설계 조건

₽-	📴 tetos2_3L						
De	Design Context Notes						
In Re	cident Angle eference Wa	(deg) velength (nm)	0.00 510.00				
	Layer	Materi	al	Refractive Index	Extinction Coefficient	Optical Thickness (FWOT)	Physical Thickness (nm)
D	Medium	Air		1.00000	0.00000		
	1	Nb205 (sputte	ered)	2.35168	0.00000	0.19274553	41.80
	2	SiO2		1.46180	0.00000	0.36860347	128.60
	3	Nb205 (sputte	ered)	2.35168	0.00000	0.18951774	41.10
	Substrate	Glass		1.52083	0.00000		
						0.75086674	211.50

Color of the output

		Standard
Reflective performance		over 550nm wavelength
	Х	0.30 ~ 0.44
color coordinates	Y	0.48 ~ 0.53

- 1. 물질 가져오기
 - 프로그램 실행 > Tools

🍌 Esse	ential M	acleod					
File	Tools	Options Help					
	Ma Bro	aterials owse Materials Library	\mathbf{h}				
	Browse Online Materials Library						



해당 물질을 저장 (가져오기)

🚴 Save as Material 🛛 🗙							
Material: Nb205 (sputtered)	ОК						
Al203 Y203 Hf02 Zr02 Ta205 Ti02 RG610 OG515 N-BK7 irfilm Nb205 (sputtered)	Cancel						

물질 폴더에 등록 창이 뜨면 물질 명을 확인 후 "OK "

열려 있는 모든 창을 닫는다.

2. 설계 파일 작성

File > New > Design

1	Essential Macleod							
	File	Tools	Options	Help				
* * *		New		•	Design			
ŕ	2	Open	Ctrl+	0	Material			
		Open a C	opy of		Optical Constant			
		Open Mat	terial		Table			

-	📴 Design2							
	Design Context Notes							
	Incident Angle (deg) 0.00 Reference Wavelength (nm) 510.00							
		Layer	Materi	al	Refractive Index	Extinction Coefficient	Optical Thickness (FWOT)	Physical Thickness (nm)
	Medium Air				1.00000	0.00000		
		1	Na3AlF6		1.35000	0.00000	0.25000000	94.44
		Substrate	Glass		1.52083	0.00000		

해당 Layer에 마우스를 놓고 ▼ 물질을 찾아서 선택, 입력.

₽-	📴 Design2								
<u>D</u> e:	Design Context Notes								
Inc Rel	Incident Angle (deg) 0.00 Reference Wavelength (nm) 510.00								
	Layer	Mater	ial		Refractive Index	Extinction Coefficient	Oj Thic (F)		
	Medium	Air			1.00000	0.00000			
▶	1	Nb205 (sput	tered)	-	2.35168	0.00000	0.4		
	Substrate	Y203 Hf02 Zr02 Ta205 Ti02 RG610 OG515 N-8K7 irfilm Nb205 (sput	tered)	•	1.52083	0.00000			

해당 물질 입력 완료

🄄 Design2							
Design Context Notes							
Incident Angle (deg) 0.00 Reference Wavelength (nm) 510.00							
	Layer	Mater	ial	Refractive Index	Extinction Coefficient	Optical Thickness (FWOT)	Physical Thickness (nm)
	Medium	Air		1.00000	0.00000		
▶	1	Nb205 (sputt	ered) 💻	2.35168	0.00000	0.43549628	94.44
	Substrate	Glass		1.52083	0.00000		



한 Layer를 선택 후, Edit > Insert Layer

📴 Design2							
Design Context Notes							
Incident Angle (deg) 0.00 Reference Wavelength (nm) 510.00							
	Layer Material			Refractive Index	Extinction Coefficient	Optical Thickness (FWOT)	Physical Thickness (nm)
	Medium	Air		1.00000	0.00000		
▶	1	Na3AIF6	-	1.35000	0.00000	0.00000000	0.00
	2	ND2OG (Sputte	ared)	2.35168	0.00000	0.43549628	94.44
	Substrate	Glass		1.52083	0.00000		

