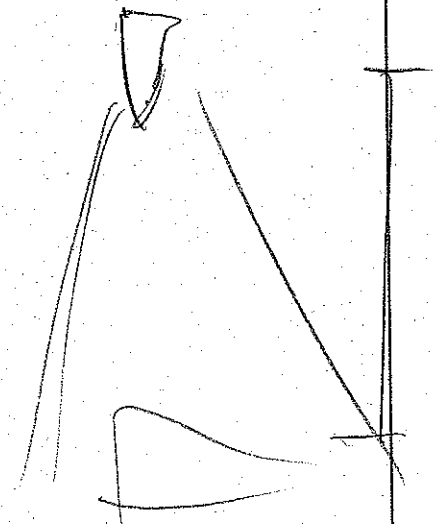
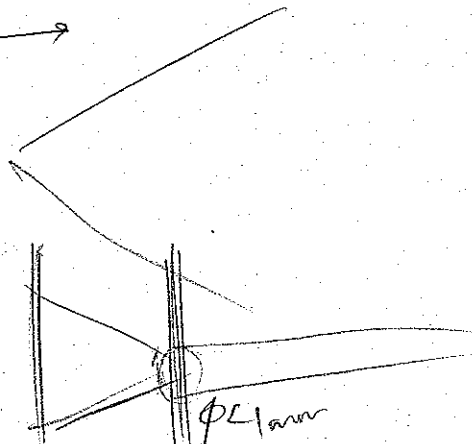
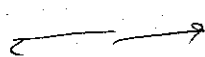
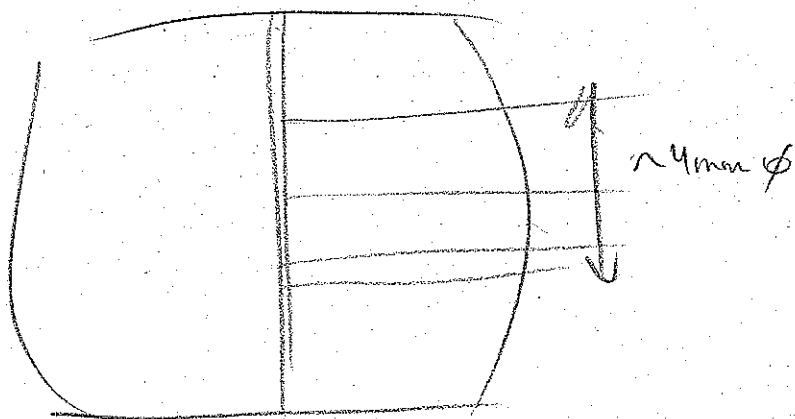
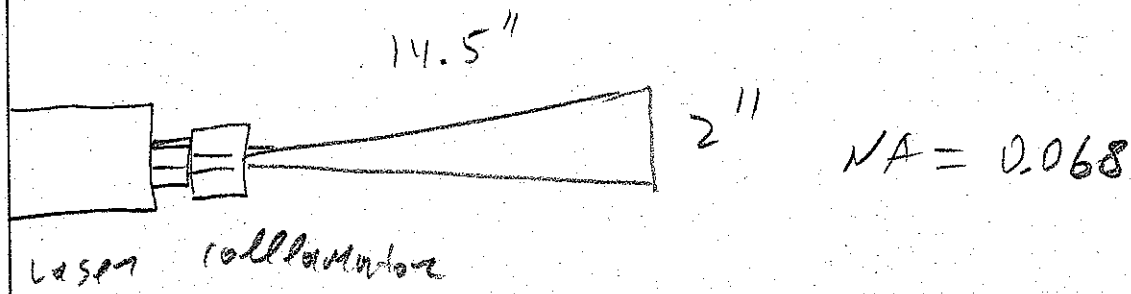
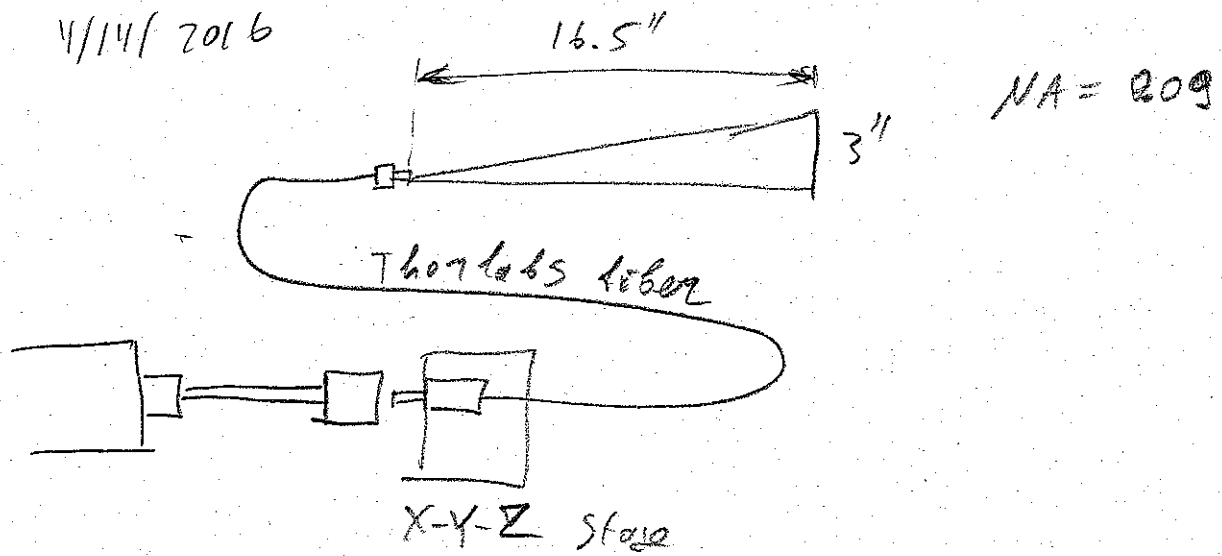
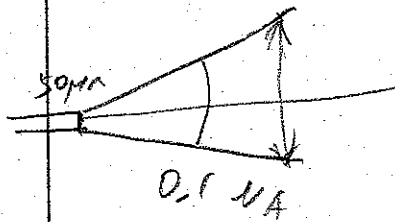


