

APPENDIX - A. Image Processing Example

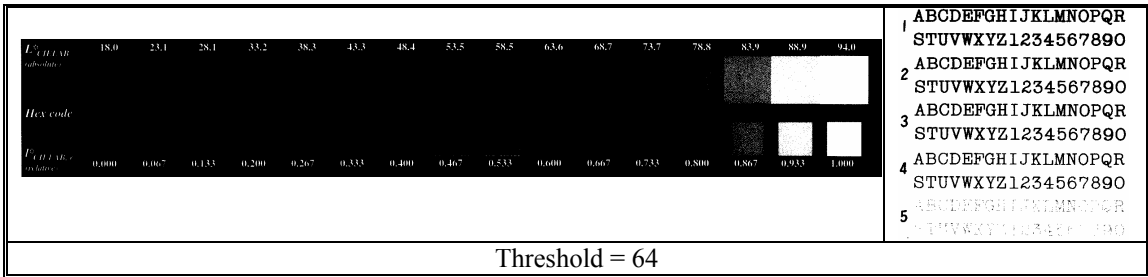
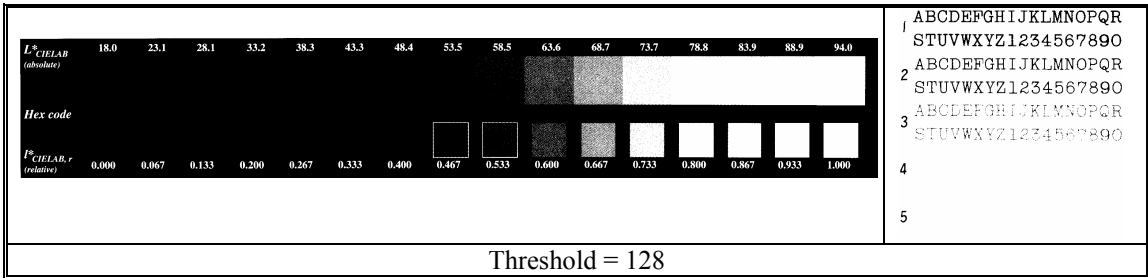
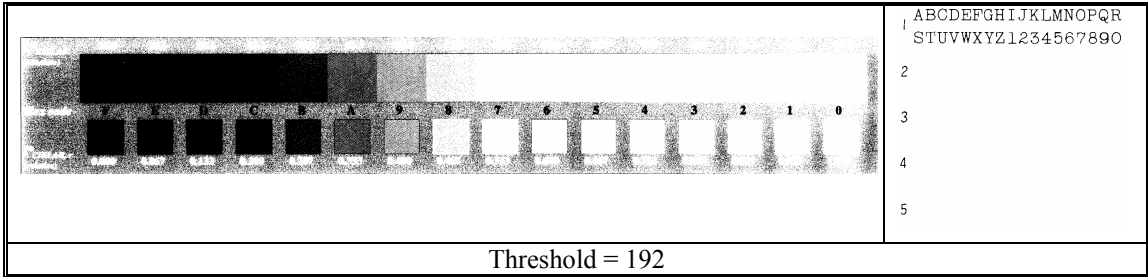
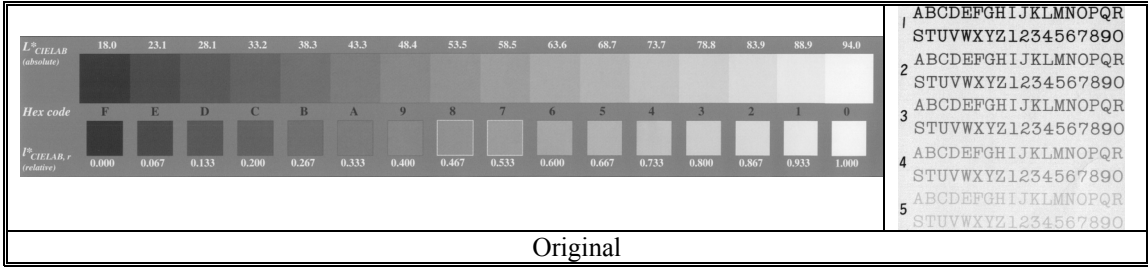
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*) Depending on the scanner you use or the document you scan, an actual scanning result may differ from the sample image indicated in this document.

