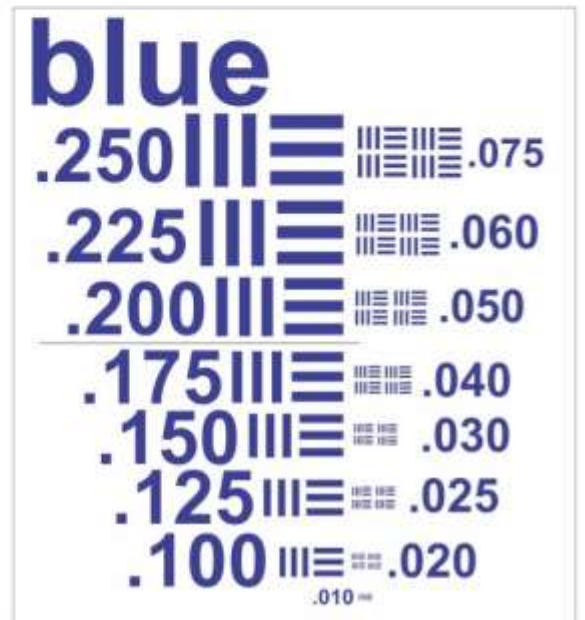
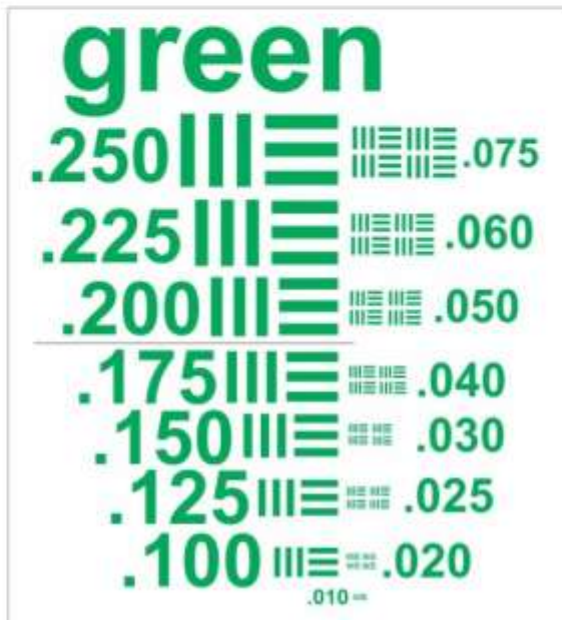
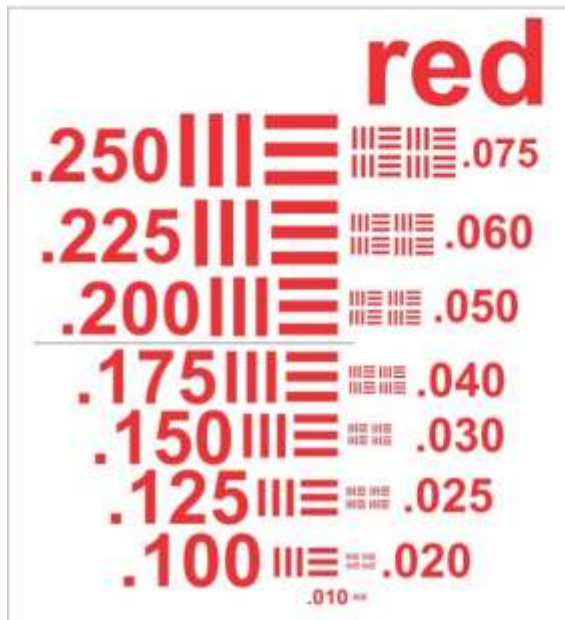
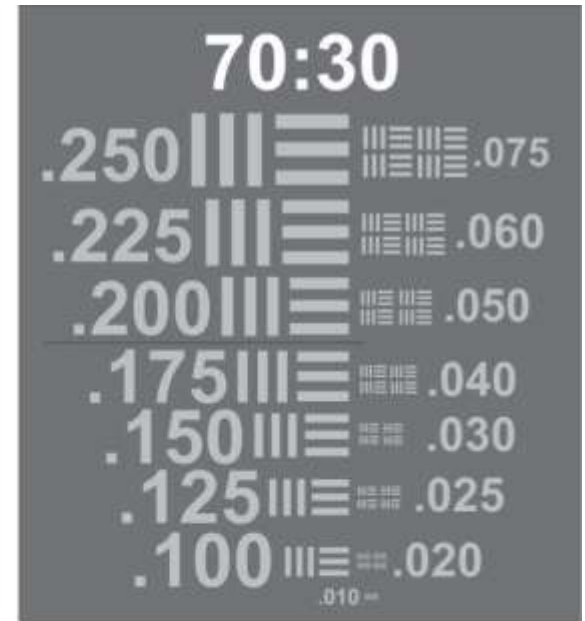
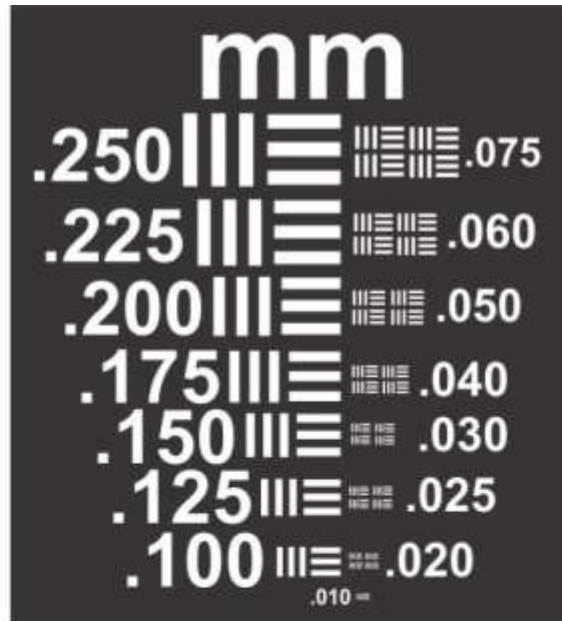
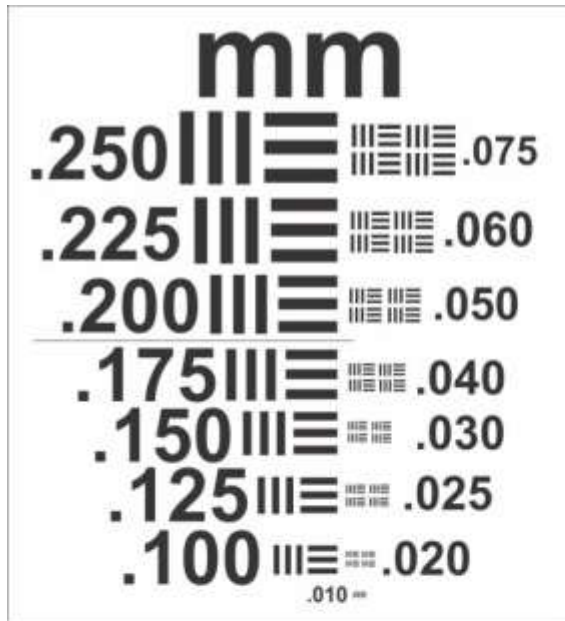



