M3 Measurement Solutions Inc. Results
IRG 201X1

March 13, 2013

M3 Measurement Solutions Inc.
2048 Aldergrove Ste D
Escondido, CA 92029
www.m3msi.com

Values / Uncertainties

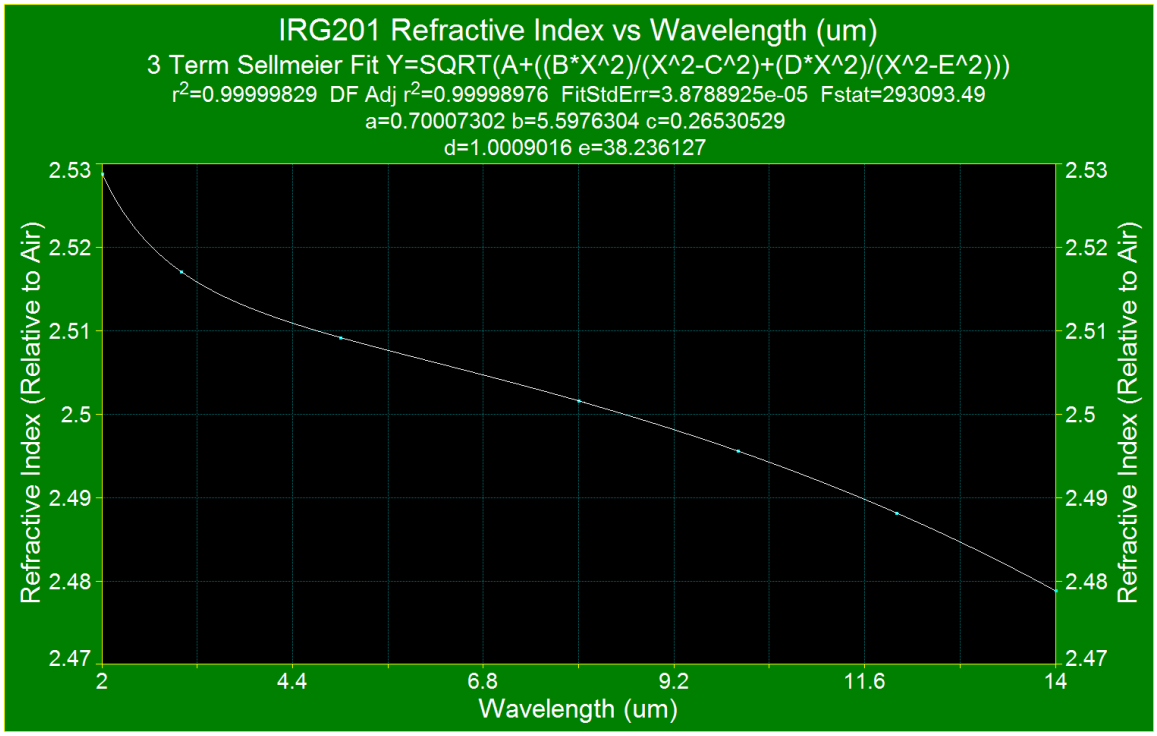
Description	Value / Uncertainty
Apex Angle of Prism (Deg)	16.784731+/- .004 Deg
Temperature	+/- .1 Deg
Wavelength (300-1500nm)	+/- 0.05%
Wavelength (1200-3500nm)	+/- 0.05%
Wavelength (2500-7000nm)	+/- 0.05%
Wavelength (7000-16000nm)	+/- 0.05%
Vacuum	< 3e-3 Torr
Angular Measurements	+/- 0.00028 Deg
Refractive Index	+- 1.0*e-3

- Please note, due to the flatness error in the part the apex angle measurement is larger than normal and could cause a worst case error of +-1.0e-3 for the absolute index. This error is primarily a DC offset to the refractive index values across all of the wavelengths and should not affect the dn/dT values.

Data Summary: IRG201 X1

Refractive Index in Air @ 20C

Wavelength(nm)	Index of Refraction
14000	**2.47887**
12000	**2.48816**
10000	**2.49564**
8000	**2.50164**
5000	**2.50917**
3000	**2.51708**
2000	**2.52888**



IRG201 X1 dn/dT (linear fit from 233.16 Deg K to 363.15 Deg K)

2000nm	3000nm	5000nm	8000nm	10000nm	12000nm	14000nm
7.0E-05	6.7E-05	6.5E-05	6.4E-05	6.2E-05	6.2E-05	6.1E-05

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Data Summary: IRG201 Refractive index at Temperature in Air

Wavelength (nm)	14000	12000	10000	8000	5000	3000	2000
Temperature							
233.15	2.47522	2.48456	2.49209	2.49794	2.50551	2.51333	2.52489
238.15	2.47560	2.48488	2.49233	2.49822	2.50577	2.51361	2.52520
243.14	2.47595	2.48515	2.49267	2.49861	2.50613	2.51393	2.52557
248.15	2.47614	2.48543	2.49287	2.49883	2.50637	2.51419	2.52581
253.15	2.47648	2.48566	2.49317	2.49916	2.50666	2.51449	2.52613
258.15	2.47678	2.48591	2.49347	2.49939	2.50695	2.51481	2.52666
263.16	2.47694	2.48635	2.49373	2.49976	2.50738	2.51511	2.52699
268.15	2.47736	2.48679	2.49411	2.50011	2.50774	2.51539	2.52731
273.15	2.47775	2.48691	2.49432	2.50044	2.50801	2.51567	2.52760
278.17	2.47789	2.48716	2.49470	2.50069	2.50823	2.51604	2.52779
283.15	2.47813	2.48735	2.49493	2.50090	2.50847	2.51633	2.52809
288.14	2.47847	2.48783	2.49531	2.50129	2.50886	2.51672	2.52852
293.17	2.47887	2.48816	2.49564	2.50164	2.50917	2.51708	2.52888
298.16	2.47919	2.48850	2.49604	2.50199	2.50956	2.51749	2.52932
303.16	2.47943	2.48887	2.49639	2.50239	2.51005	2.51791	2.52976
308.15	2.47984	2.48935	2.49673	2.50276	2.51038	2.51831	2.53019
313.11	2.48006	2.48949	2.49691	2.50301	2.51064	2.51869	2.53061
318.15	2.48055	2.48991	2.49732	2.50344	2.51101	2.51897	2.53090
323.16	2.48077	2.49008	2.49758	2.50365	2.51132	2.51917	2.53109
328.17	2.48111	2.49026	2.49771	2.50382	2.51148	2.51942	2.53134
333.15	2.48120	2.49057	2.49793	2.50415	2.51182	2.51972	2.53168
338.14	2.48164	2.49093	2.49829	2.50445	2.51214	2.52000	2.53198
343.15	2.48177	2.49107	2.49868	2.50470	2.51248	2.52035	2.53236

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348.15	**2.48216**	**2.49154**	**2.49904**	**2.50509**	**2.51291**	**2.52090**	**2.53291**
353.15	**2.48260**	**2.49205**	**2.49947**	**2.50557**	**2.51336**	**2.52126**	**2.53328**
358.16	**2.48302**	**2.49229**	**2.49980**	**2.50590**	**2.51365**	**2.52160**	**2.53366**
363.15	**2.48329**	**2.49267**	**2.50033**	**2.50636**	**2.51407**	**2.52197**	**2.53409**

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M3 Measurement Solutions Inc. Results
IRG 202

October 23, 2013

M3 Measurement Solutions Inc.
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www.m3msi.com

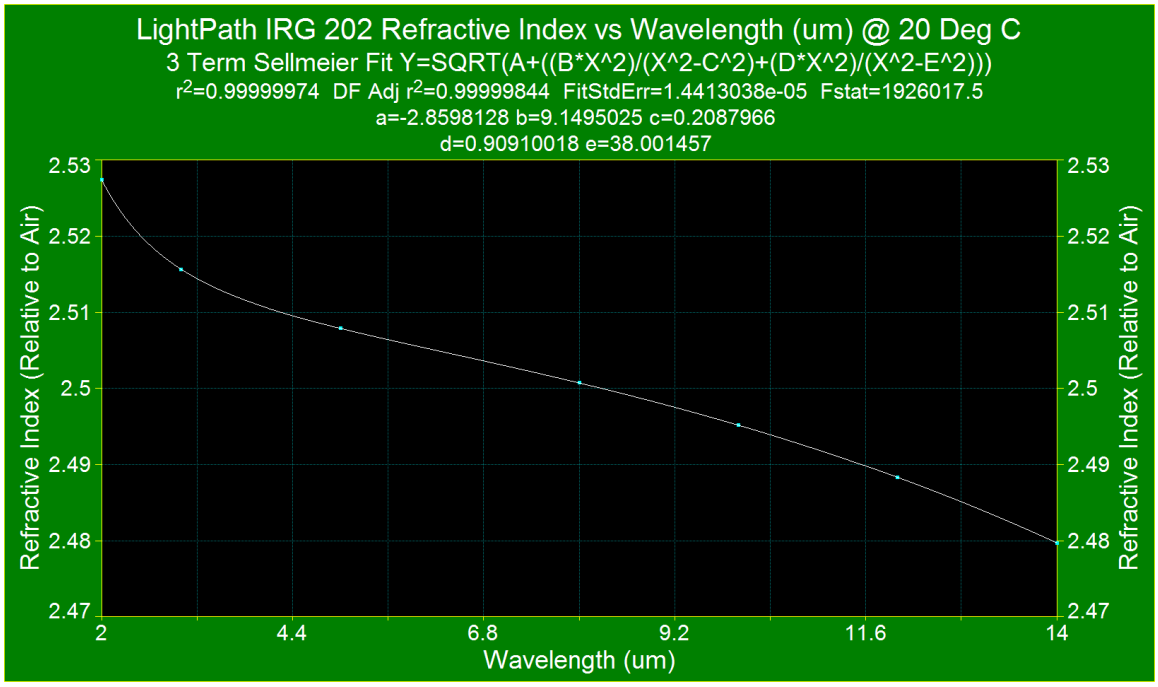
Values / Uncertainties

Description	Value / Uncertainty
Apex Angle of Prism (Deg)	17.022489+/- .00027 Deg
Temperature	+/- .1 Deg
Wavelength (300-1500nm)	+/- 0.05%
Wavelength (1200-3500nm)	+/- 0.05%
Wavelength (2500-7000nm)	+/- 0.05%
Wavelength (7000-16000nm)	+/- 0.05%
Vacuum	< 3e-3 Torr
Angular Measurements	+/- 0.00028 Deg
Refractive Index	+- 2.0*e-4

Data Summary: IRG202

Refractive Index in Air @ 20C

Wavelength(nm)	Index of Refraction
14000	2.47971
12000	2.48834
10000	2.49519
8000	2.50075
5000	2.50792
3000	2.51565
2000	2.52745



IRG202 dn/dT (linear fit from 233.16 Deg K to 363.15 Deg K)

2000nm	3000nm	5000nm	8000nm	10000nm	12000nm	14000nm
4.39E-05	4.10E-05	4.03E-05	3.89E-05	3.88E-05	3.70E-05	3.69E-05

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Data Summary: IRG202 Refractive index at Temperature in Air

Wavelength (nm)	14000	12000	10000	8000	5000	3000	2000
Temperature(K)							
233.15	2.47776	2.48633	2.49298	2.49853	2.50576	2.51360	2.52530
238.15	2.47784	2.48643	2.49314	2.49871	2.50590	2.51371	2.52542
243.15	2.47798	2.48663	2.49327	2.49887	2.50610	2.51385	2.52564
248.17	2.47830	2.48691	2.49354	2.49915	2.50628	2.51408	2.52581
253.15	2.47846	2.48712	2.49365	2.49930	2.50645	2.51426	2.52599
258.19	2.47856	2.48710	2.49383	2.49951	2.50662	2.51438	2.52616
263.16	2.47875	2.48734	2.49407	2.49962	2.50668	2.51446	2.52620
268.19	2.47881	2.48736	2.49418	2.49978	2.50697	2.51476	2.52653
273.15	2.47909	2.48769	2.49443	2.50003	2.50721	2.51500	2.52680
278.15	2.47917	2.48777	2.49457	2.50016	2.50737	2.51521	2.52701
283.15	2.47947	2.48799	2.49481	2.50047	2.50753	2.51532	2.52716
288.15	2.47956	2.48821	2.49502	2.50058	2.50772	2.51549	2.52729
293.15	2.47971	2.48834	2.49519	2.50075	2.50792	2.51565	2.52745
298.12	2.48001	2.48863	2.49546	2.50104	2.50813	2.51585	2.52773
303.15	2.48020	2.48880	2.49559	2.50119	2.50842	2.51623	2.52812
308.15	2.48038	2.48898	2.49579	2.50139	2.50862	2.51644	2.52834
313.15	2.48048	2.48908	2.49586	2.50146	2.50877	2.51650	2.52841
318.15	2.48059	2.48918	2.49601	2.50162	2.50901	2.51685	2.52879
323.13	2.48079	2.48941	2.49628	2.50190	2.50913	2.51694	2.52889
328.15	2.48106	2.48960	2.49647	2.50204	2.50930	2.51711	2.52906
333.15	2.48123	2.48980	2.49667	2.50224	2.50956	2.51735	2.52930
338.15	2.48142	2.49001	2.49688	2.50246	2.50973	2.51751	2.52951
343.15	2.48166	2.49028	2.49713	2.50275	2.51002	2.51786	2.52984

