

# Artificial Eye Measurement Performed on 09-Dec-2019

December 9, 2019

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Artificial eye measurements in three trials. The duration of each trial is 10 seconds.

# 1 Right DPI - Static

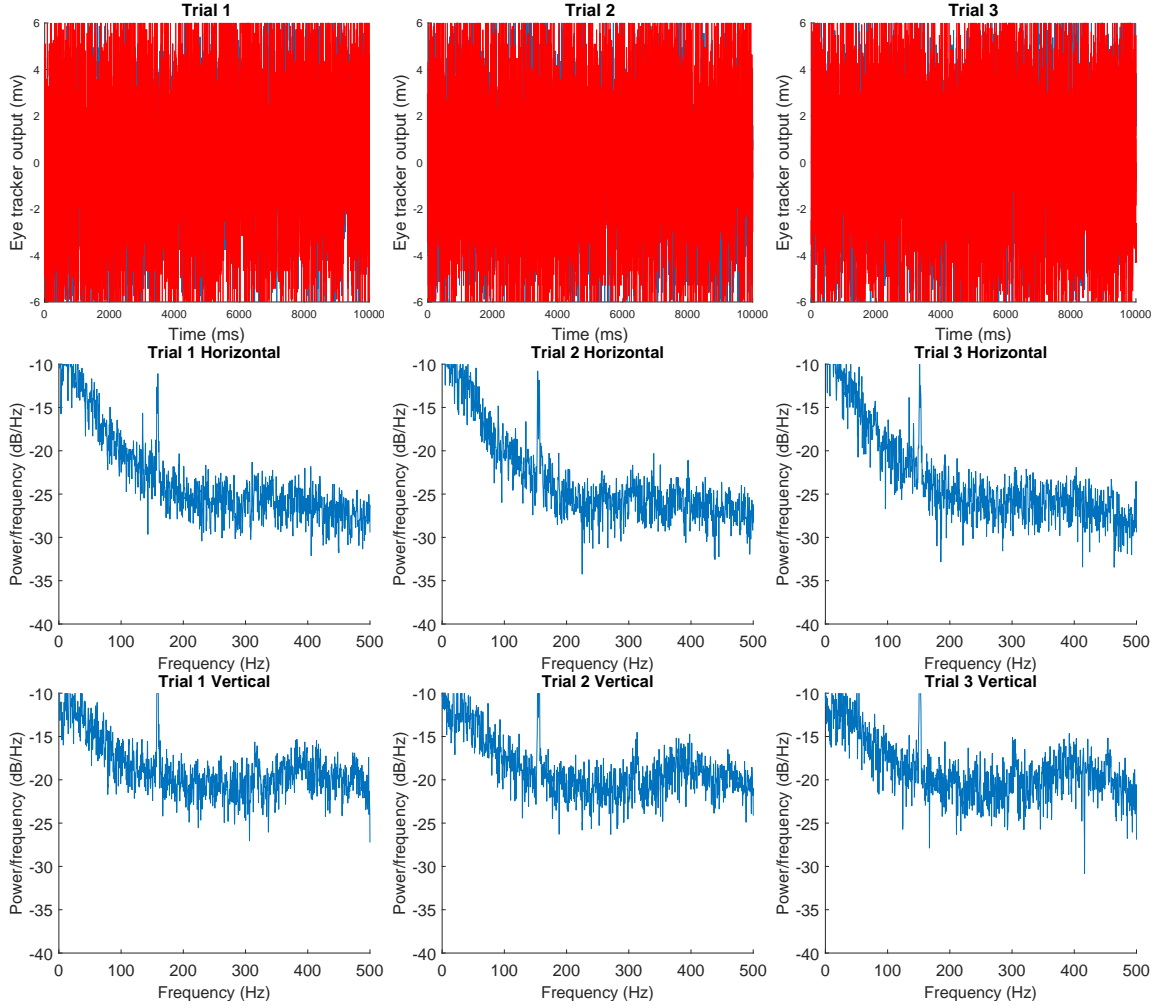


Figure 1: Top row: x and y traces. Middle row: power spectra of horizontal traces. Bottom row: power spectra of vertical traces

Trial #	standard deviation				root mean square			
	millivolts		arcmin		millivolts		arcmin	
	X	Y	X	Y	X	Y	X	Y
1	2.639	3.118	0.461	0.544	2.864	3.303	0.500	0.576
2	2.754	3.125	0.481	0.545	2.813	3.126	0.491	0.546
3	2.677	3.114	0.467	0.544	2.826	3.257	0.493	0.568

Table 1: Standard deviations and root mean square of traces in both voltage and arcmin

