

AutoBlend Screening in ScreenManager and Imaging Engine Release Notes

Peter Morisse
v. 1.0, 27-jan-2015
v. 1.1, 14-apr-2015

1 Contents

1	CONTENTS	1
2	REQUIREMENTS	1
3	DESCRIPTION.....	2
3.1	AUTOBLEND SCREENING BASICS.....	2
3.2	IMPLEMENTATION IN NEXUS RIP	2
3.3	IMPLEMENTATION IN IMAGING ENGINE.....	3
4	HOW TO SET UP AND USE AUTOBLEND SCREENS.....	4
4.1	SETTING UP AND CREATING AN AUTOBLEND SCREEN	4
4.2	USING AN AUTOBLEND SCREEN IN IMAGING ENGINE	5
5	THE TRANSITION POINT OF AN AUTOBLEND SCREEN.....	7
5.1	INFORMATION AND PREVIEW	7
5.2	EFFECT OF CURVES ON THE TRANSITION POINT OF AUTOBLEND SCREENS	9

2 Requirements

In order to use the AutoBlend screening technology, you need the following:

- ScreenManager 14.1 or later.
- AutoBlend license.
- Imaging Engine 14.1 or later.

3 Description

3.1 AutoBlend screening basics

Depending on plate or plate-making limitations, dots imaged on plates must have a minimal size. Below this size printing would be unstable. However, this limitation in dot size can result in not being able to reproduce light tones when a standard AM screen is used.

Therefore hybrid screens exist, that use different tone modulation types in different parts of the screen: tones in the highlights are modulated in an FM way, whereas darker tones are modulated in an AM way.

In the highlights a fixed dot size is used, and tone is increased by increasing the number of dots, while in darker tone areas tone is increased by increasing dot size.

AutoBlend screening is a variation of such a hybrid screen, it was introduced and supported in NexusRip and it is now also supported in Imaging Engine.

3.2 Implementation in Nexus RIP

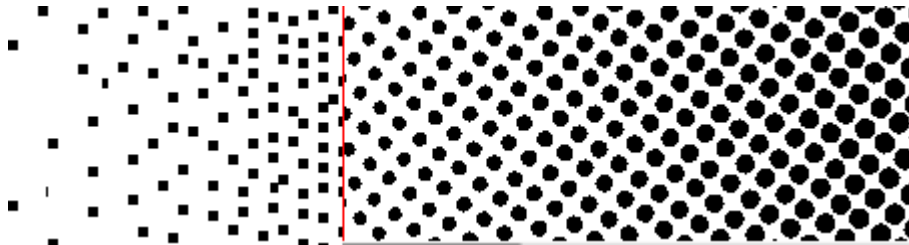
'AutoBlend' indicates the automatic blending from FM to AM: the FM screen modulation changes into AM screen modulation at the tone where the FM dot size is equal to the AM dot size.

This FM dot size can be specified by a user and is obtained from plate/printing resolution specifications and restrictions.

The image below represents a vignette object screened with AutoBlend screening as implemented on Nexus.

Left from the vertical red line dots are arranged in a stochastic grid, tone increases by adding dots.

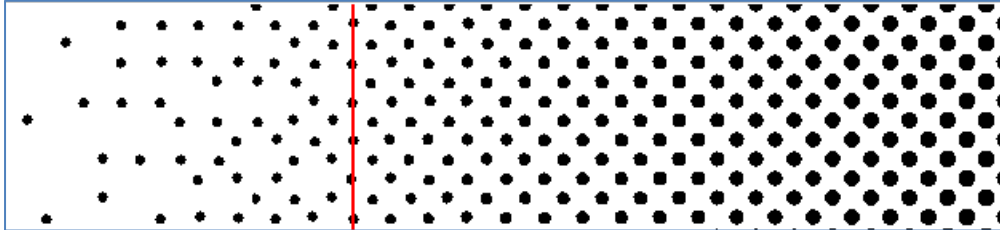
At the red line the FM dots have the same size as the AM dots. Right from the line the screen uses AM modulation.