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348.12	**2.48191**	**2.49056**	**2.49737**	**2.50298**	**2.51032**	**2.51815**	**2.53019**
353.16	**2.48216**	**2.49079**	**2.49761**	**2.50324**	**2.51059**	**2.51845**	**2.53046**
358.15	**2.48240**	**2.49100**	**2.49786**	**2.50348**	**2.51079**	**2.51869**	**2.53079**
363.15	**2.48264**	**2.49124**	**2.49817**	**2.50377**	**2.51104**	**2.51902**	**2.53112**

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M3 Measurement Solutions Inc. Results
IRG 205 X1

September 13, 2012

M3 Measurement Solutions Inc.
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Escondido, CA 92029
www.m3msi.com

Values / Uncertainties

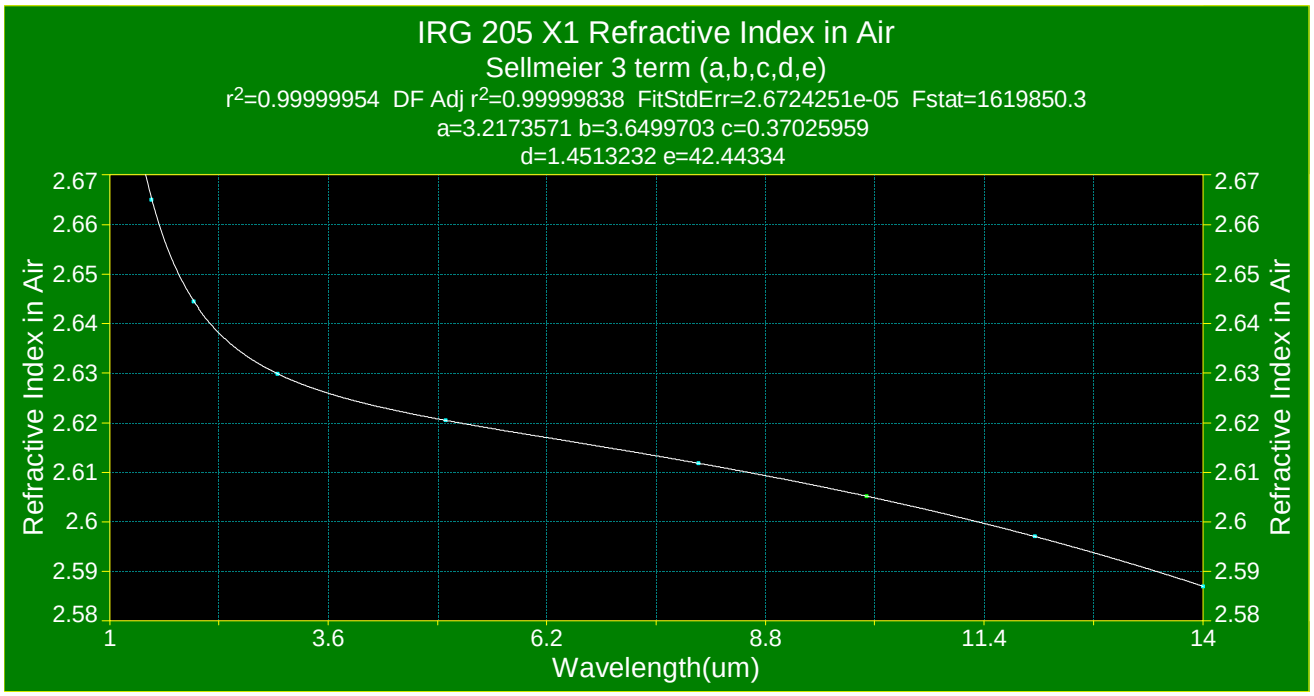
Description	Value / Uncertainty
Apex Angle of Prism (Deg)	17.32776+/- .001 Deg
Temperature	+/- .1 Deg
Wavelength (300-1500nm)	+/- 0.05%
Wavelength (1200-3500nm)	+/- 0.05%
Wavelength (2500-7000nm)	+/- 0.05%
Wavelength (7000-16000nm)	+/- 0.05%
Vacuum	< 30e-3 Torr
Angular Measurements	+/- 0.00028 Deg
Relative Index	+- 5*e-4

***Note: Flatness did not meet specification and caused an increase in uncertainty of apex angle and absolute Refractive Index Values.**

Data Summary: IRG205 X1

Refractive Index in Air @ 20C

Wavelength(nm)	Index of Refraction
14000	2.58702
12000	2.59708
10000	2.60516
8000	2.61186
5000	2.62050
3000	2.62992
2000	2.64455
1500	2.66502



IRG205 X1 dn/dT (linear fit from 233.15 Deg K to 353.15 Deg K)

1500nm	2000nm	3000nm	5000nm	8000nm	10000nm	12000nm	14000nm
8.6E-05	7.8E-05	7.2E-05	7.0E-05	7.0E-05	7.0E-05	7.0E-05	7.0E-05

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Data Summary: IRG205 Refractive index at Temperature in Vacuum

Wavelength (nm)	14000	12000	10000	8000	5000	3000	2000	1500
Temperature								
233.15	2.58387	2.59391	2.60203	2.60867	2.61739	2.6267	2.64097	2.66096
238.15	2.58414	2.59426	2.60228	2.60903	2.61766	2.62696	2.64125	2.66127
243.14	2.58443	2.59454	2.60259	2.60932	2.61797	2.62729	2.64161	2.66169
248.15	2.58476	2.59488	2.60291	2.60967	2.6183	2.62761	2.64196	2.6621
253.15	2.58514	2.59522	2.60325	2.61	2.61862	2.62795	2.64235	2.66251
258.15	2.58544	2.59552	2.60357	2.61025	2.61892	2.62826	2.64269	2.66288
263.17	2.58584	2.59587	2.60393	2.61062	2.61921	2.62855	2.643	2.66323
268.15	2.58619	2.59626	2.60432	2.61104	2.61968	2.62904	2.64353	2.66381
273.18	2.58659	2.59663	2.60466	2.6113	2.61993	2.62931	2.64384	2.6642
278.15	2.58685	2.59692	2.60495	2.61167	2.62029	2.62972	2.64426	2.66461
283.15	2.58713	2.59716	2.60523	2.61193	2.62057	2.62997	2.64455	2.66495
288.17	2.58749	2.59748	2.60554	2.61224	2.62084	2.63023	2.64482	2.66526
293.15	2.58772	2.59778	2.60586	2.61256	2.62121	2.63063	2.64526	2.66574
298.18	2.58825	2.59829	2.60637	2.61302	2.62168	2.63111	2.64578	2.66629
303.15	2.58863	2.59868	2.60675	2.61346	2.62214	2.63156	2.64626	2.66682
308.15	2.58894	2.59898	2.60707	2.61375	2.62242	2.63186	2.64656	2.66716
313.17	2.58933	2.59933	2.60738	2.61406	2.62272	2.63212	2.64685	2.66748
318.15	2.5895	2.59956	2.60762	2.61436	2.62294	2.63242	2.64726	2.66795
323.15	2.58988	2.59991	2.60798	2.61467	2.62336	2.63283	2.64761	2.66832
328.17	2.59038	2.60037	2.60844	2.61511	2.6238	2.63325	2.64809	2.66886
333.15	2.59073	2.60071	2.60881	2.6155	2.6242	2.63371	2.64858	2.66943
338.15	2.59109	2.60116	2.60926	2.61594	2.62466	2.63416	2.64902	2.66992
343.17	2.59159	2.6016	2.60969	2.61634	2.62507	2.63456	2.64945	2.67041

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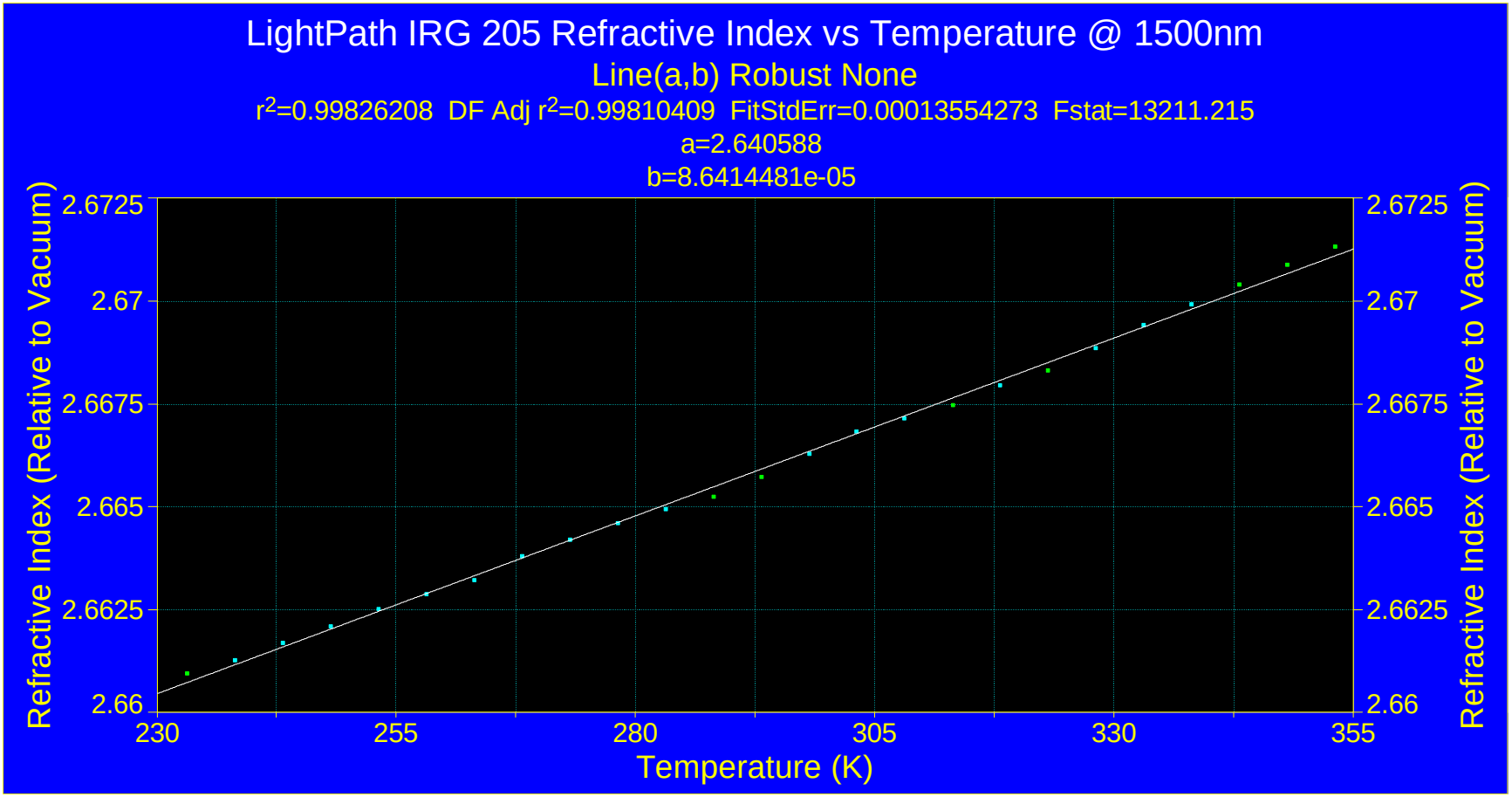
348.15	2.59175	2.60194	2.61004	2.61672	2.62548	2.635	2.64992	2.67088
353.15	2.59232	2.60235	2.61046	2.6171	2.62582	2.63538	2.65032	2.67133

Graphic Summary: IRG 205 X1



Graph 1A. (Refractive Index over Temperature for 1500nm)