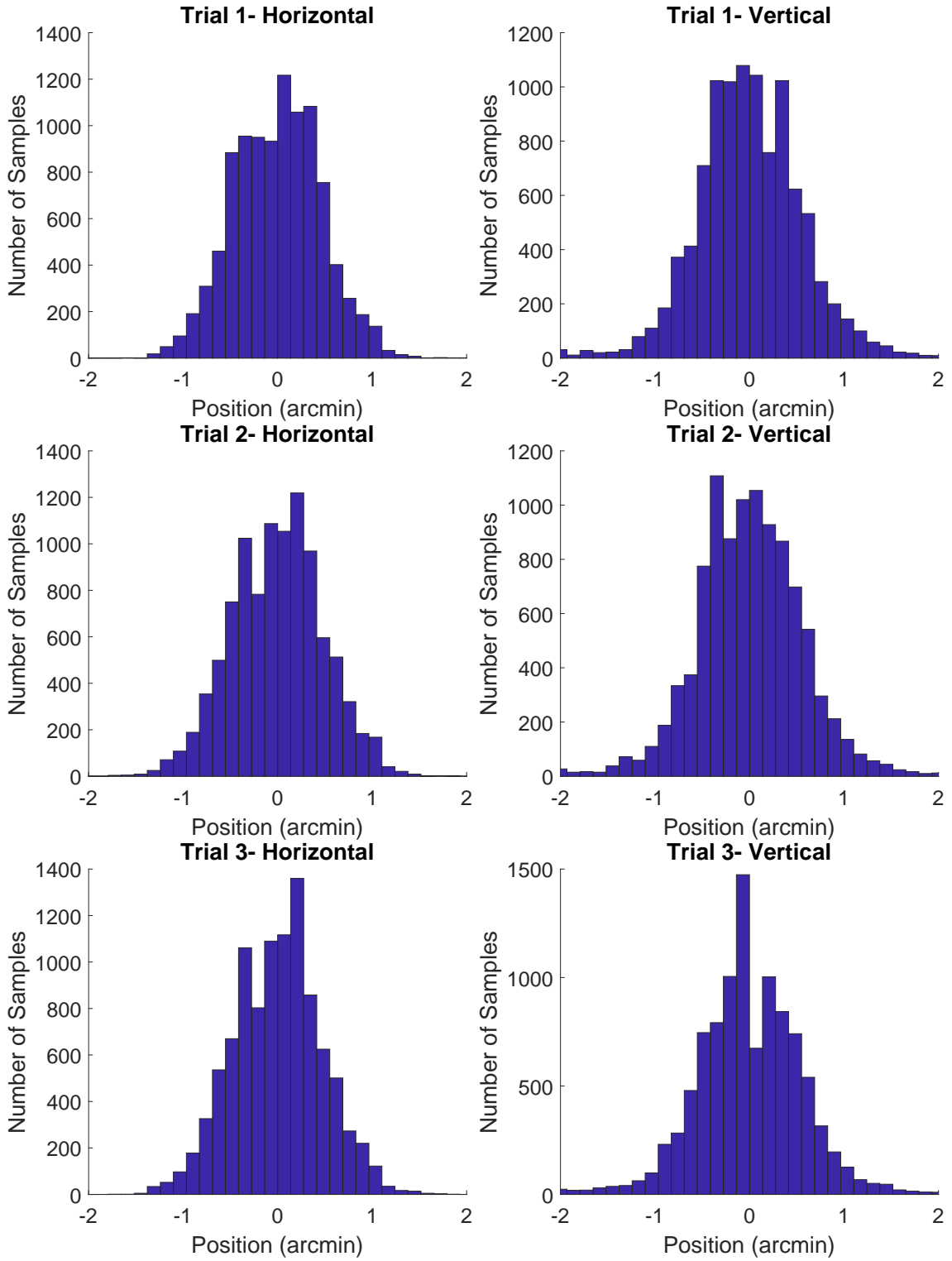


Figure 2: Histograms of horizontal and vertical positions (arcmin).

