i1iSis

Chart Design Guidelines

Edition 2g

1 General

Charts for the i1iSis, need to be designed according to these guidelines.

The charts need beside the patches positioning elements.

The patches and the positioning elements have to be arranged according to the below specification. No gaps are allowed between the patches.
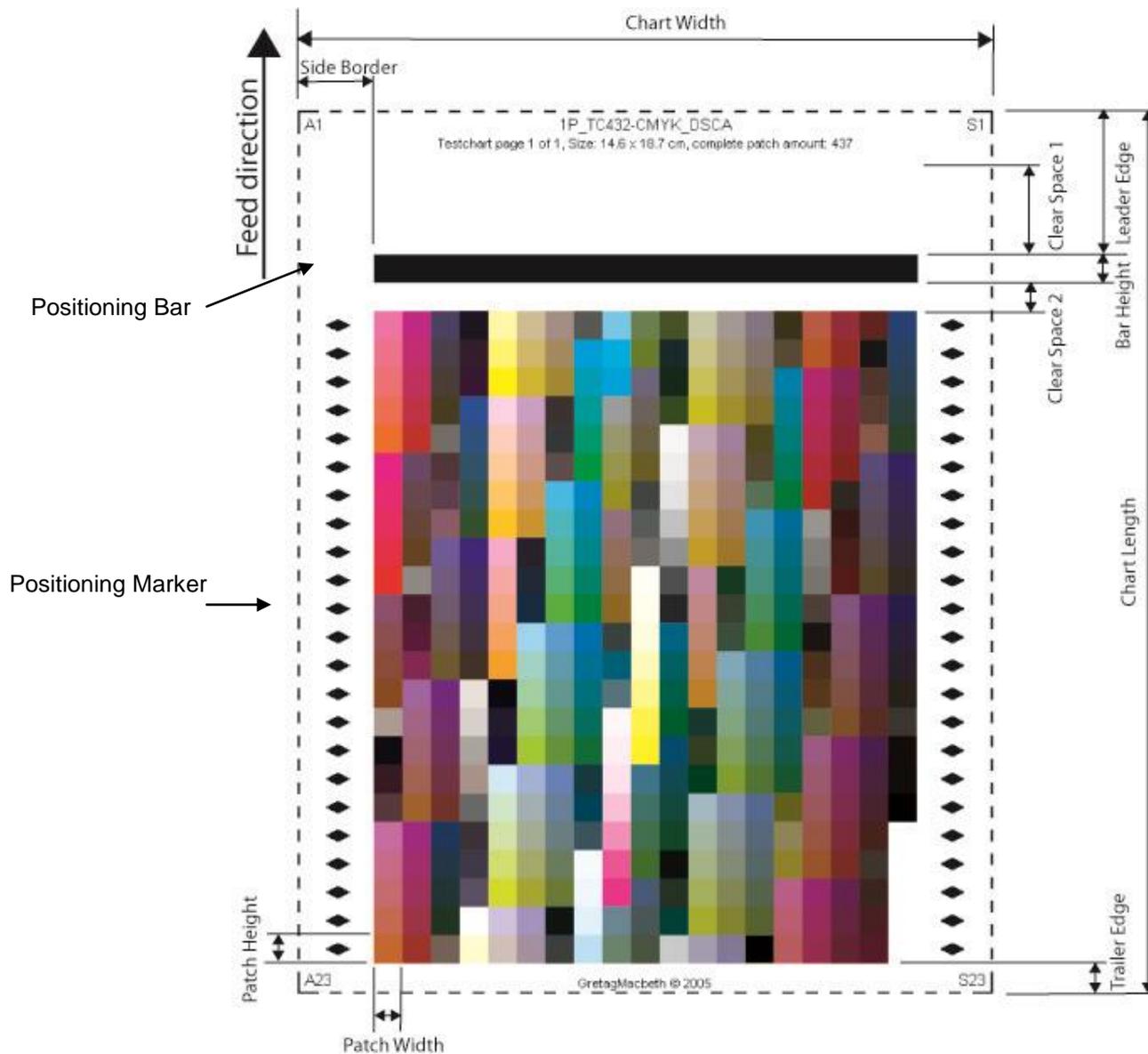
By printing the charts, the printout may be scaled. The i1iSis accepts a scaling of +/- 8 %. The mentioned tolerances in this document are for the design of the chart. Possible scaling are not additional to this tolerances.

With the optional barcode on the chart, the chart can be identified to prevent from mixing up of the charts and to automatically control the application (see chapter 4).