A-1 Fixed Threshold

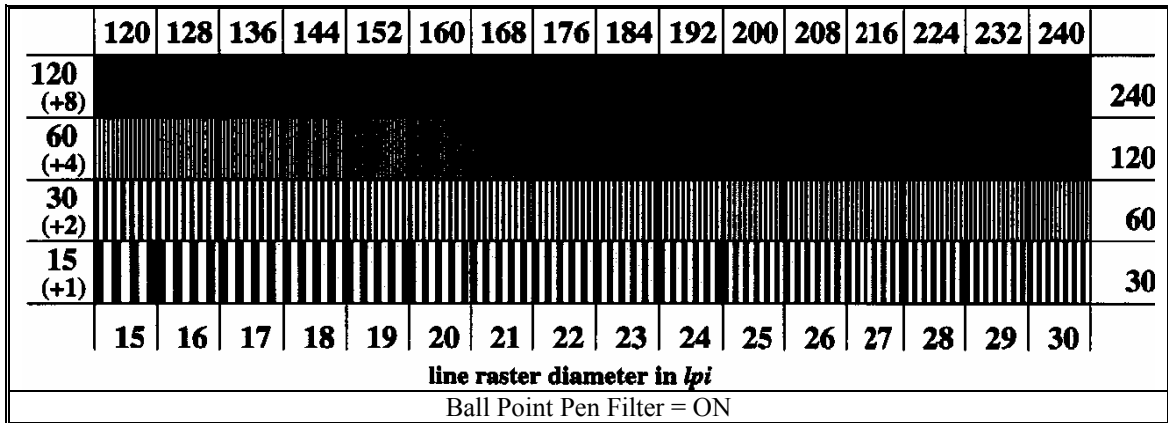
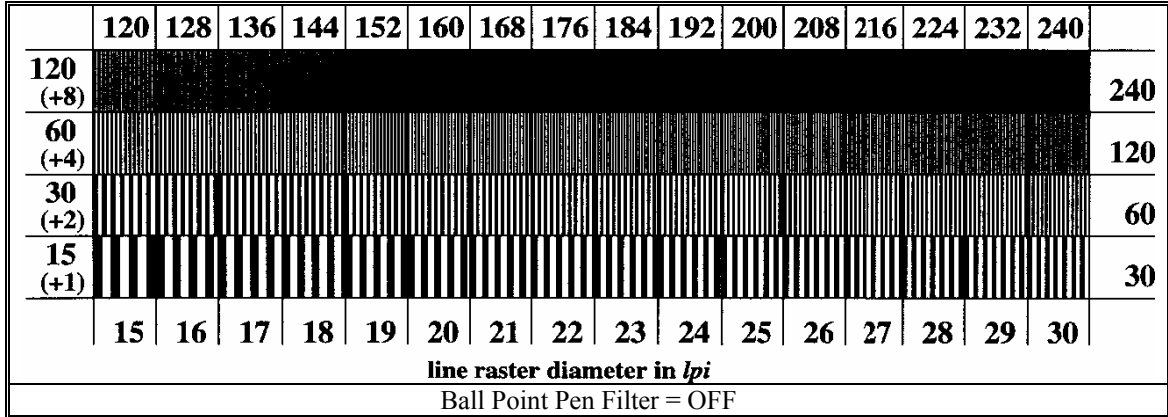
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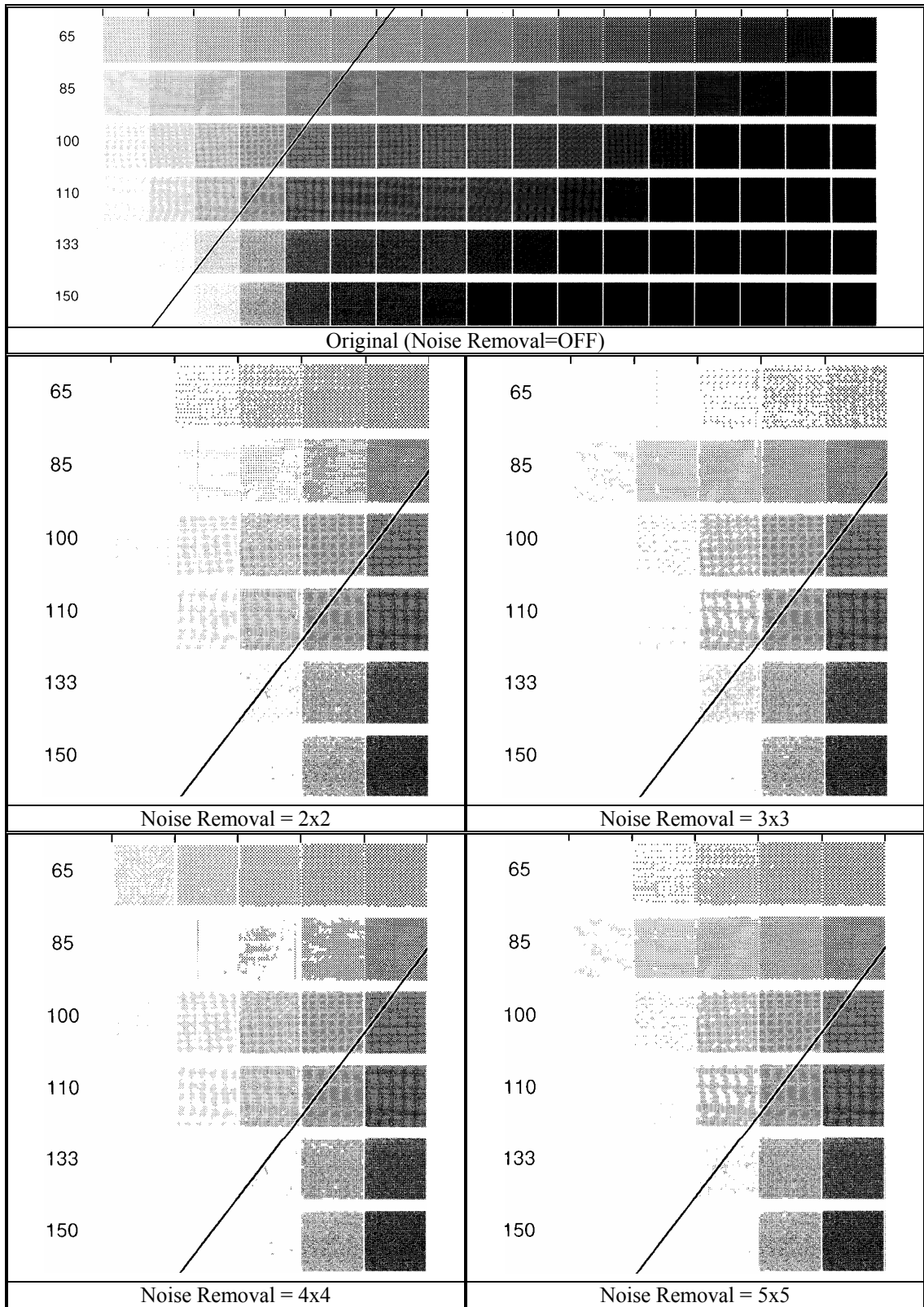
A-2 OCR DTC (Dynamic Threshold for OCR)