## 2 Left DPI - Static

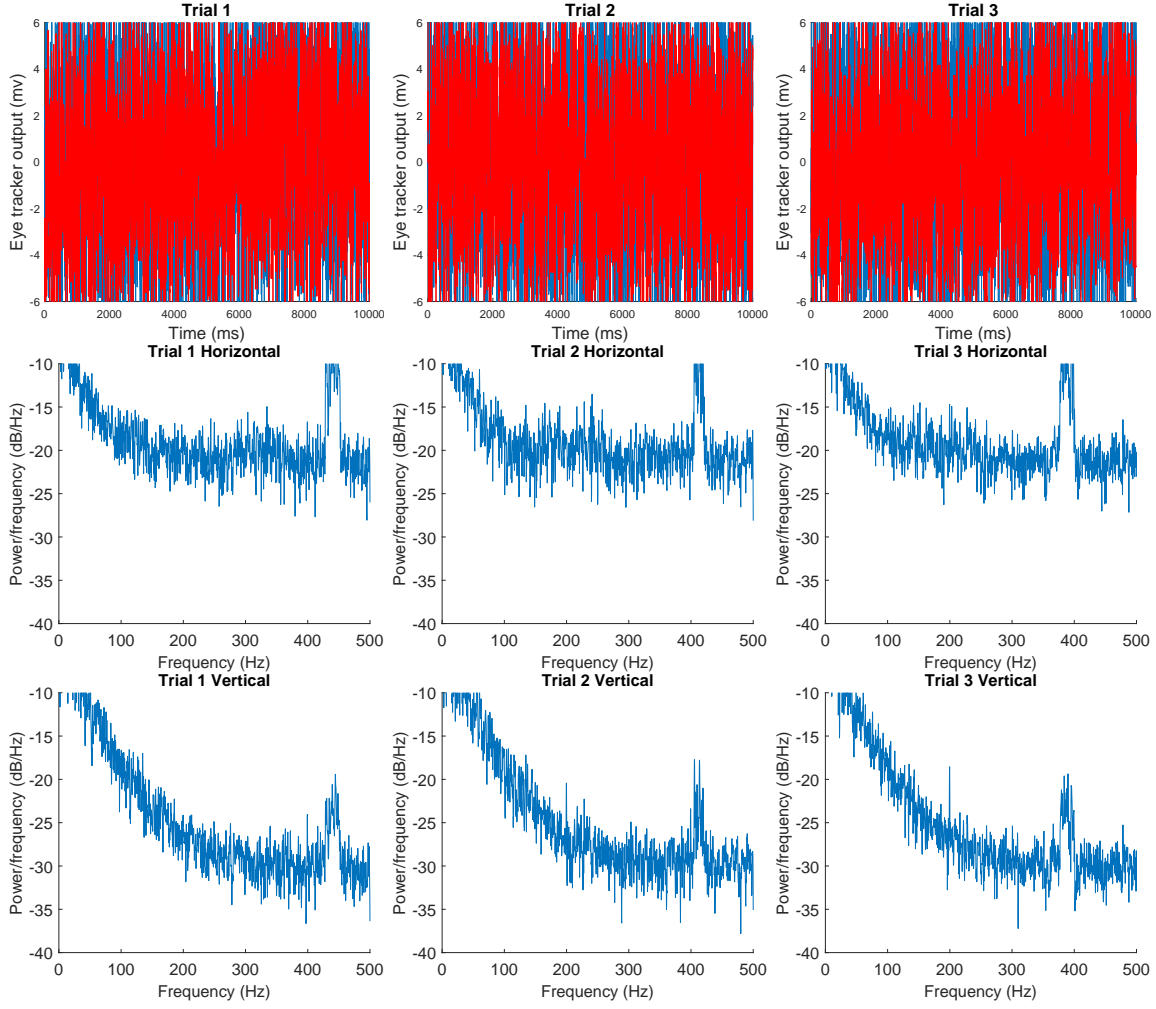


Figure 3: Top row: x and y traces. Middle row: power spectra of horizontal traces. Bottom row: power spectra of vertical traces

Trial #	standard deviation				root mean square			
	millivolts		arcmin		millivolts		arcmin	
	X	Y	X	Y	X	Y	X	Y
1	3.463	3.268	0.420	0.396	3.510	3.575	0.425	0.433
2	3.471	3.192	0.421	0.387	3.497	4.016	0.424	0.487
3	3.443	3.177	0.417	0.385	3.511	3.749	0.426	0.454

Table 2: Standard deviations and root mean square of traces in both voltage and arcmin

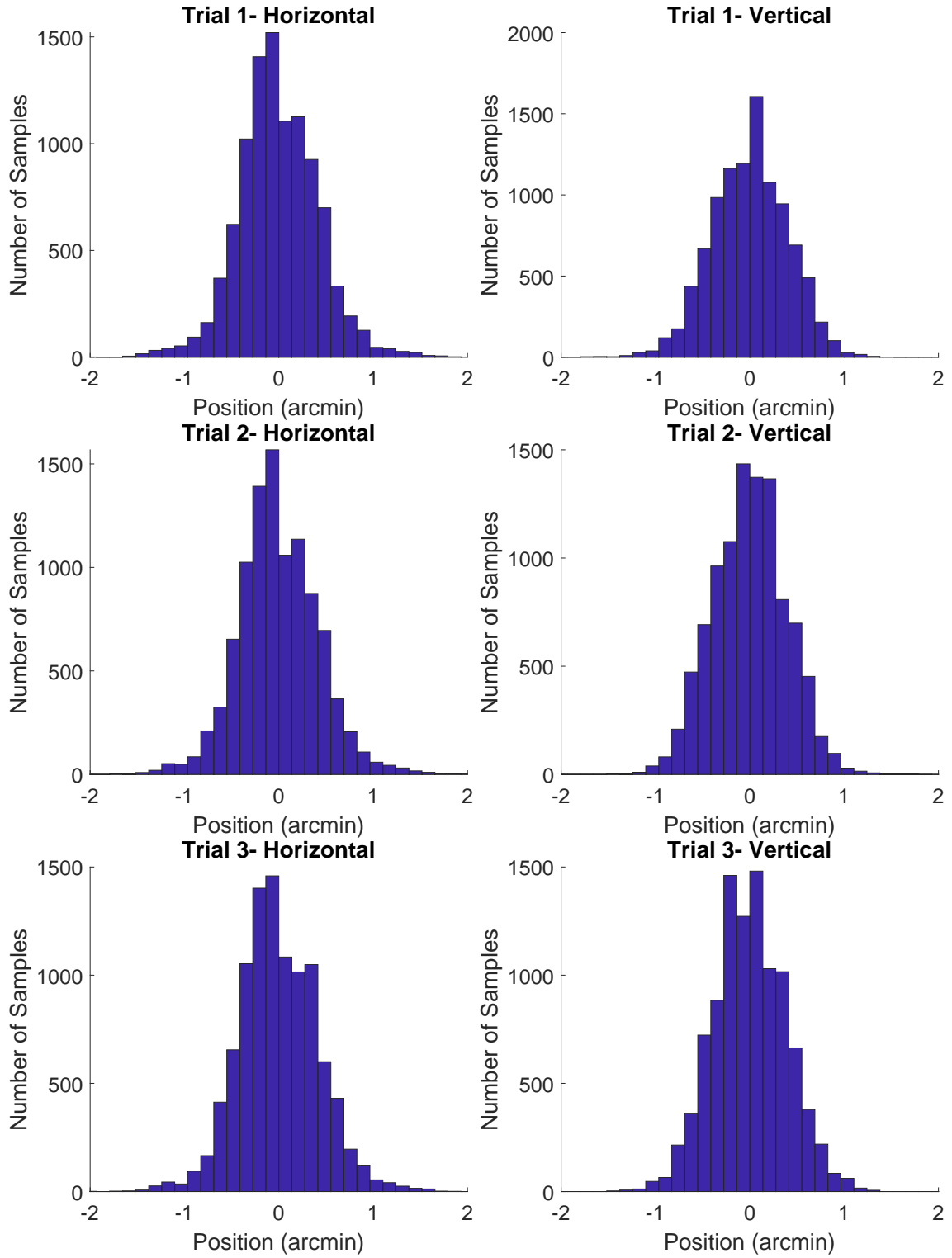


Figure 4: Histograms of horizontal and vertical positions (arcmin).

