

C O N T E N T S

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C | APPENDIX: 600-DPI RESOLUTION
TECHNOLOGY

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C.1. General

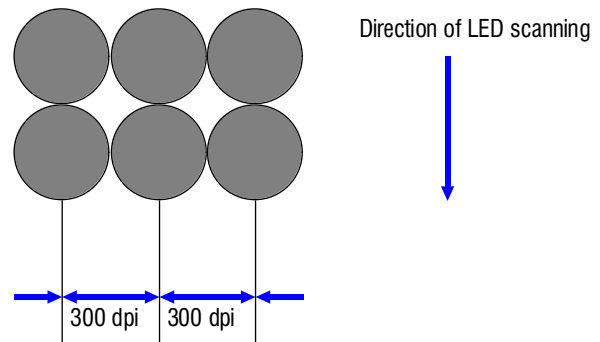
The printer incorporates Kyocera's own, latest technology of generating a 600 dots-per-inch printing images, using the basic 300 dots-per-inch component including the LED head.

This section explains on how the pseudo 600-dpi printing is achieved with the printer using this technology. We start with taking a close look at the dots that are generated by the emission of LED light and constitute printing image.

C.1.1. Printing resolutions

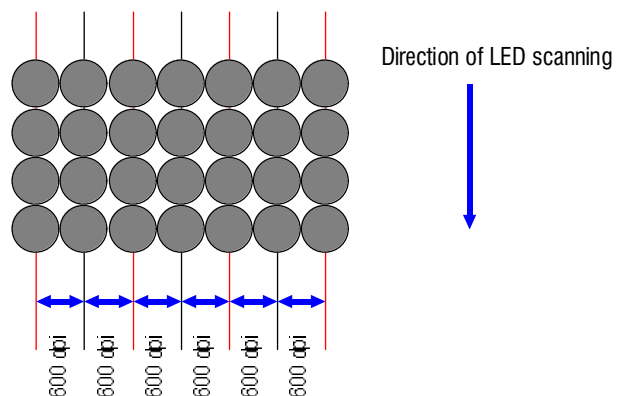
See Figure C.1. below. The LED head used with the printer has an array of 2560 LED pieces in a row that corresponds to the horizontal length of a Letter-size paper in terms of dots in the resolution of 300 dots per inch.

Figure C.1. 300-dpi printing dots



Simply put, printing in 600 dpi resolution requires twice finer printing dots that literally fill in between the current 300 dpi scanning columns, but in this system, without increasing the number of the LED pieces to be double. See Figure C.2. below.

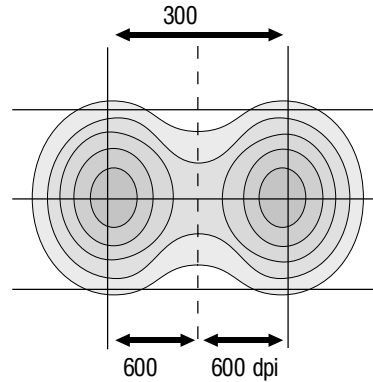
Figure C.2. 600-dpi printing dots



C.1.2. Generation of phantom dot

In the 600-dpi resolution technique, we let two horizontally neighboring dots of 300-dpi distance at the same time so that, the combined energy of these dots constitute a phantom dot centered on the virtual 600-dpi vertical line.

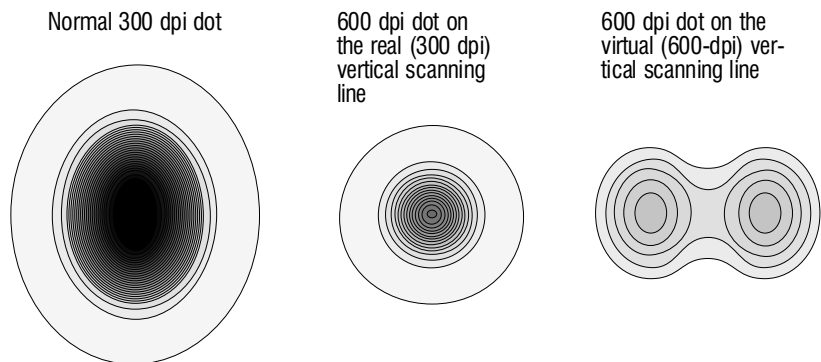
Figure C.3. Generating a phantom dot



Thus, every 600-dpi scanning (vertical) line between 300-dpi vertical lines is created in this way along the phantom dots.

Note that the contours in the above example show the relative distribution of energy (equivalent to the drum surface potential) which is actually controlled by the number of times the LED is turned on to hit that dot. The following figure gives a relative energy comparison among, from left to right, the 300-dpi dot, 600-dpi dot on the 300-dpi vertical line, and the phantom dot (on the virtual, 600-dpi vertical line).

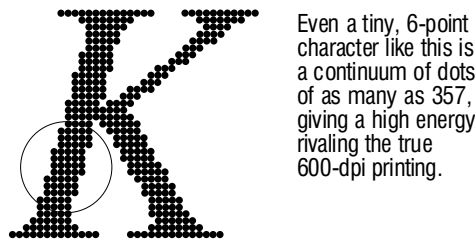
Figure C.4. Energy distribution of the dots



C.1.3. Imaging using the 600-dpi technique

In the previous discussion, it is revealed that the phantom dot on the virtual 600-dpi vertical scanning line is not a round-shaped dot due to a low and uneven energy concentration (roughly 1 to 8 of the 300-dpi dots). This does not cause any trouble on print quality and whatsoever because, even a very small amount of printing, the combined energy of dots is so intensive as to produce the printing image that rivals that of true 600-dpi resolution technique. For example, even a tiny, 6-point character (like the letter K below) is a continuum of 357 dots.

Figure C.5. A 6-point K character in 600 dpi res.



The following figure gives a simple comparison of dot placement for the 300-dpi and 600-dpi printing. Note that the 600-dpi printing mode, to the right, has phantom dots between the real (300-dpi interval) vertical scanning lines.

Figure C.6. Comparison of dot arrangements