3.3 Implementation in Imaging Engine

AutoBlend screening is supported from Imaging Engine 14.1 onwards. However, there are some differences compared to AutoBlend screening in Nexus Rip:

- The AutoBlend FM dot size is set up in a dedicated screening application – ScreenManager. It cannot be specified in an Automation Engine expose ticket.
- AutoBlend screening uses a different algorithm compared to the original implementation in Nexus RIP. The new screen is similar to the Samba screens known in FlexRIP. This algorithm results in a smoother blending from FM to AM.



See the Samba and PerfectHighlight screens documentation for more details.

Other properties of the AutoBlend screen on Imaging Engine:

- AutoBlend screening requires a separate screen technology license.
- AutoBlend screening can be applied on all Esko Classic and Paragon screens that use AM modulation.
- AutoBlend screening cannot be applied on stochastic screens (Monet and Organic).
- AutoBlend screening cannot be applied in combination with other highlight effects (PerfectHighlight screen variations).
- AutoBlend screening can be applied on HDFlexo screens, if these screens are not already using a highlight effect (e.g. HDFlexo screens that can be found under the 'High Volume' screen sets).
- If seamless screening is used, the FM part of the AutoBlend screen will not be seamless.

4 How to set up and use AutoBlend screens

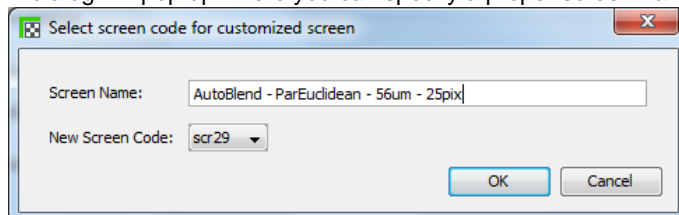
4.1 Setting up and creating an AutoBlend screen

As mentioned, AutoBlend screening needs to be set up in a separate application, ScreenManager.

In ScreenManager you can activate AutoBlend screening in the following way:

1. Click '+' below the 'Customized Screens' table to add a new screen.

A dialog will pop up where you can specify a proper screen name and code for the AutoBlend screen.



Note:

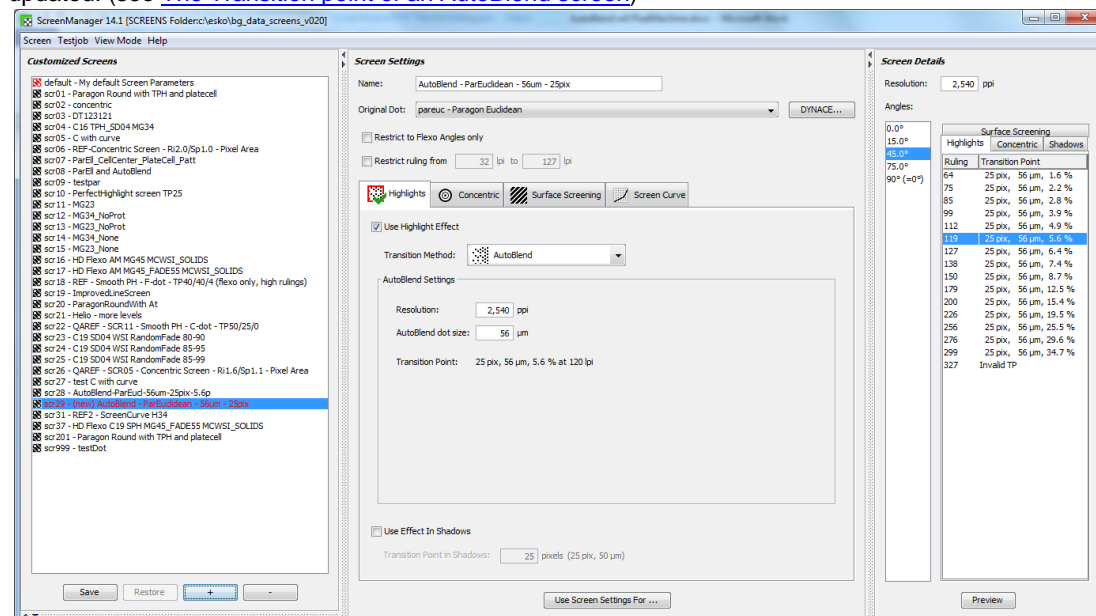
The screen code will be used to reference this AutoBlend screen in jobs and tools: Ink map in PDF files in PackEdge, Screen based calibration in Curve Pilot, Expose tickets in Imaging Engine...