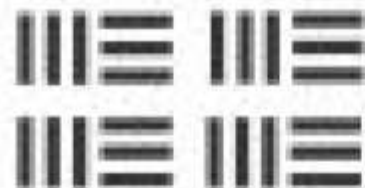
How much detail can a printer show?


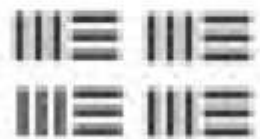
**Generate standard targets using
vector and pixellated graphics**

Basic resolution target bar widths ... CorelDraw



Pixelated in jpeg

  .025

  .020

.010 

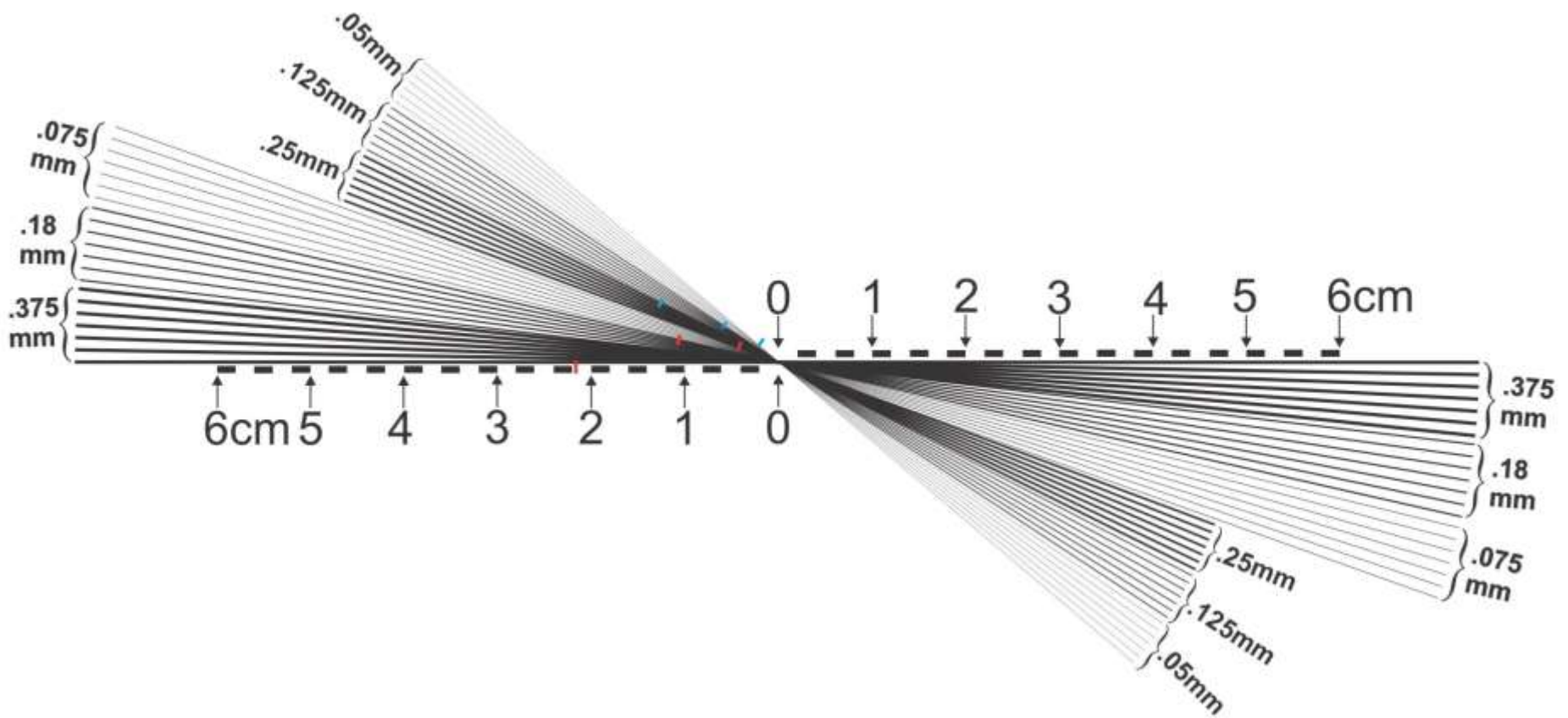
Vector: PDF at 6400% enlargement

|||≡ |||≡ |||≡ |||≡ .025