### 3 Right DPI - Resolution

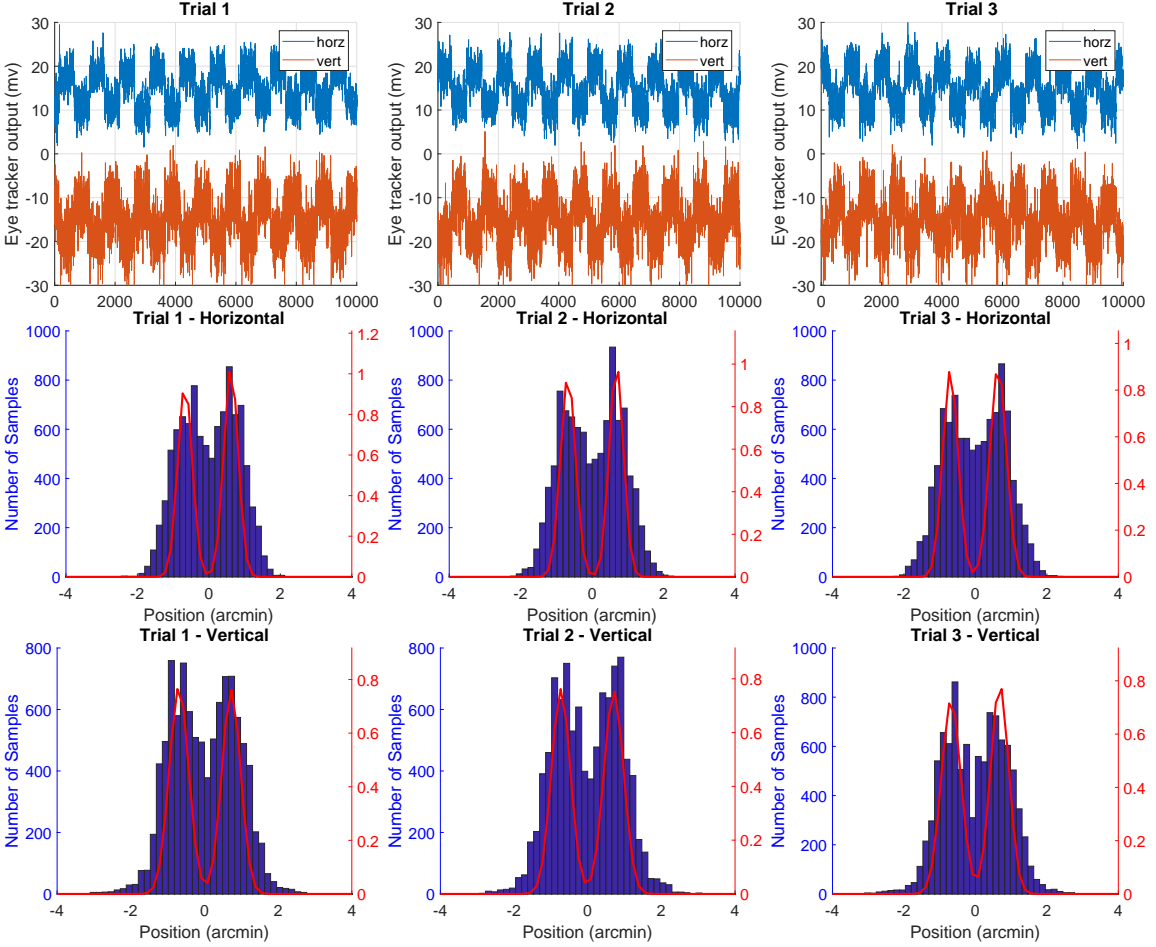


Figure 5: Top row: x and y traces vertically offset for visibility. Middle and Bottom rows: Histograms of horizontal and vertical data with superimposed mixed gaussian fit.

Trial #	step size				$d'$	
	millivolts		arcmin		X	Y
	X	Y	X	Y		
1	7.368	8.134	1.286	1.420	6.417	5.467
2	7.746	8.229	1.352	1.436	6.616	5.465
3	7.665	7.796	1.338	1.361	6.004	5.162

Table 3: Estimated amplitude of square wave in voltage and arcmin. Discriminability of step size ( $d'$ ).