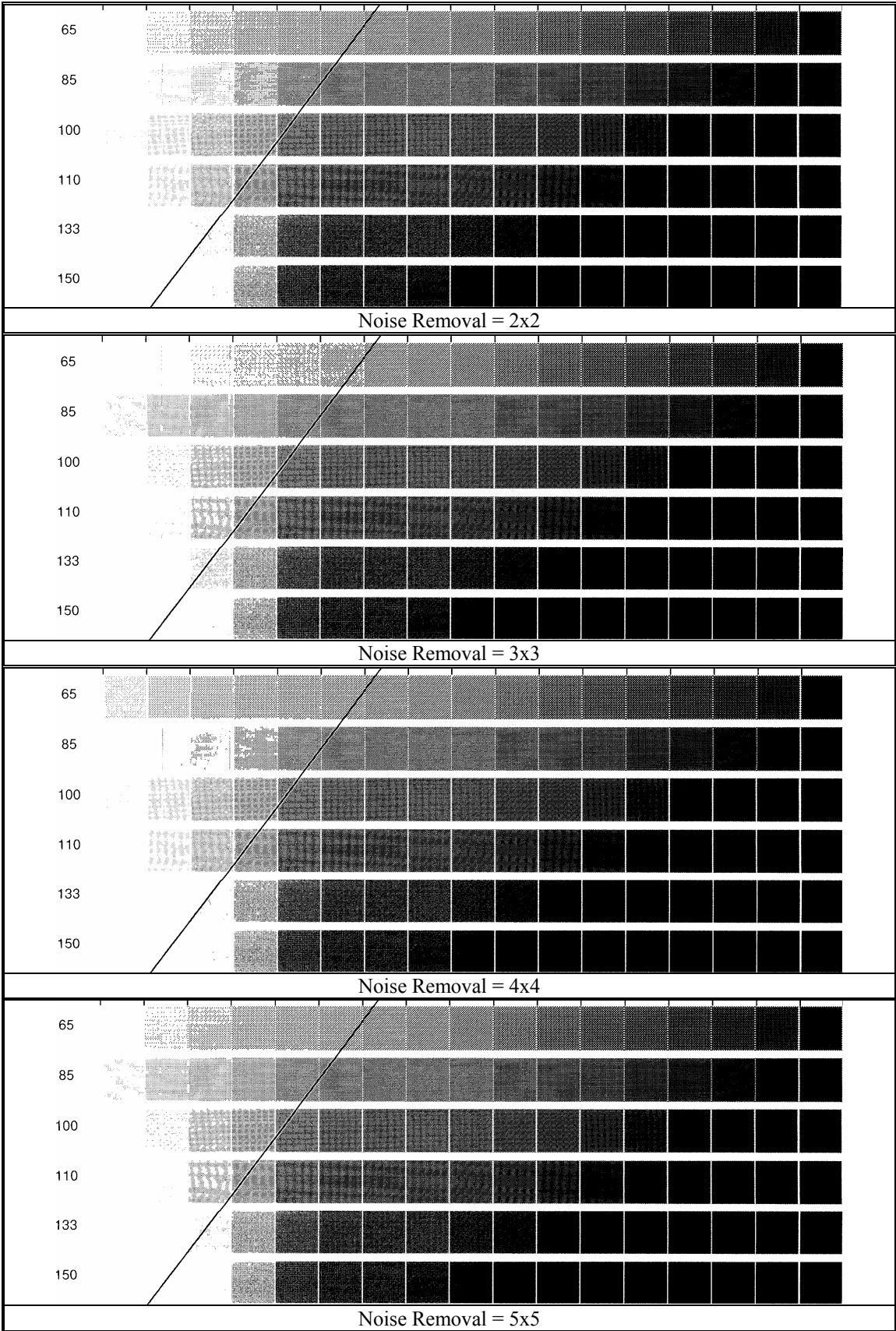
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A-2.1 Ball Point Pen Fiter

