# SNAP Certification

The purpose of this press test is to determine if the printing process is compliant with SNAP specifications. The way of measurement is not the typical pretty picture contest. The SNAP certificate program is set up so that the printed copy will be measured with instrumentation. In order to achieve the SNAP certificate, the printer will need to have a good understanding of the process and how to control the printing conditions. The goal from the SNAP committee is for all printers entering to achieve the SNAP Certificate. Achieving a total score of 85 - 100 points will result in being awarded the SNAP Certificate. The certification can be performed either by a test form or a live ad.

The test forms consist of 2 pages. **CAUTION: Do not change page size. Image reading are done with a scanning measurement device. Changing the page size may cause incorrect areas to be read by the scanning measurement device.** The calculation sheet is available so that the printer may be able to calculate the results before submitting print-test sheets for grading. An illustration of the test forms are available on this web site which will display areas which will be measured. This is at the bottom of the web page under "links".
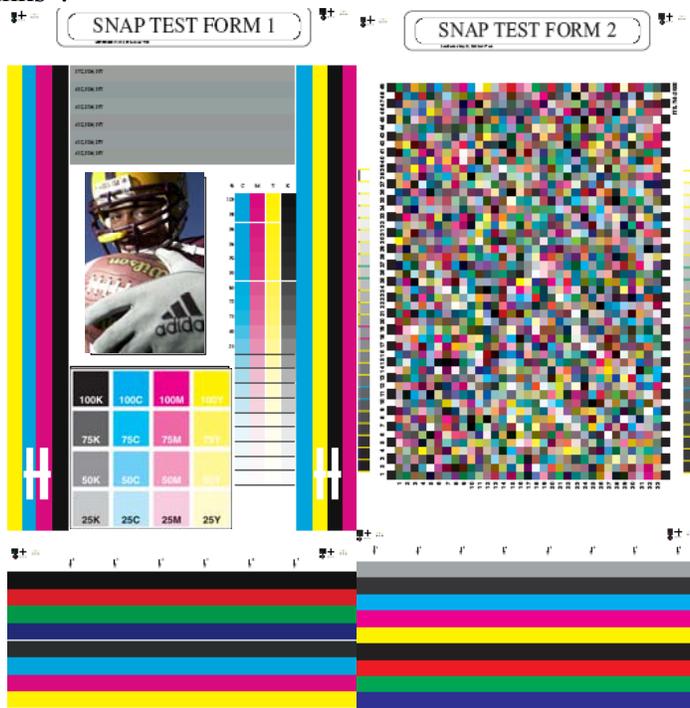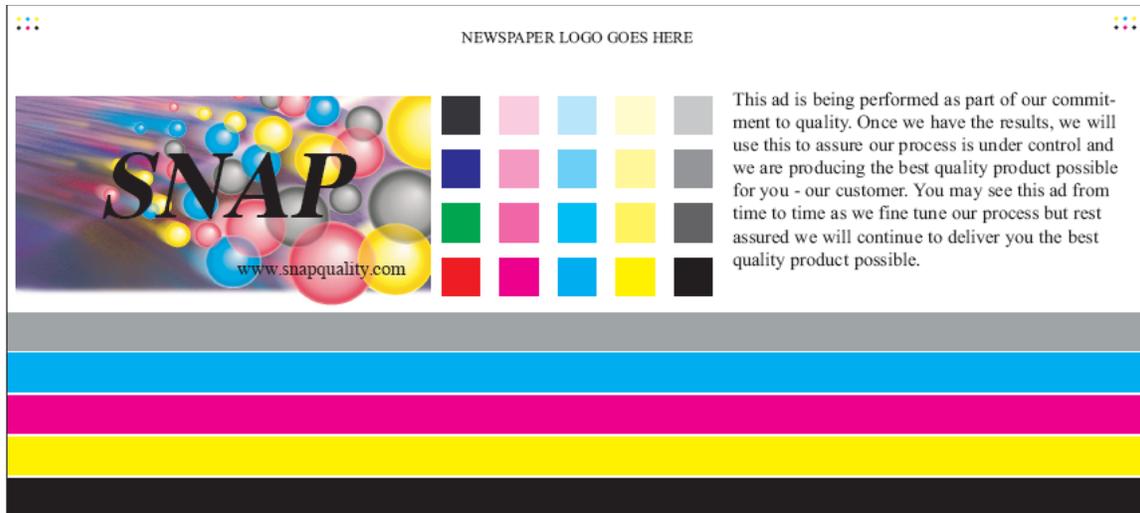
The SNAP Process Check is designed to run within a section of a daily paper and is used as a way to ensure that the printing process is compliant with SNAP Specifications. Since the Process Check is a four color ad, a web lead that contains a four color page is required. As in SNAP Certification, guidelines are set so the printed copy can be quantitatively measured with instrumentation.

