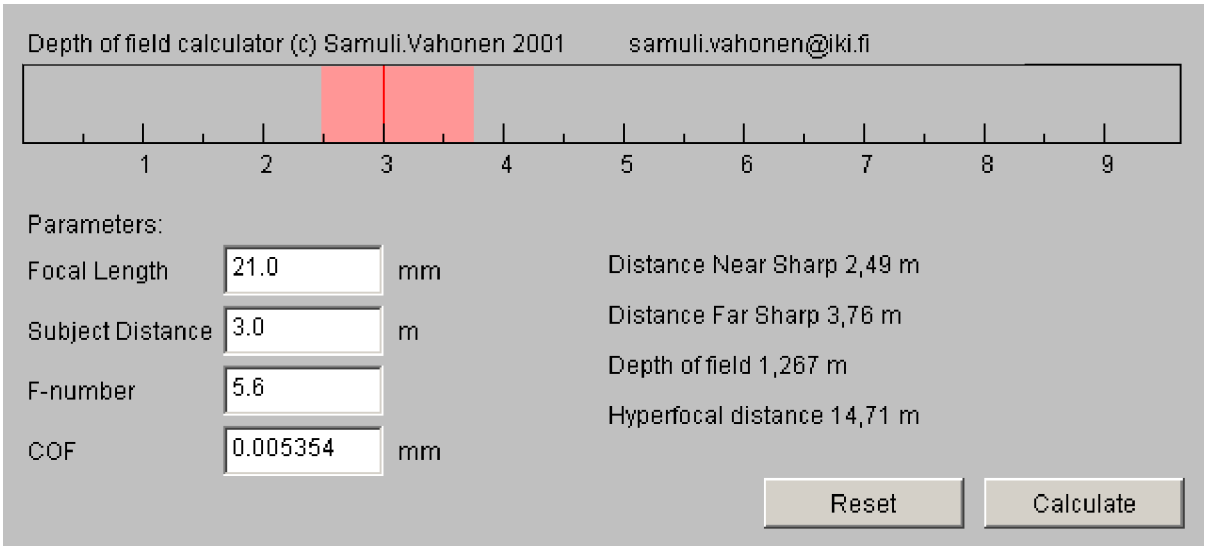
If you link to this page make sure you link to http://www.iki.fi/vahonen/computer/digiphoto/DOF/ and not to the address in address bar !!! The address in address bar is just a temporary address and may chance but the www.iki.fi... is going to be the same as long as I live.

Depth of Field Calculator for G1



Variable	Canon G1	35 mm
Focal Length	7-21mm(more/less with acessory lenses)	14-1000mm, normally 50mm
Subject Distance	6cm-Infinite(only 30 steps)	Depends on objective(stepless)
F-number	2/2.5-8	normally between 1.4-22
Circle of Confusion	0,005354 / 0,00405 / 0,006 (CP990)	0,05 / 0,03

My calculation for Circle of Confusion in Canon G1

Canon PowerShot G1 has 3,34 megapixel CCD, and it's diagonal dimension is 1/1,8"=0.566"=14,1224mm. If it is 4:3 then it's dimensions are: 11,29792mm x 8,47344mm. 3,34 megapixel 4:3 image has dimensions: 2110 x 1583. With all this information when end up to this conclusion: Circle of Focus for Canon G1 is: 11,29792 mm / 2110 = 0,005354 mm. I guess that circle of confusion is same for Pro90 because it uses the same CCD as G1 (not sure about this).

From dpreview forums I got some new info: the correct size for CCD is 7.2mmx5.35mm or 7.06mmx5.31mm. Circle of confusion calculated from these values is 0.003436 mm or 0.003345 mm.

Formulas used for calculation

Variables

F = focal length, f = F-number, u = distance from subject, c = diameter of the circle of confusion.

Hyperfocal distance

$$H = \frac{F^2}{f \cdot c}$$

Distance Near Sharp

$$Dn = \frac{H \cdot u}{H - (u - F)}$$

Distance Far Sharp

$$Df = \frac{H \cdot u}{H + (u - F)}$$

Depth of Field

$$DOF = Df - Dn$$

Links

- I used mostly Google to find information. Try also other search machines and different words

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Last update: 22.01.2001