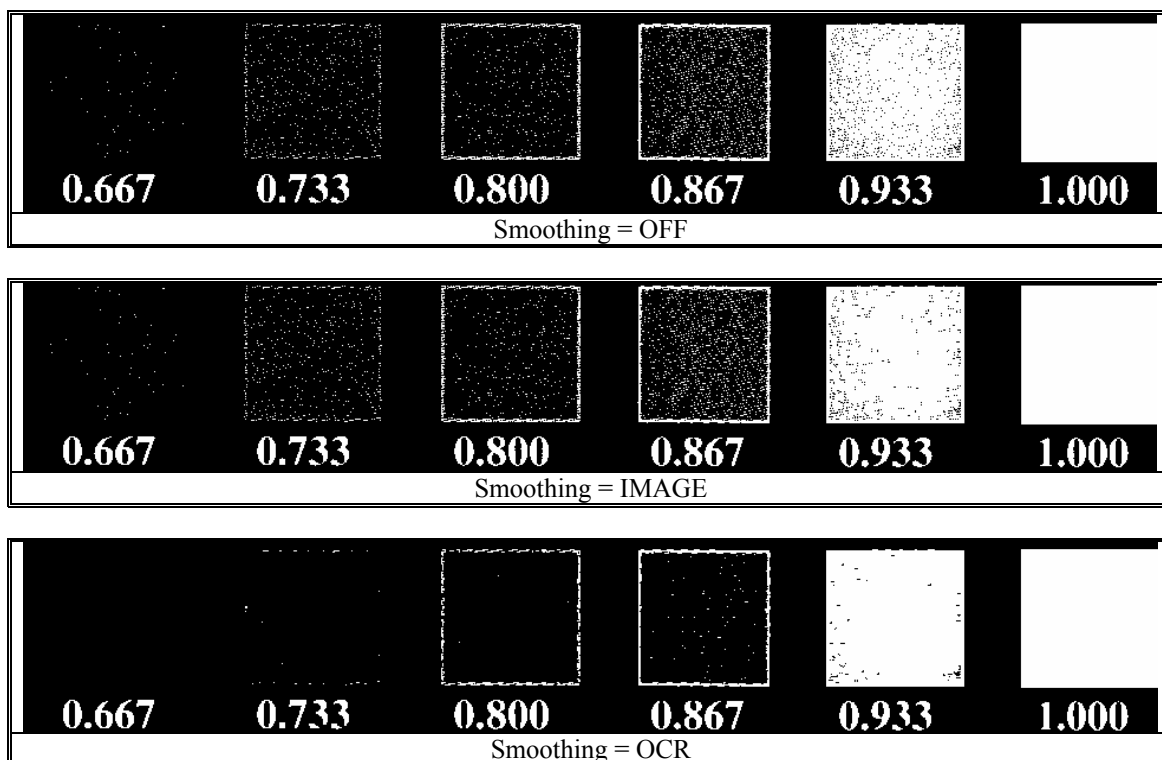


A-2.4 Noise Removal





A-2.5 Smoothing

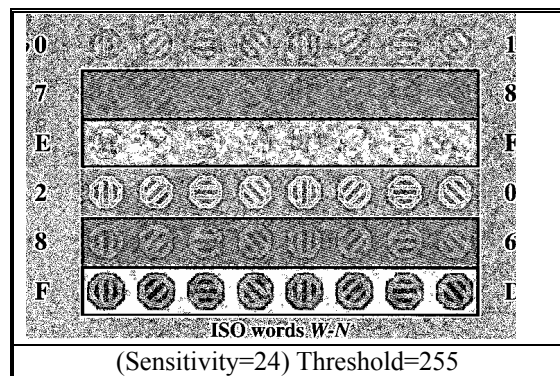
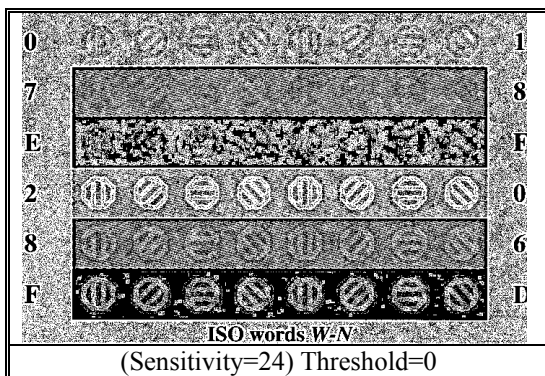
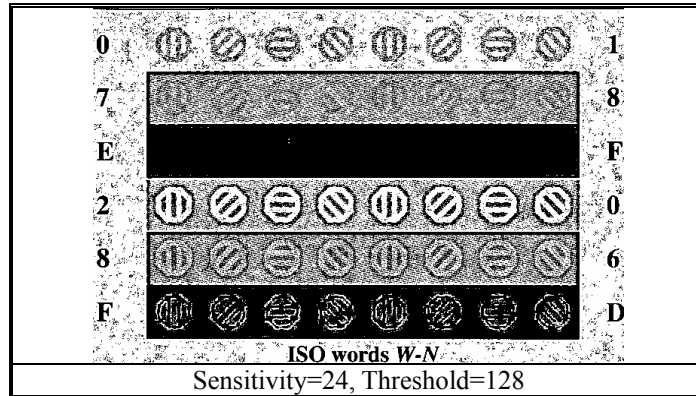
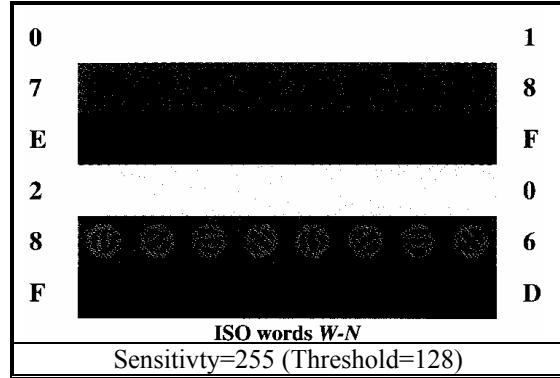
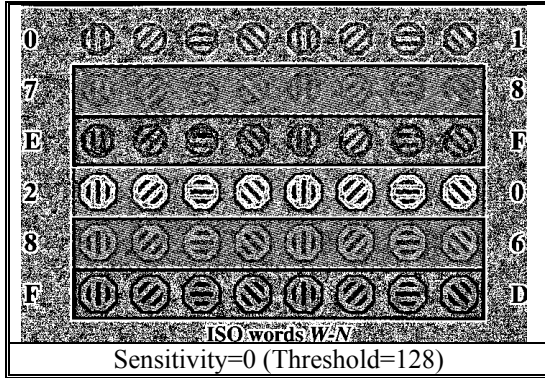


A-3 Form DTC (Dynamic Threshold for FORM)

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A-3.1 Sensitivity

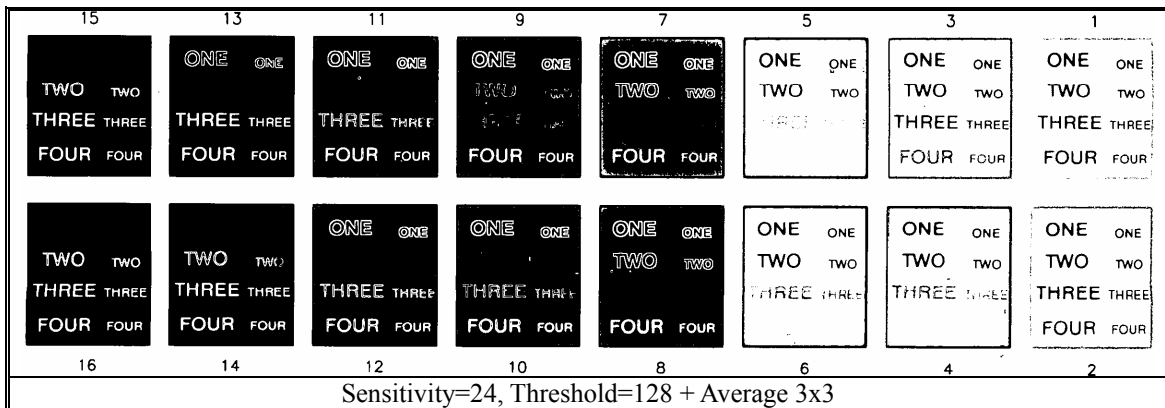
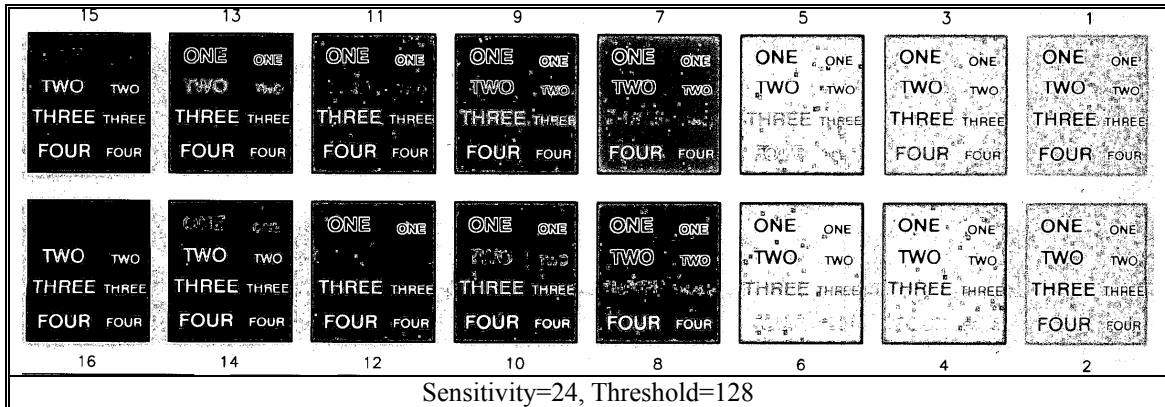
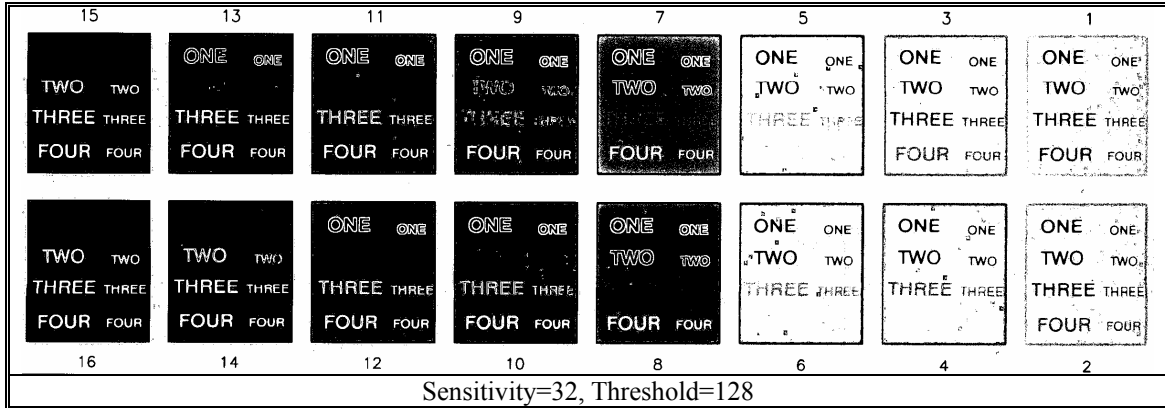
A-3.2 Threshold