Guidelines

Section 1   Dot Gain/TVI (Max 36 Points)

In the SNAP Certification, the dot area patches **SHOULD NOT BE ADJUSTED**. The test is intended to monitor how well the printing process conforms to the industry standard 26% TVI curve. Therefore, a 25% highlight patch should print between 46% and 52% if the process is in control. In addition, the 50% midtone patch should print between 72% and 80% while the 75% shadow patch should print between 89% and 95% on a SNAP compliant press.

A total of 36 points can be achieved in this section. If the printed sheet meets the requirements above, 3 points will be awarded for each patch. However, if the 25% highlight is between 45% and 53% and the 50% midtone is between 71% and 81%, and the 75% shadow is between 88% and 96%, 2 points are awarded for each patch. If the dot area of any patch falls outside this range 0 points are recorded for that patch.

Dot Gain/TVI @ 25%	Offset 85 -100 lpi (for CMYK)	Printed Dot Area	Points
C, M, Y, K	24%	46% to 52%	3
Tolerance	+/- 3%		
Dot Gain/TVI @ 50%			
C, M, Y, K	26%	72% to 80%	3
Tolerances	+/- 4%		
Dot Gain/TVI @ 75%			
C, M, Y, K	17%	89% to 95%	3
Tolerance	+/- 3%		
Dot Gain/TVI @ 25%	Offset 85 -100 lpi (for CMYK)	Printed Dot Area	Points
C, M, Y, K	24%	45% to 53%	2
Tolerance	+/-4%		
Dot Gain/TVI @ 50%			
C, M, Y, K	26%	71% to 81%	2
Tolerances	+/-5%		
Dot Gain/TVI @ 75%			
C, M, Y, K	17%	88% to 96%	2
Tolerance	+/-4%		

Section 2   Density Control and Color Gamut (Max 16 Points)

There are solid bars of R, G, B, C, M, Y and K that run across the Test pages. However, in the ad the two color traps and a three color overprint of the Process Check are included only as patches next to the dot area squares. These bars and squares will be judged for both Density Control and Color Gamut.


Density Control (Max 8 Points)

Density Control is evaluated by the ability to achieve SNAP Density on the primary colors. Six readings are taken across the C,M,Y and K bars. The average density of each bar should be +/- .05 units of the SNAP target values. If within +/- .05, 2 points per color bar are awarded. If within +/- .10 units the printer receives 1 point per color bar.   Max points is 8. The score in this section indicates whether the printer can print to SNAP densities and that all instruments are properly calibrated.

Dry Solid Ink Density	Offset Newspapers	Points
Cyan	0.90	2
Magenta	0.90	2
Yellow	0.85	2
Black	1.05	2
Tolerance	$\pm$ 0.05	

Dry Solid Ink Density	Offset Newspapers	Points
Cyan	0.90	1
Magenta	0.90	1
Yellow	0.85	1
Black	1.05	1
Tolerance	$\pm$ 0.10	

Color Gamut (Max 8 Points)
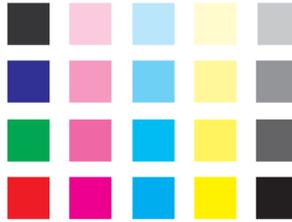
The C,M,Y,K gamut colors are scored as an average L*a*b* from 6 readings in the solid bars. If the average values are within the required 5 ΔE units of the standard values 1 point per color is awarded. Max 4 points.

R, G, B is evaluated in the two color overprint patches or bars. If the recorded values are within the required 8 ΔE units of the standard values, 1 point per color is awarded. Max 3 points.

	L*	a*	b*	ΔE Tolerance	Points
Cyan	57	-23	-27	5	1
Magenta	54	44	-2	5	1
Yellow	78	-3	58	5	1
Black	36	1	4	5	1
Magenta+Yellow R	52	41	45	8	1
Cyan +Yellow G	53	-34	17	8	1
Cyan + Magenta B	41	7	-22	8	1
Values are from ISO 12647-3. They represent offset inks and paper only. Data for flexographic inks were not available at the time of publishing. Measurements according to ISO 13655 (2° observer, illuminant D_{50}, 45°/0° or 0°/45°, black backing)					

The L*a*b* values of the unprinted newsprint are compared to the tolerances established in ISO 12647-3. If the recorded values fall within the tolerance for each of the 3 color variables, 1 total point is awarded. If any one value falls outside its corresponding tolerance, 0 points are awarded. It is important to note that printing on newsprint that does not meet the ISO tolerances can have a significant negative impact on the printed color gamut. Max for newsprint is only 1 point, but newsprint that receives 0 points can affect the other 7 color gamut points.

	L*	a*	b*
Newsprint	82.0	0	3.0
Tolerance	+/-4	+/-2	+/-2

Section 3   Gray Bar Variation (Max 30 Points)

Maintaining gray balance is critical to consistent reproduction. When running the SNAP Certification form, gray balance is evaluated using 10 copies of the gray bar on page 2 of the test form. The SNAP Process Check uses the gray bar (40c/30m/30y) contained within the ad. Therefore, a minimum of 10 copies of the ad are required for a complete evaluation. The gray bar is evaluated in the following way for Gray Bar Density Variation, Gray Bar Density Control and Neutrality.