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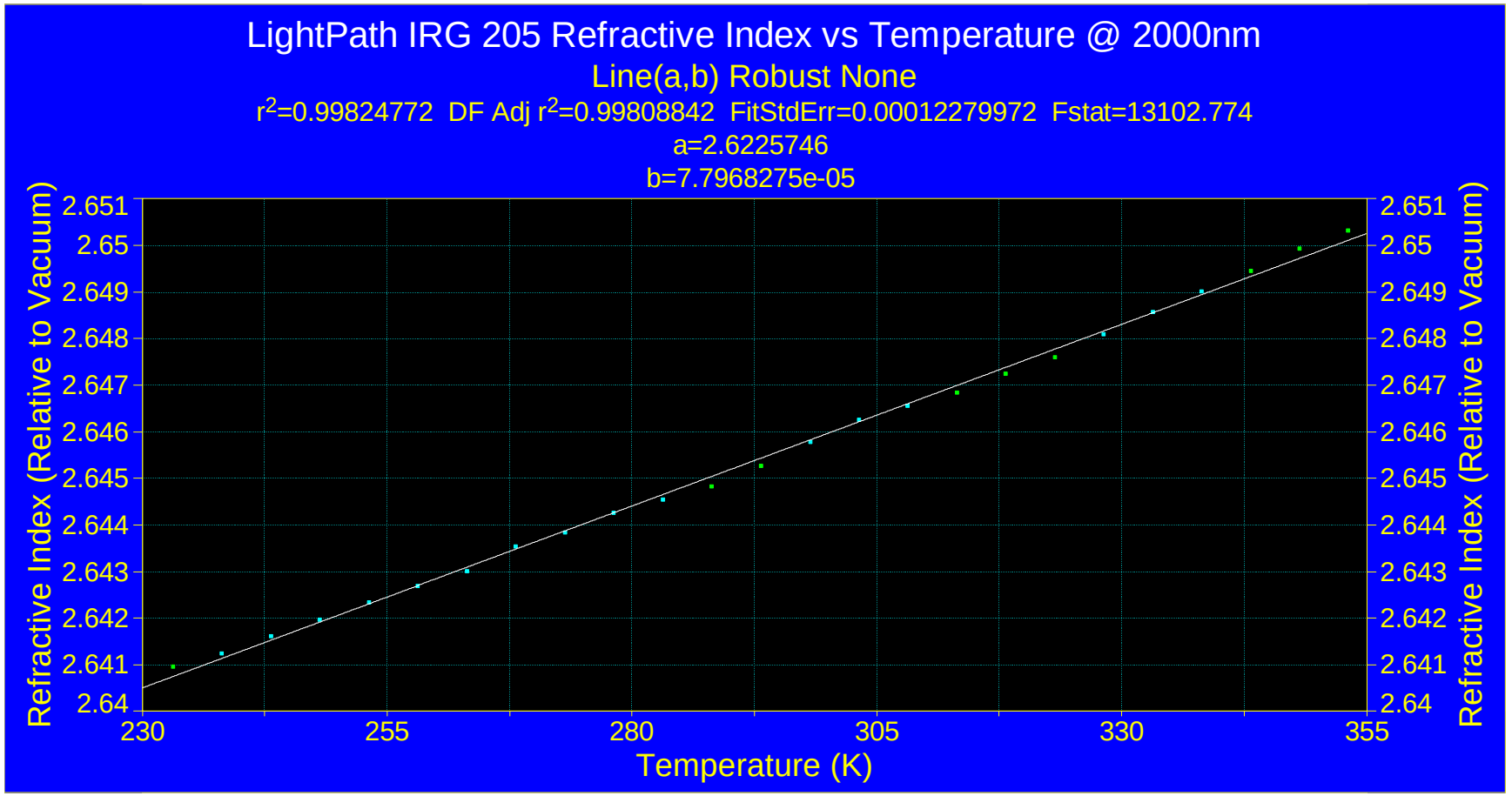
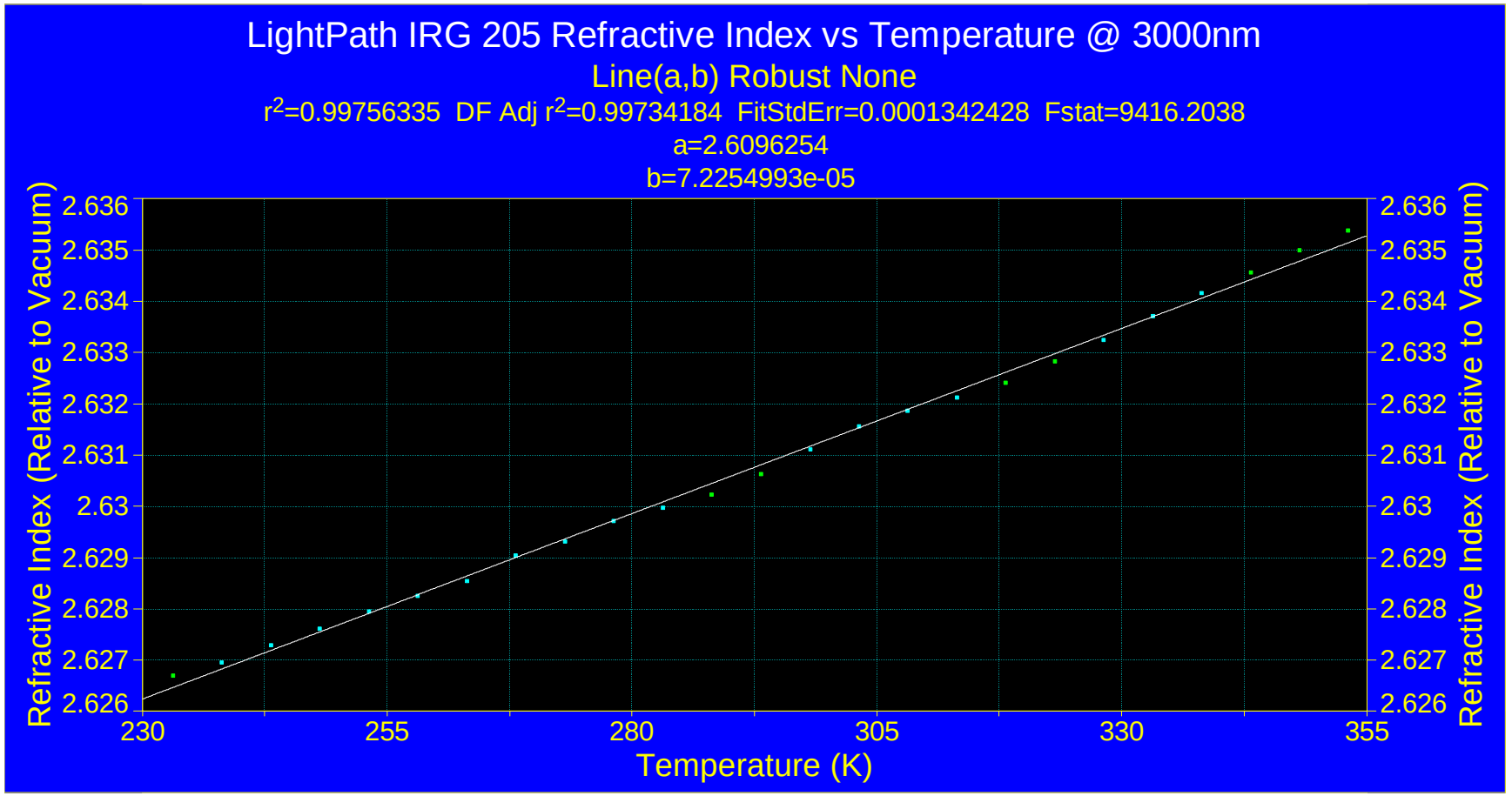
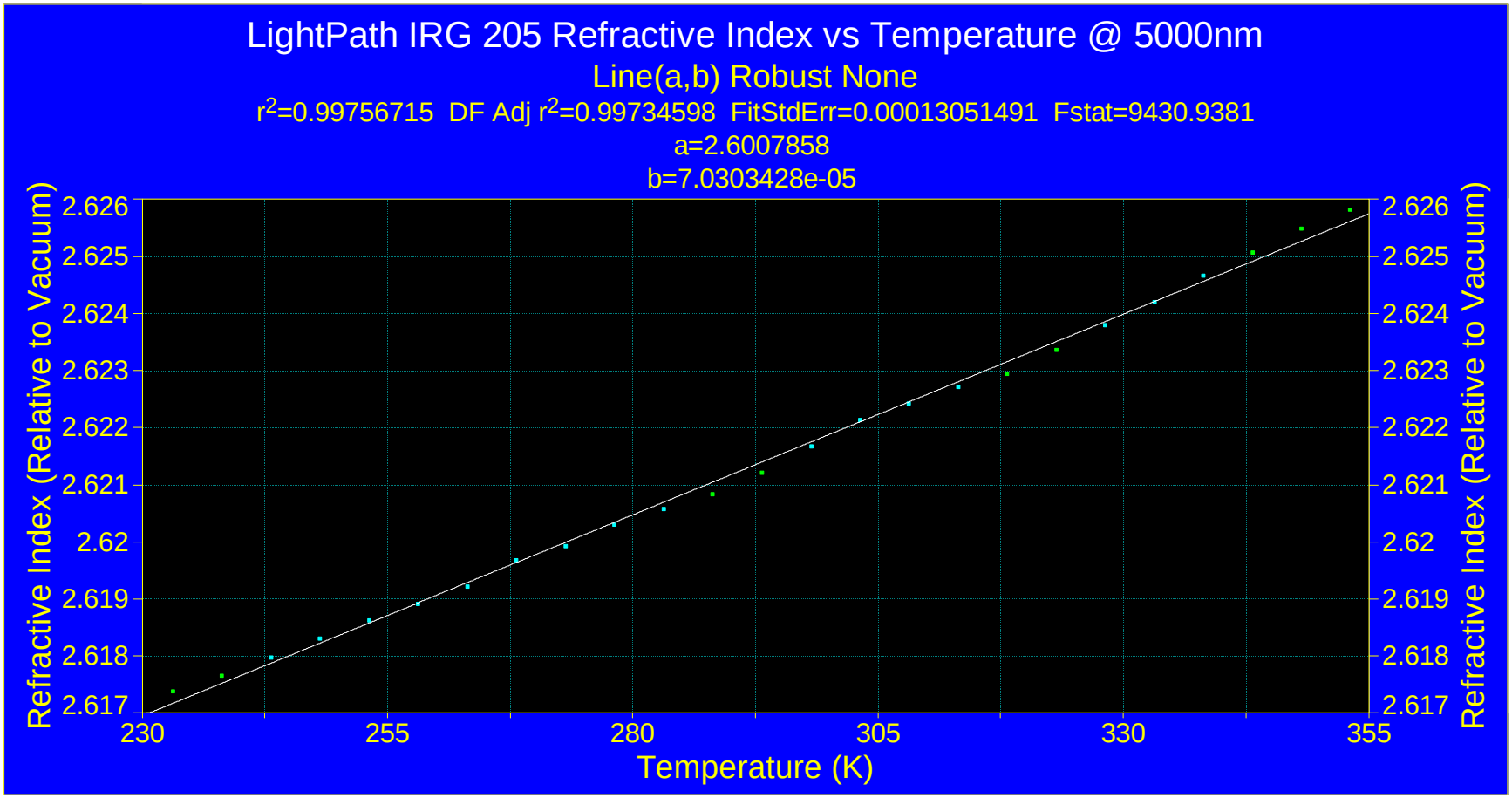


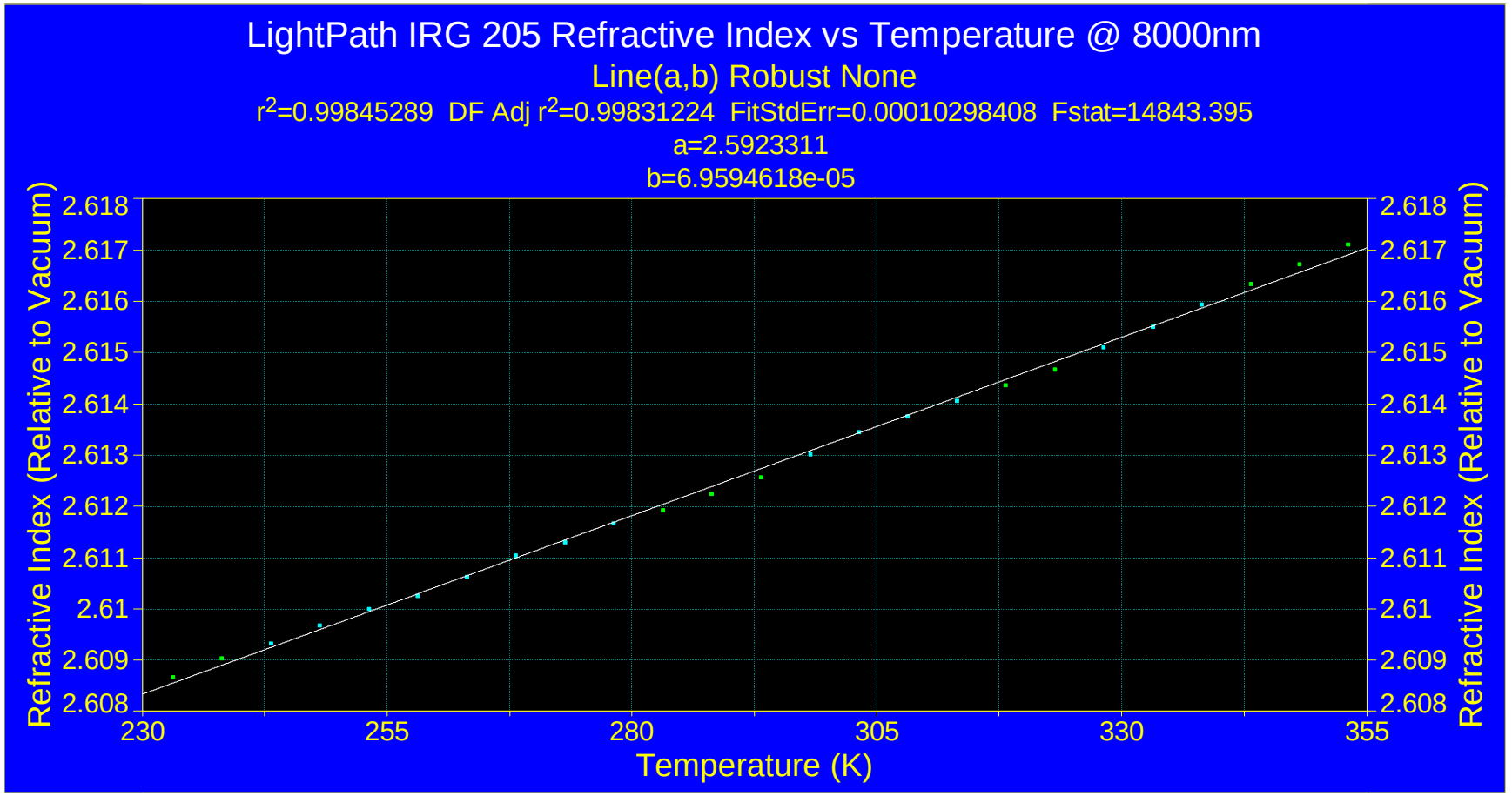
Graph 1B. (Refractive Index over Temperature for 2000nm)