Content:

![X-rite right on color logo]

2 Chart Specifications

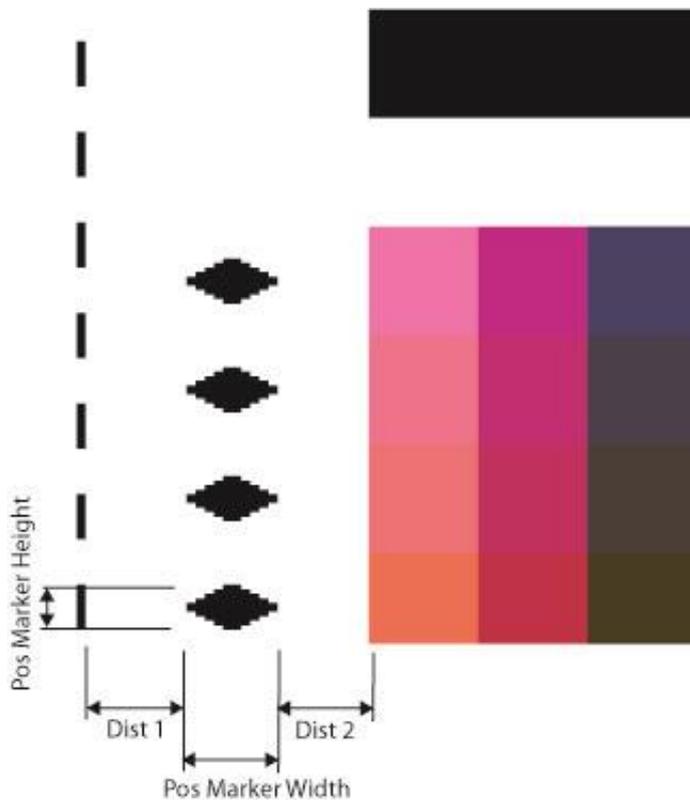|	Dimension	Minimal	Maximal
Chart	Chart Length	17 cm (6.7 in.)	66 cm (26 in.)
	Chart Width	6 cm (2.4 in.)	23 cm (9 in.) 33 cm (13 in.) [1)]
Patch surrounding	Leader Edge	3.2 cm	8 cm
	Trailer Edge	2.5 cm	-
	Clear Space 1	2 cm	-
	Clear Space 2	6 mm	-
	Bar Height	5 mm	8 mm
	Side Border	See next section	-
Patches	Patch Array	1 patch	3000 patches
	Patch Height	6 mm	20 mm
	Patch Width	6 mm	20 mm

[1)] Depending on i1iSis width

Remarks:

The positioning bar must be according to the below specification:

- The positioning bar must be vertically centered with the patches.

- Next to the positioning bar must be some clear space without any mark or writing.

- The relative density of the positioning bar must be at least 0.8 D.

- The homogeneity of the positioning bar must be within 0.2 D.

3 Positioning Marker Specifications

The positioning markers must be arranged according to the below specification:

- On both sides of each patch row, positioning markers must be placed.

- The right positioning marker (right edge of marker) need to be positioned within the following maximal distance from the left paper edge:
    - i1iSis Standard version: 21.8 cm
    - i1iSis XL version: 31.8 cm

- The positioning markers must be vertically centered with the patches.

- Next to the positioning markers must be some clear space without any mark or writing.

- The relative density of the positioning markers must be at least 0.8 D.

- The color of the positioning marks must be the same as for the positioning bar.

- The markers must be diamond shaped, as showed below.

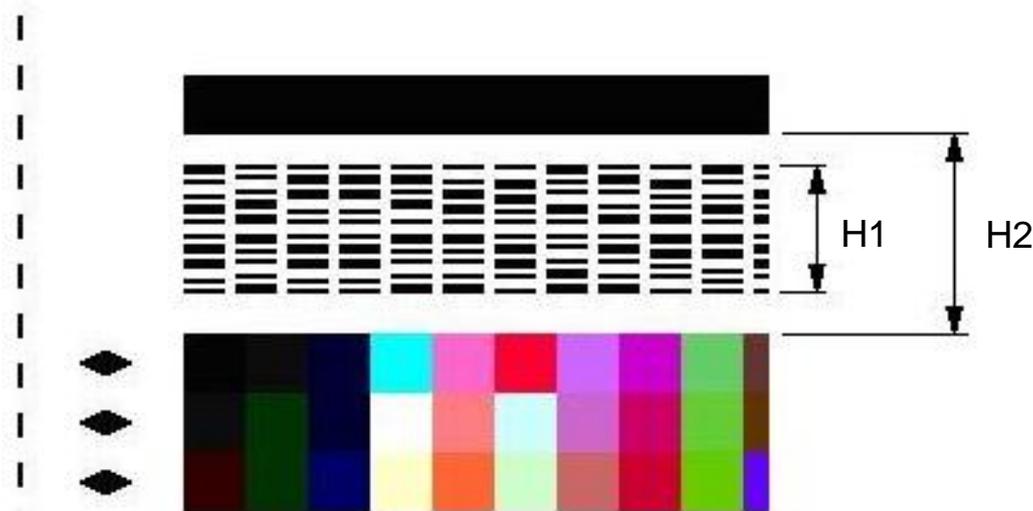| Dimension	Minimal	Maximal	Remark
Pos Marker Width	5 mm		
Pos Marker Height	2.5 mm		
Dist 1	3 mm	-	
Dist 2	3 mm	-	For charts with barcode (see next page), it must be exactly 5 mm