새로운 Layer 하나가 생김

같은 방식으로 Layer를 추가하여 아래와 같이 설계 파일 작성

<u>D</u> e:	tetos2_3L sign) <u>C</u> or	ntext <u> N</u> otes]							
Inci	ident Angle	(deg) 0.00							
Ref	erence Wa	velength (nm) 510.00							
	Layer Material Refractive Extinction Optical Physical Index Coefficient (D.(0.1))						_		
F	Medium	Air	1.00000	0.00000	(1.01)			ヘヨ	이려
	1	Nb205 (sputtered)	2.35168	0.00000	0.19274553	41.80		\top	ㅂ듹
	2	SiO2	1.46180	0.00000	0.36860347	128.60			
	3	Nb205 (sputtered)	2.35168	0.00000	0.18951774	41.10			
	Substrate	Glass	1.52083	0.00000					
			211.50						

3. Color Plot

Performance > Color

	1	€ E	ssential N	lacleod					
	-	File	e Edit	Param	eters	Per	formance	Lock/Li	nk
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N/		Ref	erence Wa	velength	i (nm) !		Active Plo	t	L
1/1/			Lauar		Matoria	۲	3D Plot		nctio
N/			Layer		Materia	디지	Polarizatio	n	ficie
			Medium	Air _W	ww.thi	nfilm	1.60.kr_1눼 요 그 T		1000
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Color 표시 설정



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Table Notes								
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Observer	CIE 1931							
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×	0.3160							
у	0.3631							
*								
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-								

색상 좌표 수치가 보입니다.

Design file 창만 남기고 다른 창은 닫는다.

4. Target 수치 입력

Parameters -> Refinement -> Targets

	File	Edit	Par	ameters	Performance	•	Lock	:/Lin	k	Тоо	ls	Opti	ons	V	Vinc
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0	tetos2_3L: Targets												
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	목	표값	입력		s	tetos2	Dia Targ	gets) Thicknes	s) Script	i)		(
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		vw.thi	r filr	n.co	o.kr_	무단	복사	사용	용 금지				

5. Refinement

Paraments > Refinement > Simplex

40	╞→ Essential N	1acleod									
	File Edit	Parameters	Perfor	mance	Lock/	Link Tools	Optio	ns Windo	w He		
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	E+ tetos2_3L	3D Perfo	ormance		\$ P :	Simplex			×		
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e	Incident Angle	(deg)	0.00		SP 🛛	Simulated Ar	nealing	. –			
	Reference Wa	velength (nm)	510.00		CP (Conjugate Gr	adient				
ġ	Layer	Materia	el le	Refra	ctiv 🛯 🛱 🤇	Quasi Newto	n	sica	 		
1	N Madium	A in		110		Needle Synth	esis	222	(rim)		
	▶ Medium	Nb205 (sputte	red)	2.3	351	Differential E	volution	. 4	1.80		
	2	SiO2		1.4	461 11	Non Local Re	finement	12	28.60		
1	3	Nb2U5 (sputte	redj	2.	35168	0.00000 0.	18951774	4	1.10		
₽	Simplex Paramete	rs			×						
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	Limiting Range For M	1erit Function: 0.0	00000		Layer	Mater	ial	Refractive	Extinction	Thickness	Physical hickness (pm)
	Use Custom Me	rit Function		$\left \right $	Modium	Air		1 0000	0 0.0000	(FWOT)	filekfiess (filli)
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	1	D			2	SiO2		1.4618	0 0.0000	0 0.59490478	207.55
		BIOM	se		3 Substrate	Nb205 (sput) Glass	eredj	2.3516	8 0.0000 3 0.0000	0 0.08554888	18.55
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										0.72284808	235.30
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최적화된 설계 파일의 색상 📃 🖢 Essential Macleod

Image: Second	Image: Second state of the second s	File	Edit	Parameters	Per	formance	Lock/Lin	k 1
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🐎 Color Parameters			×
Source: D65	Incident Angle (deg) Maximum: 0 Minimum: 0	Plot Table Plot Type: Chromaticity xy	Close Cancel
Mode Reflectance	Interval: 0 Show White Point	X Axis Parameter: Chromaticity x Y Axis Parameter:	
Polarization:	Show Color Patch Absolute	Chromaticity y 💌	
Normal	Show Targets	Active Plot	Errors >>

CIE 1931 Chromaticity Diagram

