





$$\sigma = \frac{T_{\text{sys}}}{\eta_{\text{spec}} \sqrt{dv} t},$$











$$\sigma = \sqrt{\sigma_{\text{on}}^2 + \sigma_{\text{off}}^2} = \frac{T_{\text{sys}}}{\eta_{\text{spec}} \sqrt{d\nu} t_{\text{sig}}} \quad \text{with} \quad t_{\text{sig}} = \frac{t_{\text{on}} t_{\text{off}}}{t_{\text{on}} + t_{\text{off}}},$$













$$T_{sys} = \frac{(1 + G_{im}) \exp \{ \tau_s A \}}{F_{eff}} [F_{eff} T_{atm} (1 - \exp \{ -\tau_s A \}) + (1 - F_{eff}) T_{cab} + T_{rec}],$$





Adrianus



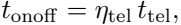














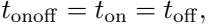


pop1

1



$$\sigma = \frac{T_{\text{sys}}}{\eta_{\text{spec}} \sqrt{dv} \, \eta_{\text{pol}} \, t_{\text{sig}}} \quad \text{with} \quad t_{\text{sig}} = \frac{t_{\text{on}} \, t_{\text{off}}}{t_{\text{on}} + t_{\text{off}}}.$$



$$t_{sig} = \frac{t_{on}}{2} = \frac{t_{off}}{2} = \frac{t_{onoff}}{2},$$

$$\sigma_{\text{fsw}} = \frac{\sqrt{2} T_{\text{sys}}}{\eta_{\text{spec}} \sqrt{dv} \, \eta_{\text{pol}} \, \eta_{\text{tel}} \, t_{\text{tel}}} .$$

$$t_{on} = t_{off} = \frac{t_{onoff}}{2},$$

$$t_{sig} = \frac{t_{on}}{2} = \frac{t_{off}}{2} = \frac{t_{onoff}}{4},$$

$$\sigma_{\text{psw}} = \frac{2 T_{\text{sys}}}{\eta_{\text{spec}} \sqrt{d\nu} \, \eta_{\text{pol}} \, \eta_{\text{tel}} \, t_{\text{tel}}} .$$



A pixelated, black and white graphic of the word "ALPHA" in a stylized, blocky font. The letters are composed of various shades of gray and black pixels, giving it a digital or retro aesthetic. The "A" is on the left, followed by "L", "P", "H", and "A" on the right. The overall style is reminiscent of early computer graphics or video game titles.

1990



$$A_{\text{beam}} = \frac{n_{\text{grid}} \pi \theta^2}{4 \ln(2)}$$

01234



$$n_{grid} = 1 + \frac{1}{9} \approx 1.11.$$



$$n_{\text{beam}} = \frac{A_{\text{map}}}{A_{\text{beam}}}.$$

beard

old

beard

beard
ai

$$t_{\text{sig}}^{\text{beam}} = \frac{t_{\text{on}}^{\text{beam}} t_{\text{off}}^{\text{beam}}}{t_{\text{on}}^{\text{beam}} + t_{\text{off}}^{\text{beam}}}$$

A pixelated, grayscale version of the word "stop" in a bold, sans-serif font. The letters are composed of various shades of gray, giving it a digital or retro aesthetic. The word is centered horizontally and occupies the middle portion of the image.

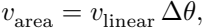




WIRTSCHAFTS
UNIVERSITÄT
WIEN VIENNA
UNIVERSITY OF
ECONOMICS
AND BUSINESS

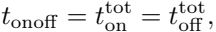








$$\Delta \theta = \frac{\theta}{2.5}$$



$$t_{\text{beam on}} = t_{\text{beam off}} = \frac{t_{\text{onoff}}}{n_{\text{beam}}} ;$$

$$t_{\text{sig}}^{\text{beam}} = \frac{t_{\text{on}}^{\text{beam}}}{2} = \frac{t_{\text{off}}^{\text{beam}}}{2} = \frac{t_{\text{onoff}}}{2n_{\text{beam}}},$$