2. Select the AM dot where you want to apply the AutoBlend screening to from the 'Original Dot' drop down box in the middle panel. You can select a Paragon screen or an Esko Classic screen. In the example below we selected 'Paragon Euclidean'.

3. Select 'Use Highlight Effect' in the 'Highlights' tab to enable highlight effect options. Then select 'AutoBlend' as **Transition Method**.

4. Select the resolution and the AutoBlend dot size that you want.

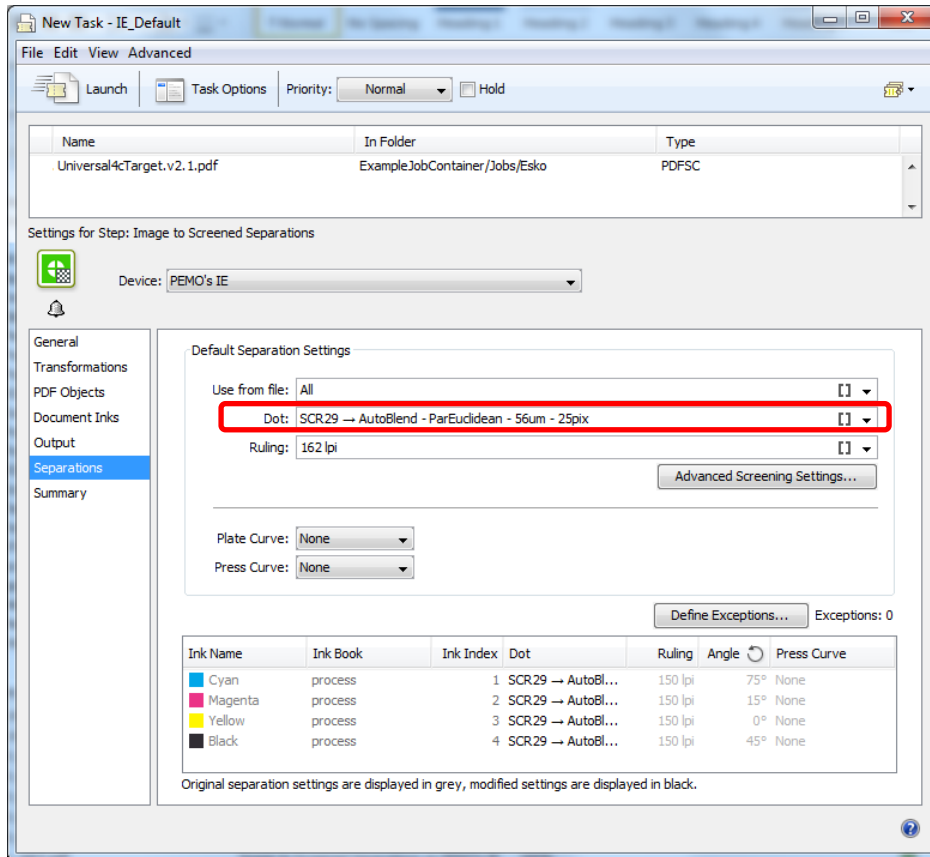
When you have set the resolution and dot size, you will notice that the 'Transition Point' information is updated. (see [The Transition point of an AutoBlend screen](#))



5. Set an appropriate ruling filter. Limiting the ruling range will prevent the usage of screen rulings for which the dot size is not suitable.
6. Click 'Save' below the 'Customized Screens' table to create and save the AutoBlend screen.

