Injection Power through Different Fibers from Deep Red Luxeon-Z LEDs

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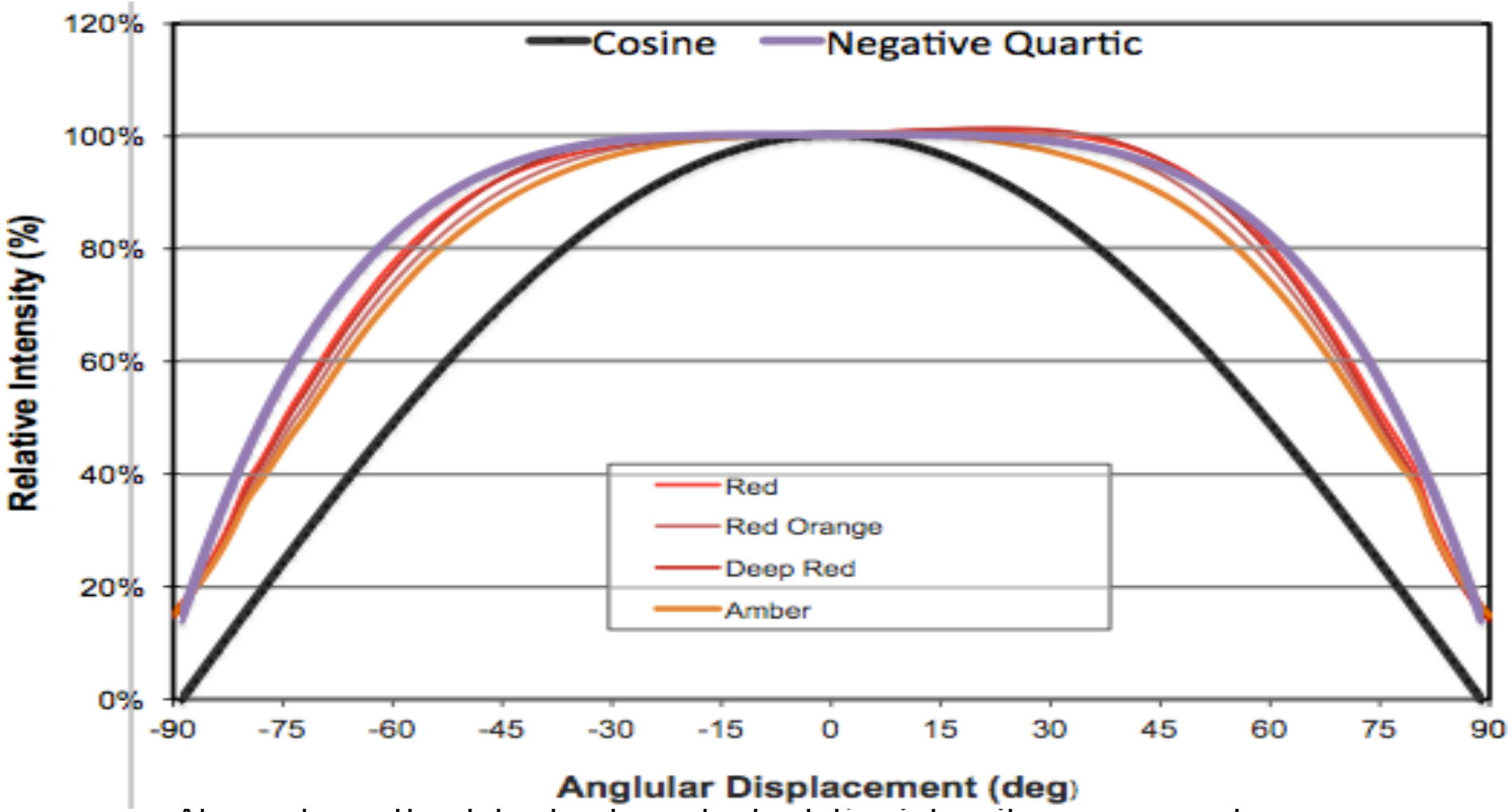
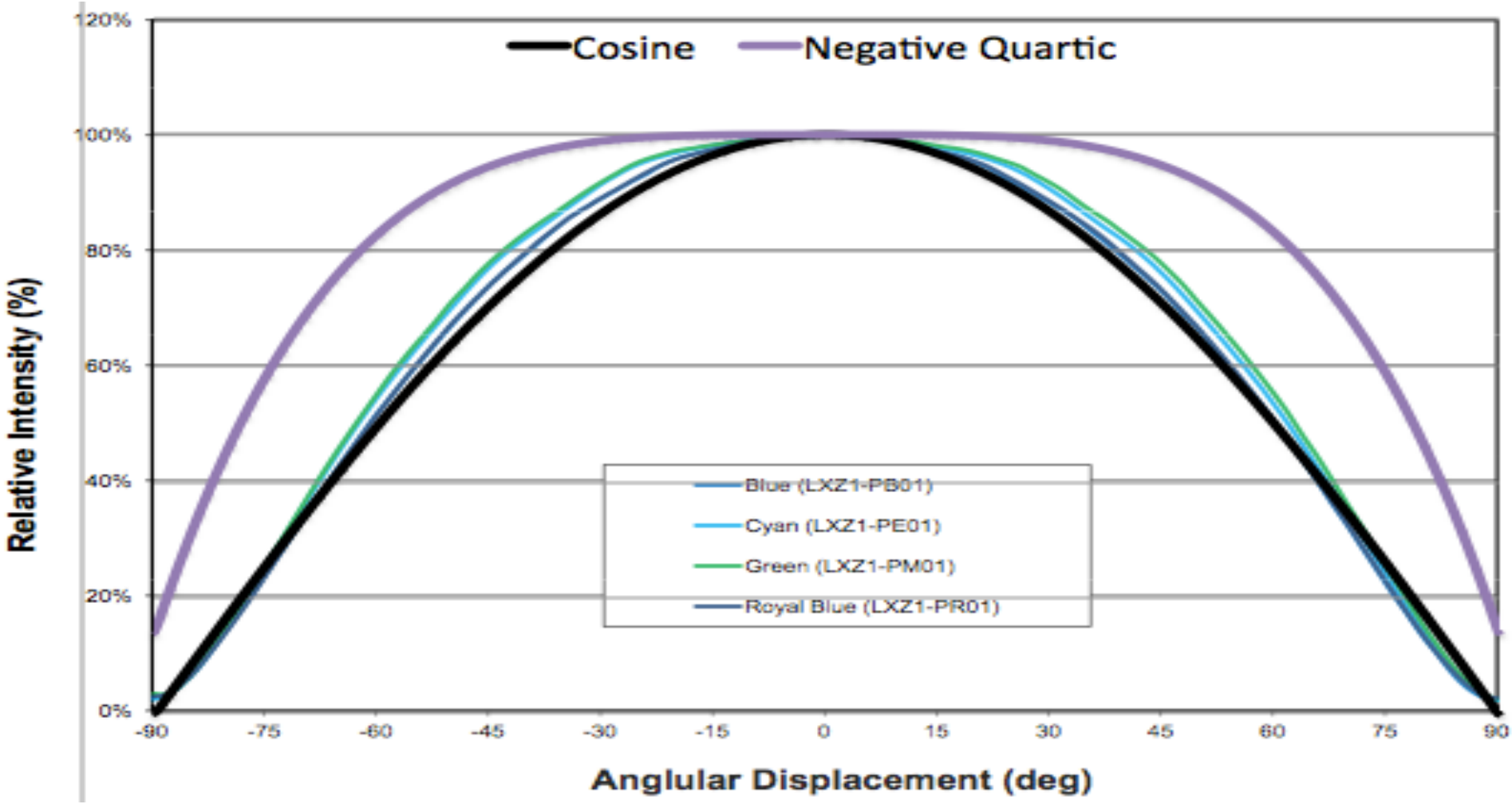
Intensity vs Angular Displacement



Above shows the data sheet graph of relative intensity versus angular displacement for different colored Luxeon-Z LEDs. Overlapped is a cosine function and a negative function of theta^4. The cosine has a clear forward bias, which was a source of error in intensity calculations.

Intensity vs Angular Displacement



Above shows the two curves fit over the data sheet graph of intensity versus angular displacement for different Luxeon-Z LEDs, which shows is cosine was a good fit for the intensity vs angular displacement of these LEDs.

Power through two Fibers from Deep Red Luxeon-Z LED

Core Diameter (um)	Numerical Aperture	Predicted Capture Efficiency	LED Current(mA)	Measured Power (mW)	Predicted Power (mW)
62	0.22	0.010	1000	0.09	0.08
100	0.37	0.077	1000	0.55	0.58
62	0.22	0.010	2000	0.16	0.14
100	0.37	0.077	2000	1.10	1.09
62	0.22	0.010	3000	0.22	0.20
100	0.37	0.077	3000	1.55	1.55
62	0.22	0.010	4000	0.28	0.25
100	0.37	0.077	4000	1.95	1.93

Above shows the comparisons between measured and predicted powers through two different single mode optical fibers