4/14/2016



500 mm

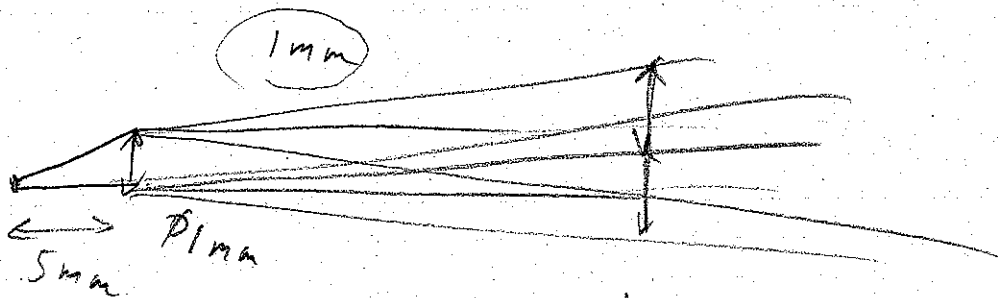


1 mm

$$B = \frac{P}{(50\text{mm})^2 (0.1\text{NA})}$$

$$M = \frac{1\text{mm}}{0.05} = 20$$

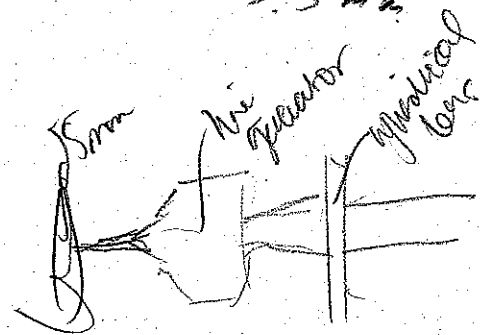
$$5\text{mm} \times 0.1 = 0.5\text{m}$$



$$1 + 2.5 = 3.5\text{mm}$$

$$\frac{1\text{mm}}{0.05} = 20\times$$

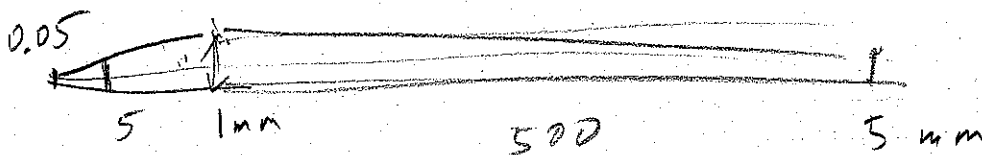
$$NA \cdot \frac{0.1}{20} = 0.005$$



$$0.005 \cdot 500\text{mm} = 2.5\text{mm}$$

$$1 + 2.$$

$$\sqrt{5}$$



