



Ophthalmic Testing Report

Report Number: R-20160606-034

Luminous Transmission

Prepared for:

Chiaro

a Gradus Group Company

375 West 35th Street

New York, NY 10001

June 15, 2016

NSL Analytical Services, Inc.

NSL Analytical

4450 Cranwood Parkway

Cleveland, Ohio 44128

Phone: 216-438-5200

Fax: 216-438-5050

Contents

Project Definition and Scope	3
Sample Identification	3
Opinions, Interpretations, and Conclusions	3
Results	4
Figure 1: Transmittance Spectra, S-160606-054_056.....	4
Figure 2: Transmittance Spectra, S-160606-057_059.....	5
Table 1: Transmittance, S-160606-054_059	6

Project Definition and Scope

Twelve lens filters were submitted for a transmission scan on the UV/Vis Spectrophotometer. The transmission scan outlined was performed on all samples. The samples were received on June 6, 2016.

Sample Identification

The samples are labeled as indicated in the table below.

Sample Number	Client Label	Pass/Fail
S-160606-054	Class A (99-UVBTS72)	Pass
S-160606-055	Class AB (99-UVBT72)	Pass
S-160606-056	Class B (98-UVATS72)	Pass
S-160606-057	New Class C (98-UVAT72)	Pass
S-160606-058	Class D (95-UVAT72)	Pass
S-160606-059	Class E (90-UVAT72)	Pass

Opinions, Interpretations, and Conclusions

The samples were loaded into the Perkin Elmer Lambda 650S and scanned from 700nm to 400nm. The resultant spectra are included in the following graphs. The customer was particularly interested in the transmission at 400nm, 550 nm and 700nm.

If you have any questions regarding these results, please contact us.

Report Prepared By: Terry Graham
Ophthalmic Technician

Approved by:

Results

Figure 1: Transmittance Spectra, S-160606-054_056

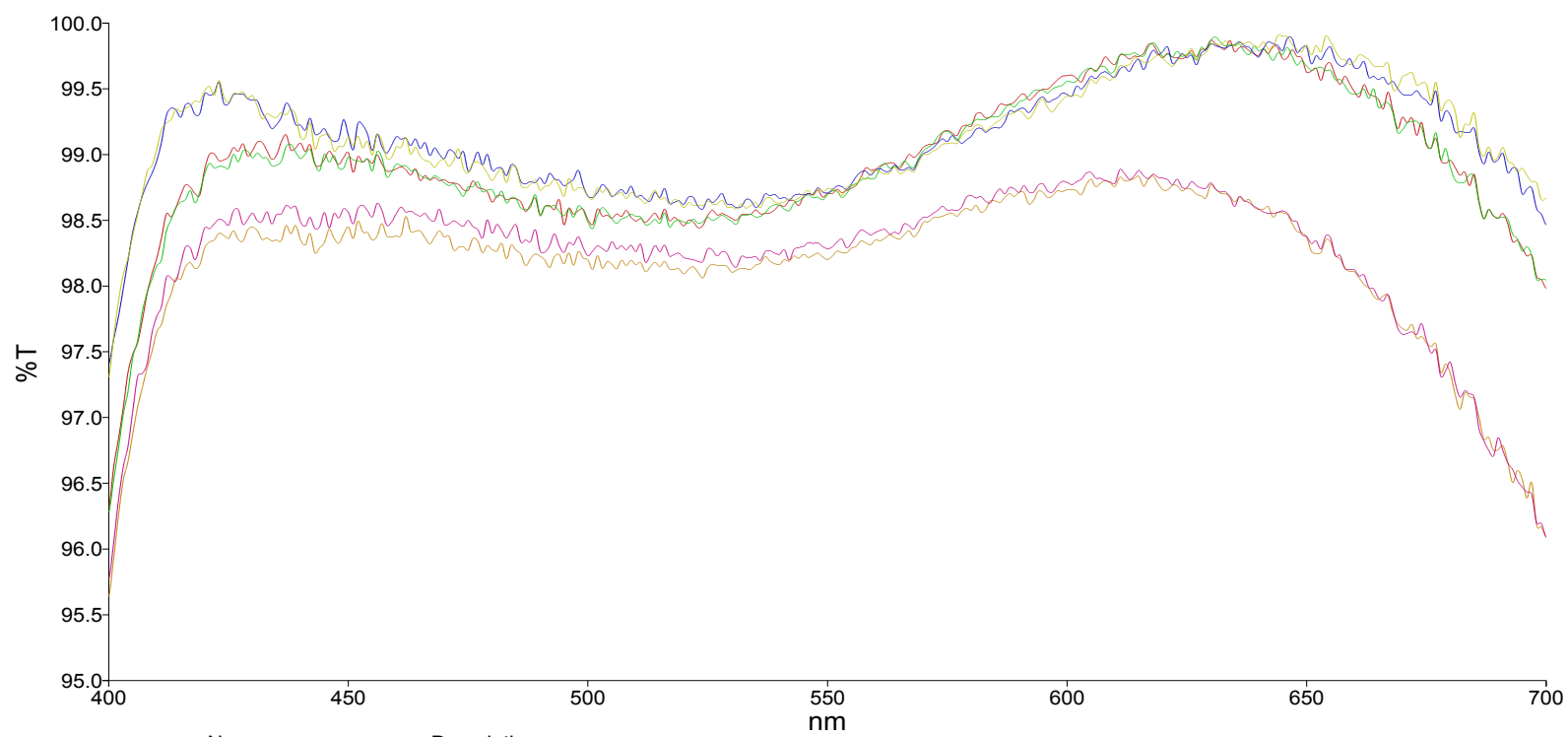
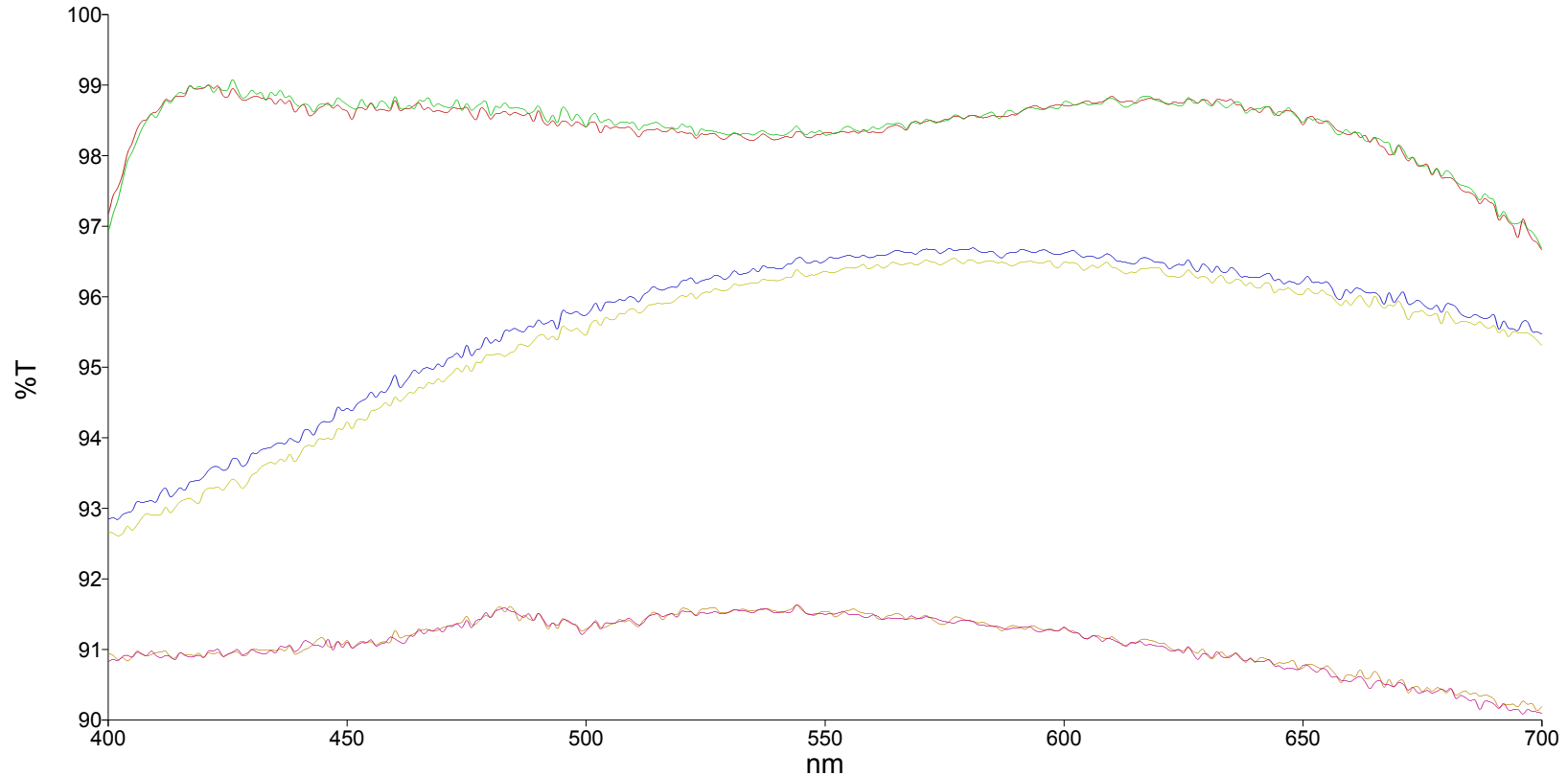