## 4 Left DPI - Resolution

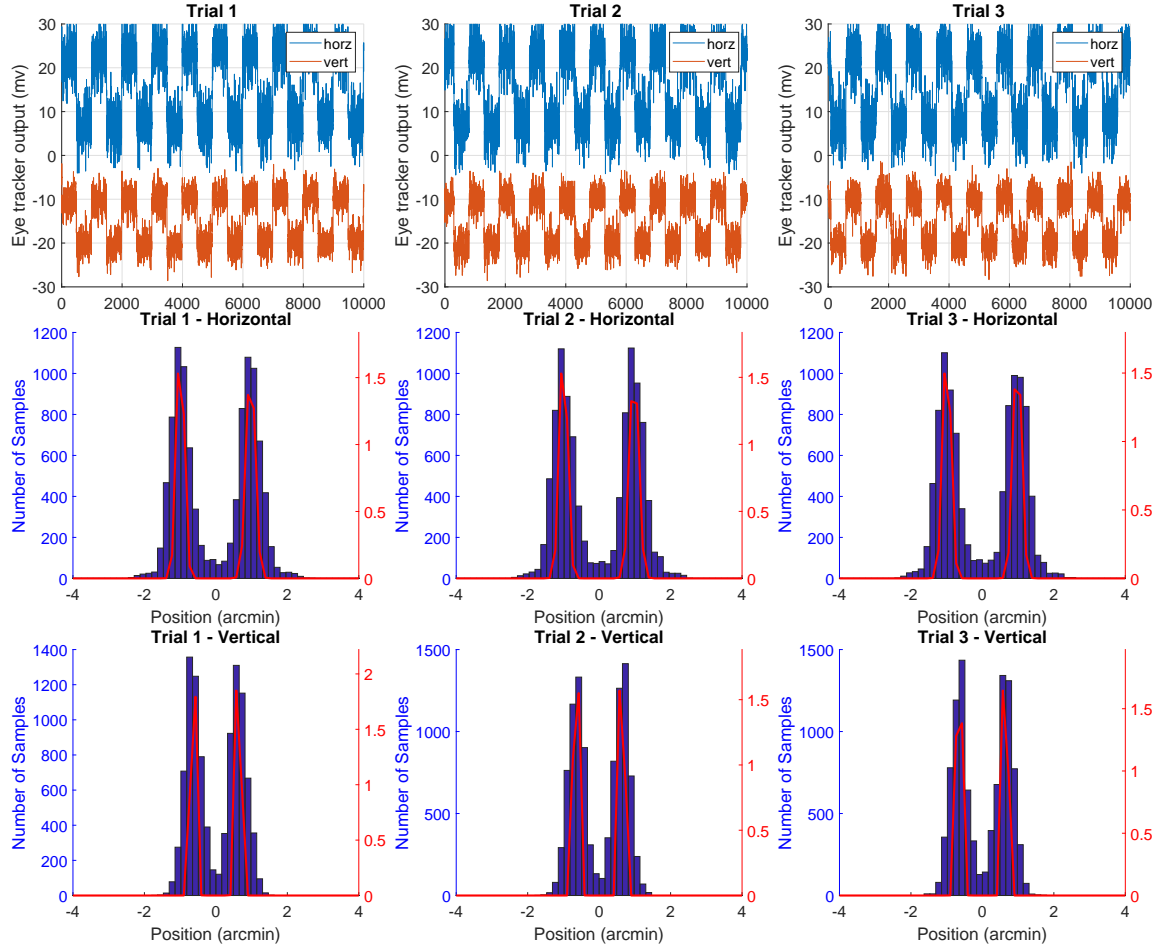


Figure 6: Top row: x and y traces vertically offset for visibility. Middle and Bottom rows: Histograms of horizontal and vertical data with superimposed mixed gaussian fit.

Trial #	step size				$d'$	
	millivolts		arcmin		X	Y
	X	Y	X	Y		
1	16.229	10.516	1.967	1.275	17.272	20.915
2	16.303	10.621	1.976	1.287	16.994	22.672
3	16.273	10.671	1.972	1.293	17.490	21.685

Table 4: Estimated amplitude of square wave in voltage and arcmin. Discriminability of step size ( $d'$ ).

