

**CONTRAST SENSITIVITY AFTER  
CORNEAL REFRACTIVE SURGERY  
PROCEDURE USING PULZAR Z1  
FROM CUSTOMVIS, AUSTRALIA**



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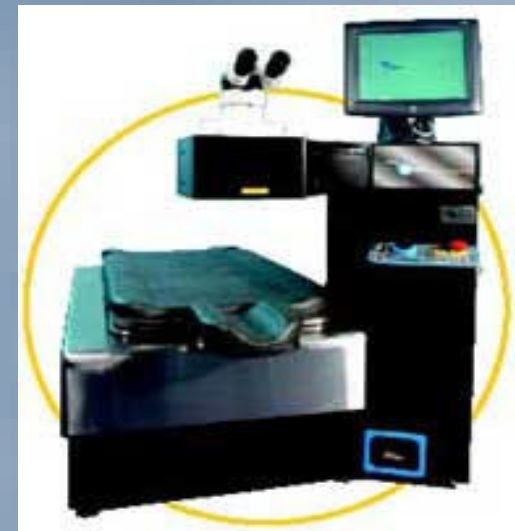


# 213 nm WAVELENGTH

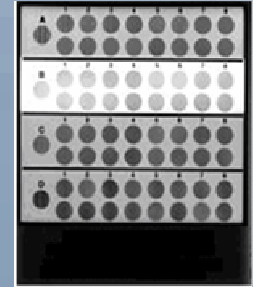
Clean and smooth ablation  
Hydration does not affect ablation  
Closer to absorption peak of corneal collagen

## PULZAR Z1 FROM CUSTOMVIS

0.6mm Gaussian  
Repetition rate of 300-400 Hz  
High pulse to pulse energy stability  
Minimal thermal heating  
Limbus based eye tracking  
Intra-operative eye tracker  
Solid state crystal scan faster



# Material and Methods



June 2007 to May 2008

30 Patients( 58 eyes), Mean age-25.33+/-6.3 (19 to 43)

16 females & 14 males, LASIK-37 (63.7%)eyes & PRK with Mitomycin C  
21(36.2%) eyes

Range of refractive error (SE) LASIK group-0.3 Ds to-13.5 Ds

<-3.0- 8 eyes(21.6%),-3.0 to -6.0-21 eyes(56.7%),>-6.0-8 eyes(21.6%)

PRK group(SE) range -1.25 Ds to -9.12 D

<-3.0-4 eyes(19.04%),-3.0 to -6.0-12 eyes(57.1%),>-6.0-5eyes(23.8%)

Standard treatment using Pulzar Z1, LASIK-Amadues II microkeratome

Pre & 3 months after surgery-Contrast sensitivity and RMS value, HO total

Contrast sensitivity CSV-1000 testing (Vector Vision, USA )

Spatial frequencies-3, 6, 12 & 18 cycles per degree (cpd)

Contrast sensitivity numbers into log values

Aberrometry was done with iTRACE (Texas, USA )

RMS value- Higher order total

# Results



LASIK- 6/6 or better-33/37(89.19%), 6/9 or better-35/37(94.6%)

PRK - 6/6 or better-19/21(90.48%), 6/9 or better-21/21(100%)

CS DATA	3 cpd	6 cpd	12 cpd	18 cpd
Overall Pre-op	1.53 $\pm$ .21	1.75 $\pm$ .29	1.45 $\pm$ .31	1.01 $\pm$ .36
Overall post-op	1.55 $\pm$ .20	1.77 $\pm$ .24	1.47 $\pm$ .26	1.06 $\pm$ .25
P value	0.46	0.79	0.72	0.41
LASIK pre-op	1.54 $\pm$ .24	1.77 $\pm$ .28	1.50 $\pm$ .28	1.10 $\pm$ .29
LASIK post-op	1.56 $\pm$ .24	1.80 $\pm$ .22	1.49 $\pm$ .24	1.09 $\pm$ .21
P value	0.67	0.67	0.86	0.90
PRK pre-op	1.51 $\pm$ .14	1.71 $\pm$ .32	1.35 $\pm$ .36	0.85 $\pm$ .43
PRK post-op	1.54 $\pm$ .11	1.71 $\pm$ .26	1.43 $\pm$ .29	0.99 $\pm$ .30
P value	0.37	0.94	0.47	0.21

# RMS value- HO total

	Mean pre-op	Mean post-op	P value
OVERALL	0.20 $\pm$ 0.06	0.18 $\pm$ 0.09	0.09
LASIK	0.21 $\pm$ 0.05	0.18 $\pm$ 0.07	0.07
PRK WITH MITO-C	0.19 $\pm$ 0.06	0.18 $\pm$ 0.08	0.57



# Conclusions

213 nm wavelength Pulzar Z1, Standard

No change in contrast sensitivity

Decrease in RMS value higher order aberrations total, though statistically not significant

Results are excellent

Following LASIK and PRK with Mitomycin-C