4.2 Using an AutoBlend screen in Imaging Engine

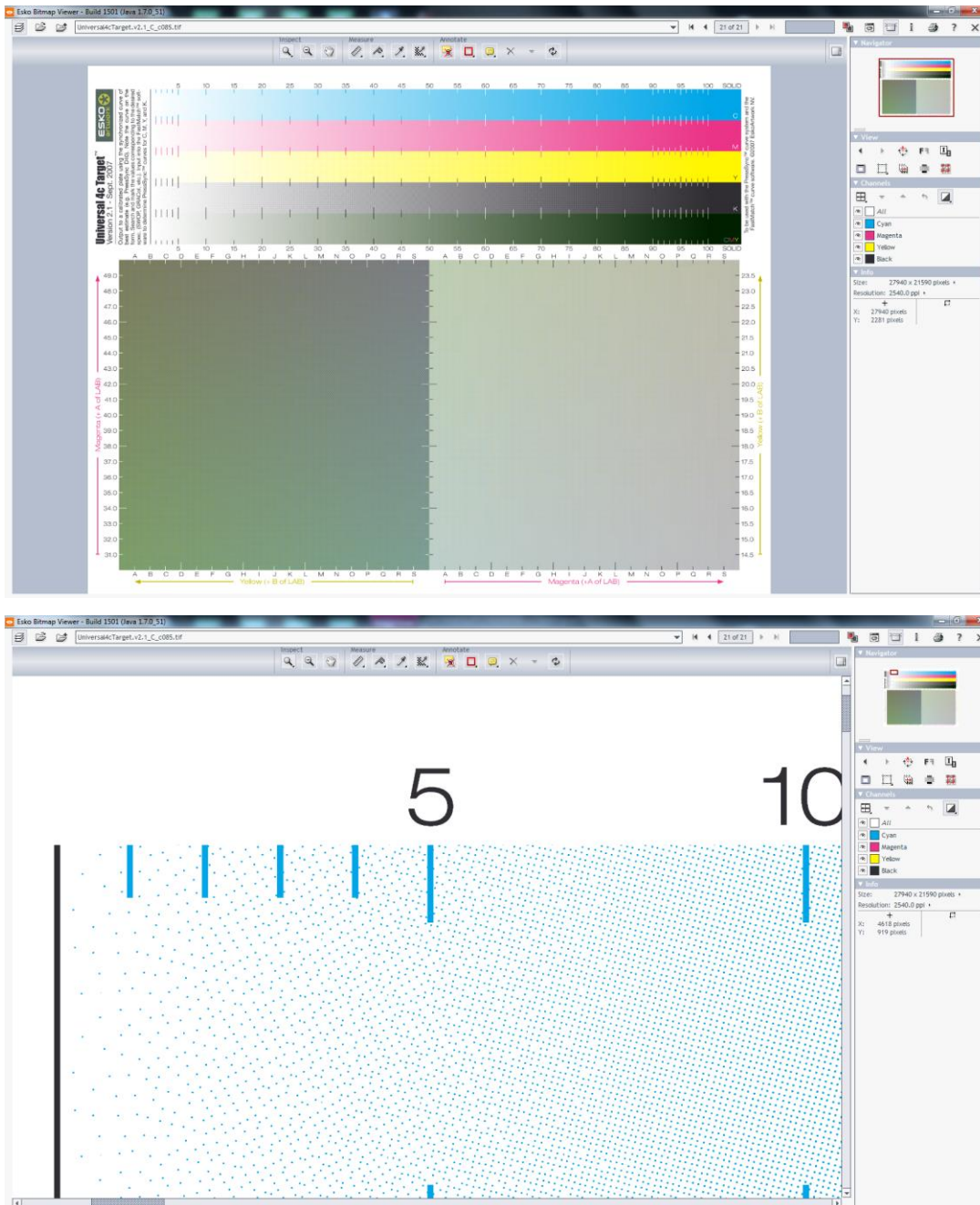
To use AutoBlend screening on a job, select the AutoBlend screen that you have set up with ScreenManager in the 'Dot' drop down box of an Imaging Engine expose ticket.