## 5 Right DPI - Dynamics

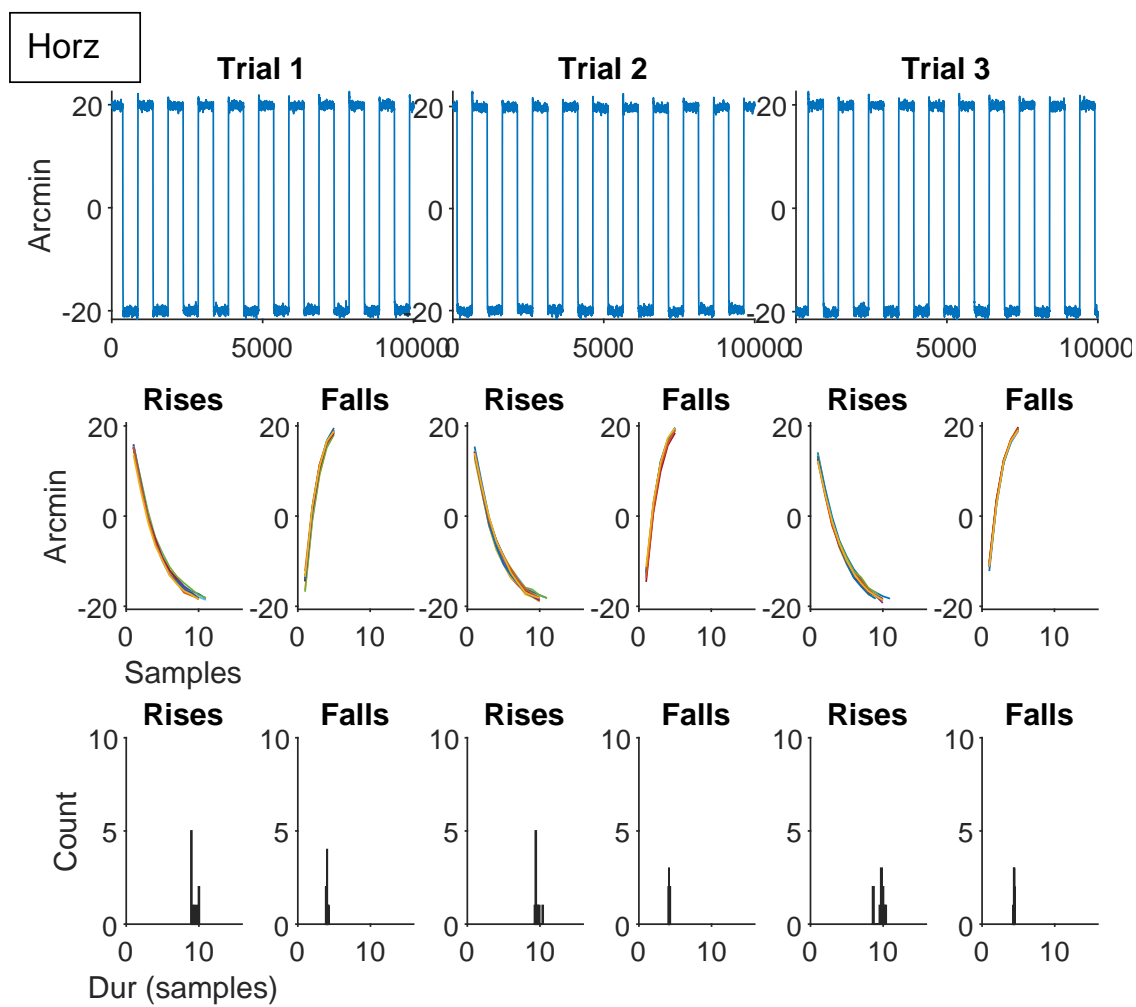


Figure 7: Top row: Horz traces. Middle row: Example rises and falls from each trial. Bottom row: Histogram of rise and fall times in each trial.



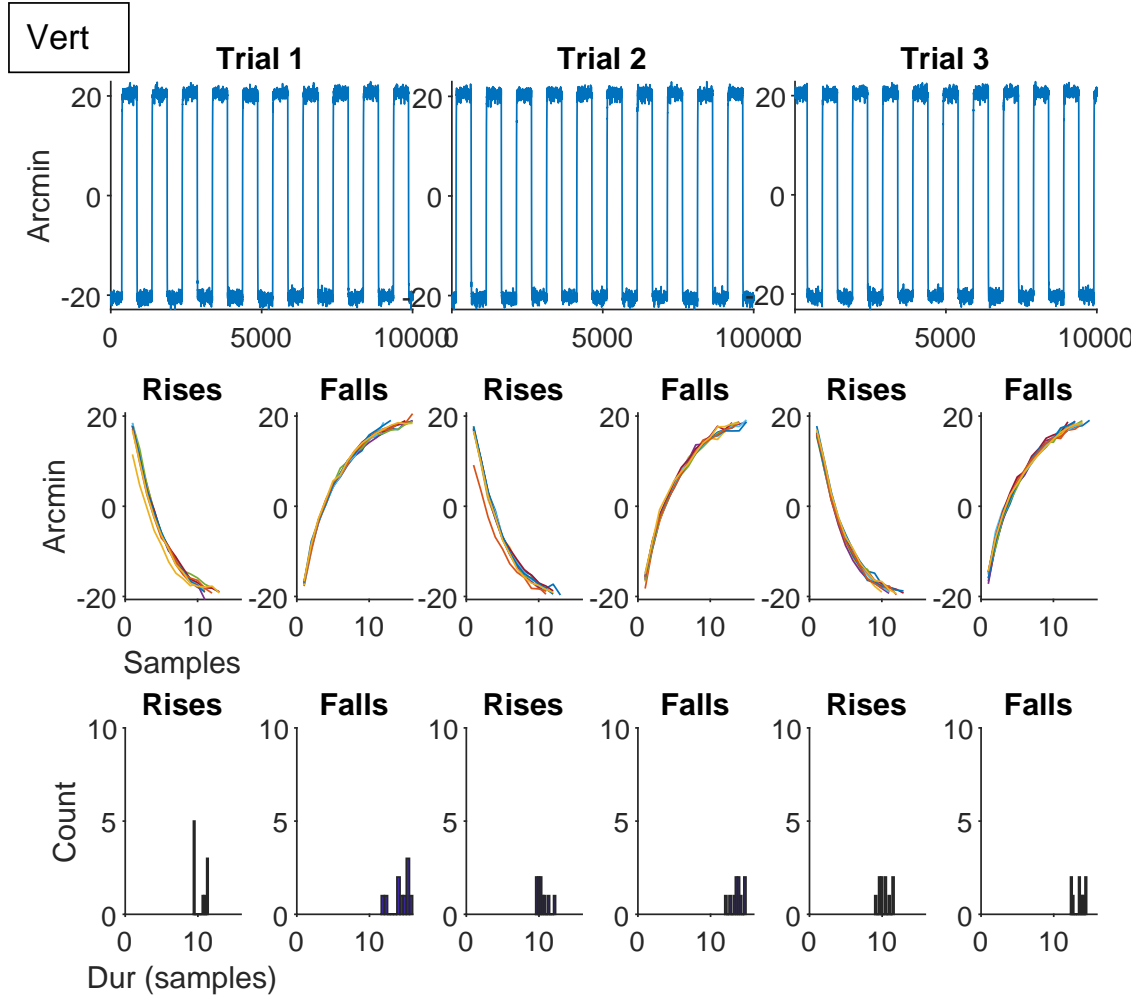


Figure 8: Top row: Vert traces. Middle row: Example rises and falls from each trial. Bottom row: Histogram of rise and fall times in each trial.