● Adjusting Sensitivity

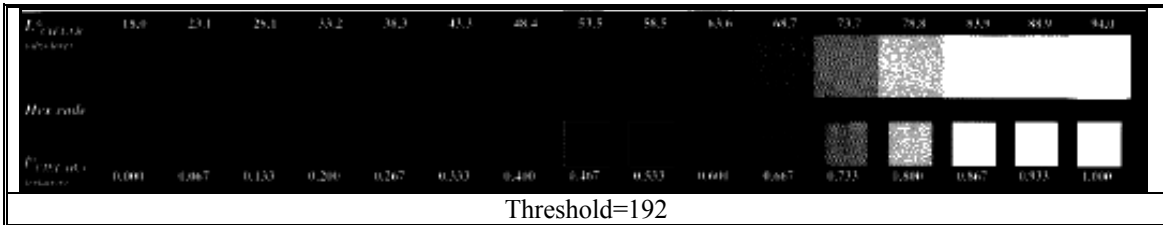
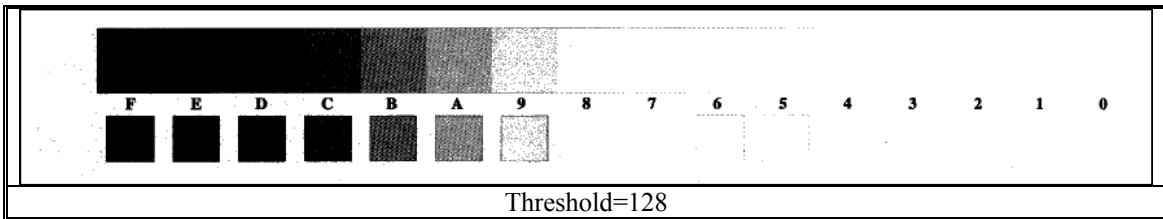
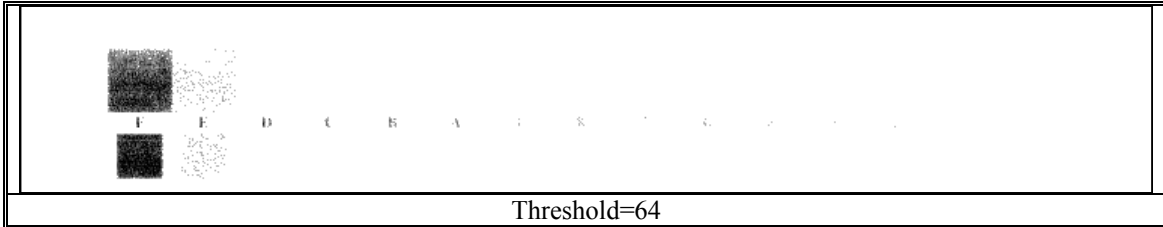
Default Sensitivity=24 is noisy. There are 2 ways to reduce noises.

1. Set higher value (ex. Sensitivity=32). Sensitivity is reduced but noises are reduced.
2. Use Average 3x3 Filter. Sharpness is lost but noises are reduced.



● Adjusting Threshold

Sensitivity is decided next to adjust the Threshold for background to be best suited.

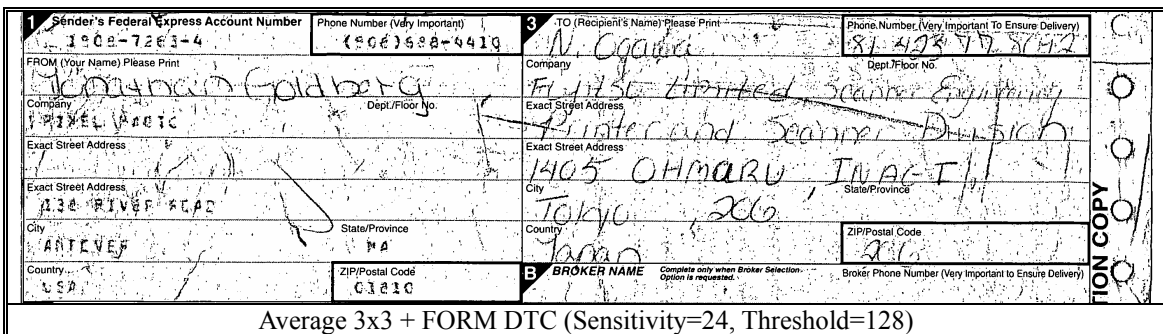
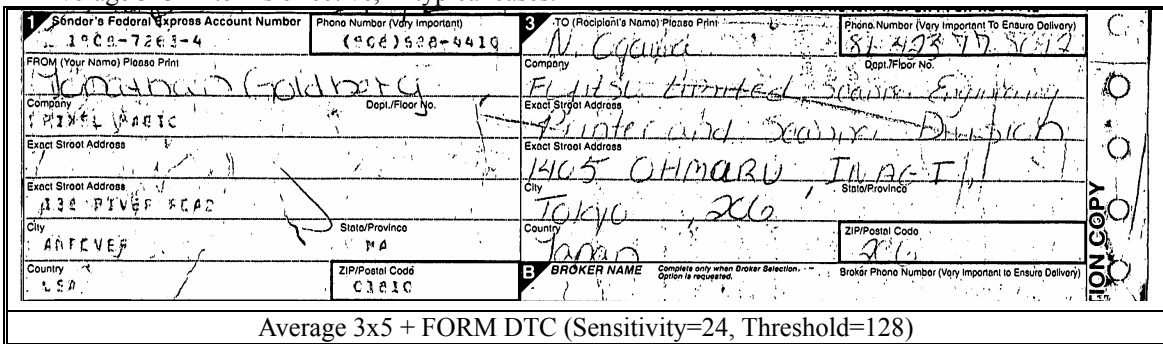


● Using Average Filters

In FORM processing, usually document condition are not good. Use of average filter is recommended.

‘Average 3x5 Filter’ is effective, if resolution is not required.

