D_{max} Setting

Technical Brief

Overview

The D_{max} setting allows users to select the optical density of the black component of images printed on DirectVista™ Film.

Description

D_{max} is user configurable in the range from 1 to 9. The lowest D_{max} setting is 1 which has an optical density of around 1.8 O.D. The highest setting is 9 which has an optical density of 3.3 O.D. The following table shows the mapping of D_{max} settings to optical densities of black on film:

Dmax Setting	Optical Density
1	1.80
2	1.93
3	2.05
4	2.19
5	2.35
6	2.53
7	2.74
8	**3.00 (factory default)**
9	3.30
10	3.60

Notes: 1. Variations in printers may result in a shift in densities.
2. D_{max} setting 10 was added in NP-1660 O.S. Rel.2.2.7.

The 9 different values for D_{max} are uniformly distributed along a visually linear curve. This results in each increment of the D_{max} value appearing the same amount darker
than the previous value. The printer is shipped with a factory default setting of 8. This produces an optical density of around 3.0.

Setting the D_{max} Value

D_{max} can be set as a User/Job Preference through Logical Device 0, or from the Front Panel. The Front Panel menu sequence for changing the D_{max} value is:

SETUP → IMAGE → DVFILM → DMAX → *value*

D_{max} can also be set by sending a file to Logical Device 0 on the printer. Using this method, D_{max} can be configured for either User or Job Preferences. D_{max} follows the same rules as Gamma, Contrast and other configurable settings. The user must create an ascii file which contains the D_{max} setting and then use FTP or LPR to transfer the file to the printer using Logical Device 0.
An example user settings file which includes the D_{max} setting is:

[DVFILM]
GAMMA 1.20
CONTRAST 10
DMAX 5

In this example, images being printed on DirectVista™ Film will be processed with a Gamma of 1.20, a Contrast of 10 and D_{max} setting of 5 which produces films with a maximum optical density of 2.35. The **[DVFILM]** tag is optional and specifies that these parameters are for DirectVista™ Film only.

Either FTP or LPR can be used to send a settings file to Logical Device 0. For LPR, the printer picks up the user name from the host system, and for FTP it uses the user name specified during FTP log in. The following is a sample FTP session to transfer a User Preferences file:

ftp *myprinter*
Connected to myprinter.
220 np1660 FTP server ready.
Name (myprinter:username]: ***jsmith***
331 Use printer # [0-2, 8, 9, 10, 11-99, 100-104, 135, 300] for password.
Password: **0** *Note: Password will not display*
230 User jsmith logged in on System device.
ftp> **bin**
200 Type set to I.
ftp> **put *mysettings.txt***
200 PORT command successful.
150 Opening BINARY mode connection for mysettings.txt.
226 Transfer complete.
local: mysettings.txt remote: mysettings.txt
199 bytes sent in 0.00049 seconds (3.9e+02 Kbytes/s)
ftp> **quit**

Considerations

D_{max} only applies to DirectVista™ Film.

The recommended procedure for fine tuning Gamma, Contrast and D_{max} is to start by setting the D_{max} value, then run Bracketing prints for Gamma and Contrast selection. Although D_{max} does not change the image, it does affect the final output. Generally, lower D_{max} settings make the image appear brighter. Therefore, Gamma and Contrast may need to be adjusted after the D_{max} value is changed.

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