When you launch this expose ticket, your file's separations will be screened with the AutoBlend screen.

You can examine the generated screened output with Bitmap Viewer.

In this example we separated the Universal Target PDF job. You can see that the vignettes in the highlights use the AutoBlend screen. Verify the FM dot size and the transition point.



5 The transition point of an AutoBlend screen

5.1 Information and preview

When a specific resolution and dot size is specified for the AutoBlend screen, ScreenManager calculates the exact tone where the FM screen will change to the AM screen. This is the 'Transition Point' of the screen, and this point or tone is different for each different screen ruling.

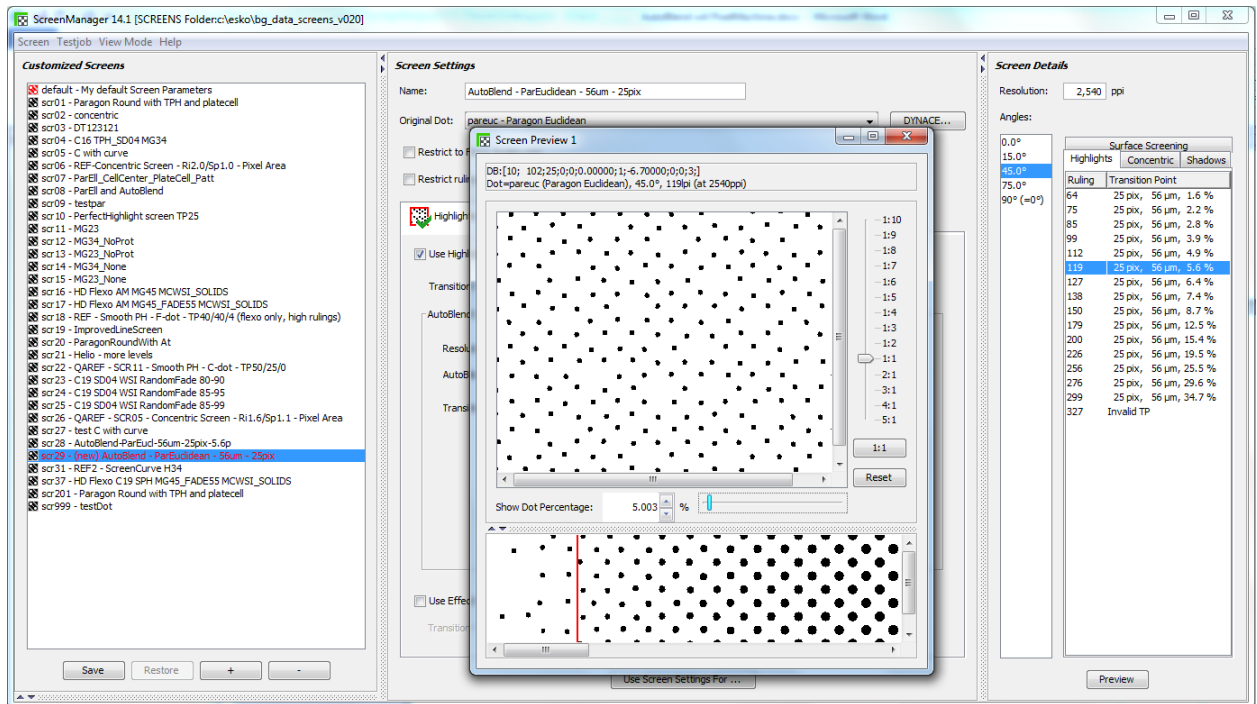
The 'Transition Point' information that is displayed below the 'AutoBlend dot size' in ScreenManager shows the physical FM dot size (in microns) that will be measured on the plate, the dot size (in pixels) that will be found in the screened output file, and the transition point tone where FM changes into AM when the screen would be used at 120 lpi.