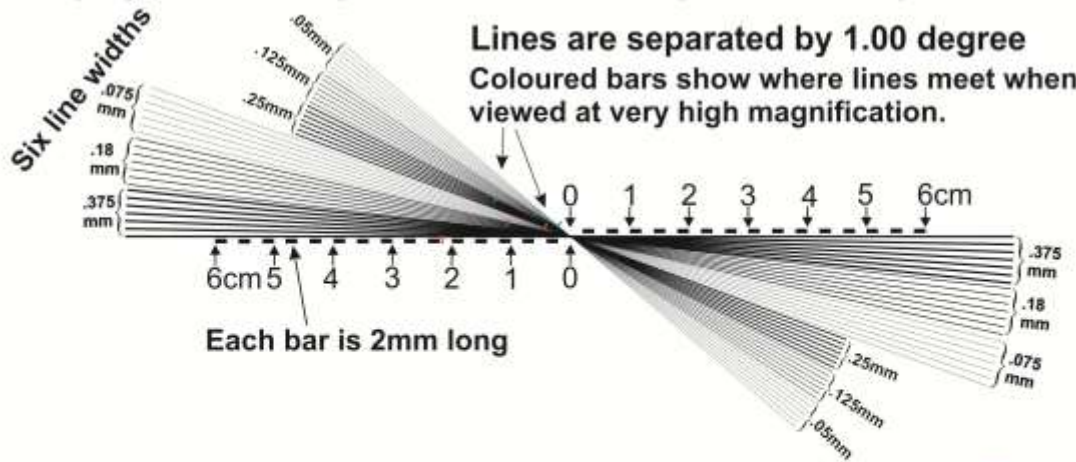
) |||≡ |||≡ |||≡ |||≡ .020

|||||| .010

Another approach: diverging lines



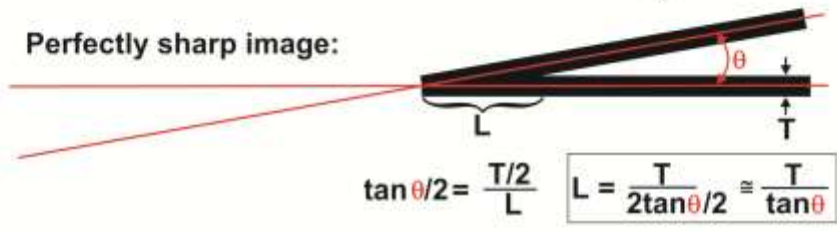
Diverging lines for target made with vector graphics using CorelDraw X5



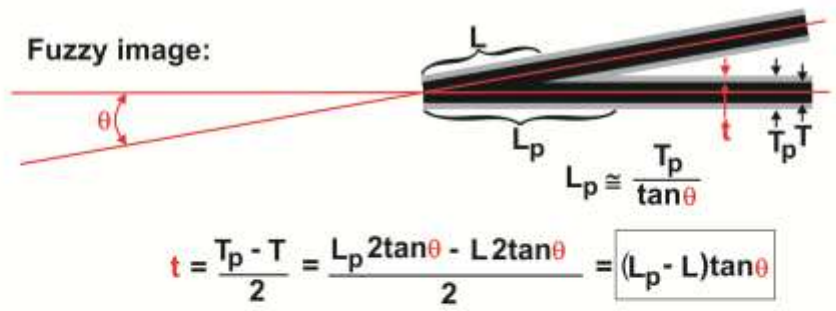
Find where lines meet in printed image

$$L_p > L$$

Perfectly sharp image:



Fuzzy image:



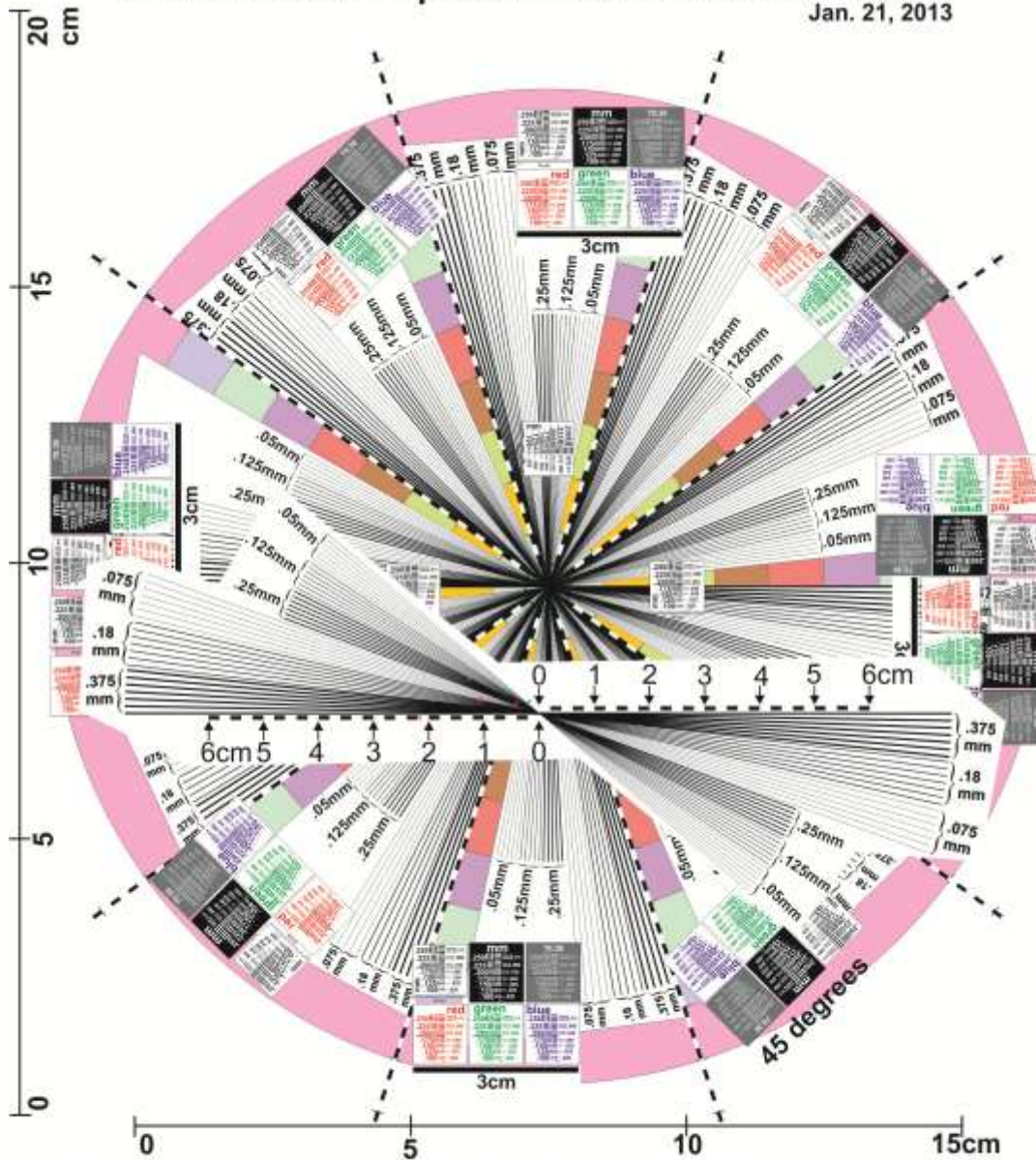
When $\theta = 1.00$ degree, $\tan \theta = 0.0175$ $L = T (57.14)$

T	L
0.375	21.4 mm
0.250	14.3
0.18	10.3
0.125	7.1
0.10	5.7
0.05	2.8

$$t = (L_p - L) 0.0175$$

Printer resolution pattern made with CorelDraw X5

Jan. 21, 2013



Two versions:
PDF as vector image
TIFF at 2400 dpi

Must print at
actual size

View print at 20X or
take photo at 1X and
examine on monitor

Each colour band is 1 cm wide. Black bars in dashed line are 2mm long.

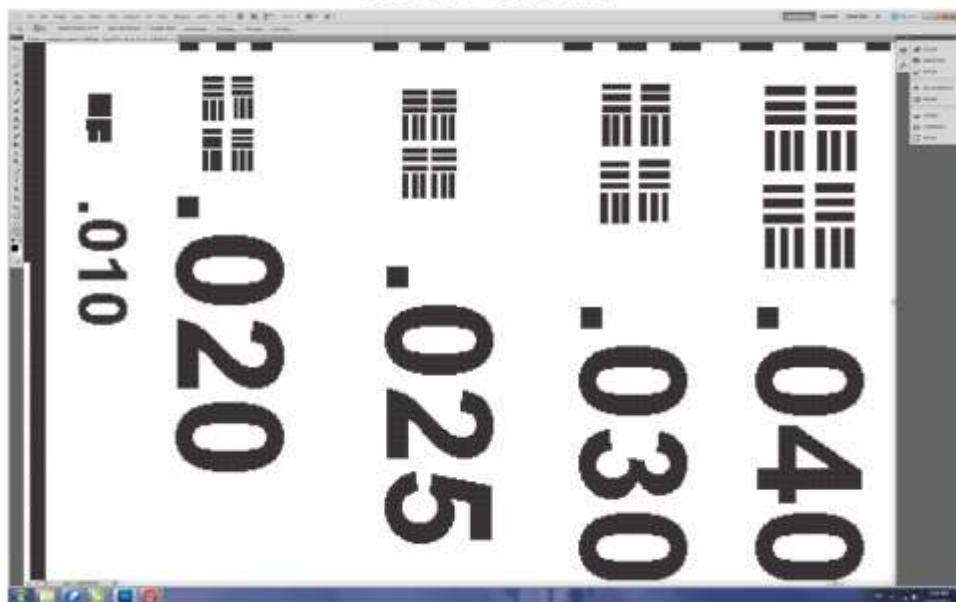
Filename: Printer resolution pattern with bars & diverging lines 18dec2012.pdf