Figure 2: Transmittance Spectra, S-160606-057_059



Name	Description
S-160606-057.1.Sample	New Class C (98-UVAT72)
S-160606-057.2.Sample	New Class C (98-UVAT72)
S-160606-058.1.Sample	Class D (95-UVAT72)
S-160606-058.2.Sample	Class D (95-UVAT72)
S-160606-059.1.Sample	Class E (90-UVAT72)
S-160606-059.2.Sample	Class E (90-UVAT72)

Table 1: Transmittance, S-160606-054_059

Ophthalmic Materials Test Report for Transmittance measurements						
Submission #:	R-20160606-034			Sample #:	S-160606-054_059	
Date:	June 8, 2016			Lens Manufacturer:	Gradus Group, LLC	
Technician:	TG			Lens Material:	N/A	
Comments:				Coating:	N/A	
Sample No.	Descriptive Marks	Transmittance at 700 nm	Transmittance at 550 nm	Transmittance at 400 nm	Transmittance Avg. (700-400)	Pass/Fail
160606-054.1	Class A (99-UVBTS72)	97.983327	98.706472	96.312024	98.96874	Pass
160606-054.2		98.048039	98.695333	96.27916	98.95396	Pass
160606-055.1	Class AB (99-UVBT72)	98.467849	98.709301	97.409537	99.14345	Pass
160606-055.2		98.671205	98.741303	97.308363	99.14364	Pass
160606-056.1	Class B (98-UVATS72)	96.094095	98.204956	95.639694	98.17946	Pass
160606-056.2		96.088408	98.286199	95.77204	98.25558	Pass
160606-057.1	New Class C (98-UVAT72)	96.665294	98.330688	97.182167	98.42974	Pass
160606-057.2		96.686314	98.296206	96.935884	98.45992	Pass
160606-058.1	Class D (95-UVAT72)	95.476912	96.513455	92.845676	95.65370	Pass
160606-058.2		95.317973	96.366152	92.660474	95.47222	Pass
160606-059.1	Class E (90-UVAT72)	90.18704	91.541328	90.946018	91.11055	Pass
160606-059.2		90.095122	91.501717	90.831157	91.09220	Pass
Additional Comments:						
T99 Filters:	≥98.6% average transmission = Pass <98.6% average transmission = Fail		T95 Filters:	≥94.6% average transmission = Pass <94.6% average transmission = Fail		
T98 Filters:	≥97.6% average transmission = Pass <97.6% average transmission = Fail		T90 Filters:	≥89.6% average transmission = Pass <89.6% average transmission = Fail		