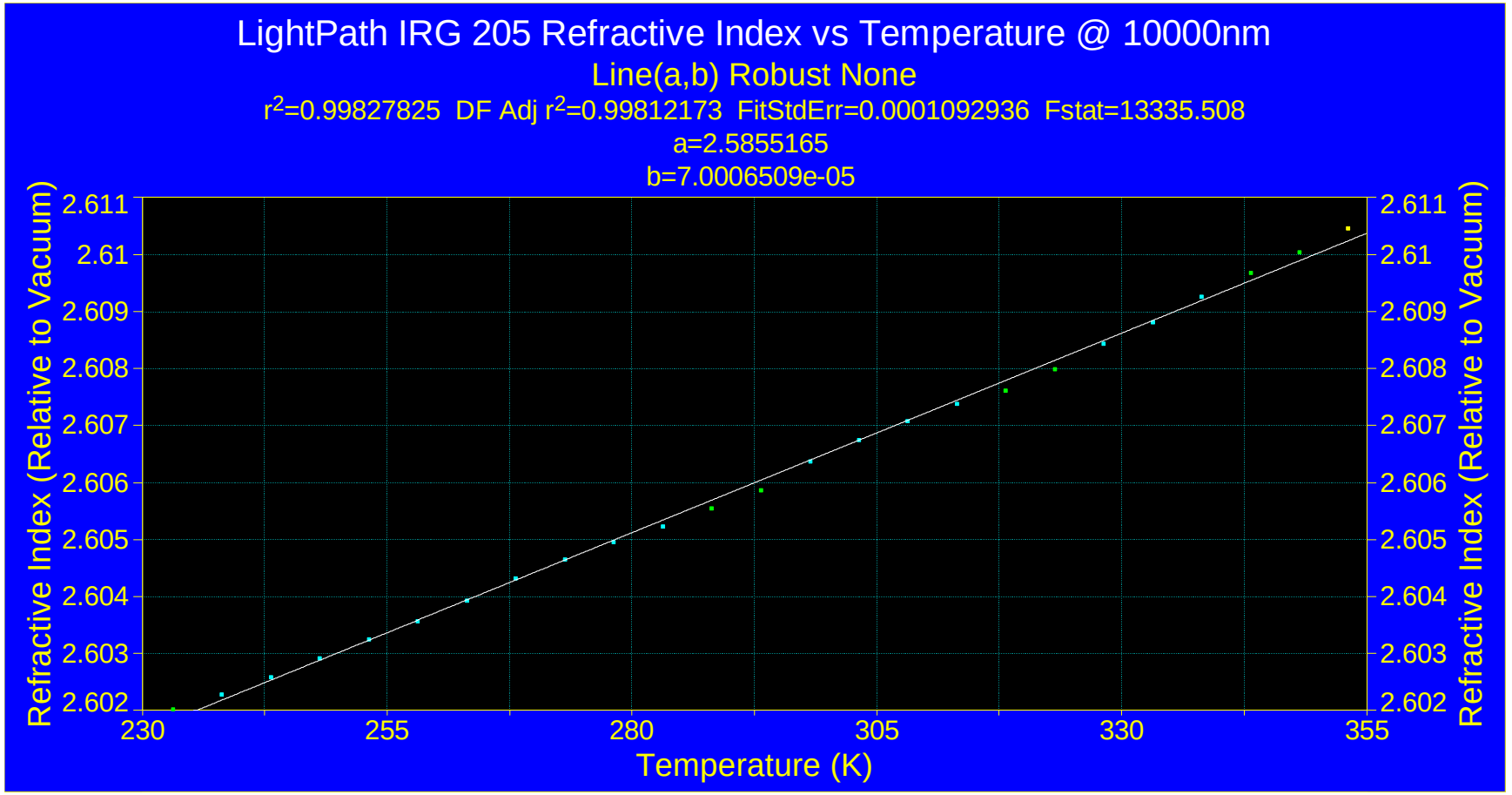
Graph 1C. (Refractive Index over Temperature for 3000nm)



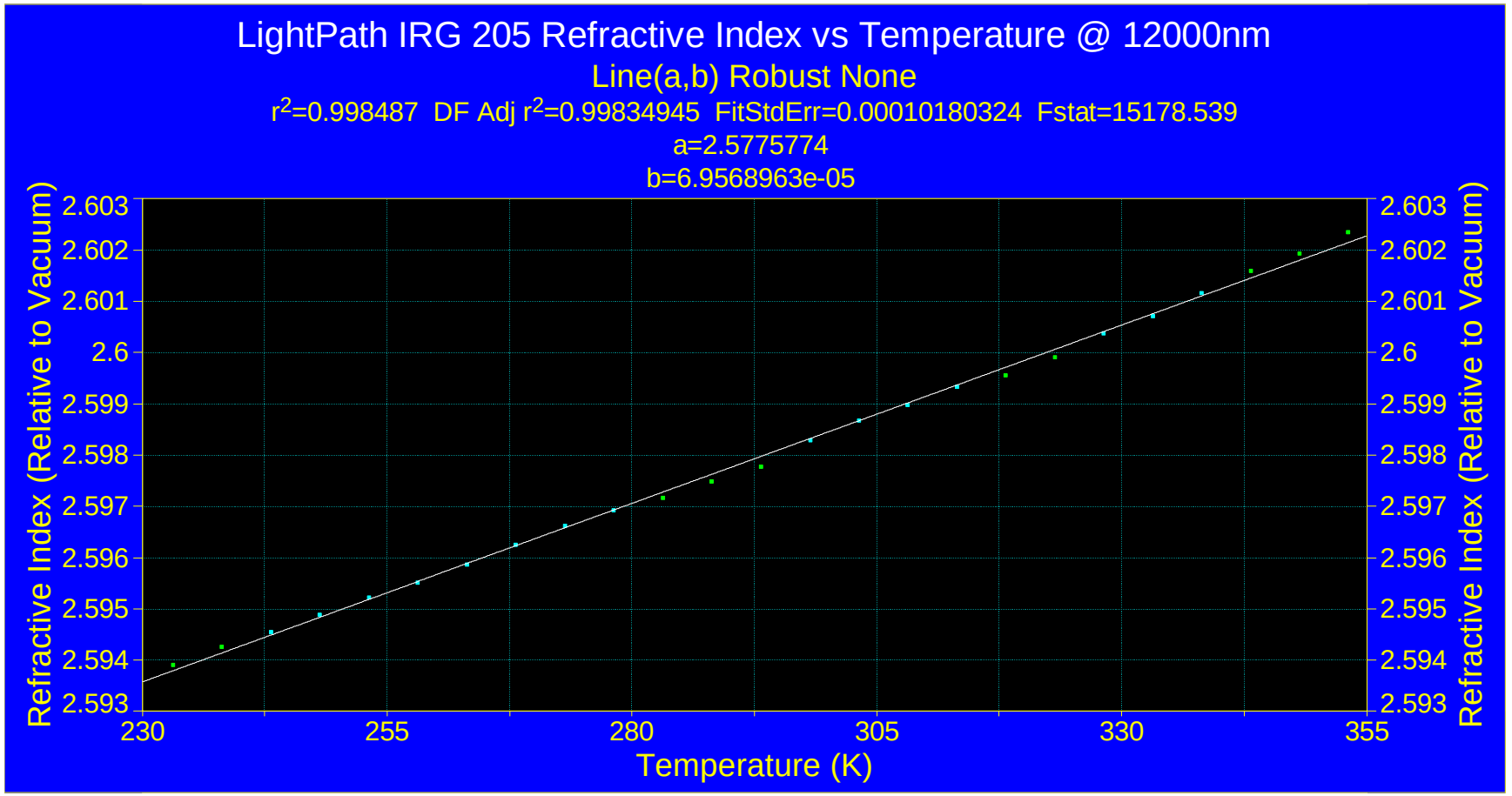
Graph 1D. (Refractive Index over Temperature for 5000nm)



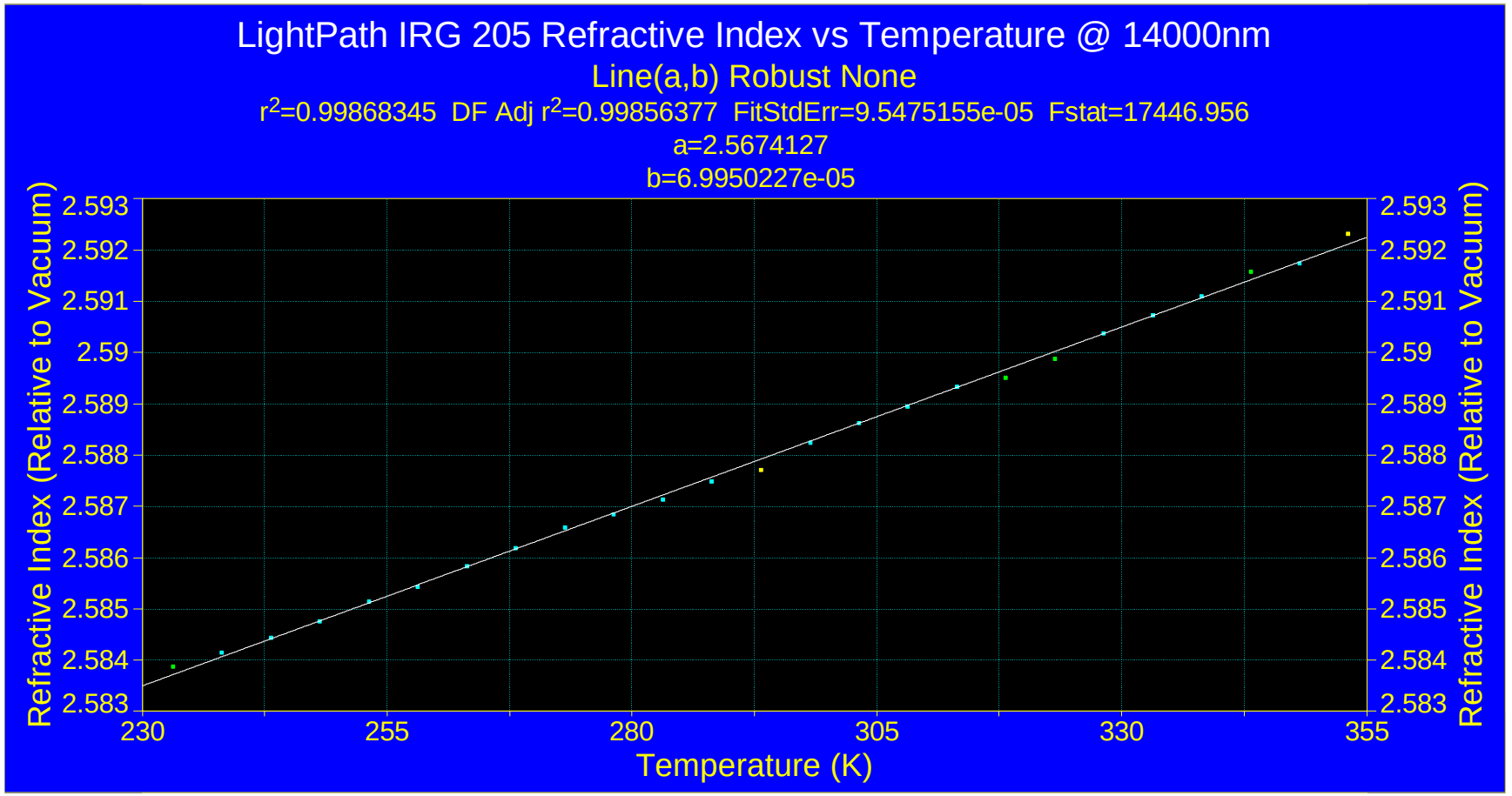
Graph 1E. (Refractive Index over Temperature for 8000nm)



Graph 1F. (Refractive Index over Temperature for 10000nm)



Graph 1G. (Refractive Index over Temperature for 12000nm)



Graph 1H. (Refractive Index over Temperature for 14000nm)

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M3 Measurement Solutions Inc. Results
IRG 206 X1

November 3, 2012

M3 Measurement Solutions Inc.
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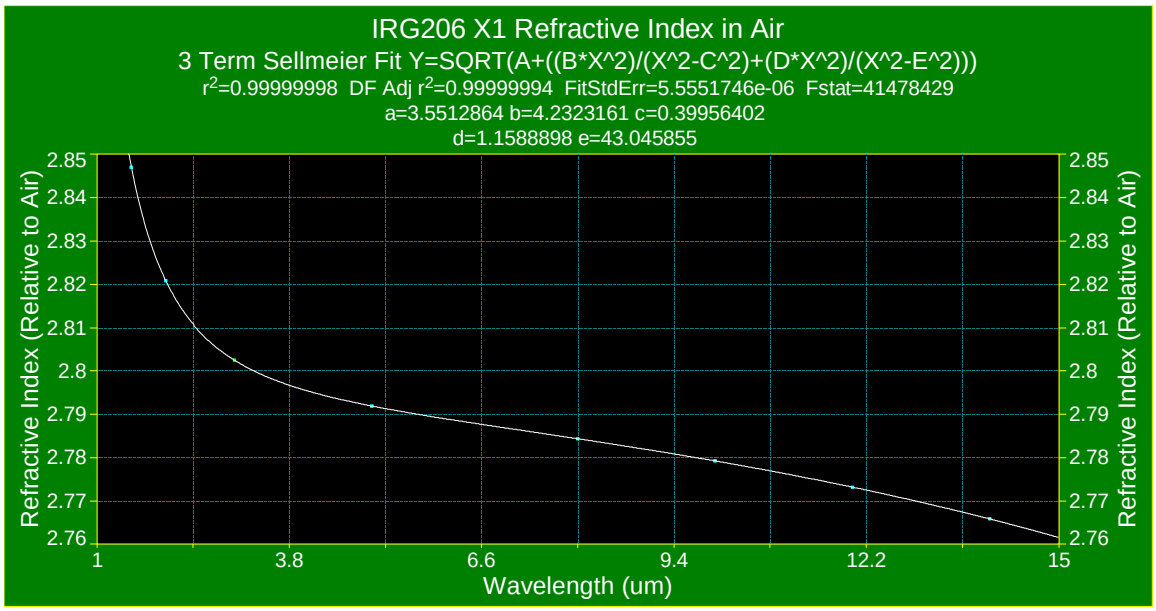
Values / Uncertainties