$$\sigma_{\text{fsw}} = \frac{\sqrt{2} \, n_{\text{beam}} \, T_{\text{sys}}}{\eta_{\text{spec}} \sqrt{d\nu} \, n_{\text{pol}} \, \eta_{\text{tel}} \, t_{\text{tel}}} .$$

$$\frac{A_{\text{map}}}{t_{\text{onoff}}} \leq v_{\text{area}}^{\text{max}}.$$

optimal $\geq$ von Neumann $\geq$ cod

WORLDWIDE

$$t_{\text{sig}} = \frac{t_{\text{on}}}{1 + \frac{1}{\sqrt{n_{\text{on/off}}}}} \quad \text{and} \quad \sigma = \frac{T_{\text{sys}}}{\eta_{\text{spec}} \sqrt{d\nu} n_{\text{pol}} t_{\text{on}}} \sqrt{1 + \frac{1}{\sqrt{n_{\text{on/off}}}}}.$$

Alvin Karp

www.fox.com

spiral

www.vivipedia.org



A pixelated, grayscale image of the word "GOVERNMENT" in a bold, sans-serif font. The letters are composed of black and gray pixels on a white background, giving it a low-resolution, digital appearance. The text is arranged in two lines: "GOVERN" on the top line and "MENT" on the bottom line. The font is thick and blocky, with a slightly irregular, hand-drawn feel due to the pixelation. The overall style is reminiscent of early digital art or a low-quality scan of a printed document.

opportunity

$$n_{\text{submap}} = \frac{A_{\text{map}}}{A_{\text{submap}}} \cdot$$

$$n_{\text{on/off}} = \frac{A_{\text{submap}}}{A_{\text{beam}}}.$$

Handwritten text in a cursive script, likely a signature or name, rendered in a pixelated, grayscale style. The text is split into three segments by two horizontal lines. The first segment reads "Handwritten", the second segment reads "Text", and the third segment reads "in a cursive script".

Alvin Brown
—
Alfred Brown.

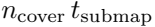
Evbbaap=voovt

$$t_{\text{on}}^{\text{beam}} = n_{\text{cover}} t_{\text{on}}^{\text{cover}} \quad \text{and} \quad t_{\text{off}}^{\text{beam}} = n_{\text{cover}} t_{\text{off}}^{\text{cover}} \quad \text{with} \quad t_{\text{off}}^{\text{cover}} = \sqrt{n_{\text{on}}/n_{\text{off}}} t_{\text{on}}^{\text{cover}}.$$

$$t_{\text{sig}}^{\text{beam}} = n_{\text{cover}} t_{\text{sig}}^{\text{cover}} = \frac{n_{\text{cover}} t_{\text{submap}}}{n_{\text{on/off}} + \sqrt{n_{\text{on/off}}}}.$$

$$t_{\text{onoff}} = n_{\text{cover}} \cdot \text{submap}(n_{\text{on}} / \text{off} \cdot t_{\text{on}} + t_{\text{off}} + t_{\text{cover}}).$$

$$t_{\text{onoff}} = n_{\text{cover}} t_{\text{submap}} n_{\text{submap}} \left(1 + \frac{1}{\sqrt{n_{\text{on/off}}}} \right).$$



$$t_{\text{onoff}} = t_{\text{beam}} \sqrt{\text{submap} \left(1 + \sqrt{\text{onoff}} \right)^2}$$

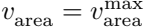
$$t_{\text{onoff}} = t_{\text{sig}} \left(\sqrt{n_{\text{vibmap}}} + \sqrt{n_{\text{beam}}} \right)^2.$$

$$\sigma_{\text{psw}} = \frac{(\sqrt{n_{\text{beam}}} + \sqrt{n_{\text{submap}}}) T_{\text{sys}}}{\eta_{\text{spec}} \sqrt{dv} \eta_{\text{pol}} \eta_{\text{tel}} t_{\text{tel}}} .$$