Resolution:	2,540	ppi
AutoBlend dot size:	56	µm
Transition Point:	25 pix, 56 µm, 5.6 % at 120 lpi	

The 'Screen Details' table on the right shows this transition point information for all screen angles and rulings.

Screen Details		
Resolution:	2,540	ppi
Angles:		
0.0°	Surface Screening	
15.0°	Highlights	Concentric Shadows
45.0°		
75.0°	Ruling	Transition Point
90° (=0°)	64	25 pix, 56 µm, 1.6 %
	75	25 pix, 56 µm, 2.2 %
	85	25 pix, 56 µm, 2.8 %
	99	25 pix, 56 µm, 3.9 %
	112	25 pix, 56 µm, 4.9 %
	119	25 pix, 56 µm, 5.6 %
	127	25 pix, 56 µm, 6.4 %
	138	25 pix, 56 µm, 7.4 %
	150	25 pix, 56 µm, 8.7 %
	179	25 pix, 56 µm, 12.5 %
	200	25 pix, 56 µm, 15.4 %
	226	25 pix, 56 µm, 19.5 %
	256	25 pix, 56 µm, 25.5 %
	276	25 pix, 56 µm, 29.6 %
	299	25 pix, 56 µm, 34.7 %
	327	Invalid TP

By selecting a specific screen angle and ruling, and clicking 'Preview', the screen and its gray levels can be examined in detail.



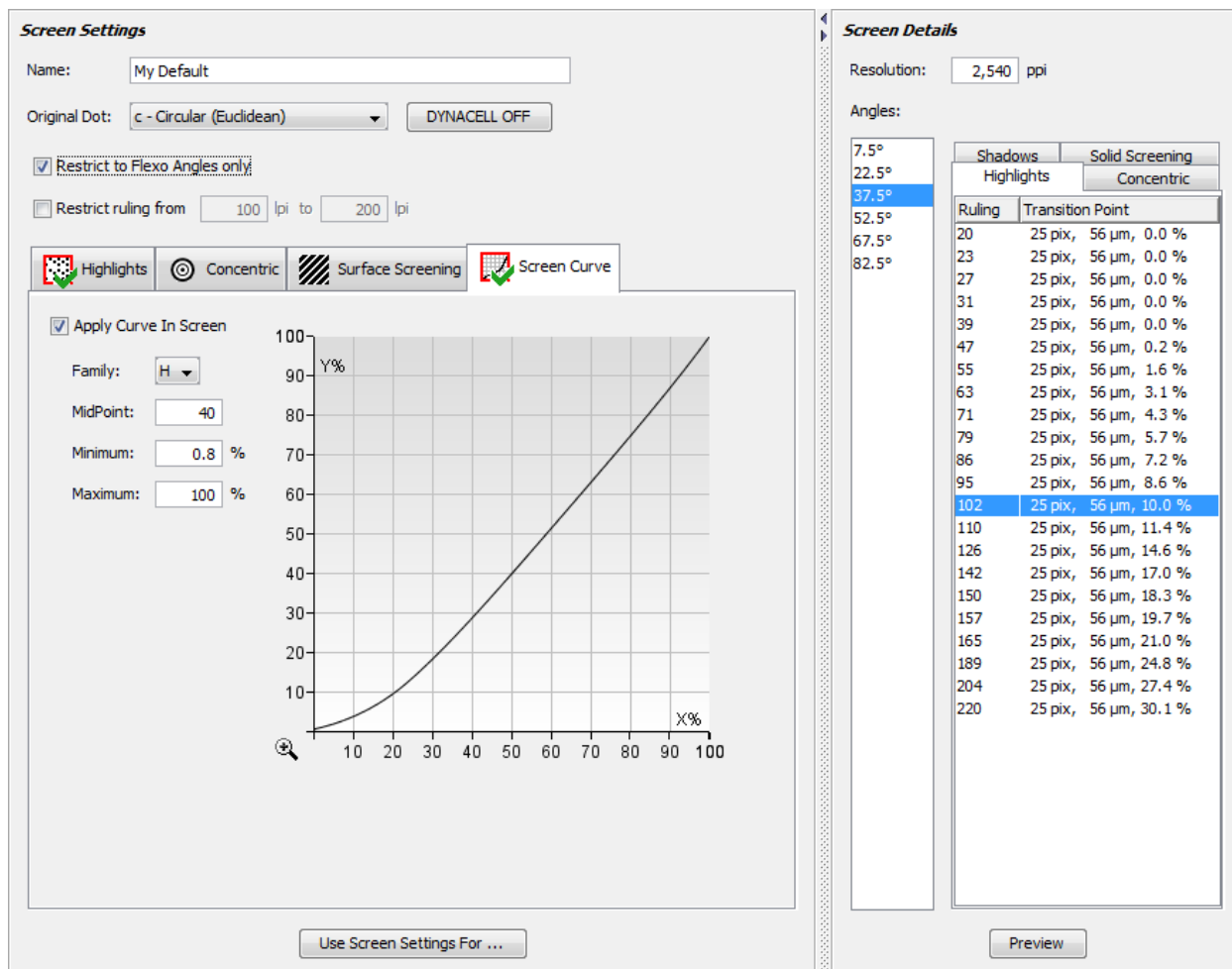
5.2 Effect of curves on the transition point of AutoBlend screens