Description	Value / Uncertainty
Apex Angle of Prism (Deg)	14.855424+/- .0005 Deg
Temperature	+/- .1 Deg
Wavelength (300-1500nm)	+/- 0.05%
Wavelength (1200-3500nm)	+/- 0.05%
Wavelength (2500-7000nm)	+/- 0.05%
Wavelength (7000-16000nm)	+/- 0.05%
Vacuum	< 30e-3 Torr
Angular Measurements	+/- 0.00028 Deg
Refractive Index	+- 2*e-4

Data Summary: IRG206 X1

Refractive Index in Air @ 20C

Wavelength(nm)	Index of Refraction
14000	2.76586
12000	2.77320
10000	2.77926
8000	2.78437
5000	2.79194
3000	2.80257
2000	2.82082
1500	2.84701



IRG206 X1 dn/dT (linear fit from 233.16 Deg K to 353.15 Deg K)

1500nm	2000nm	3000nm	5000nm	8000nm	10000nm	12000nm	14000nm
5.1E-05	4.2E-05	3.7E-05	3.4E-05	3.2E-05	3.2E-05	3.2E-05	3.2E-05

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Data Summary: IRG206 Refractive index at Temperature in Vacuum

Wavelength (nm)	14000	12000	10000	8000	5000	3000	2000	1500
Temperature								
233.16	2.76471	2.77205	2.77806	2.78317	2.79071	2.80118	2.81910	2.84472
238.15	2.76481	2.77215	2.77818	2.78328	2.79083	2.80134	2.81928	2.84497
243.17	2.76492	2.77226	2.77829	2.78337	2.79095	2.80141	2.81938	2.84513
248.15	2.76504	2.77239	2.77843	2.78350	2.79108	2.80158	2.81959	2.84537
253.17	2.76520	2.77255	2.77859	2.78369	2.79125	2.80176	2.81979	2.84559
258.15	2.76530	2.77265	2.77870	2.78380	2.79140	2.80190	2.81998	2.84585
263.18	2.76557	2.77288	2.77892	2.78402	2.79155	2.80211	2.82020	2.84608
268.15	2.76562	2.77298	2.77899	2.78410	2.79167	2.80223	2.82038	2.84628
273.17	2.76575	2.77306	2.77909	2.78417	2.79176	2.80233	2.82046	2.84659
278.17	2.76608	2.77340	2.77944	2.78456	2.79214	2.80270	2.82086	2.84689
283.15	2.76618	2.77352	2.77956	2.78466	2.79225	2.80285	2.82107	2.84712
288.17	2.76633	2.77365	2.77968	2.78496	2.79256	2.80316	2.82138	2.84750
293.15	2.76660	2.77395	2.78001	2.78512	2.79269	2.80333	2.82158	2.84777
298.15	2.76675	2.77406	2.78012	2.78524	2.79286	2.80348	2.82174	2.84796
303.18	2.76689	2.77422	2.78026	2.78537	2.79298	2.80361	2.82192	2.84817
308.15	2.76697	2.77430	2.78036	2.78550	2.79313	2.80379	2.82213	2.84843
313.15	2.76708	2.77442	2.78046	2.78560	2.79324	2.80392	2.82223	2.84859
318.15	2.76717	2.77452	2.78056	2.78570	2.79331	2.80400	2.82238	2.84880
323.15	2.76737	2.77469	2.78077	2.78587	2.79356	2.80424	2.82268	2.84911
328.15	2.76759	2.77494	2.78099	2.78615	2.79380	2.80454	2.82298	2.84949
333.15	2.76772	2.77506	2.78114	2.78625	2.79397	2.80476	2.82324	2.84981
338.15	2.76792	2.77525	2.78132	2.78645	2.79416	2.80491	2.82343	2.85000
343.17	2.76813	2.77547	2.78153	2.78666	2.79436	2.80510	2.82363	2.85026

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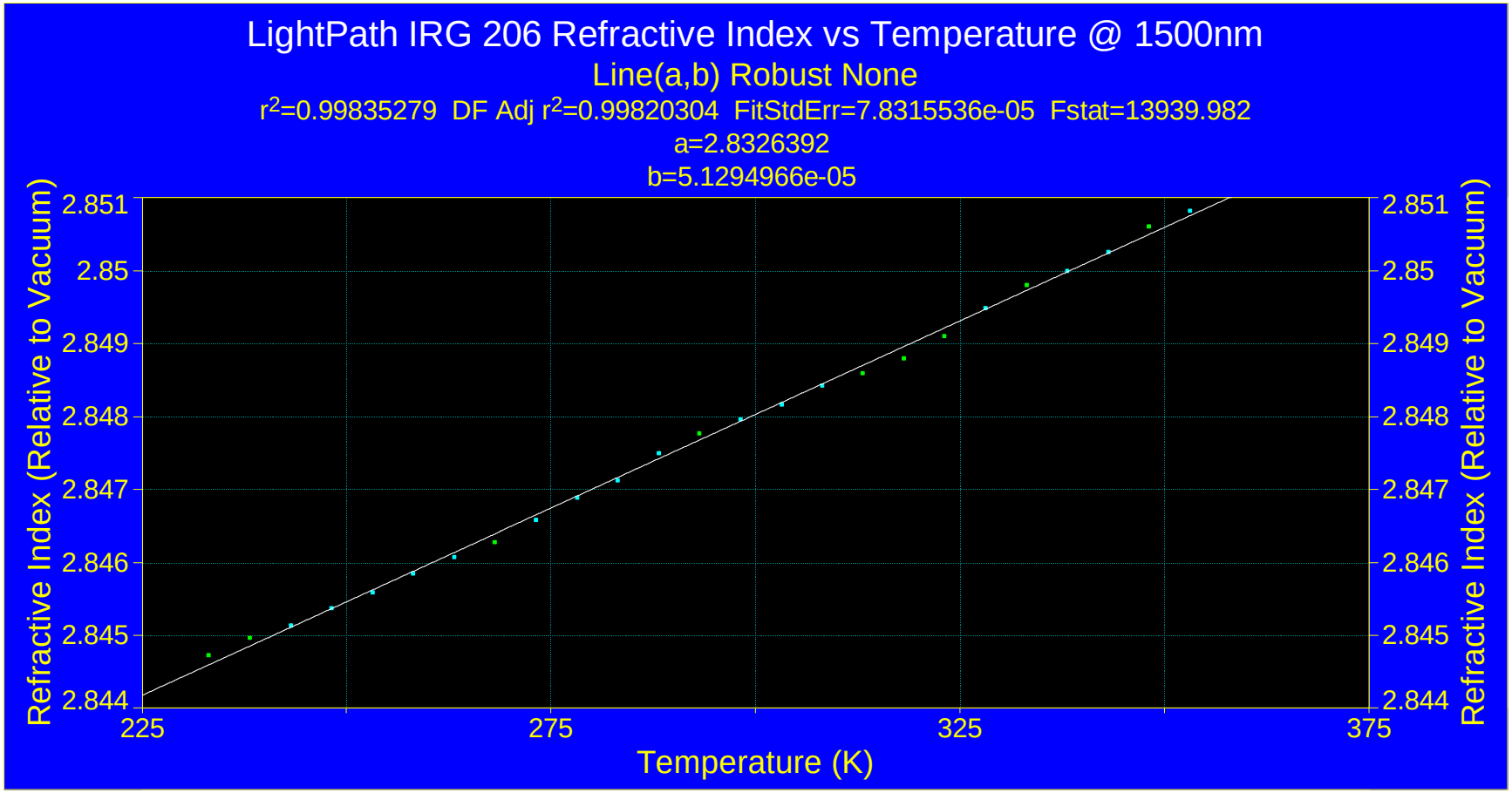
348.15	2.76825	2.77559	2.78166	2.78679	2.79452	2.80532	2.82390	2.85061
353.15	2.76841	2.77575	2.78182	2.78697	2.79471	2.80551	2.82412	2.85082

Graphic Summary: IRG 206 X1



Graph 1A. (Refractive Index over Temperature for 1500nm)

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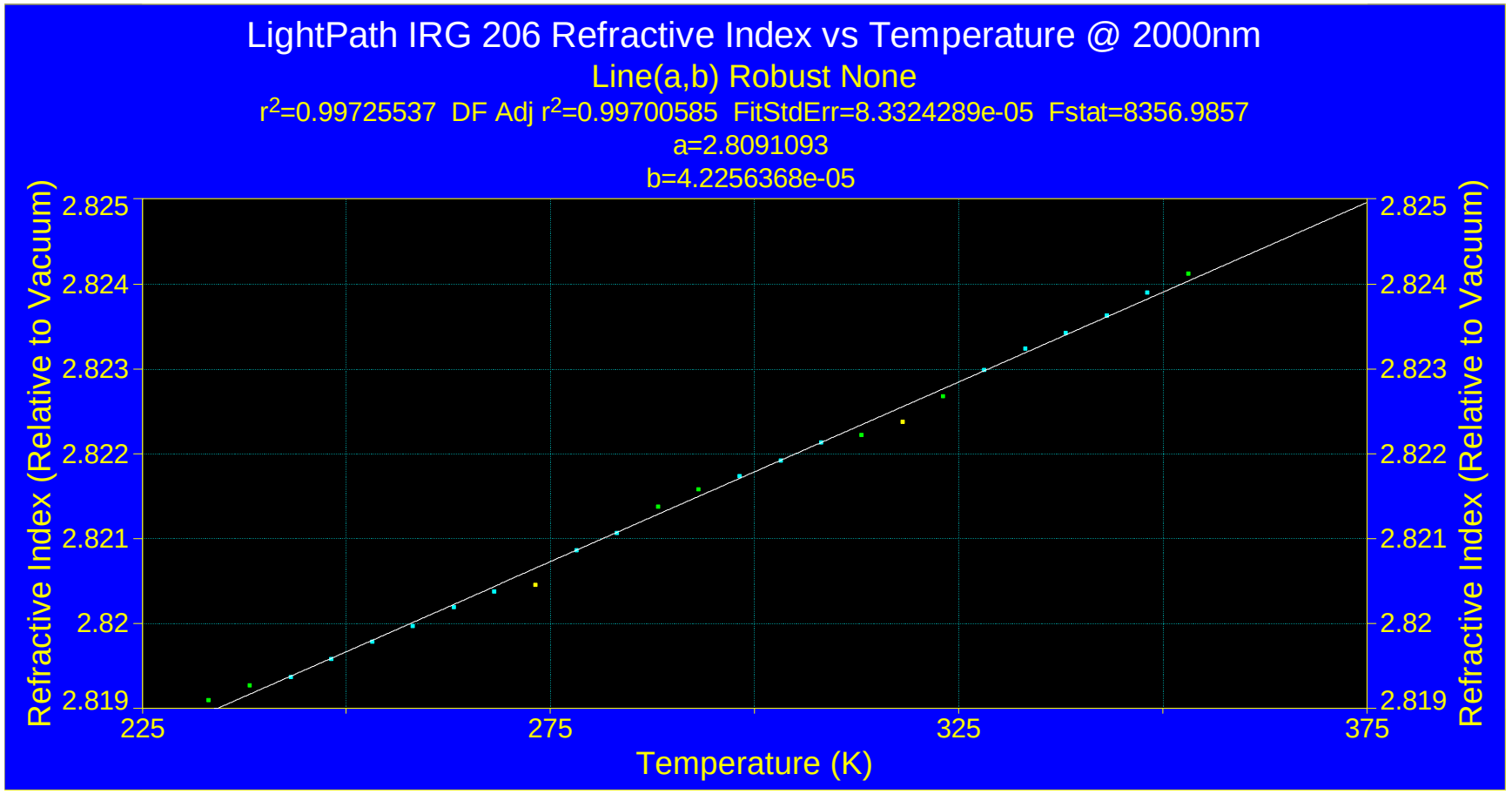

Graph 1B. (Refractive Index over Temperature for 2000nm)