$$1 \times 5 = 5$$

$$0.05 \quad 10\text{mm} \downarrow 2\text{mm}$$

$$0.05 \quad 18\text{mm} \downarrow 3.6\text{mm}$$

$$500$$

$$\rightarrow 2.5\text{mm}$$

$$\rightarrow 1.4\text{mm}$$

$$2 \times 2.5 = 5$$

$$3.6 \times 1.4 = 5.04$$

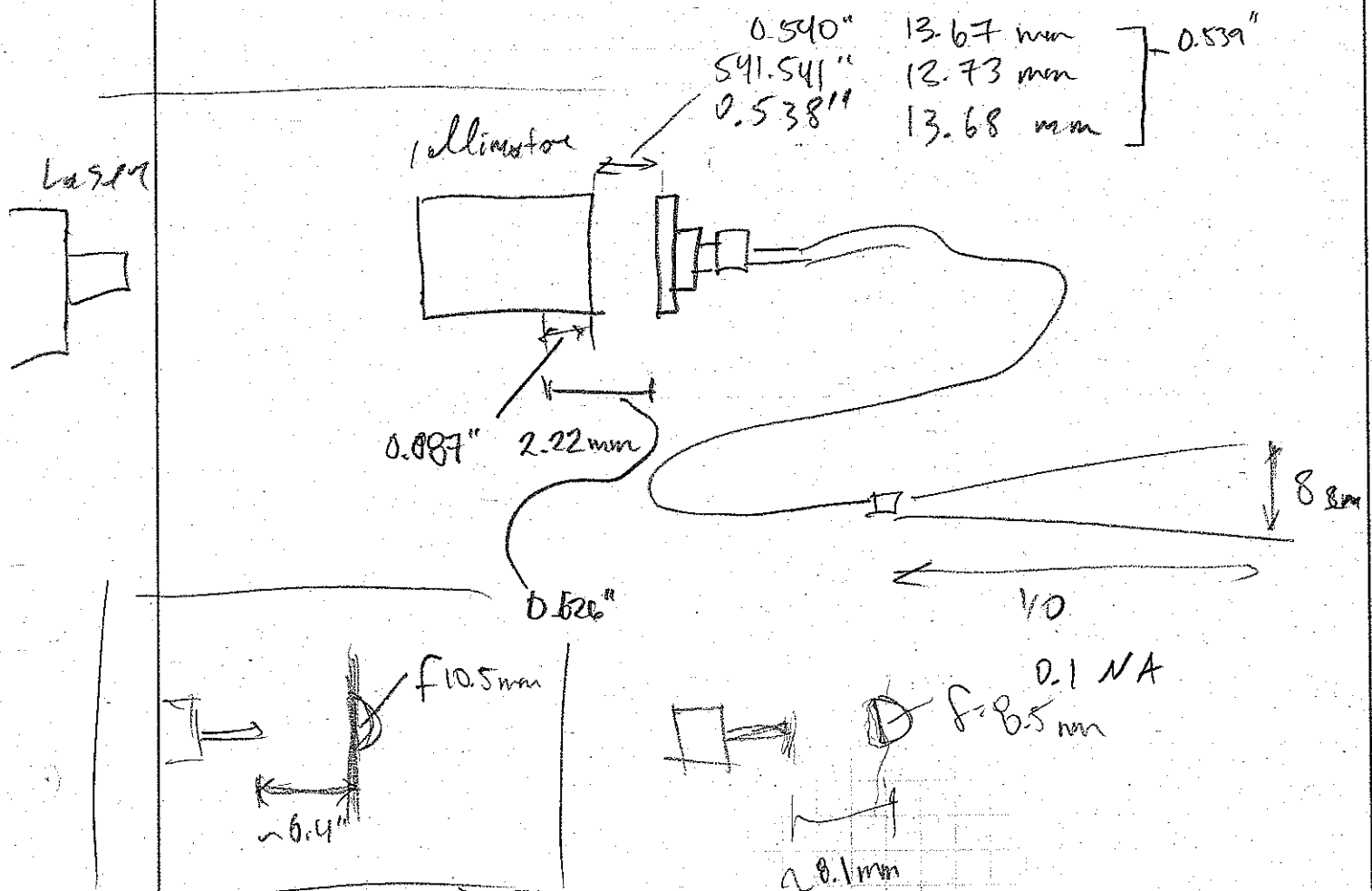
	spot size (cm)	distance (cm)	P_i	P_o	NA	%
@ 1.35 V	8	38	12.9	11.7	0.11	91
@ 2.03 V	~8	38	226	218	0.11	96
@ 3.07 V	10	38	unstable			
@ 4.49	~9.5-10	38	1.430 W	1.345 W		94