		Horizontal					
		Rise		Fall			
Trial #	time (ms) Mean $\pm$ STD	amplitude mv	amplitude arcmin	time (ms) Mean $\pm$ STD	amplitude mv	amplitude arcmin	
1	9.321 $\pm$ 0.473	-113.785	-19.858	4.014 $\pm$ 0.123	113.126	19.743	
2	9.585 $\pm$ 0.351	-113.741	-19.850	4.170 $\pm$ 0.092	113.105	19.739	
3	9.643 $\pm$ 0.611	-113.792	-19.859	4.414 $\pm$ 0.077	113.427	19.795	
		Vertical					
		Rise		Fall			
Trial #	time (ms) Mean $\pm$ STD	amplitude mv	amplitude arcmin	time (ms) Mean $\pm$ STD	amplitude mv	amplitude arcmin	
1	10.317 $\pm$ 0.888	-115.833	-20.215	14.265 $\pm$ 1.330	115.900	20.227	
2	10.420 $\pm$ 0.836	-115.795	-20.209	13.697 $\pm$ 0.905	115.978	20.240	
3	10.351 $\pm$ 0.849	-116.061	-20.255	13.538 $\pm$ 0.825	115.965	20.238	

Table 5: Rise and fall times (mean  $\pm$  STD) in horizontal and vertical traces across trials. Amp = amplitude of rise and fall in arcmin and millivolts. MAC: Please confirm?

## 6 Left DPI - Dynamics

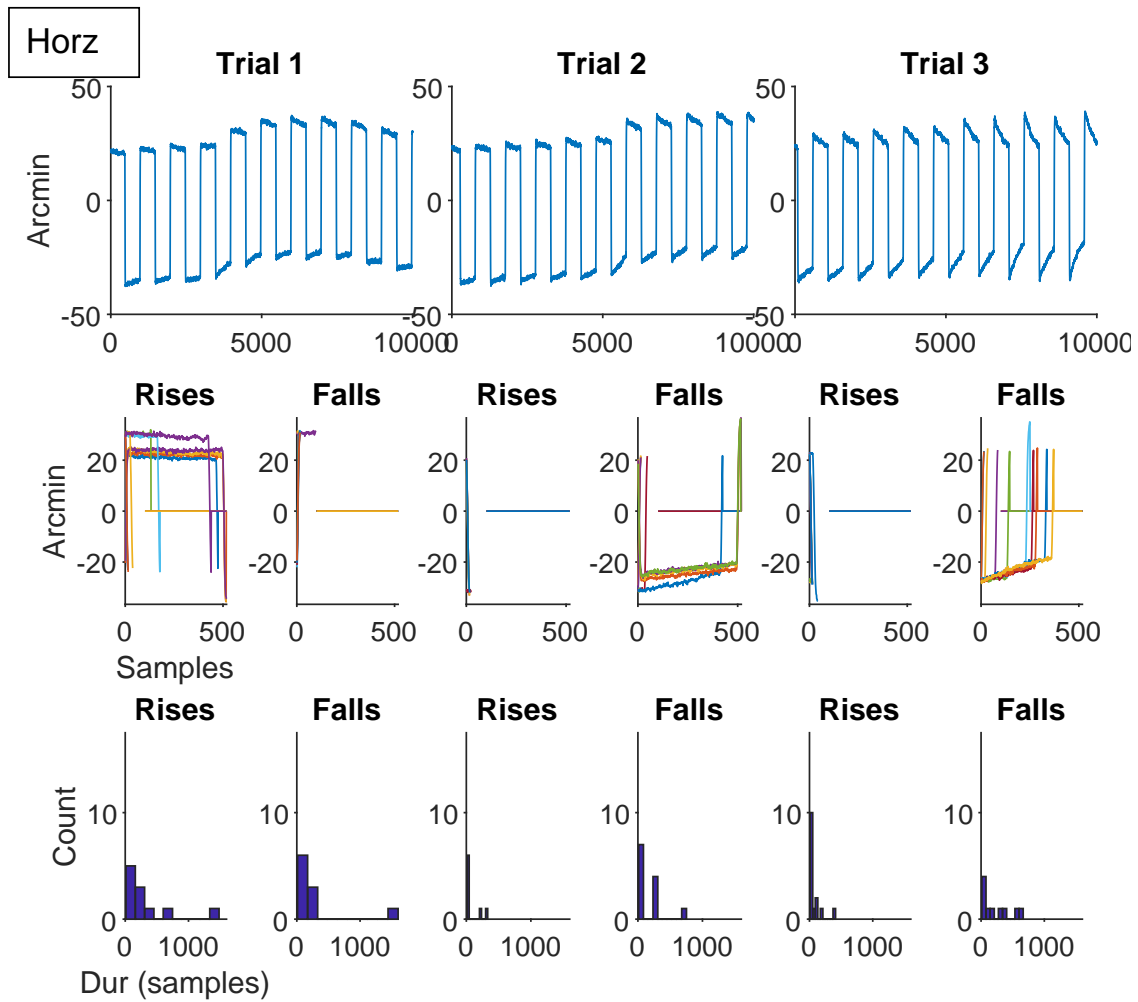


Figure 9: Top row: Horz traces. Middle row: Example rises and falls from each trial. Bottom row: Histogram of rise and fall times in each trial.