Ophthalmic Materials Test Report for Transmittance measurements

Brand	Descriptive Marks	Transmittance at 700 nm	Transmittance at 550 nm	Transmittance at 400 nm	Transmittance Avg. (700-400)
Chiaro	99-UVBTS58 Sample 1	98.451	98.728	95.608	98.972
Chiaro	99-UVBTS58 Sample 2	98.565	98.687	95.075	98.918
Chiaro	99-UVBTS67 Sample 1	98.008	98.436	95.694	98.575
Chiaro	99-UVBTS67 Sample 2	98.484	98.633	95.054	98.823
Chiaro	99-UVBT58 Sample 1	99.056	98.623	95.630	98.990
Chiaro	99-UVBT58 Sample 2	97.394	98.410	94.891	98.386
Chiaro	99-UVBT67 Sample 1	98.865	98.322	95.309	98.649
Chiaro	99-UVBT67 Sample 2	98.907	98.292	95.180	98.578
Chiaro	98-UVATS58 Sample 1	96.558	98.618	95.496	98.453
Chiaro	98-UVATS58 Sample 2	98.567	98.738	95.495	99.022
Chiaro	98-UVATS67 Sample 1	96.691	98.457	95.579	98.456
Chiaro	98-UVATS67 Sample 2	96.752	98.390	94.671	98.349
Chiaro	98-UVAT58 Sample 1	97.090	98.538	95.742	98.501
Chiaro	98-UVAT58 Sample 2	96.983	98.469	95.792	98.444
Chiaro	98-UVAT67 Sample 1	97.044	98.425	96.336	98.484
Chiaro	98-UVAT67 Sample 2	97.055	98.393	96.267	98.463
Chiaro	95-UVAT58 Sample 1	95.596	96.801	92.938	95.863
Chiaro	95-UVAT58 Sample 2	95.467	96.783	92.911	95.829
Chiaro	95-UVAT67 Sample 1	95.555	96.971	93.407	96.087
Chiaro	95-UVAT67 Sample 2	95.504	96.590	92.480	95.636
Chiaro	88-UVAT58 Sample 1	90.310	91.725	91.214	91.310
Chiaro	88-UVAT58 Sample 2	90.233	91.708	91.253	91.311
Chiaro	88-UVAT67 Sample 1	90.355	91.755	91.417	91.380
Chiaro	88-UVAT67 Sample 2	90.322	91.756	91.309	91.343

Bower	FUC67	90.799	91.541	90.810	91.251
Bower	FUC67	90.893	91.583	90.739	91.242
Tiffen	67UVP	88.763	91.246	90.262	90.521
Tiffen	67UVP	88.731	91.263	90.240	90.520
Hoya	C-ALP67UV	95.757	96.921	88.228	96.457
Hoya	C-ALP67UV	95.644	98.242	92.397	97.644
Tiffen	67HZE	87.536	90.946	25.058	87.847
Tiffen	67HZE	87.598	90.991	24.905	87.786
Polaroid	PLFILUV67	98.681	99.405	96.663	98.966
Polaroid	PLFILUV67	98.876	99.317	96.680	98.959
B+W	65-070138	98.829	98.382	95.243	98.511
B+W	65-070138	95.153	96.913	89.762	95.569
Hoya	A67UVC	98.355	98.866	94.499	98.967
Hoya	A67UVC	98.671	98.890	92.519	98.934
Hoya	A-NXT67UV	98.146	98.765	92.600	98.685
Hoya	A-NXT67UV	98.523	98.959	91.094	98.773
MeFoto	MUV67K	97.278	98.216	88.510	97.940
MeFoto					
B+W	66-1066123	99.568	99.100	90.894	98.868
B+W	66-1066123	99.343	99.246	93.879	99.041
B+W	66-070236	99.498	99.129	91.182	98.815
B+W	66-070236	99.569	99.109	91.001	98.816
Hoya	XEVA-67UV	98.611	98.800	91.301	98.294
Hoya	XEVA-67UV	99.530	98.331	71.981	96.923
Hoya	XHD3-67UV	99.352	98.575	73.894	97.880
Hoya	XHD3-67UV	99.145	98.649	71.468	97.549
Hoya	X67UV	99.166	98.779	75.997	97.443
Hoya	X67UV	99.093	98.658	74.435	97.171