- ① test with net cable
- ② select optics
- ③ how to mount?

@ 1.54

52 46

88%



98mm
Real
length

5.6 1.2 5

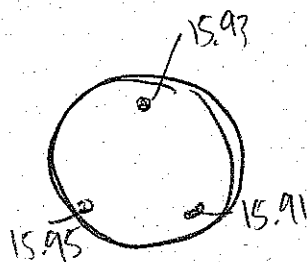
center @ 30 cm away from line of sight
 @ 30 → 25mm thickness
 @ 20 → ~3mm thickness

105mm
Real
length

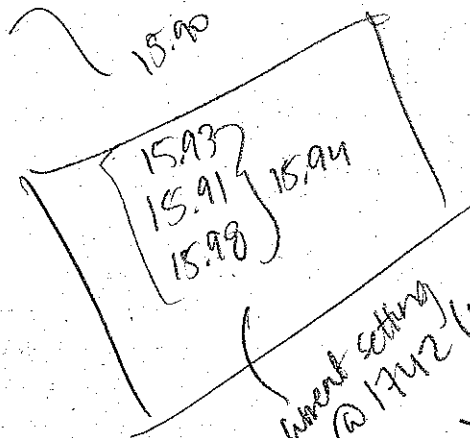
9.97 1.27 11.35

center @ 20 cm away from line of sight
 @ 30 → 4mm
 @ 20 → 25mm

@ start



→ want
15.83



15.81
15.85
15.76 } ~15.82

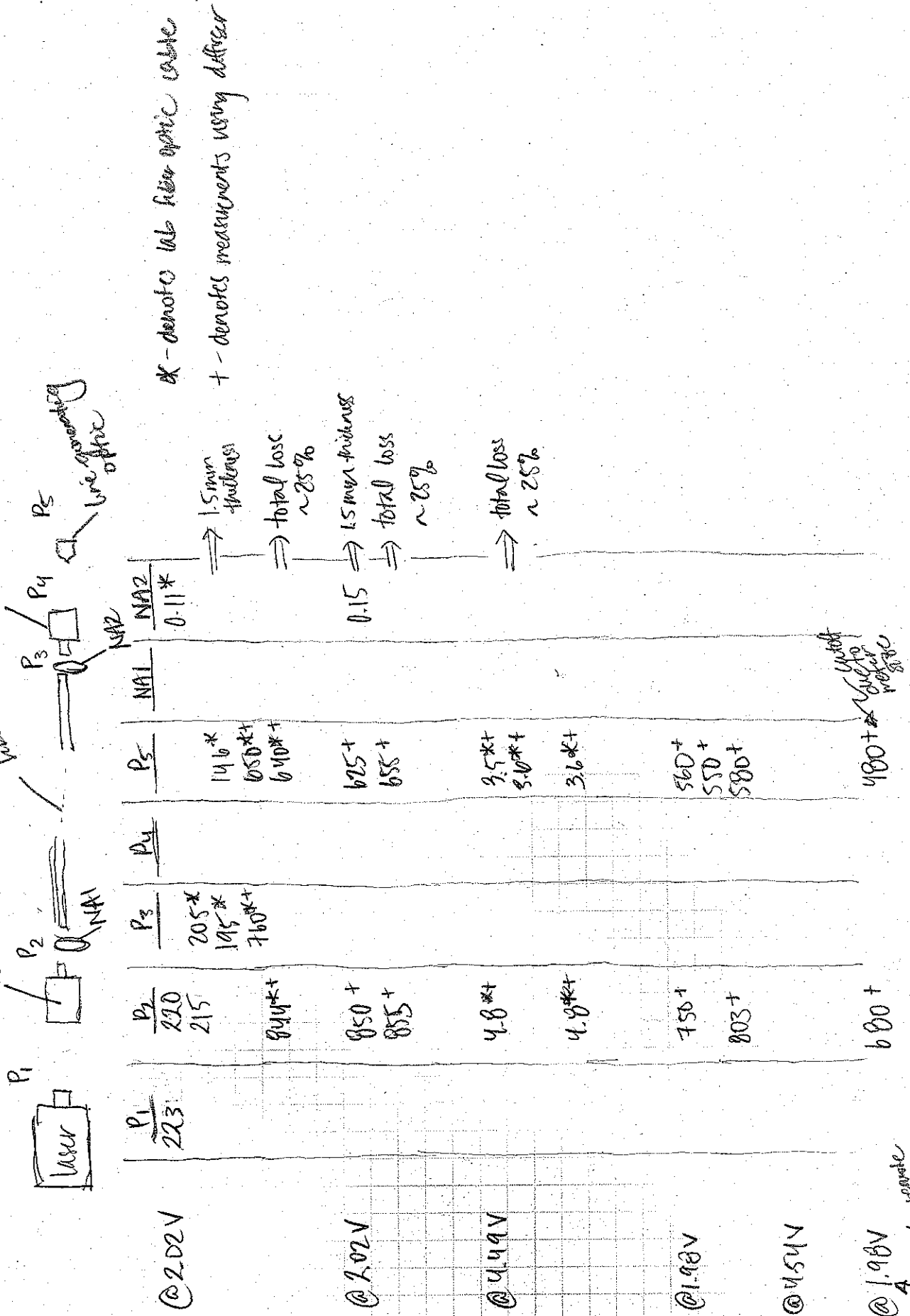
15.86
15.83
15.85 } ~15.84 mm / 15.85 mm

82
80
76 } ~8.0

(?) should try > 15.95

* short end #1
damaged

laser
fiber
lens



04-25-16

used 3"x2" checkerboard target

05-02-16

- Karen will have synopsis written by end of the week
- two interns start May 31st, ~8 weeks of research time (Cornell-paid, Cal)
- week of June 6th (7th-9th), start matlab intensive tutorials

~~* matlab tutorials~~
~~* DLT tutorials~~
~~* DLT movie formats~~

- Brooke Burnett - taking over
- wanting to put together proposal to put together "Big Cat" initiative w/ oceans Denise Pritchett
- each project can get 100k-150k
- 2017
- what is the goal?
- how do you achieve
- measure success
- so what? human connections
- outreach, or things to pursue
- relationships, how is it all connected?

- remappedes

pressure - first 300m, followed by 1000m (deeper but resolution is affected)
oxygen - to 1500m

David Mann - tag board ready in mid-June

Alex Shuster - will finish potting new board in July (?)

Tuesday - set up laser dopplers in lab (afternoon)

Wednesday - 3DR validation

Thursday - finalize optics in lab

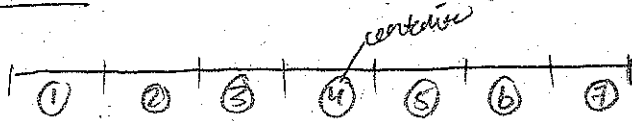
Friday - recalibrate system (morning)

Dale's computer

old IP: 169.254.16.102

subnet: 255.255.0.0

original configuration

@ 2.05V sheet thickness (in-water) : 3mm (picture taken)