When applying a curve to an AutoBlend screen, the transition point or the tone where FM changes into AM will move. It can be useful to know where this tone will be moved to.

ScreenManager has an option to generate a screen with a user-defined built-in curve. This feature can also be used to verify the effect of a curve on the transition point.

Select the 'Screen Curve' tab, and specify the curve (set by the curve Family and Midpoint - see the PressSync documentation for more information about these settings).

Also a curve 'Minimum' and 'Maximum' can be set to mimic bump curve settings.



Screen Settings

Name:

Original Dot:

☒ Restrict to Flexo Angles only

☐ Restrict ruling from lpi to lpi

☒ Highlights ☐ Concentric ☐ Surface Screening ☒ Screen Curve

☒ Apply Curve In Screen

Family:

MidPoint:

Minimum: %

Maximum: %

Screen Details

Resolution: ppi

Angles:

Angles	Shadows		Solid Screening	
	Highlights	Concentric		
7.5°				
22.5°				
37.5°				
52.5°				
67.5°				
82.5°				
	Ruling	Transition Point		
	20	25 pix, 56 µm, 0.0 %		
	23	25 pix, 56 µm, 0.0 %		
	27	25 pix, 56 µm, 0.0 %		
	31	25 pix, 56 µm, 0.0 %		
	39	25 pix, 56 µm, 0.0 %		
	47	25 pix, 56 µm, 0.2 %		
	55	25 pix, 56 µm, 1.6 %		
	63	25 pix, 56 µm, 3.1 %		
	71	25 pix, 56 µm, 4.3 %		
	79	25 pix, 56 µm, 5.7 %		
	86	25 pix, 56 µm, 7.2 %		
	95	25 pix, 56 µm, 8.6 %		
	102	25 pix, 56 µm, 10.0 %		
	110	25 pix, 56 µm, 11.4 %		
	126	25 pix, 56 µm, 14.6 %		
	142	25 pix, 56 µm, 17.0 %		
	150	25 pix, 56 µm, 18.3 %		
	157	25 pix, 56 µm, 19.7 %		
	165	25 pix, 56 µm, 21.0 %		
	189	25 pix, 56 µm, 24.8 %		
	204	25 pix, 56 µm, 27.4 %		
	220	25 pix, 56 µm, 30.1 %		

Use Screen Settings For ...

Preview

When the curve is specified, you will notice that the transition point information in the 'Screen Details' table on the right is updated: the transition point tones are re-calculated in sync with the curve.

Also, if you click 'Preview', the screen preview will show all the gray levels of the screen with the selected curve applied.