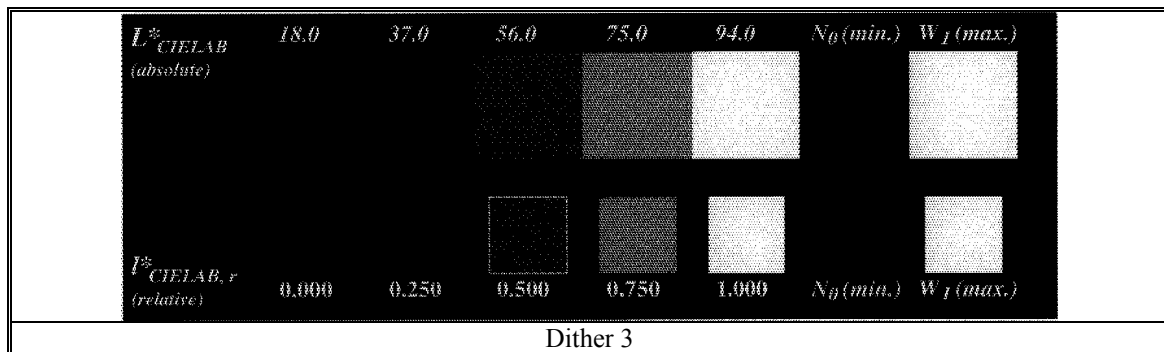
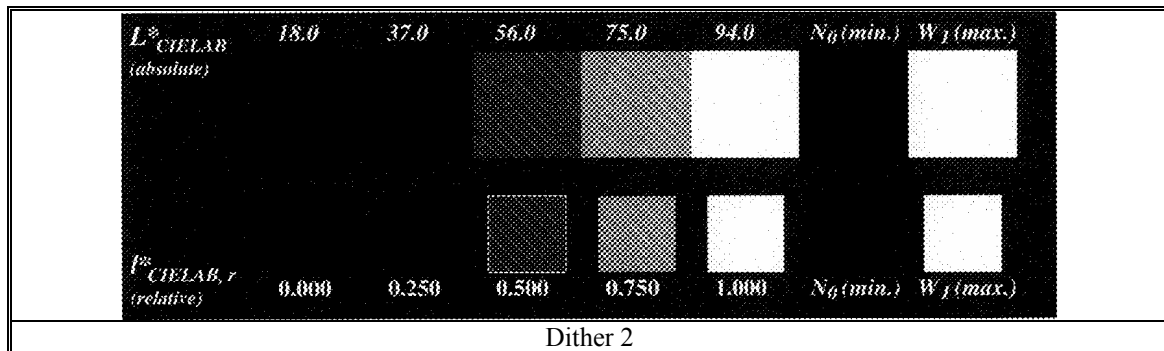
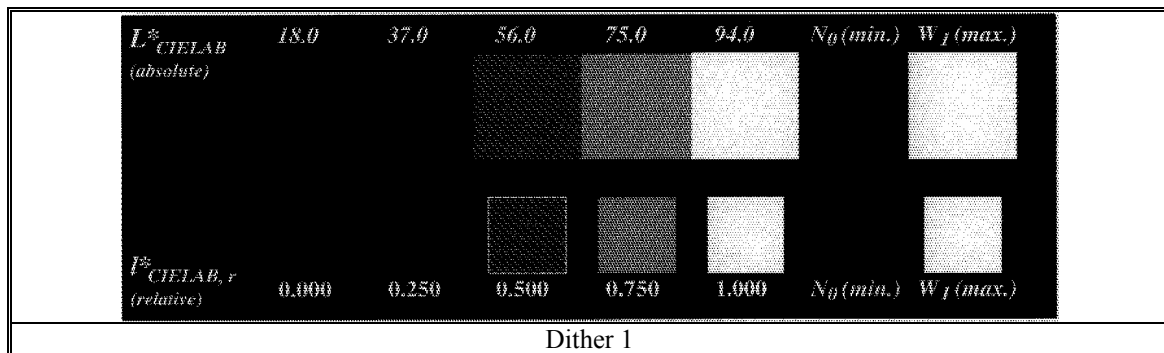
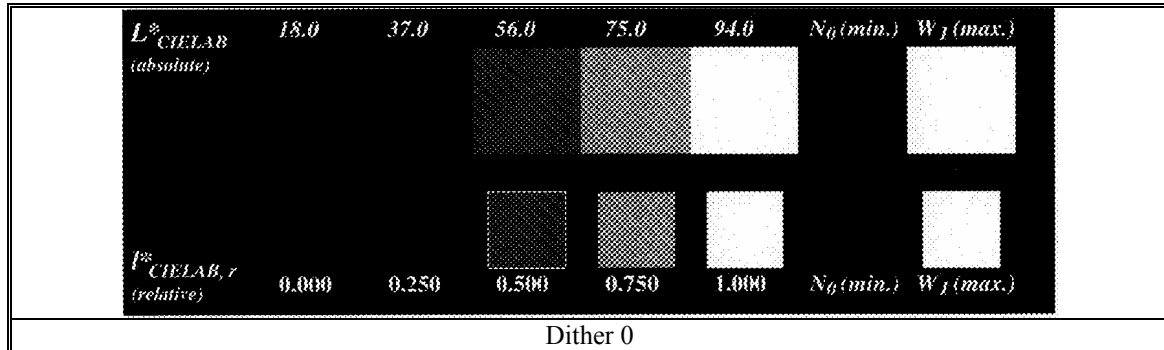
‘Average 3x3 Filter’ is effective, in typical cases.



A-4 Dither

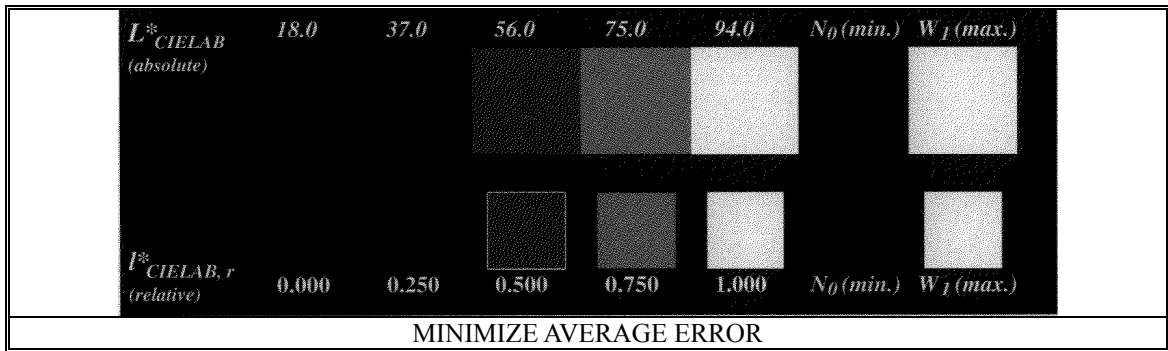
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See also A-5 for “Adjusting Brightness”, “Adjusting Contrast”.