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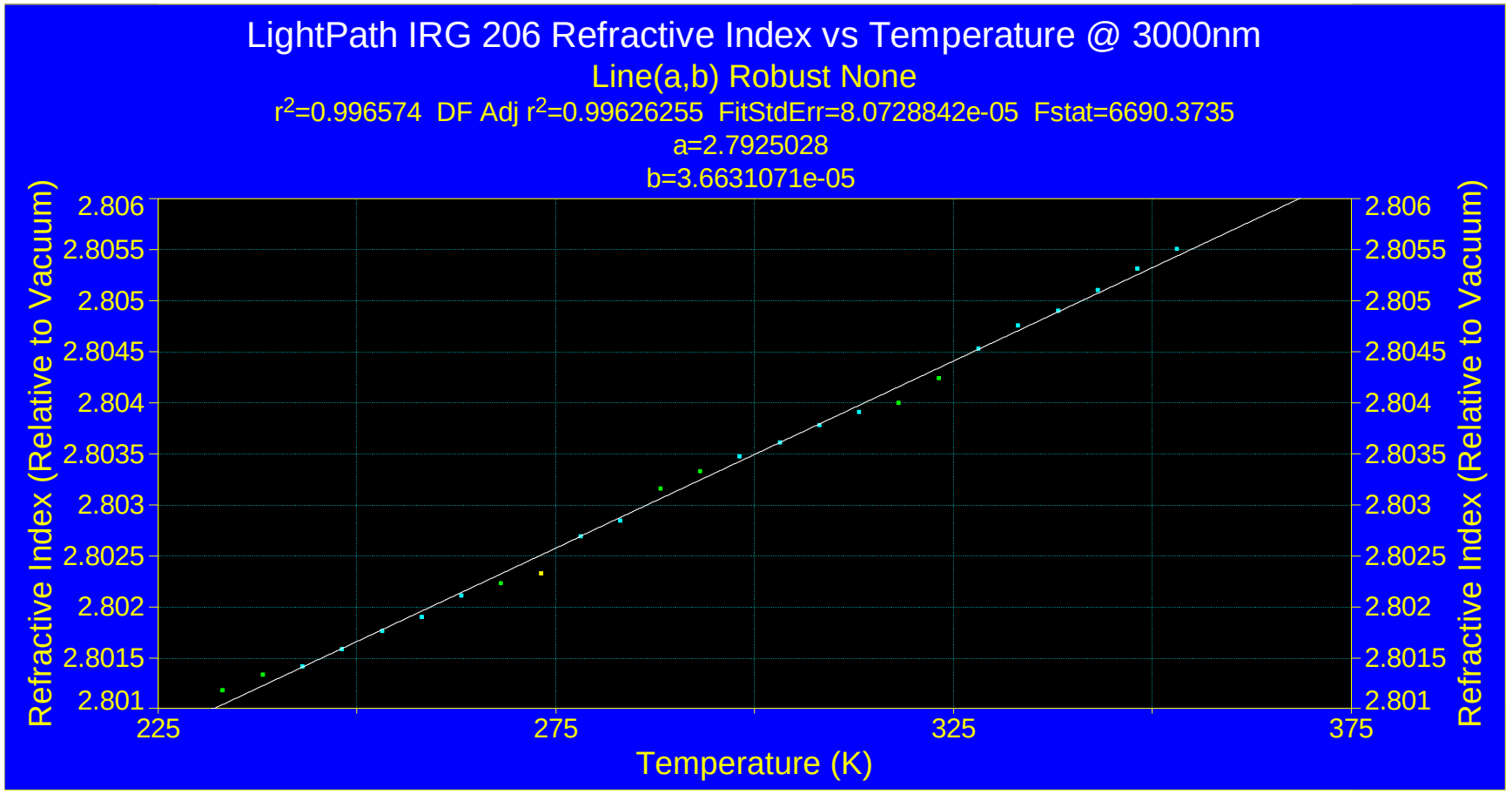
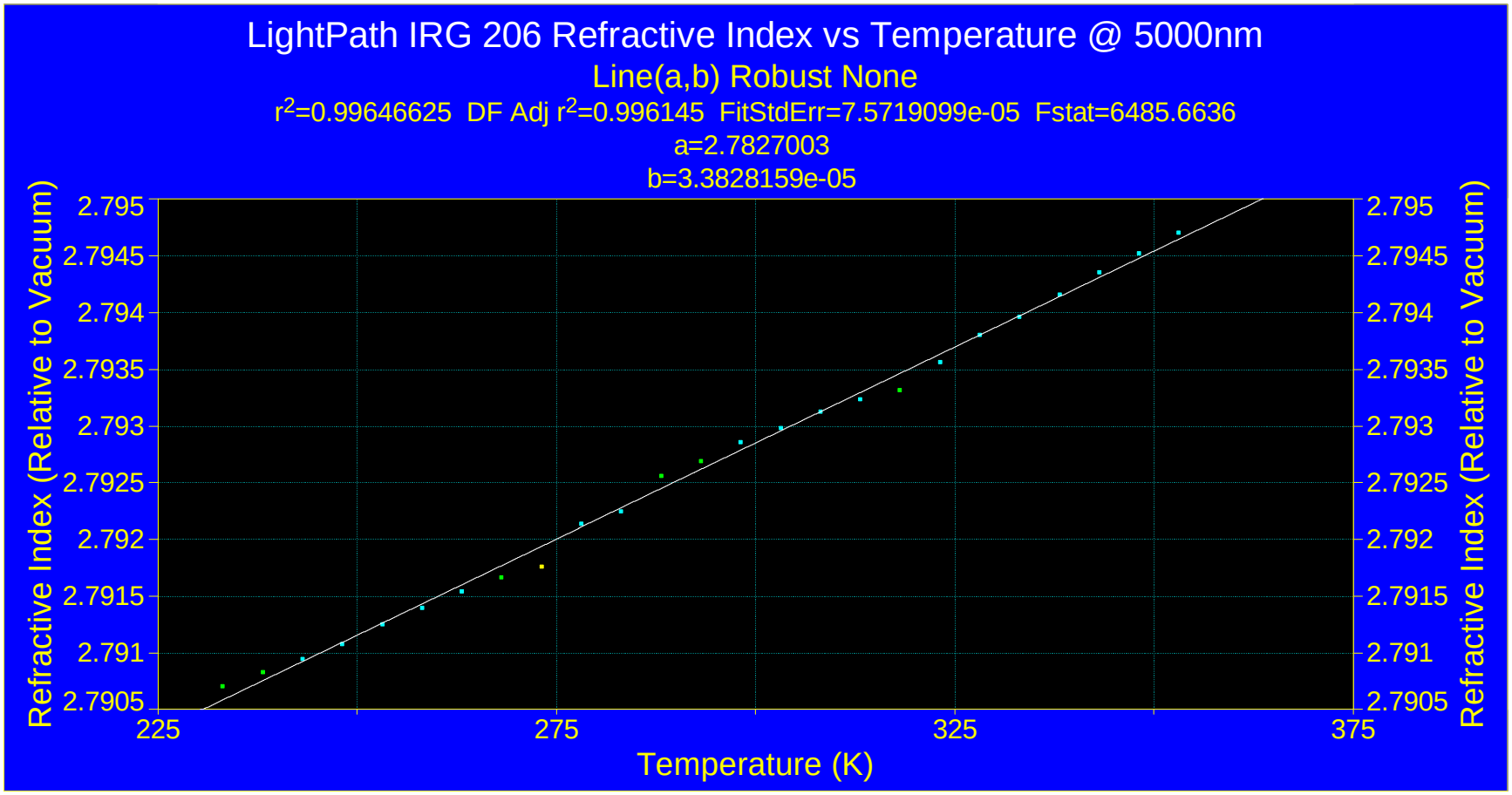
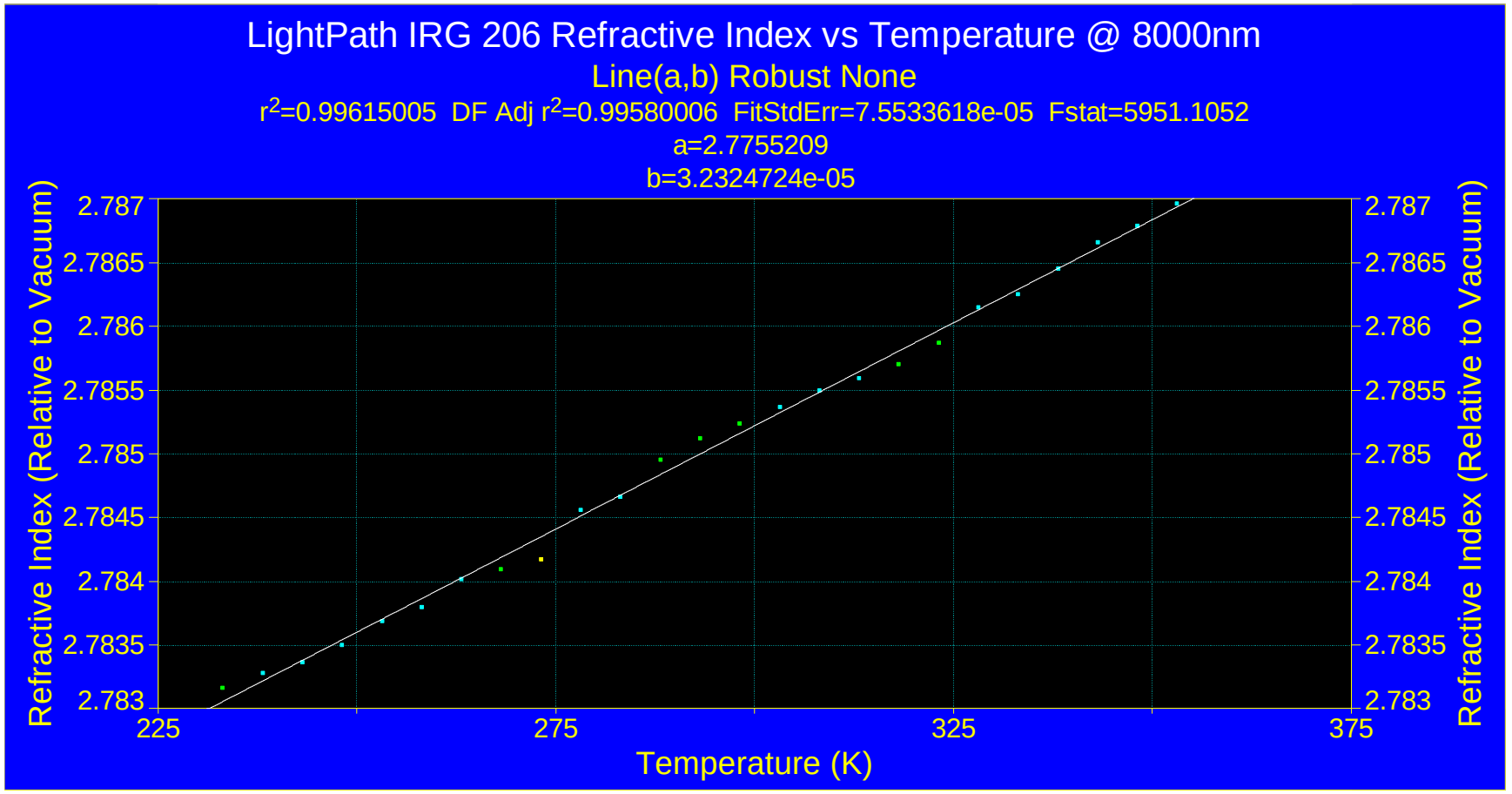


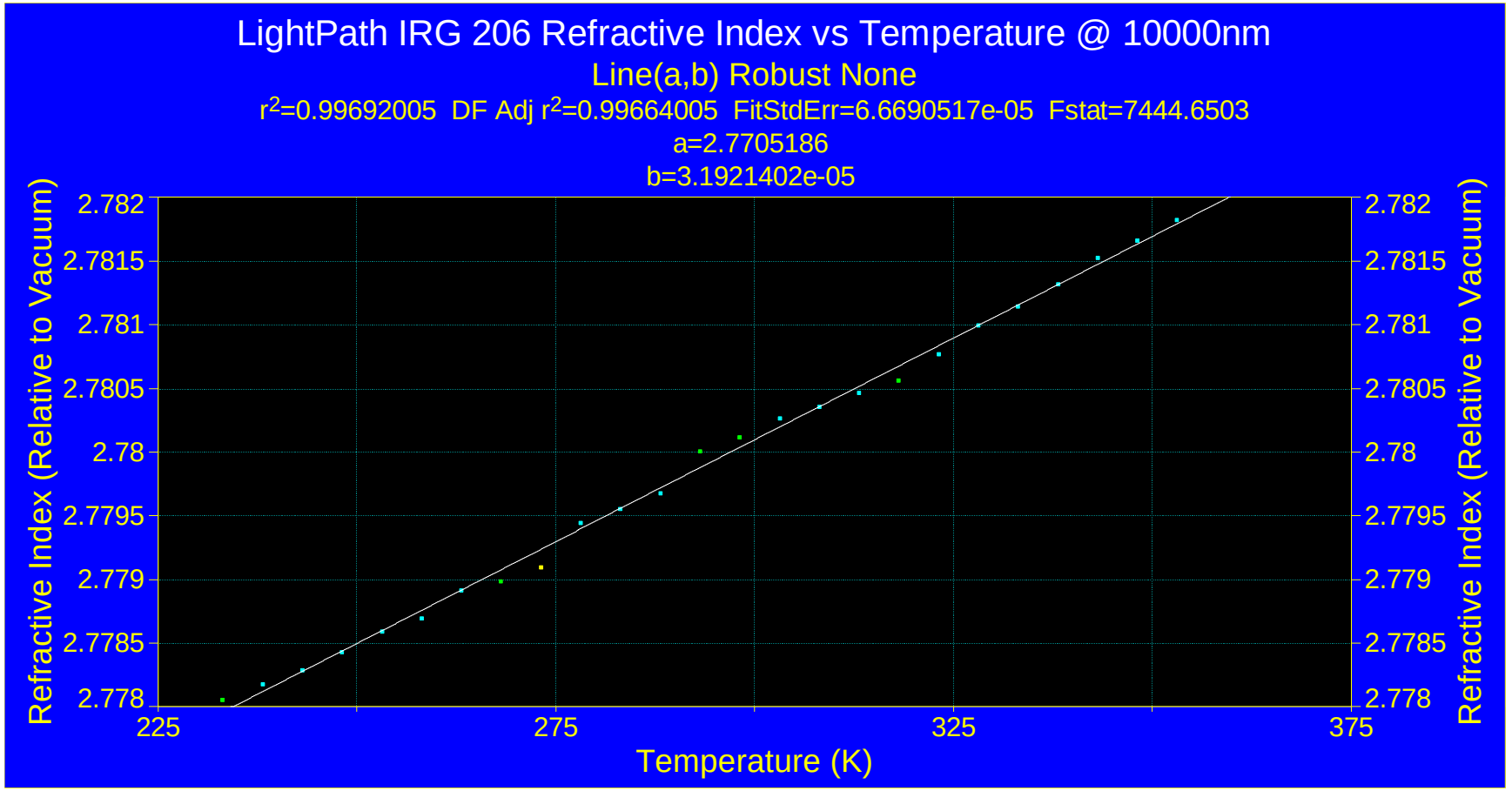
Graph 1C. (Refractive Index over Temperature for 3000nm)



