

Enhance Printing quality of additional special colors by using variables of AM screens

(Applied to folded carton packing)

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INTRODUCTION

Traditional Digital Screens have a great role in Packaging printing because they have good economic conditions in processing and most printing houses can be used and preparation in normal operating conditions.

The search problem is that there are problems in printing of additional special colors by using AM Screens, especially with printing packages with (5 colors to 8 colors)

In this search, we discuss packages with seven colors

Aim of the search :

- Using AM Screen to print spot colors to achieve quality .
- Enabling AM Screen to print spot colors without needing to FM Screen
- To achieve this ,we make this search , which includes the theroretical side and the practical side , we make it through the Arab and English references and electronic sites as practical experience .

Key Words :

Am Screens , FM Screens , Spot Colors , Screen Angles , Dot Shape ,Screen Ruling

The Continuous Tone photo will transfer to Halftone photo by using (AM Screens , Fm Screens , Hybrid Screens)

Dot shape , LPI and DPI are all terms that describe the image conversion process Continuous Tones Photo to Halftone photo.

The search problem:

- there are problems in printing of additional special colors by using AM Screens that Making printing house using FM Screens As An Alternative for printing Spot colors
- The absence of special Screen Angles for spot colors by using AM screens to achieve the required printing quality.

Search Importance:

- The Ability of Printing Additional special colors with AM Screens without quality problems which enables many printing house to use Am Screens to separation process without using Fm Screens .

Aim of the search:

- Using AM Screen to print spot colors to achieve quality .
- Enabling AM Screen to print spot colors without needing to FM Screen

The study included the following:**The first part****The theoretical study**

It includes where it contains- :

Amplitude Modulation screen

AM screening, or amplitude-modulated screening, is still the most widely used halftone screening method. The AM process places a fixed number of dots on an orthogonal grid. The grid is measured in lines per inch (lpi). The size or amplitude of the dot modulates according to the tonal values of the image. Darker tones generate large dots and brighter highlight areas have smaller dots.

Amplitude Modulation screening Advantages

- 1- Smooth flat tones
- 2- Run length
- 3- Multi dot shapes

Amplitude Modulation screening Disadvantages

- 1- Moiré
- 2- Rosette
- 3- Tonal Jumps
- 4- Dotgain
- 5- Unreliability Visual Evaluation
- 6- Hifi Colors Printing
- 7- Low Resolution

Traditional Angles using for Am Screens :

- 15° for Cyan Color
- 75° for Magenta Color
- zero° Or 90° for Yellow Color
- 45° for Black Color

We can use Screen Angle Swapping to use new angle which comfortable to Image .

Frequency Modulated (FM) screening

FM Screens, also known as stochastic screening, overcomes many of the limitations of AM screening. FM screening modulates the number or frequency of dots rather than the size. FM uses tiny microdots—from 10 to 21 microns—as small as the platesetter and press can hold. Instead of arranging dots in a grid, FM clusters the microdots depending on the density or tonal value of the image. Although they appear to be random or “stochastic”, these dots are carefully calculated and placed. The clustering effect makes FM Capable of rendering the finest detail. Because there are no screen rulings, the image prints more like a photograph than a halftone

Frequency Modulated (FM) screening Advantages:-

- 1- No Moiré
- 2- Easily printing Register
- 3- High Quality Printing
- 4- Low dot Size
- 5- No Rosette
- 6- Hifi Colors
- 7- High Resolution

Frequency Modulated (FM) screening Dis advantages:-

- 1- Low Plate Making
- 2- Dot Gain
- 3- Grainy Highlights
- 4- Low Plate Life

The Second Part**Practical Study****Included:-**

Experiments and practical measurements.

The practical Study included the search for anew screens Angles that can be used with traditional digital Screens to printing the additional special colors by using four practical experiments with fixed processing conditions with variable conditions for the processing of different angles of the screens for each experiment . new angles of good results were discovered and the results of the experiments were compared with each other .

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