4 Optional Barcode

With the optional barcode on the chart, the chart can be identified to prevent from mixing up of the charts and to automatically control the application:

- The type of chart gets automatically recognized (layout information) to measure chart without any intervention in the host application and automatic switch of the host application to according function/mode.
- The date and time of the chart printing can be read, to trace the measured chart in the host application
- User defined information (Number, …) to trace the charts or to control the host application

The barcode must be arranged according to the below specification:

- The barcode must be arranged in the middle between the positioning bar and the first patches.
- The horizontal distance between the barcode elements must be 1 mm
- The horizontal length of a barcode element must be 4 mm
- The minimal distance of the barcode to the paper edge is 3 mm (same as position marker, see also previous page: Dist 1)
- The horizontal distance between the left position marks an the first patches (Dist 2: s. previous page) must be exactly 5 mm.

Dimension	
H1 (Barcode Height)	13 mm
H2 (Positioning Bar to Chart)	20 mm

- One barcode element (H1) consists of 2 barcode characters with a distance of 1mm → One barcode character height is 6mm.
- The following line thicknesses are recommended:
    - o 1 mm for wide lines
    - o 0.5 mm for narrow lines

The barcode content is a followed:

- The barcode must be of the type 'Code 39'
- The following characters can be used: '0'..'9', 'A'..'Z', '-', '.', ' ' (Blank) and '*'
- The following information can be stored in the barcode:
  - Chart layout and self definable information: RRCCXXYYAAAAAAA..*NNNN
  - Only chart layout information: RRCCXXYY*NNNN
  - Only self definable information: AAAAAAA..*NNNN
- The format of the barcode information is as followed:
  - RRCCXXYY: Chart layout information and are hex numbers:
    - RR: Number of chart rows
    - CC: Number of chart columns
    - XX: Horizontal patch size in 0.25 mm units (e.g. 6mm -> 6 mm / 0.25 mm = 24 units) started with 0 for 6 mm.
    - YY: Vertical patch size in 0.25 mm units (e.g. 6mm -> 6 mm / 0.25 mm = 24 units) started with 0 for 6 mm.
  - AAAAA….: Any self definable number(s) and/or text information. The amount of characters is limited by the width of the chart
  - NNNN: Checksum of the string (ASCII numbers) inclusive the asterisk.
    The numbers are hexadecimals.
- Checksum calculation: Sum of all ASCII codes incl. '*'.
- Barcode content examples:
  - Example with number "1" as information: "1*91" = '1' + "*" + checksum (49 + 42).
  - Example with layout information: Chart with one patch of 6 x 6 mm: „01010000*428"
    (Checksum: 48 + 49 + 48 + 49 + 48 + 48 + 48 + 48 + 42 = 428)
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Barcode 39

Code 39 (sometimes called Code 3 from 9) is a discrete barcode. This means that a fixed pattern of bars represents a single character.

Each character is made up of 9 bars - 3 of which are wider than the others. (In this context a bar can be the printed black bar or the white space between the bars.) A single character therefore consists of 5 black bars and 4 white bars.

The table below shows the character set and the bar/space pattern for the Code 39 barcode.
- Every character starts and ends with a bar.
- "w" indicates a wide element and
- "n" indicates a narrow element.

Char.	Pattern B S B S B S B S B	Char.	Pattern B S B S B S B S B
0	n n n w w n w n n	M	w n w n n n n w n
1	w n n w n n n n w	N	n n n w n n w w
2	n n w w n n n n w	O	w n n n w n n w n
3	w n w w n n n n n	P	n n w n w n n w n
4	n n n w w n n n w	Q	n n n n n w w w
5	w n n w w n n n n	R	w n n n n n w w n
6	n n w w w n n n n	S	n n w n n n w w w
7	n n n w n n w n w	T	n n n n w n w w n
8	w n n w n n w n n	U	w w n n n n n n w
9	n n w w n n w n n	V	n w w n n n n n w
A	w n n n n w n n w	W	w w w n n n n n n
B	n n w n n w n n w	X	n w n n w n n n w
C	w n w n n w n n n	Y	w w n n w n n n n
D	n n n n w w n n w	Z	n w w n w n n n n
E	w n n n w w n n n	-	n w n n n n w n w
F	n n w n w w n n n	.	w w n n n n w n n
G	n n n n n w w n w	SP	n w w n n n w n n
H	w n n n n w w n n	*	n w n n w n w n n
I	n n w n n w w n n	$	n w n w n w n n n
J	n n n n w w w n n	/	n w n w n n n w n
K	w n n n n n n w w	+	n w n n n w n w n
L	n n w n n n n w w	%	n n n w n w n w n

5 Support

If you have any problems concerning the chart design please contact us via the online help center at http://www.xrite.com/support.

Visit our World Wide Web Site at www.xrite.com