Printer _____ Paper _____ Date _____

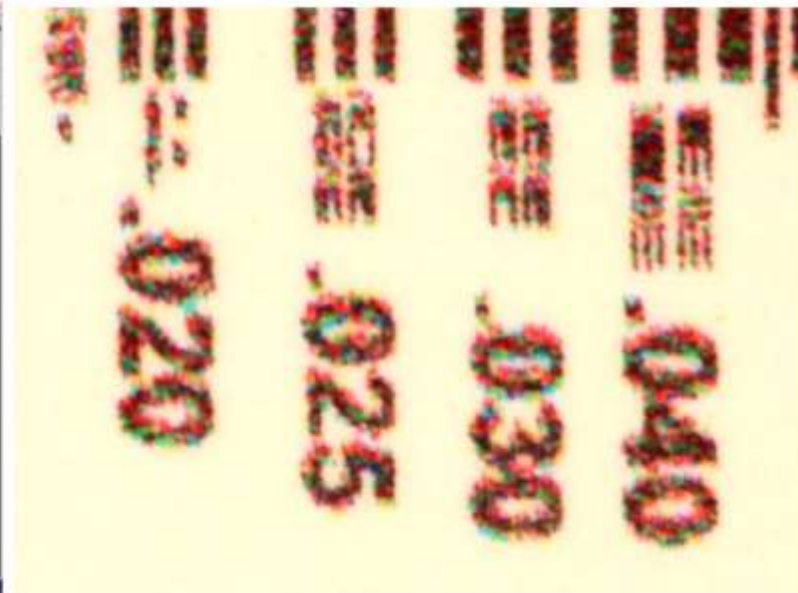
Filename _____ Image number _____

TIFF at 2400dpi is good enough

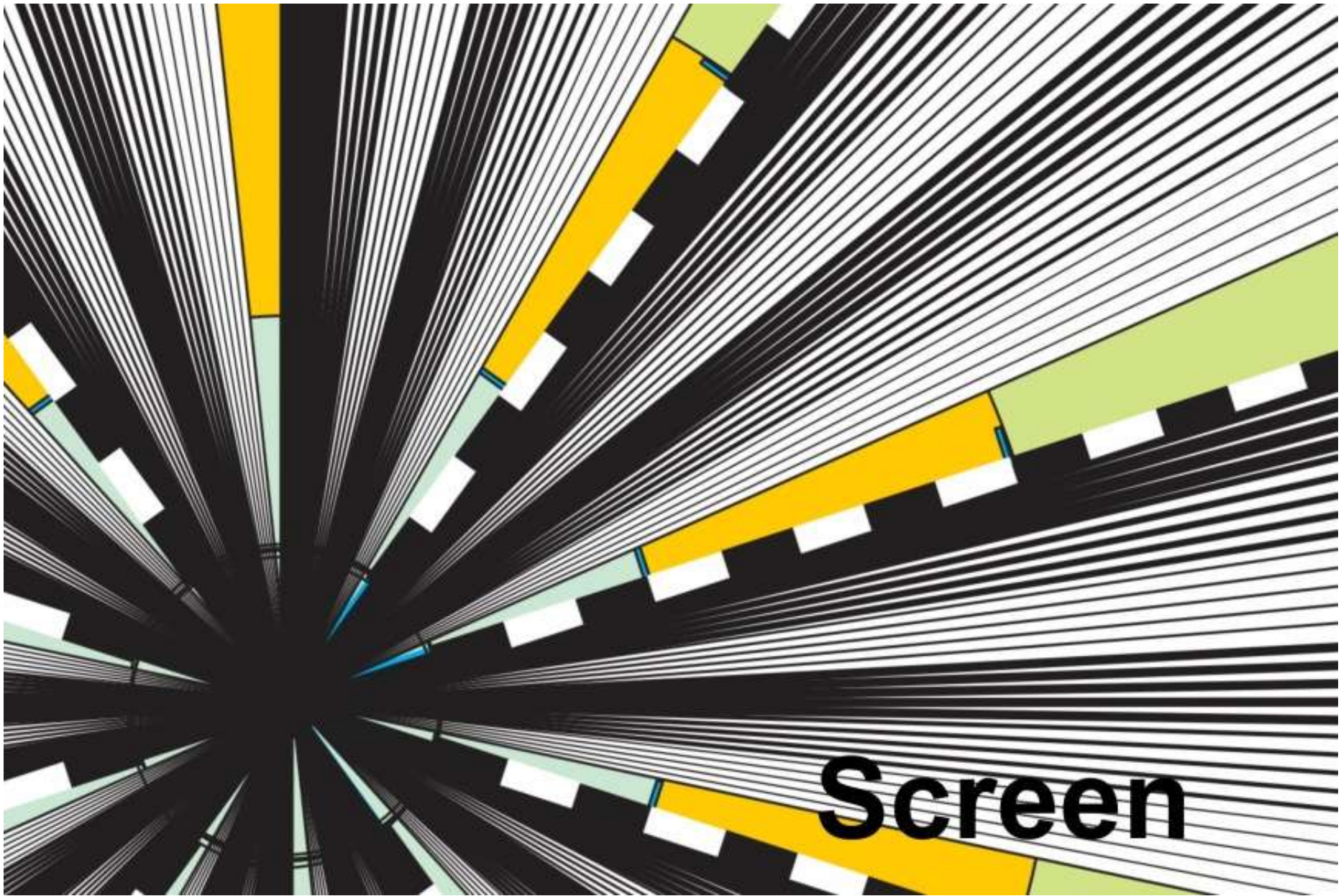