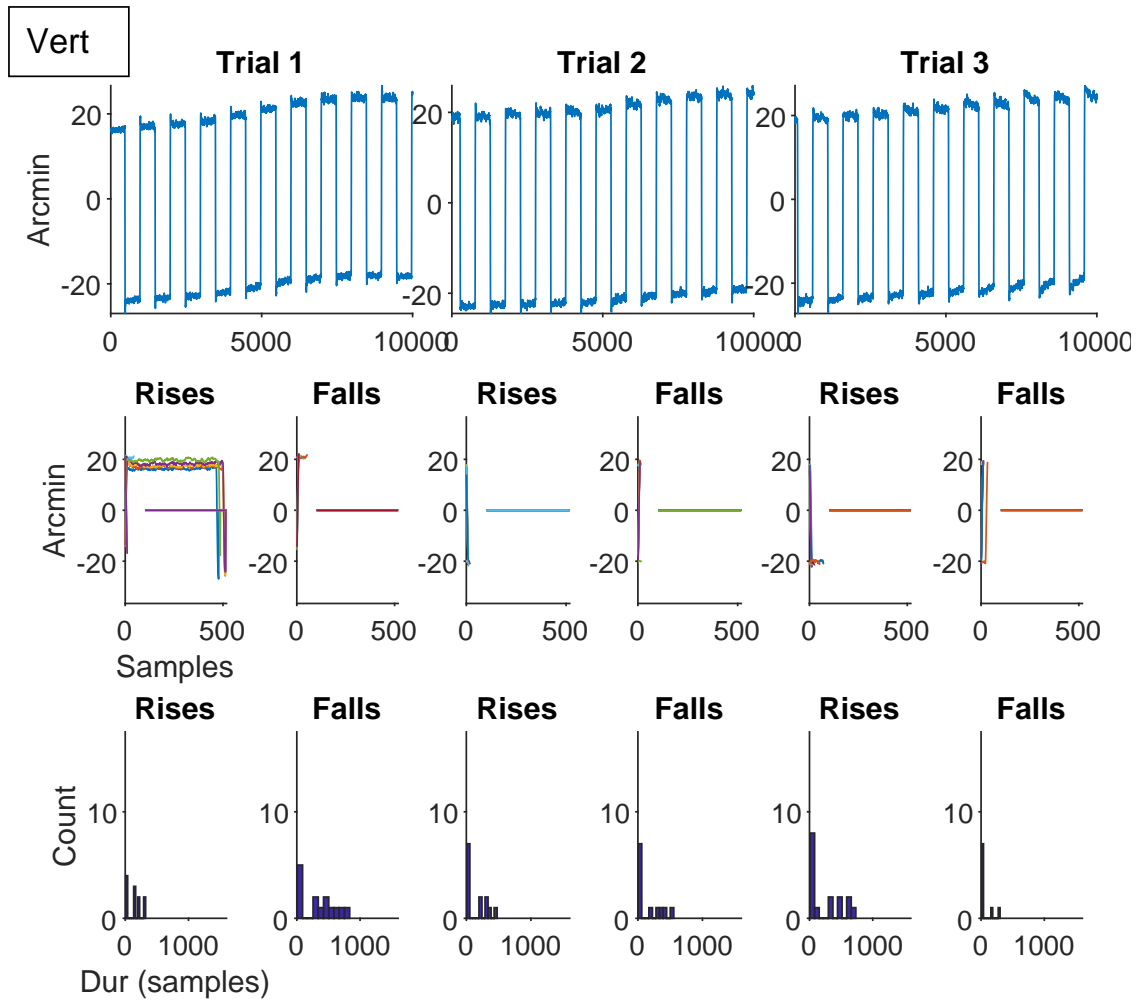


Figure 10: Top row: Vert traces. Middle row: Example rises and falls from each trial. Bottom row: Histogram of rise and fall times in each trial.

Trial #	Horizontal					
	Rise			Fall		
	time (ms) Mean $\pm$ STD	amplitude mv   arcmin		time (ms) Mean $\pm$ STD	amplitude mv   arcmin	
1	304.432 $\pm$ 434.170	-235.747	-28.575	237.577 $\pm$ 491.015	232.799	28.218
2	77.537 $\pm$ 123.784	-237.976	-28.846	166.098 $\pm$ 217.124	235.327	28.525
3	70.423 $\pm$ 110.733	-233.107	-28.255	226.369 $\pm$ 237.477	230.931	27.992
Trial #	Vertical					
	Rise			Fall		
	time (ms) Mean $\pm$ STD	amplitude mv   arcmin		time (ms) Mean $\pm$ STD	amplitude mv   arcmin	
1	142.347 $\pm$ 119.192	-168.641	-20.441	334.444 $\pm$ 288.885	167.465	20.299
2	151.022 $\pm$ 172.589	-174.582	-21.161	160.324 $\pm$ 203.611	173.885	21.077
3	242.984 $\pm$ 276.752	-181.156	-21.958	60.514 $\pm$ 102.288	180.109	21.831

Table 6: Rise and fall times (mean  $\pm$  STD) in horizontal and vertical traces across trials. Amp = amplitude of rise and fall in arcmin and millivolts. MAC: Please confirm?