Gray Bar Density Variation (Max 12 Points)

Gray Bar density variation is measured by reading the cyan, magenta and yellow densities in 6 locations across the gray bar over 10 printed copies. If the total variation of each of the individual colors is within 0.10 density units, 12 points are awarded (4 points for each color).   2 points per color are awarded if the variation is 0.15 density units. No points are awarded if the variation is above 0.15 density units.   Scoring well here indicates that the printer is able to control density within SNAP standards.   The absolute units may vary per press due to dot gain variation, but density variability should be in control on a SNAP compliant press. Max 12 points.

Density Variation	Cyan	Magenta	Yellow	Points
Tolerance	0.10	0.10	0.10	4 per color (12 max)
Tolerance	0.15	0.15	0.15	2 per color (6 total)

Gray Bar Density Control (Max 10 Points)

Density readings of cyan, magenta and yellow on the gray bar should have a density value of no greater then +/- .03 difference from each other for 6 gray bar locations over 10 printed copies. If so, 10 points are awarded. A weighted scale is used to award points up to a difference of .09 density units. Acceptable control here shows that the printer has a good understanding of gray balance and how critical it is to consistent reproduction. Max 10 points.

| Color Density Range	Cyan	Magenta	Yellow	Points
Tolerance	+/- 0.03 difference from each other. Weighted scale up to +/- 0.09			10 max
Tolerance	+/- 0.10 difference from each other.			0

Gray Bar Neutrality (Max 8 Points)

If the gray bar is indeed gray, the average a*,b* will be 0,0 over the newsprint. (Example: if your newsprint has an a*, b* of 0, 3, the resulting printed gray should have the same 0, 3 a*b* values if the gray balance created in pre press is being maintained during printing. If the Chroma difference (ΔC*) from the newsprint is 4 or less, then the max 8 points are awarded. If the chroma difference (ΔC*) is over 8, no points are awarded. A weighted scale is used for values with a difference from the newsprint between 4 and 8. Max 8 points.

Grayness	a*	b*	Points
Newsprint	0	3.0	
Tolerance	ΔC* from newsprint less than 4.0 than max points. Weighted scale for ΔC* up to 8.0.		Up to 8 max
Tolerance	ΔC* above 8.0		0

Section 4   Registration (Max 18 Points)

The test pages should be registered by using the printer's standard operating procedure. There are registration targets included within the pages that are used for evaluation purposes only. They should not be used to register the page. If page registration conforms to the following criteria, a maximum of 18 points are awarded.
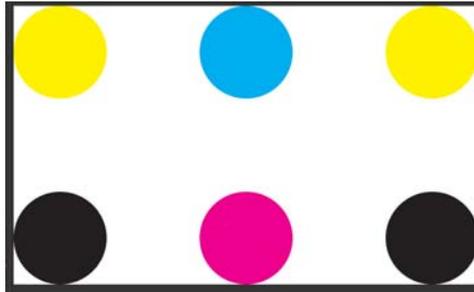
Registration of any color to black must not exceed 0.012" in any direction, including lateral, circumferential or skewed. Further, registration between any two colors must not exceed 0.015" in any direction. It should be noted that 0.015" is equivalent to 1.5 rows of dots @ 100 lpi, 90° angle.   If these conditions are met, 18 points are awarded.

Registration of any color to black must not exceed 0.015" in any direction, including lateral, circumferential or skewed. Further, registration between any two colors must not exceed 0.020" in any direction. If these conditions are met, 10 points are awarded.

If color registration exceeds these requirements, no points are awarded.

Color Registration	CMY referenced to the Black Printer	Points
Tolerance	Register of any color to black must not exceed 0.012" in any direction. Registration between two colors should not exceed 0.015"	18
Tolerance	Register of any color to black must not exceed 0.015" in any direction. Registration between two colors should not exceed 0.020"	10

SNAP Scoring

Quick Tips

	Max Points	Quick Tip
Section 1 Dot Gain/TVI	36	**Do not adjust dot area targets.** A SNAP compliant press should print within the tolerance for the industry standard 26% TVI curve.
Section 2 Density Control and Color Gamut	16	Use a calibrated reflection densitometer for strict density control. Print with newsprint that meets current ISO color standards. Although the SNAP Process Check is designed to print within sections of the daily paper, backside printing can negatively affect solid ink density and color gamut values. When possible, limit the amount of heavy solids printed on the back page, especially if the newsprint has excessive show through.
Section 3 Gray Bar Variation	30	Maintain the proper gray balance created in pre press by strict density control with a calibrated reflection densitometer.
Section 4 Registration	18	Follow SNAP standards for good registration.
Total Points	100	Should score 85 or higher for press to be considered compliant with SNAP Specifications.