Screen



Print

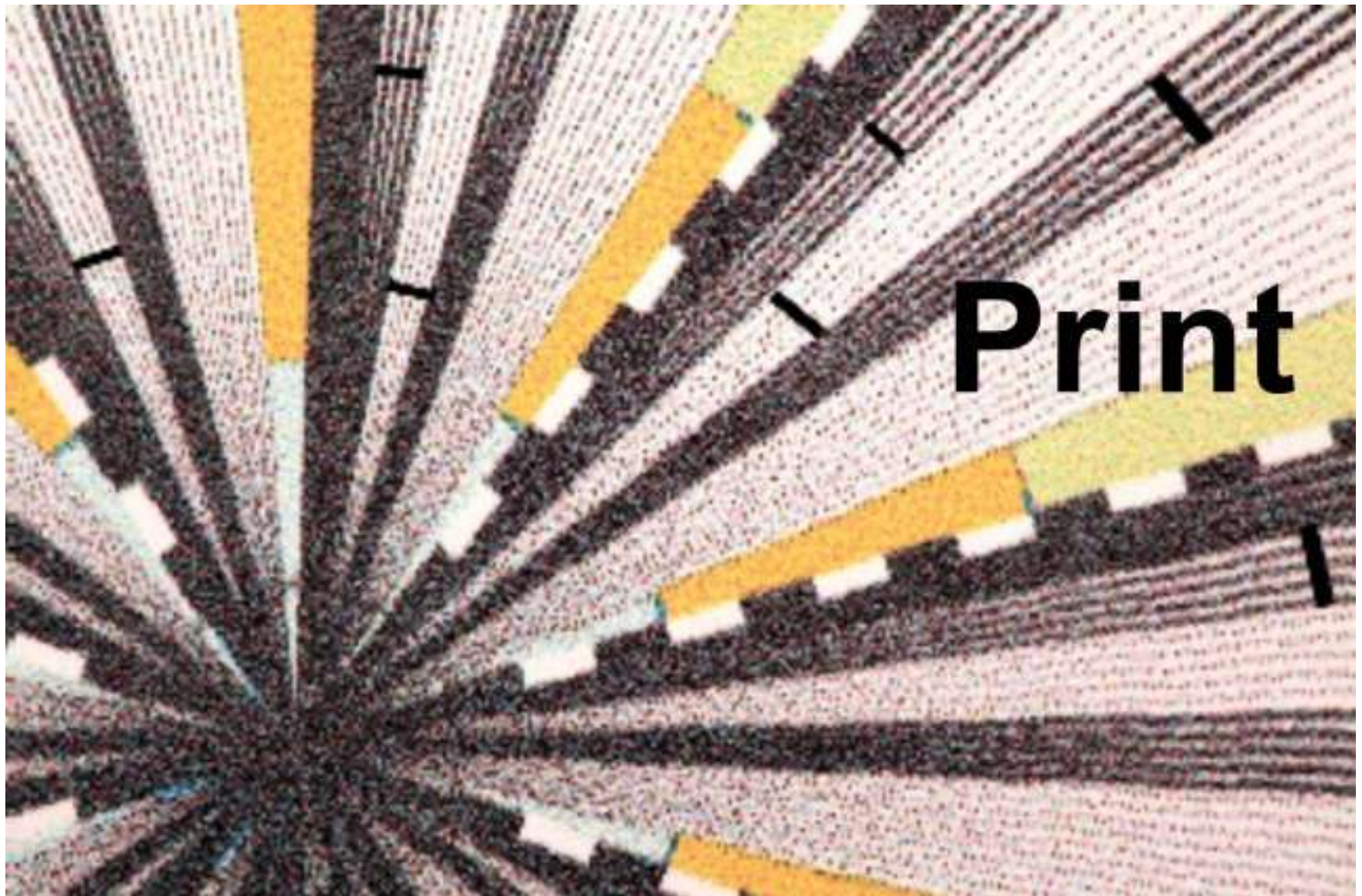


View of CDR on screen is smooth



Screen

Print from CDR is a mess ... depends on settings

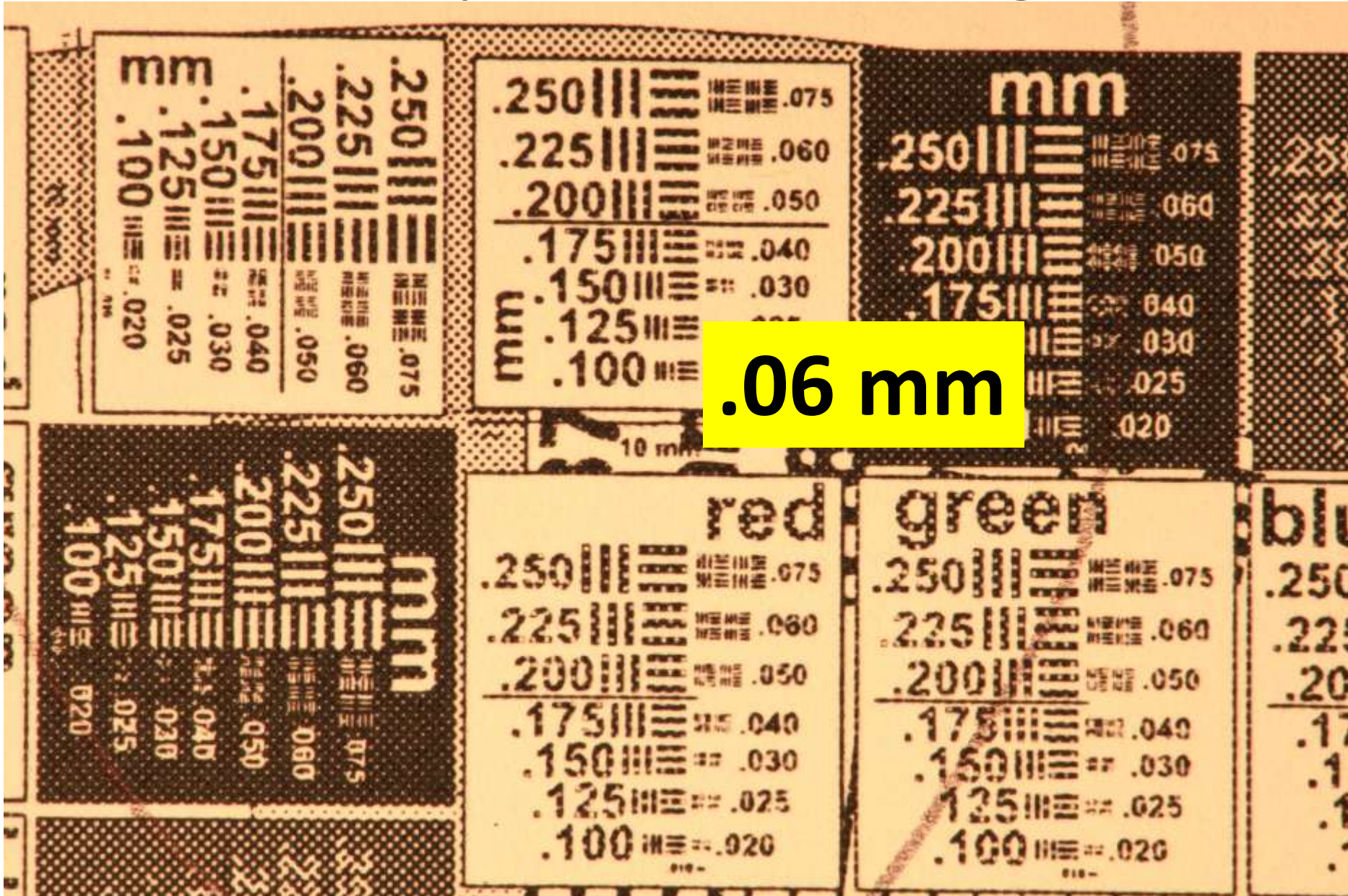