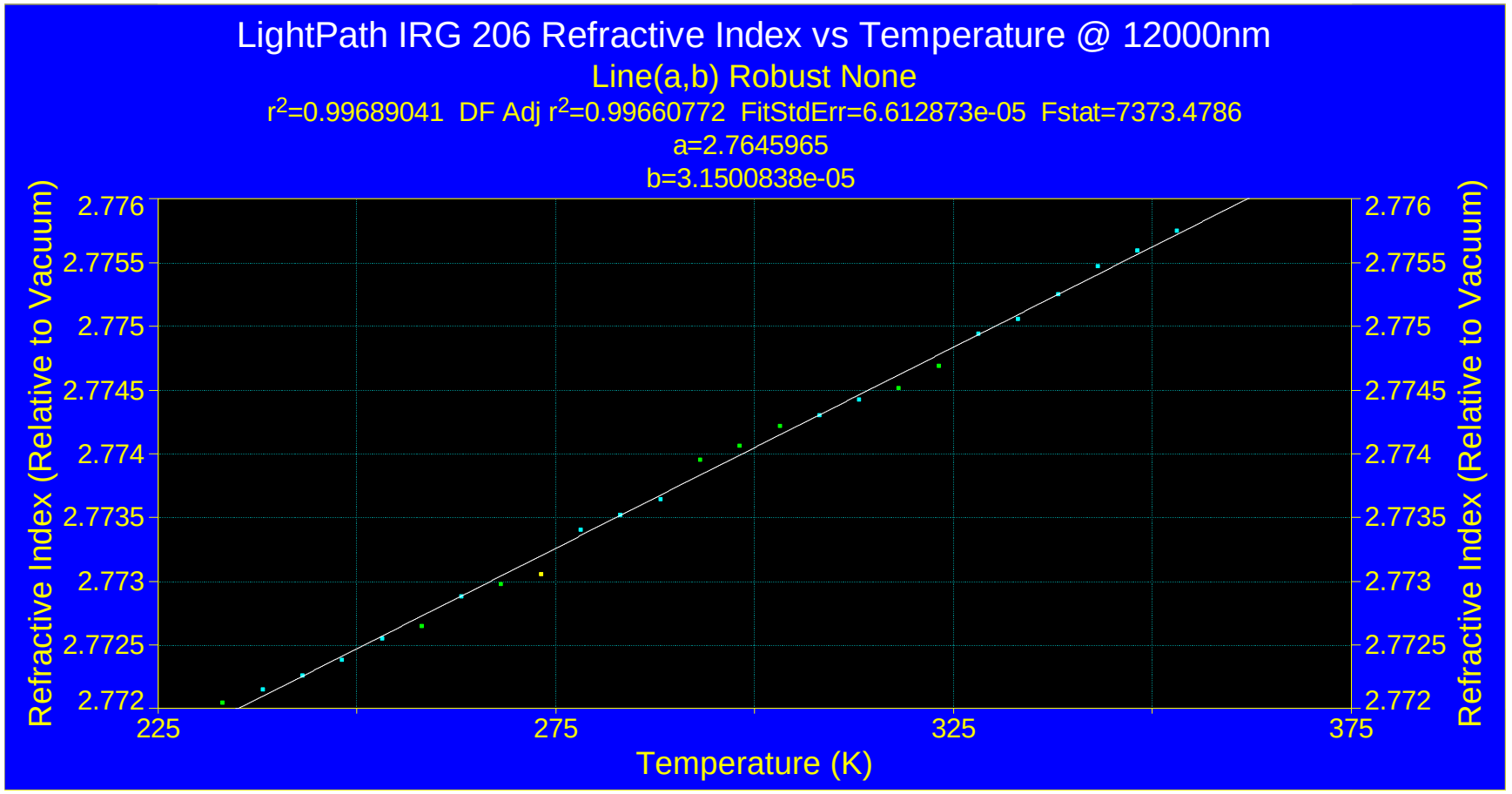
Graph 1D. (Refractive Index over Temperature for 5000nm)



Graph 1E. (Refractive Index over Temperature for 8000nm)



Graph 1F. (Refractive Index over Temperature for 10000nm)



Graph 1G. (Refractive Index over Temperature for 12000nm)

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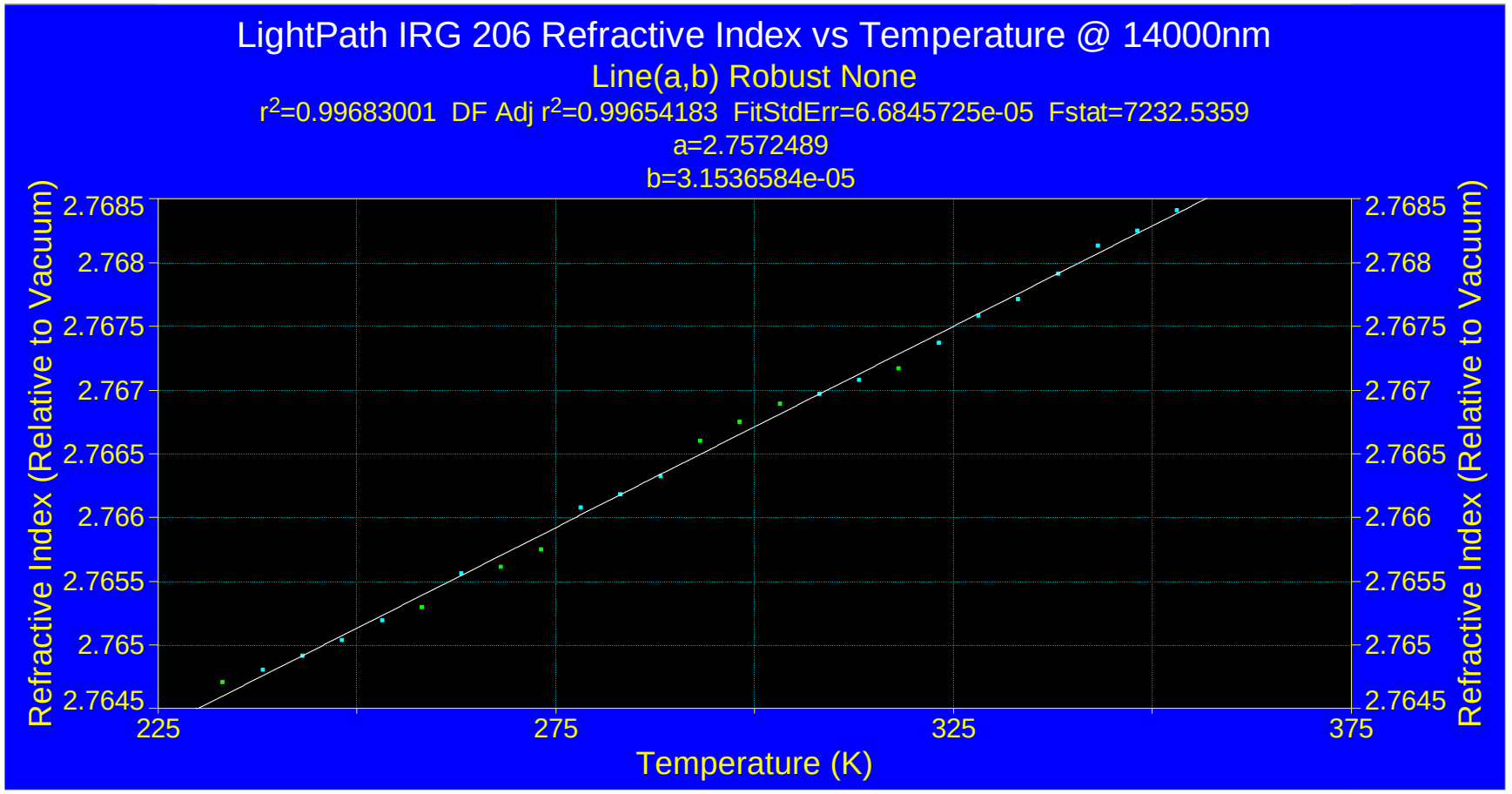

Graph 1H. (Refractive Index over Temperature for 14000nm)

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M3 Measurement Solutions Inc. Results
IRG 207

February 2, 2015

M3 Measurement Solutions Inc.
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Values / Uncertainties

Description	Value / Uncertainty
Apex Angle of Prism (Deg)	15.883668+/- .0005 Deg
Temperature	+/- .1 Deg
Wavelength (300-1500nm)	+/- 0.05%
Wavelength (1200-3500nm)	+/- 0.05%
Wavelength (2500-7000nm)	+/- 0.05%
Wavelength (7000-16000nm)	+/- 0.05%
Vacuum	< 30e-3 Torr
Angular Measurements	+/- 0.00028 Deg
Refractive Index	+- 2*e-4

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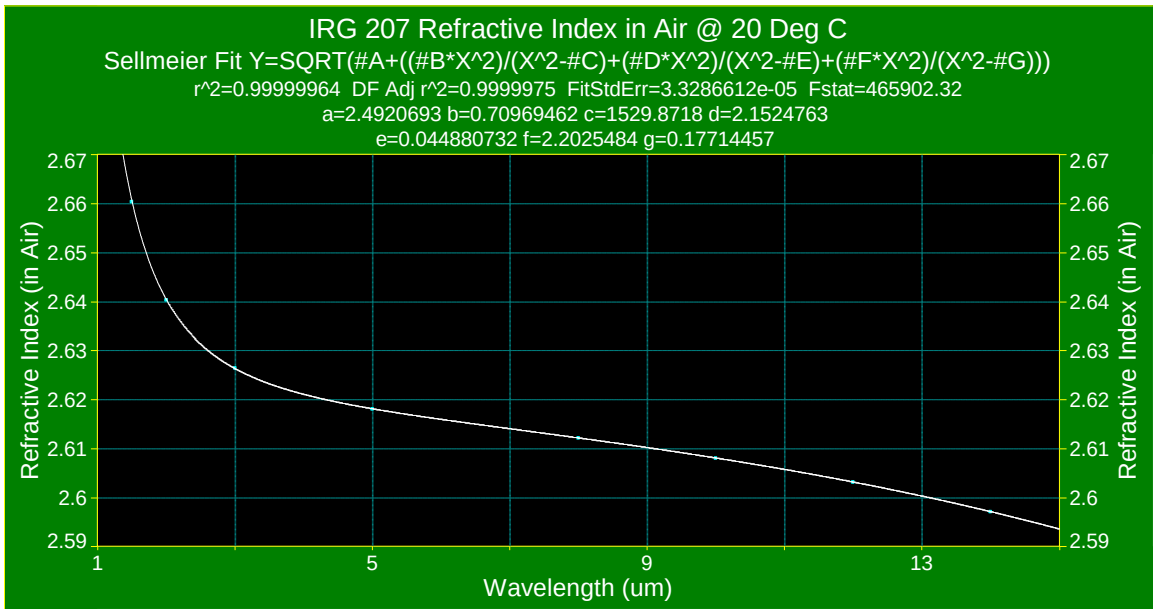
Data Summary: IRG207

Refractive Index in Air @ 20C

Wavelength(nm)	Index of Refraction
14000	2.59718
12000	2.60320
10000	2.60813
8000	2.61224
5000	2.61816
3000	2.62640
2000	2.64040
1500	2.66047



IRG207 dn/dT (linear fit from 233.16 Deg K to 353.15 Deg K)

1500nm	2000nm	3000nm	5000nm	8000nm	10000nm	12000nm	14000nm
2.88E-05	2.24E-05	1.82E-05	1.74E-05	1.74E-05	1.7E-05	No Sig	No Sig

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Data Summary: IRG207 Refractive index at Temperature in Vacuum

Wavelength (nm)	14000	12000	10000	8000	5000	3000	2000	1500
Temperature								
233.16	No Signal	No Signal	2.60794	2.61196	2.61797	2.62608	2.63987	2.65958
238.15	No Signal	No Signal	2.60802	2.61205	2.61806	2.62617	2.63998	2.65973
243.17	No Signal	No Signal	2.60811	2.61214	2.61815	2.62626	2.64009	2.65988
248.15	No Signal	No Signal	2.60820	2.61223	2.61824	2.62635	2.64021	2.66003
253.17	No Signal	No Signal	2.60831	2.61230	2.61830	2.62642	2.64037	2.66025
258.15	No Signal	No Signal	2.60837	2.61238	2.61841	2.62649	2.64047	2.66043
263.18	No Signal	No Signal	2.60840	2.61247	2.61849	2.62659	2.64057	2.66044
268.15	No Signal	No Signal	2.60847	2.61257	2.61855	2.62665	2.64069	2.66067
273.17	No Signal	No Signal	2.60860	2.61267	2.61861	2.62671	2.64075	2.66079
278.17	No Signal	No Signal	2.60868	2.61273	2.61870	2.62685	2.64086	2.66097
283.15	No Signal	No Signal	2.60876	2.61282	2.61877	2.62694	2.64096	2.66103
288.17	No Signal	No Signal	2.60875	2.61289	2.61882	2.62702	2.64102	2.66113
293.15	No Signal	No Signal	2.60884	2.61295	2.61887	2.62711	2.64111	2.66119
298.15	No Signal	No Signal	2.60890	2.61308	2.61897	2.62718	2.64126	2.66142
303.18	No Signal	No Signal	2.60904	2.61315	2.61907	2.62726	2.64142	2.66160
308.15	No Signal	No Signal	2.60908	2.61325	2.61917	2.62735	2.64153	2.66177
313.15	No Signal	No Signal	2.60931	2.61335	2.61925	2.62749	2.64166	2.66191
318.15	No Signal	No Signal	2.60932	2.61345	2.61936	2.62763	2.64177	2.66213
323.15	No Signal	No Signal	2.60948	2.61350	2.61946	2.62771	2.64186	2.66227
328.15	No Signal	No Signal	2.60943	2.61358	2.61955	2.62779	2.64196	2.66231
333.15	No Signal	No Signal	2.60960	2.61369	2.61971	2.62788	2.64209	2.66252
338.15	No Signal	No Signal	2.60965	2.61381	2.61975	2.62794	2.64227	2.66266
343.17	No Signal	No Signal	2.60983	2.61389	2.61990	2.62805	2.64234	2.66278