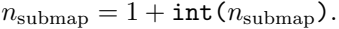
Adaptation

$$n_{\text{submap}} = \frac{A_{\text{map}}}{v_{\text{area}} t_{\text{submap}}}.$$





www.vivaxpa.com



evbbaap vaa vaa vaa



$$t_{\text{sig}}^{\text{beam}} = \frac{T_{\text{sys}}^2}{\eta_{\text{spec}}^2 \sigma^2 dv n_{\text{pol}}},$$



$$t_{\text{onoff}} = t_{\text{sig}} \left(\sqrt{n_{\text{vibmap}}} + \sqrt{n_{\text{beam}}} \right)^2,$$



1991-1992

$$n_{\text{on/off}} = \frac{n_{\text{beam}}}{n_{\text{submap}}},$$

$$n_{\text{cover}} = \frac{t_{\text{sig}}^{\text{beam}}}{t_{\text{submap}}} \left(n_{\text{on/off}} + \sqrt{n_{\text{on/off}}} \right) ,$$

$$t_{\text{on}}^{\text{beam}} = \frac{n_{\text{cover}} t_{\text{submap}}}{n_{\text{on/off}}}$$

beam
off



beam
on

beam
on/off





Answer to the question



$$\sigma_{\text{fsw}} = \frac{\sqrt{2} \, n_{\text{beam}} \, T_{\text{sys}}}{\eta_{\text{spec}} \sqrt{d\nu} \, n_{\text{pol}} \, \eta_{\text{tel}} \, t_{\text{tel}}},$$

$$\sigma_{\text{psw}} = \frac{(\sqrt{n_{\text{beam}}} + \sqrt{n_{\text{submap}}}) T_{\text{sys}}}{\eta_{\text{spec}} \sqrt{dv} \eta_{\text{pol}} \eta_{\text{tel}} t_{\text{tel}}} .$$

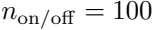
$$\frac{\sigma_{\text{psw}}}{\sigma_{\text{fsw}}} = \frac{1}{\sqrt{2}} \left(1 + \sqrt{\frac{n_{\text{submap}}}{n_{\text{beam}}}} \right) .$$

$$\frac{n_{\text{beam}}}{n_{\text{submap}}} = n_{\text{on/off}} \geq \frac{1}{3 - 2\sqrt{2}} \sim 6.$$

QWERTYUIOPASDFGHJKLZXCVBNM

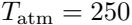
WORLDWIDE





$$n_{\text{on/off}} = \frac{t_{\text{stable}}}{A_{\text{beam}}/v_{\text{area}}^{\text{max}}},$$

A pixelated, grayscale image of the text "P.O. 150". The characters are rendered in a blocky, digital font style. The "P" and "O" are large and prominent, while the "150" is smaller and positioned to the right. The entire image has a low-resolution, dithered appearance.





1992

20

20



WILL

==

QI

WORLD OF





2460''



VGHS



$$v_{linear}^{max} = f_{dump} \frac{\theta}{4} \text{ arcsec/s}$$

$$v_{\text{area}}^{\text{max}} = f_{\text{dump}} \frac{\theta}{2.5} \frac{\theta}{4} \text{arcsec}^2/\text{s} \quad \text{or} \quad v_{\text{area}}^{\text{max}} = f_{\text{dump}} \frac{\theta^2}{10} \text{arcsec}^2/\text{s}$$





$$t_{\text{onoff}} = t_{\text{on/off}} + t_{\text{off}} = (t_{\text{on/off}} + t_{\text{off}})$$

$$t_{\mathrm{onoff}} = \frac{T_{\mathrm{sys}}^2}{\eta_{\mathrm{spec}}^2 \sigma^2 \, dv} \left(1 + n_{\mathrm{on/off}} + \alpha + \frac{n_{\mathrm{on/off}}}{\alpha} \right).$$

$$\frac{dt_{\text{on/off}}}{d\alpha}$$

$\propto$

1

—

$$\frac{r_{\text{on/off}}}{\alpha^2}$$

$$\alpha = \sqrt{n_{\text{on/off}}} \text{ or } t_{\text{off}}^{\text{optimal}} = \sqrt{n_{\text{on/off}}} t_{\text{on}}.$$