Advantage of having standard PDF and TIFF:

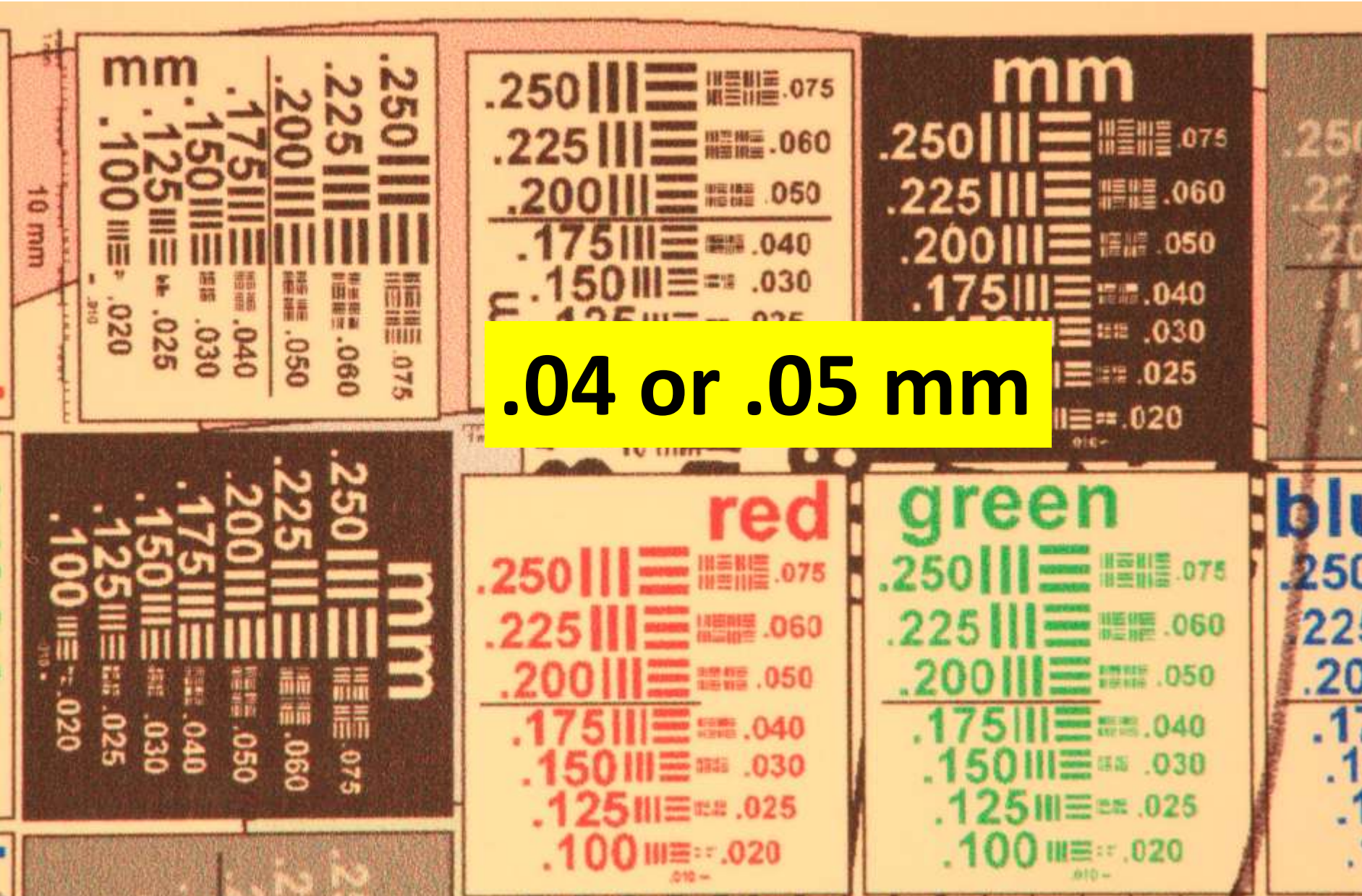
**Make several prints with different printer settings
using different printers with different papers.**