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348.15	No Signal	No Signal	2.60997	2.61400	2.62001	2.62817	2.64247	2.66292
353.15	No Signal	No Signal	2.61005	2.61407	2.62014	2.62826	2.64259	2.66304

M3 Measurement Solutions Inc.
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M3 Measurement Solutions Inc. Results
IRG 203X1

March 21, 2013

M3 Measurement Solutions Inc.
2048 Aldergrove Ste D
Escondido, CA 92029
www.m3msi.com

Values / Uncertainties

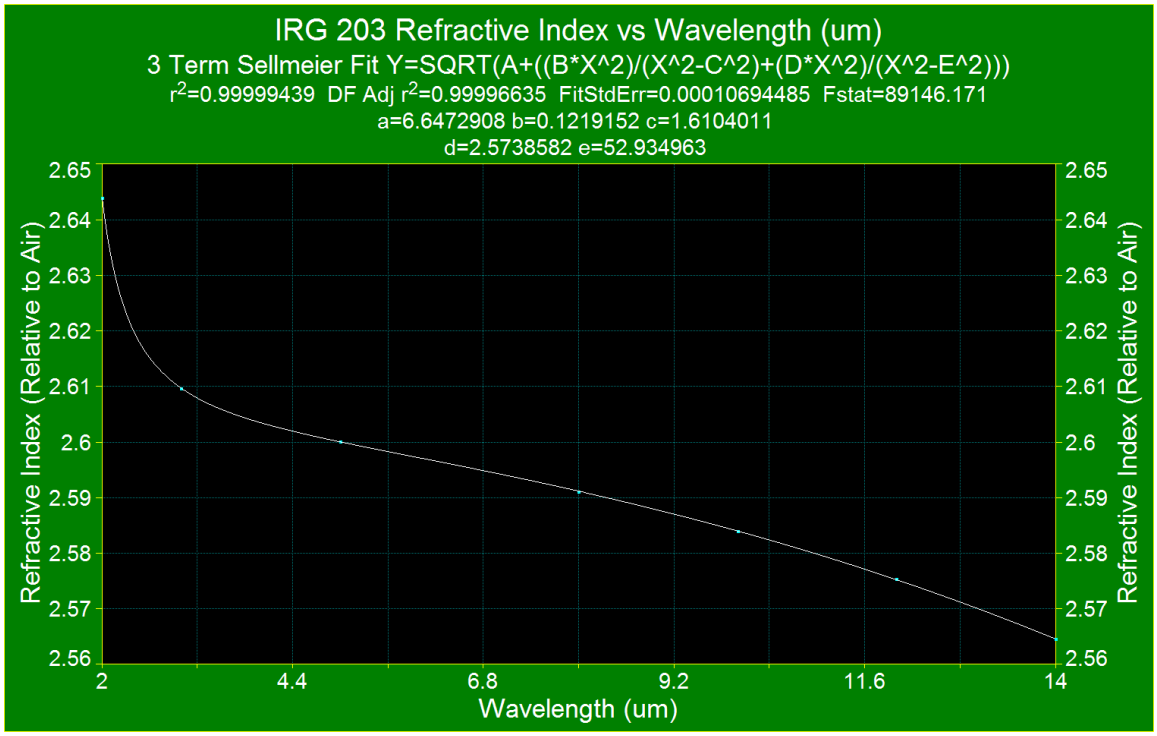
Description	Value / Uncertainty
Apex Angle of Prism (Deg)	15.783659+/- .004 Deg
Temperature	+/- .1 Deg
Wavelength (300-1500nm)	+/- 0.05%
Wavelength (1200-3500nm)	+/- 0.05%
Wavelength (2500-7000nm)	+/- 0.05%
Wavelength (7000-16000nm)	+/- 0.05%
Vacuum	< 3e-3 Torr
Angular Measurements	+/- 0.00028 Deg
Refractive Index	+- 1.0*e-3

- Please note, due to the flatness error in the part the apex angle measurement is larger than normal and could cause a worst case error of +-1.0e-3 for the absolute index. This error is primarily a DC offset to the refractive index values across all of the wavelengths and should not affect the dn/dT values.

Data Summary: IRG203 X1

Refractive Index in Air @ 20C

Wavelength(nm)	Index of Refraction
14000	**2.56458**
12000	**2.57536**
10000	**2.58400**
8000	**2.59109**
5000	**2.60010**
3000	**2.60963**
2000	**2.64392**



IRG203 X1 dn/dT (linear fit from 233.16 Deg K to 363.15 Deg K)

2000nm	3000nm	5000nm	8000nm	10000nm	12000nm	14000nm
4.5E-05	4.2E-05	4.0E-05	3.9E-05	3.9E-05	3.9E-05	3.9E-05

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Data Summary: IRG203 Refractive index at Temperature in Air

Wavelength (nm)	14000	12000	10000	8000	5000	3000	2000
Temperature(K)							
233.17	2.56233	2.57303	2.58176	2.58884	2.59783	2.60725	2.64132
238.15	2.56245	2.57323	2.58190	2.58896	2.59789	2.60740	2.64148
243.18	2.56263	2.57343	2.58207	2.58914	2.59814	2.60758	2.64169
248.15	2.56275	2.57360	2.58220	2.58926	2.59825	2.60773	2.64184
253.17	2.56295	2.57374	2.58240	2.58942	2.59841	2.60788	2.64202
258.15	2.56305	2.57386	2.58253	2.58958	2.59862	2.60805	2.64224
263.17	2.56329	2.57413	2.58279	2.58983	2.59883	2.60829	2.64248
268.15	2.56349	2.57425	2.58294	2.58997	2.59901	2.60856	2.64285
273.17	2.56364	2.57441	2.58308	2.59013	2.59915	2.60876	2.64307
278.15	2.56396	2.57477	2.58340	2.59048	2.59950	2.60898	2.64319
283.17	2.56418	2.57499	2.58365	2.59069	2.59970	2.60924	2.64345
288.15	2.56433	2.57513	2.58373	2.59082	2.59984	2.60936	2.64361
293.17	2.56458	2.57536	2.58400	2.59109	2.60010	2.60963	2.64392
298.16	2.56468	2.57545	2.58414	2.59120	2.60022	2.60977	2.64407
303.17	2.56496	2.57572	2.58438	2.59144	2.60045	2.60999	2.64433
308.14	2.56510	2.57589	2.58455	2.59162	2.60068	2.61022	2.64458
313.16	2.56529	2.57605	2.58474	2.59177	2.60081	2.61036	2.64475
318.14	2.56544	2.57621	2.58488	2.59193	2.60095	2.61056	2.64497
323.14	2.56568	2.57646	2.58511	2.59217	2.60122	2.61084	2.64524
328.16	2.56592	2.57668	2.58532	2.59242	2.60147	2.61103	2.64544
333.14	2.56609	2.57689	2.58552	2.59262	2.60170	2.61124	2.64569
338.15	2.56624	2.57702	2.58569	2.59274	2.60178	2.61138	2.64588
343.18	2.56645	2.57720	2.58589	2.59295	2.60203	2.61161	2.64610

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348.15	**2.56663**	**2.57743**	**2.58609**	**2.59318**	**2.60224**	**2.61186**	**2.64635**
353.15	**2.56686**	**2.57765**	**2.58630**	**2.59333**	**2.60245**	**2.61209**	**2.64665**
358.16	**2.56713**	**2.57792**	**2.58659**	**2.59368**	**2.60277**	**2.61238**	**2.64695**
363.16	**2.56737**	**2.57816**	**2.58684**	**2.59394**	**2.60307**	**2.61271**	**2.64733**

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M3 Measurement Solutions Inc. Results
IRG 204

September 4, 2013

M3 Measurement Solutions Inc.
2048 Aldergrove Ste D
Escondido, CA 92029
www.m3msi.com

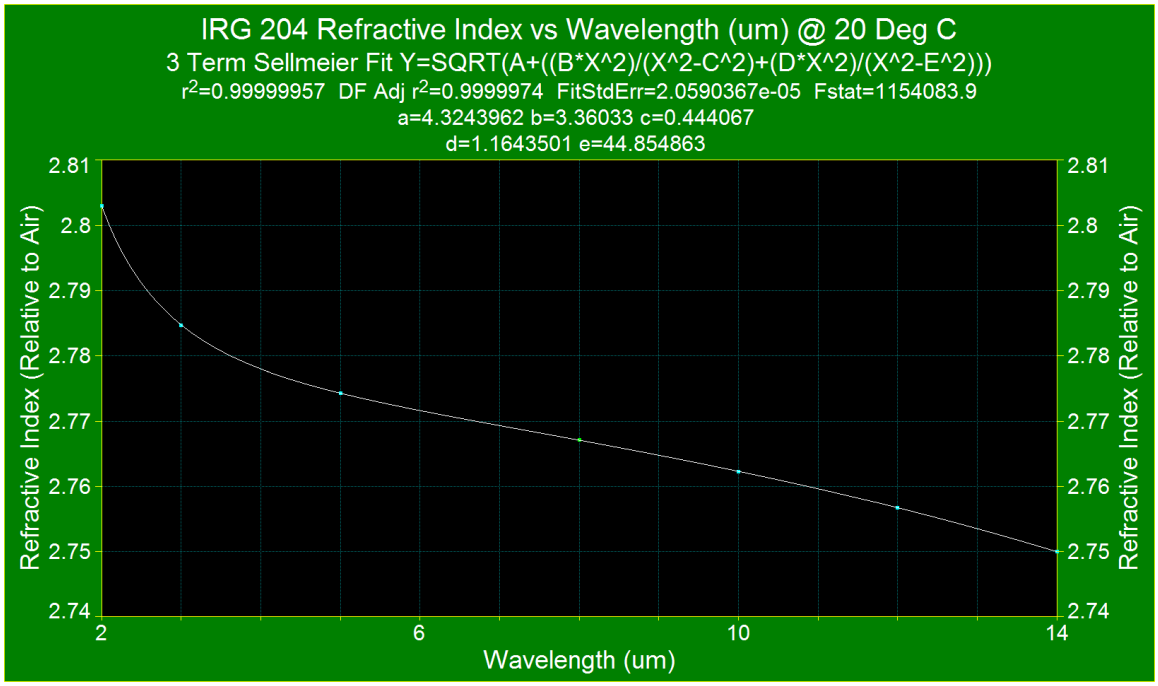
Values / Uncertainties

Description	Value / Uncertainty
Apex Angle of Prism (Deg)	14.718598+/- .0005 Deg
Temperature	+/- .1 Deg
Wavelength (300-1500nm)	+/- 0.05%
Wavelength (1200-3500nm)	+/- 0.05%
Wavelength (2500-7000nm)	+/- 0.05%
Wavelength (7000-16000nm)	+/- 0.05%
Vacuum	< 3e-3 Torr
Angular Measurements	+/- 0.00028 Deg
Refractive Index	+- 1.0*e-4

Data Summary: IRG204

Refractive Index in Air @ 20C

Wavelength(nm)	Index of Refraction
14000	2.74999
12000	2.75673
10000	2.76232
8000	2.76712
5000	2.77430
3000	2.78474
2000	2.80297



IRG204 dn/dT (linear fit from 233.16 Deg K to 363.15 Deg K)

2000nm	3000nm	5000nm	8000nm	10000nm	12000nm	14000nm
2.6E-05	2.1E-05	1.9E-05	1.8E-05	1.8E-05	1.7E-05	1.6E-05

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Data Summary: IRG204 Refractive index at Temperature in Vacuum

Wavelength (nm) / Temperature(K)	14000	12000	10000	8000	5000	3000	2000
233.15	2.75012	2.75678	2.76231	2.76716	2.77426	2.78462	2.80256
243.15	2.75015	2.75682	2.76236	2.76723	2.77440	2.78473	2.80274
253.15	2.75025	2.75690	2.76247	2.76732	2.77450	2.78484	2.80290
263.15	2.75037	2.75706	2.76261	2.76744	2.77459	2.78499	2.80309
273.15	2.75040	2.75708	2.76267	2.76751	2.77473	2.78513	2.80330
283.15	2.75066	2.75736	2.76291	2.76772	2.77493	2.78532	2.80354
293.15	2.75073	2.75747	2.76306	2.76787	2.77505	2.78549	2.80372
303.15	2.75097	2.75767	2.76325	2.76807	2.77524	2.78570	2.80396
313.15	2.75106	2.75777	2.76339	2.76829	2.77542	2.78590	2.80427
323.15	2.75127	2.75803	2.76367	2.76851	2.77578	2.78623	2.80460
333.15	2.75153	2.75827	2.76389	2.76872	2.77599	2.78647	2.80493
343.15	2.75170	2.75848	2.76405	2.76889	2.77615	2.78669	2.80521
353.15	2.75199	2.75874	2.76432	2.76919	2.77641	2.78703	2.80562
363.15	2.75224	2.75897	2.76454	2.76946	2.77671	2.78733	2.80588

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