DIVIDINI ASSIST	on		- 84
	7	Ti02	2.29175	0.000		Scripts			- 11
	8	SiO2	1.45808	0.000		ocripto			_
	9	Ti02	2.29175	0.0000	0 0	.25000000	65.45		
	1 10	0.00	1 45000	0.00000	ol o	25000000	100.00		





Index Profile

Design (in the Tools menu).

Essent	ial Mach	eod								
le E	dit Pa	rameters	Perfor	mance Lo	ock/Link	tools (Options	Window	Help	
• «	X 🗈	2 × 3		2221日1月11日11日11日11日11日11日11日11日11日11日11日11日	(îp 🌒 💧	Mate Brow Brow	rials se Mater se Online	ials Library e Materials I	.ibrary	
De:	21 Layer sign <u>C</u>	Longwave Fort	Pass Fi	lter	4	Refin	e pact Des	ign		•
Inc	ident Ang	e (dea)	0.0	0		Analy	sis			•
Rel	ference).00	_	Desid	in Tools			->		
l'r			-			Index Profile				
	Layer	Materia	1	Refractive Index	Extinctio Coefficie	Thick	ness Pro	file		
1	Medium	Air		1.00000	0.000	Sensi	tivity			•
	1	TiO2		2.29175	0.000	Land	TELANY	Casting Tile		
	2	SiO2		1.45808	0.000	Load	ZEMAX	Coating File	***	
	3	Ti02		2.29175	0.000	Cube	rate p k	0. T		
	4	SiO2		1.45808	0.000	Subsi	late II,K	oc 1		
	5	TiO2		2.29175	0.000	DWD	M Acciet	ant		
	6	SiO2		1.45808	0.000	DWD	ASSIST			
	7	TiO2		2.29175	0.000	Scrint	te			
	8	SiO2		1.45808	0.000	Jenp				_
	9	TiO2		2.29175	0.00000	0.2500	0000	65.45		
	10	\$602		1 //5808	0.00000	0.2500	0000	102.98		





Select Materials

Select Materials (Edit menu of Designs)

	21 Layer	Longwave Pa	ss Fi	lter				×
De	sign 🗎 🖸	ontext <u>N</u> otes	Ì					
Inc	ident Angl	e (deg)	0.0)				
Re	ierence W	avelength (nm)	600	.00				
	Layer	Material		Refractive Index	Extinction Coefficient	Optical Thickness (FWOT)	Physical Thickness (nm)	^
	Medium	Air		1.00000	0.00000			2
	1	TiO2	_	2.29175	0.00000	0.12500000	32.73	
•	2	Si02	-	1.45808	0.00000	0.25000000	102.88	
-	3	Ti02		2.29175	0.00000	0.25000000	65.45	
_	4	SiO2		1.45808	0.00000	0.25000000	102.88	
	5	Ti02		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	Si02		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	Ti02		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 5.00000000	65.45 1683.27	~

해당 Materials line을 선택

Euli	Parameters	Perfo	ormance
KC)	Undo	Ctrl+Z	24
CH	Redo	Ctrl+Y	
×	Cut Layers	Ctrl+X	
	Copy Design		- 11
	Copy Layers	Ctrl+C	- 11
	Copy Thicknes	ses	•
3	Paste	Ctrl+V	- 11
	Paste Design		- 11
	Paste Thicknes	ses	۰ I
	Paste Column	S	
	Select Materia	ls	
	Insert Layer		
	Delete Laver		
		 Undo Redo Cut Layers Copy Design Copy Layers Copy Thickness Paste Paste Design Paste Thickness Paste Column Select Materia Insert Layer Delete Layer 	Image: Select Material select sel

해당 물질이 모두 선택이 됩니다.

nc	ident Angi	le (deg)	0.00)				
Re	ference W	/avelength (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	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	Ti02		2.29175	0.00000	0.25000000	65.45	i
	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		2 291.75	0.00000	0.25000000	65.45	-
						5.000000000	1683.27	Y



해당 물질 변경 (Edit Materials)

o replace trie culterit	OK
New Material	Cancel
Air	
)
	New Material Air Na3AIF6

	🗈 21 Layer Longwave Pass Filter											
De	sign 🗎 🖸	ontext) <u>N</u> otes	ì									
Inc	ident Angl	e (deg)	0.00				_					
Re	ference W	/avelength (nm)	600.00									
	Layer Material		Refractive Index	Extinction Coefficient	Optical Thickness (FWOT)	Physical Thickness (nm)	^					
	Medium	Air	1.00000	0.00000								
	1	Ti02	2.29175	0.00000	0.12500000	32.73						
•	2	Na3AlF6	1.35000	0.00000	0.25000000	111.11						
	3	Ti02	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	Na3AIF6	1.35000	0.00000	0.25000000	111.11						
	7	Ti02	2.29175	0.00000	0.25000000	65.45						
	8	Na3AlF6	1.35000	0.00000	0.25000000	111.11						
	9	Ti02	2.29175	0.00000	0.25000000	65.45						
	10	Na3AIF6	1.35000	0.00000	0.25000000	111.11						
	11	Ti02	2.29175	0.00000	0.25000000	65.45						
	12	Na3AIF6	1.35000	0.00000	0.25000000	111.11						
	13	TiO2	2 29175	0.00000,	0.25000000	65.45						
					5.00000000	1765.63	Y					

SiO2가 선정한 물질로 모두 변경 됩니다.