Result depends on **BOTH the
software and the printer as well as
paper quality**

PDF, Laser printer ... Samsung 2340



TIFF, Photoshop CS5 at 1200 dpi

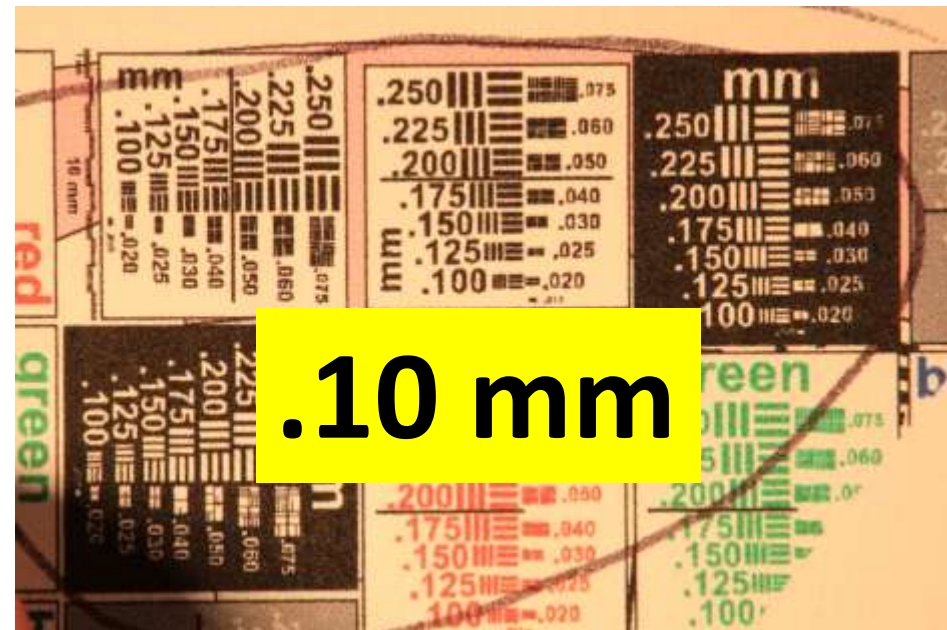
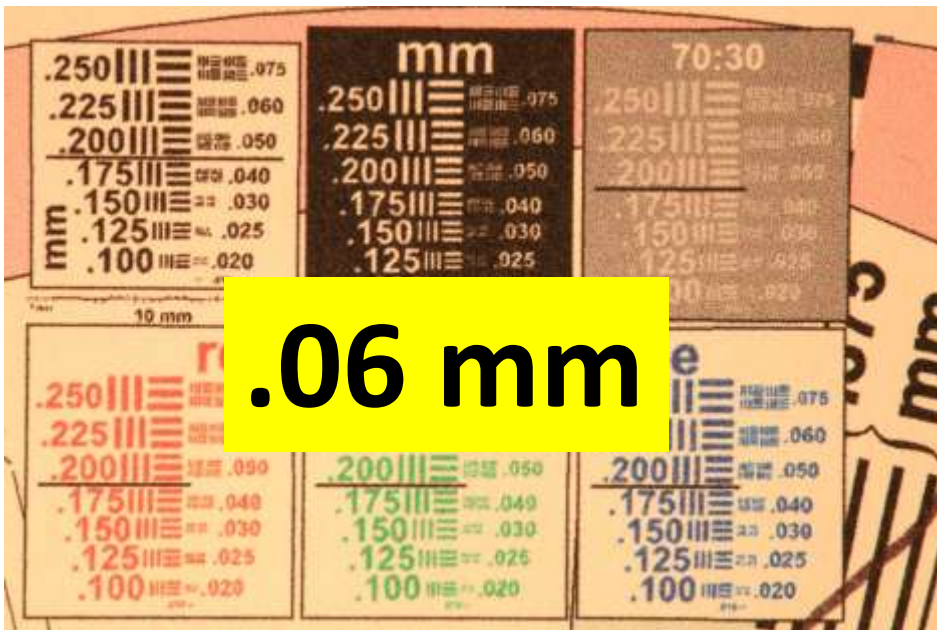


.04 or .05 mm

Orientation on the page matters in some cases

45 degree angle is better
... sometimes

90 degree ... not as good



Sample of results with no alteration of contrast, colour or sharpness

Many more conditions need to be tried

Printer	Paper	Software	Target	Result
HP3135	HP Bright White	Acrobat	PDF	.06 mm
HP3135	Canon High Res	Acrobat	PDF	.05 mm
HP3135	Canon High Res	Acrobat	PDF	.15 mm dark print
HP3135	Canon High Res	Photoshop CS5	TIFF	.04 or .05 mm
Apple Phot Xerox laser	Fine	??	PDF	.10 mm
Apple Phot Epson Phot	Lustre	??	TIFF	.125 mm