- | | |
|---------------------|--------------|
| ① 403 μ W (max) | ⑤ 83 μ W |
| ② 105 μ W (max) | ⑥ 64 μ W |
| ③ 135 μ W (max) | ⑦ 97 μ W |
| ④ 121 μ W (max) | |

measured using diffuse power meter

@ 5V

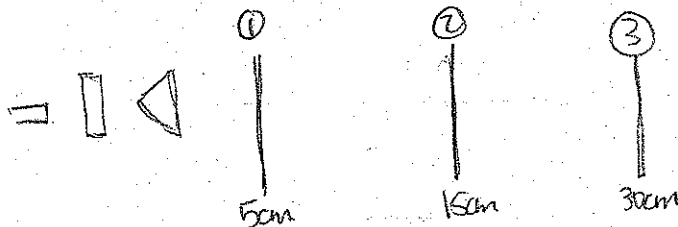
- | | |
|----------------|---------------------|
| ① 1568 μ W | ⑦ 675 μ W (max) |
|----------------|---------------------|

@ 2.05V sheet thickness

- | |
|----------------------------|
| 32cm $\Rightarrow$ 3.5-4mm |
| 27cm $\Rightarrow$ 3.5-4mm |
| 22cm $\Rightarrow$ 3mm |
| 17cm $\Rightarrow$ 3mm |
| 12cm $\Rightarrow$ 2.3mm |
| 7cm $\Rightarrow$ 2.3mm |
| 2cm $\Rightarrow$ 2.3mm |

measured w/ clear ruler
(picture taken)@ 1.2V, 1.5V, 2V & 5V

black, 4mm focal length aspheric lens : ① 11.5mm, ② 2.5mm ③ 3-4mm

@ 1.2V ① 1mm ② 2mm ③ 2.5mm@ 2.0V ① 1.5mm ② 2mm ③ 2.5

① 1.5mm ② 2.5mm ③ 3mm

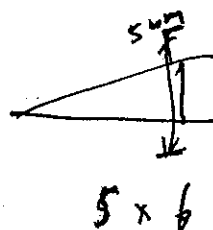
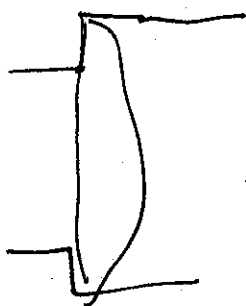
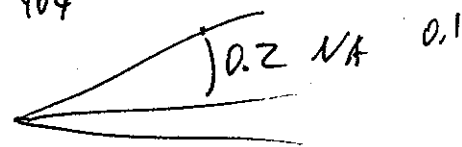
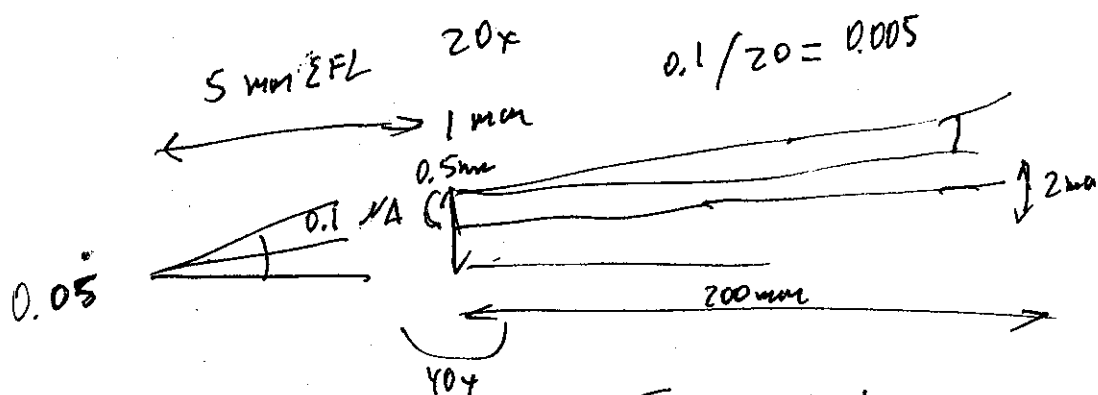
@ ~2V

① 2.5mm ② 1.5mm ③ 2.2mm ④ 5.5mm A Edmunds

copper, 7mm focal length
aspheric lens

hst

5/2/2016



8.5 mm
 $6 \text{ mm} \times 0.2 = 1.2$

$0.1 \times 6 = 0.6$
 $0.6 \times 2 = 1.2$