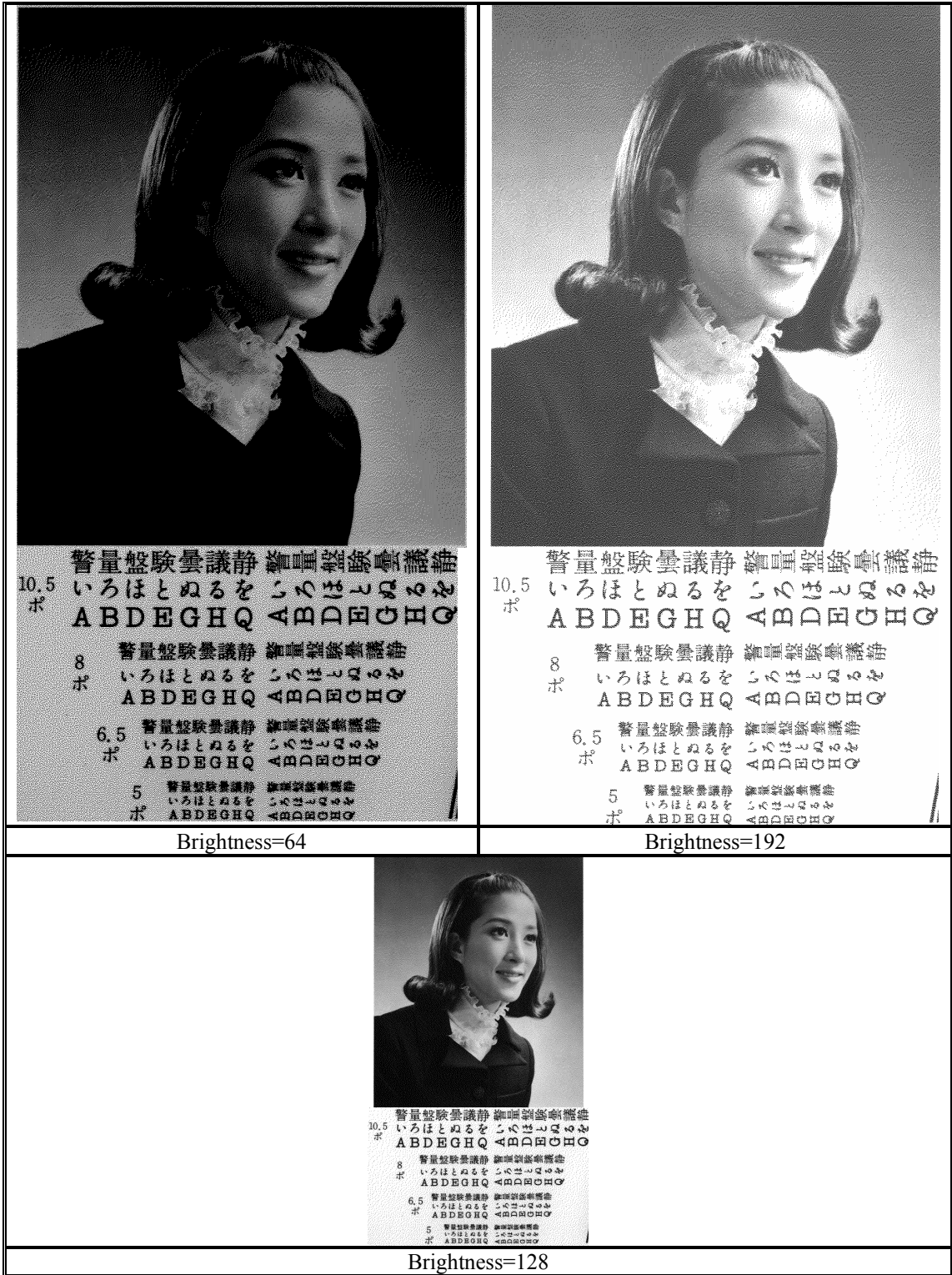


A-5 Minimize Average Error

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● Adjusting Brightness



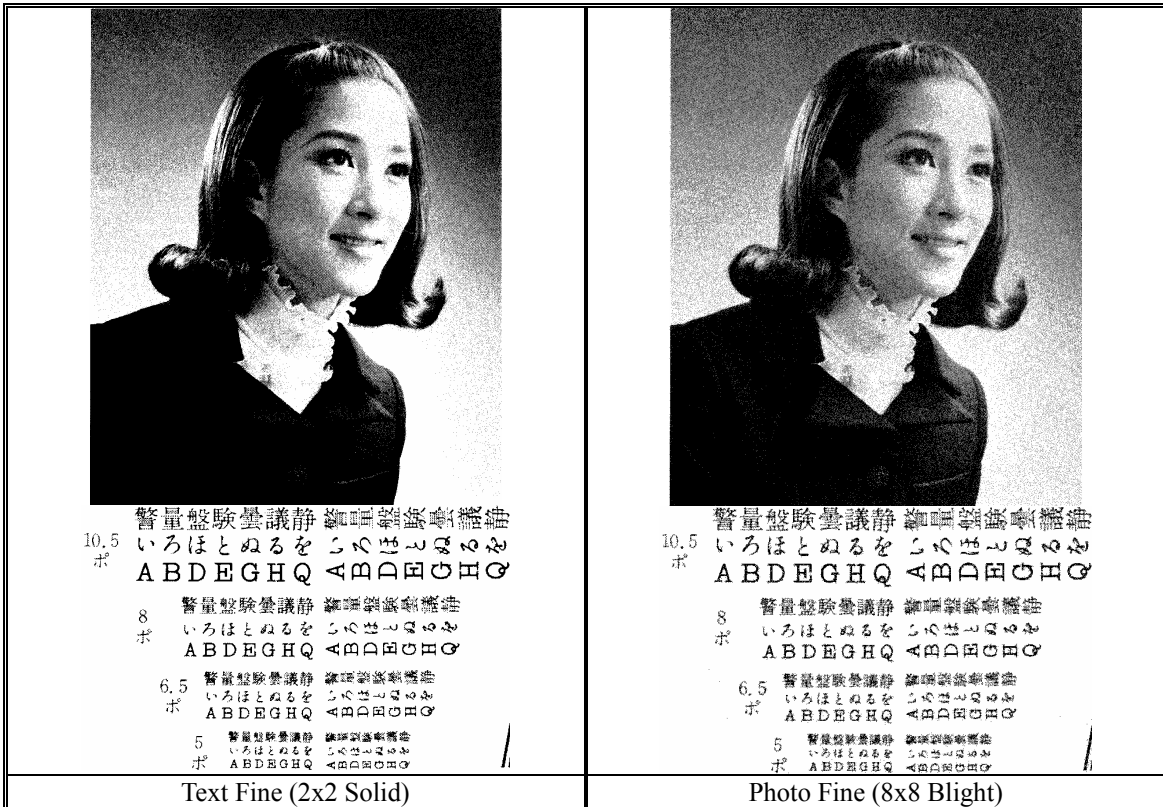
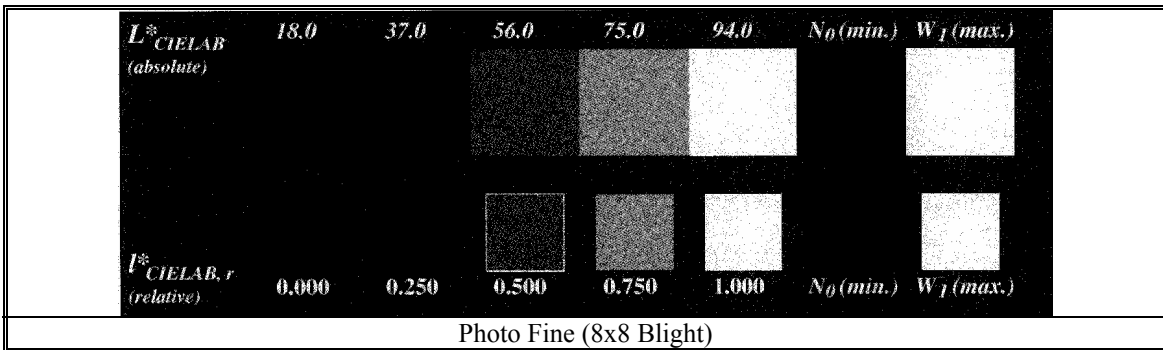
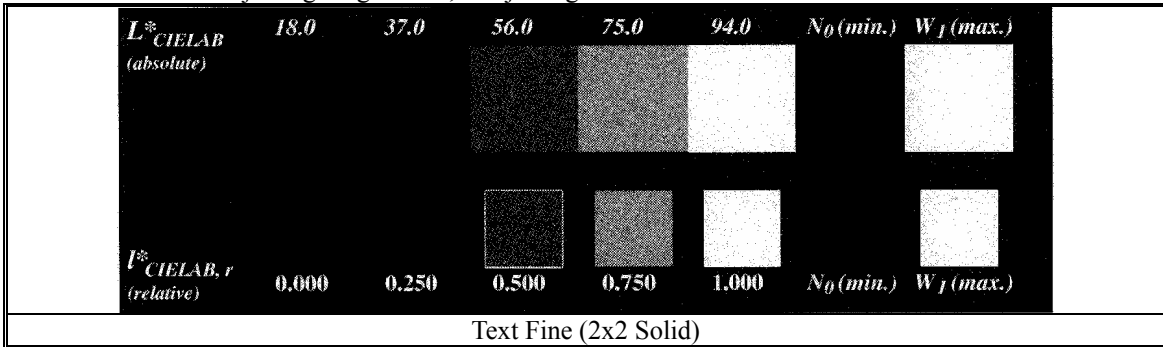
● Adjusting Contrast

 <p>10.5 警量盤験曇議静 警量盤験曇議静 いろはとぬるを いろはとぬるを ABDEGHQ ABDEGHQ</p> <p>8 警量盤験曇議静 警量盤験曇議静 いろはとぬるを いろはとぬるを ABDEGHQ ABDEGHQ</p> <p>6.5 警量盤験曇議静 警量盤験曇議静 いろはとぬるを いろはとぬるを ABDEGHQ ABDEGHQ</p> <p>5 警量盤験曇議静 警量盤験曇議静 いろはとぬるを いろはとぬるを ABDEGHQ ABDEGHQ</p>	 <p>10.5 警量盤験曇議静 警量盤験曇議静 いろはとぬるを いろはとぬるを ABDEGHQ ABDEGHQ</p> <p>8 警量盤験曇議静 警量盤験曇議静 いろはとぬるを いろはとぬるを ABDEGHQ ABDEGHQ</p> <p>6.5 警量盤験曇議静 警量盤験曇議静 いろはとぬるを いろはとぬるを ABDEGHQ ABDEGHQ</p> <p>5 警量盤験曇議静 警量盤験曇議静 いろはとぬるを いろはとぬるを ABDEGHQ ABDEGHQ</p>
<p>Contrast=64</p>	<p>Contrast=192</p>
 <p>10.5 警量盤験曇議静 警量盤験曇議静 いろはとぬるを いろはとぬるを ABDEGHQ ABDEGHQ</p> <p>8 警量盤験曇議静 警量盤験曇議静 いろはとぬるを いろはとぬるを ABDEGHQ ABDEGHQ</p> <p>6.5 警量盤験曇議静 警量盤験曇議静 いろはとぬるを いろはとぬるを ABDEGHQ ABDEGHQ</p> <p>5 警量盤験曇議静 警量盤験曇議静 いろはとぬるを いろはとぬるを ABDEGHQ ABDEGHQ</p>	
