Graphical Data for Patent Applications

1 CONVERSION TO B&W (NOT GREYSCALE)

Because of differences in file sizes (1-bit: 50 KB, 24-bit: 24 MB) and limitations in patent office data storage and indexing systems, all graphical data submitted to the USPTO, WIPO, and regional patent offices is first converted to 300 dpi black and white (bit depth 1). This can result in significant degradation, especially for images, such as SEM, TEM, AFM and optical micrographs. This degradation in quality can results in delays and additional costs in patent applications.
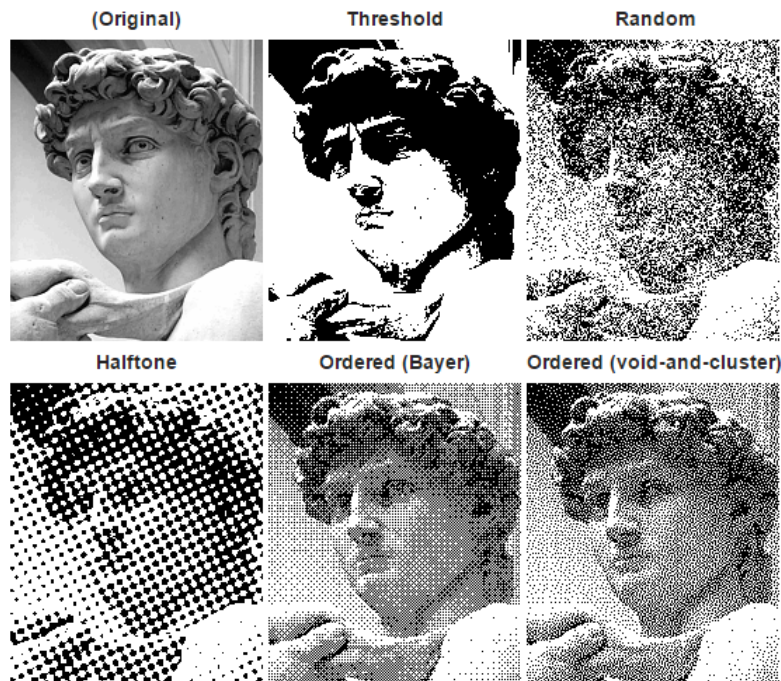

Figure 1 Effect of converting a grey scale (bit depth 8) image labelled as "Original" to a black and white (bit depth 1) image by thresholding and various dithering methods. (from https://en.wikipedia.org/wiki/Dither)

The process of conversion consists of several steps including: flattening to remove any background, equalization of the intensity histogram, thresholding, and dithering. This process is a manual process, some steps may be omitted and quality is varied.

2 IMPROVING QUALITY

Fortunately, there are several precautions that can be taken to mitigate such problems, which can lead to office actions, additional cost, delays and extra-review cycles.

Version 1.0 April 2016

2.1 COLOUR

Colour should not be used to differentiate between different data-sets.
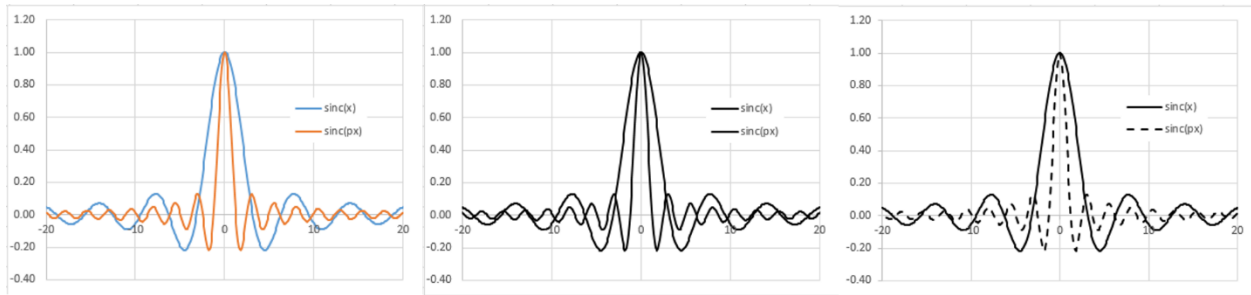

Figure 2 Consider the appearance of a graph taken from a manuscript intended to be published in colour (left), after conversion to black and white (center), the labelling is ambiguous. The same graph after conversion to black and white as it might look had it been appriorately formatted (right).

Similarly, data points should be differentiated by the choice of appropriate symbols.

2.2 TEXT

Ensure that the below rules are followed:

1. The final font size should be equivalent to 9 points, please note figures submitted to Law Firms may have to be rescaled prior to submission to the Patent Office
2. Recommended fonts include, Times, Helvetica, Courier and Symbol
3. Do not use Greek or other symbols not available in the Symbol font

2.3 MICROGRAPHS

Depending on the subject matter micrographs may not convert well. SEM, TEM, AFM and some micrographs are particularly challenging to convert.

2.4 PREFERRED FILE FORMAT

The preferred file format is TIFF, 300 dpi, maximum size 2480 x 3508 pixels.

2.5 SOFTWARE

The Technology Licensing Section has access to Digital Micrograph (Gatan), ImageJ (NIH) and Zen (Zeiss) software, other proprietary formats are not supported.

When required, numerical data should be supplied in Excel format or as CVS (comma separated values).