Context에 empty layer 넣기

See 21 Layer Longwave Pass Filter	
Design Context Notes	
Context Normal Delete	
Agile Materials	
Agile Material Material	
*	
📙 21 Layer Longwave Pass Filter	
Design Context Notes	
Context	
Add	
Normal Delete	
Add Context	×
Agi Context Name test	
*	Cancel
De of Level annual Dev Siles	
Design Context Notes	
Design Doutew Hores	
Context	
test Add	
Normal Delete	
Agile Materials	
Agiie Material Material	
*	
니시크라식_www.thinfilm.co 사용 금지	.kr_ 부난 목사

Table 파일 정렬 하기

П	21 Layer Long	gwave Pass Fi	lter: Performan	ce		×				
Ia	ble <u>N</u> otes									
	Design		21 Layer Longwave Pass Filter							
	Reference Wa	welength (nm)	600.00							
1	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	~				

Т	21 Layer Long	gwave Pass Fi	lter: Performan	ce		×					
Ia	ble <u>N</u> otes										
	Design		21 Layer Longwave Pass Filter								
	Reference Wa	velength (nm)	600.00								
	Incident Angle	(deg)	0.00								
*		AU 21002									
	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	j.					
	640	99.759229	0.141342	-107.531228	-5.681755	2					
	660	99.242557	0.541960	-89.066338	12.639223	~					

해당 Header 선택



정렬 방식 선정

	Design	21 Layer Longwave 600.00 0.00		
	Reference Wa			
•	Incident Angle			
*				
	Wavelength (nm)	Reflectance (%)	Transmittance (%)	Re
	820	0.451883	99.548117	1
	840	0.984538	99.015462	1
	800	2.783787	97.216213	
•	760	3.015602	96.701013	1
	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)

종에서

	Design		21 Laver Longw	ave				
-	Reference Wavelength (nm)		600.00 Table File이 열린 상태			태에서		
•			0.00					
ŧ					_			
	Wavelength	Reflectance	Transmittance	Re	EC	lit Tools Option Undo	Ctrl+Z	
	(nm)	(%)	(%)		C	Redo	Ctrl+Y	
	820	0.451883	99.548117		×	Cut Columns	Ctrl+X	
	840	0.984538	99.015462	_	55	Copy Table		
_	800	2.783787	97.216213			Copy Columns	Ctrl+C	
	760	3.015602	96.701013			Paste Rows	Ctrl+V	
_	860	3.083909	96,916091	_		Paste Columns	-	
_	920	3.307402	96.692598			Insert Rows		
-	940	3.434382	35.353018			Delete Rows	[
-	900	3.732603	96.207191	_		Sort Ascending	Ĩ	
-	790	4 000056	95 799595		_	Sort Descending		
-	880	4 110808	95,889192			Transpose		
	1000	4 245307	95 754693			Columns		
	980	4.287673	95.712327	-		Set Independent C	Column	
	720	4.668844	94.428783			Delete Column		
					Read Only			
1				1	iose T	able		
				2	0.000	0010		
							E	
				ımn 1	contains heade	ers	Transpos	
				ide ta	ble beaders		.	

	Design	21 Layer Longw	ave Pass Filter				
•	Incident Angle (deg) 0.00						
*							
	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Colun
	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	96.69259
•	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

Color Parameters			×	
Source: A Observer: CIE 1964 Transmittance Polarization: P Context: Normal	Incident Angle (deg) Maximum: 0 Minimum: 0 Interval: 0 Show White Point Show Color Patch Absolute Y Level: Show Targets	Plot Table Plot Type: Tristimulus XY XAxis Parameter: Tristimulus X YAxis Parameter: Tristimulus Y Plot Active Plot	Close	

Source:	- Incident Angle (deg)	Plot Table	
A 🔽	Maximum: 0	Plot Tupe:	Close
)bserver:	Minimum: 0	Tristimulus XY	Cancel
CIE 1964 💌	Interval: 0	X Axis Parameter:	
Mode	Interval ju	Tristimulus X	
Transmittance 🛛 💌	Show White Point	Y Axis Parameter:	
^o olarization:	Show Color Patch	Tristimulus Y	
P 💌	Absolute	Plot	
Context:	Y Level:		
Normal 👻	Show Targets	Active Plot	Errors >>



Brightness가 반영된 Color Patch