<p>Contrast=128</p>	

A-6 Random Dither

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See also A-5 for “Adjusting Brightness”, “Adjusting Contrast”.



● Adjusting Outline Detection Threshold

<p>10.5 ポ</p> <p>警量盤駁曇議静 警量盤駁曇議静 いろほとぬるを いろほとぬるを ABDEGHQ ABDEGHQ</p> <p>8 ポ</p> <p>警量盤駁曇議静 警量盤駁曇議静 いろほとぬるを いろほとぬるを ABDEGHQ ABDEGHQ</p> <p>6.5 ポ</p> <p>警量盤駁曇議静 警量盤駁曇議静 いろほとぬるを いろほとぬるを ABDEGHQ ABDEGHQ</p> <p>5 ポ</p> <p>警量盤駁曇議静 警量盤駁曇議静 いろほとぬるを いろほとぬるを ABDEGHQ ABDEGHQ</p>	<p>10.5 ポ</p> <p>警量盤駁曇議静 警量盤駁曇議静 いろほとぬるを いろほとぬるを ABDEGHQ ABDEGHQ</p> <p>8 ポ</p> <p>警量盤駁曇議静 警量盤駁曇議静 いろほとぬるを いろほとぬるを ABDEGHQ ABDEGHQ</p> <p>6.5 ポ</p> <p>警量盤駁曇議静 警量盤駁曇議静 いろほとぬるを いろほとぬるを ABDEGHQ ABDEGHQ</p> <p>5 ポ</p> <p>警量盤駁曇議静 警量盤駁曇議静 いろほとぬるを いろほとぬるを ABDEGHQ ABDEGHQ</p>
<p>Outline Detection Threshold = 0</p>	<p>Outline Detection Threshold = 127</p>

