Purpose
To evaluate the responses of Fixed Protocol Short Duration Transient Visual Evoked Potentials (SD-tVEP) on healthy subjects, to obtain the distribution of these parameters, and to establish expected reference ranges.

Methods
95 healthy eyes were randomly selected (95 subjects). Inclusion criteria was: best corrected visual acuity 20/30 or better, spherical refraction within ±5.00 D, cylinder correction within ±3.00 D, normal Standard Automated Perimetry, normal slit lamp biomicroscopy, intraocular pressure ≤22 mmHg, normal stereoscopic disk photos, normal retinal nerve fiber layer thickness by optic coherence tomography, normal dilated fundus examination. SD-tVEPs were recorded using the Diopsys NOVA System (Diopsys, Inc. Pine Brook, NJ). Each eye was stimulated with a 15% (Lc) and 85% (Hc) Michelson contrast checkerboard pattern. Test duration was 30 seconds/eye and each test resulted in a low and high contrast response. Each response's P100 latency and N75-P100 amplitude was evaluated. Reference ranges were calculated based on Royston's Method1: Lc N75-P100 Amplitude, Lc P100 Latency, Hc N75-P100 Amplitude and Hc P100 Latency. The reference ranges were validated for normal distribution of the residuals (Observed values – Predicted values) across the entire age range and for three equal sized subgroups based on age.

Results
Study population demographics were: 45.3% male; 54.7% female; 75.8% Caucasian; 2.1% African American; 17.9% Hispanic; and 4.2% Asian. The age range was 21 to 81 years old. The Lc N75-P100 amplitude (Lc (Amp)), Lc P100 latency (Lc (Lat)), and Hc N75-P100 latency (Hc (Amp)) were not significantly affected by the age (p=0.26, p=0.13 and p=0.53, respectively). However, age did have an effect on the Hc P100 latency (Hc (Lat)) parameter (p=0.0048). Table 1 is the SD-tVEP parameter age adjusted reference ranges with ±95% CI. Figure 1 is the scatter plot of the four SD-tVEP parameters and Figure 2 are the regression models for the four SD-tVEP parameters.

Conclusions
The SD-tVEP low and high contrast fixed protocol reference ranges with ±95%CI will provide the clinician the ability to compare a patient’s SD-tVEP results to an age adjusted mean value with upper and lower 1.96 standard deviation (SD) limits.

REFERENCES

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Disclosure
P. H. Derr, Diopsys Inc., E; A. Gonzalez-Garcia, Diopsys Inc., E; A. Shengelia, None; J. Chien, None; M. Ghassibi, None; C. Tello, Diopsys Inc., R; R. Ritch, Diopsys Inc., R.