TECHNICOLOR

CD / DVD DISC PRINT SPECIFICATIONS

1. OVERVIEW

Technicolor Australia uses a screen-printing process for printing the label art onto the CD/DVD surface. The following types of print can be processed:

1. Line Prints with up to six different spot colours.
2. Halftones and duotones
3. 4 colour process print (picture disc) plus a solid white background if required.

2. FILM SPECIFICATIONS

1. To produce screens for printing we require the disc label film to be supplied as Right Reading Positives – Emulsion Up
2. All optical disc label film must be supplied with a separate piece of film for each colour that is to be printed. The appropriate colour name and catalogue number must be clearly marked on each piece of film for identification
3. Where a white base is required for the CD/DVD print, this piece of film must be supplied to ensure exact registration of the label print.

2.1 Type Size And Line Width

- A minimum size of 5 pt. for text in positive print.
- A minimum size of 7 pt. for text in negative print (reversed out)
- A minimum size of 0.15mm for lines in positive print
- A minimum size of 0.25mm for lines in negative print (reversed out)

2.2 Line Prints With Up To Six Different Spot Colours.

- Technicolor Australia uses a Computerised Pantone Matching System (PMS) as a standard colour system. This is to ensure colours are consistent from order to order.
- It should be noted that PMS colours printed directly onto the CD/DVD raw disc will, due to metallised/plastic finish, appear slightly different in colour to those printed onto paper. This effect can be reduced by printing onto a white base
- Metallics and fluorescents are also available.
- A colour or black and white proof noting the colour of the images must be supplied to ensure that the correct colour order is printed and all images required are present on the disc.

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Note: Drawings Not To Scale

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2.3 Halftones and Duotones

- Technicolor Australia is able to print halftones and duotones onto the disc. Attention to detail is required when printing halftones or duotones, please ensure you abide by the specifications below:

Screen ruling:	133 lines per inch (lpi)
Screen angle:	45°
Type of dots:	Elliptic
Density range:	Highlights - 15% Shadows - 80%

- A colour or black and white proof noting the colour of the images **MUST** be supplied to ensure that the correct colour order is printed and all detail/ images required are present on the disc.
- It should be noted that halftones and duotones are put up on a **finer meshed screen** (**180**) to hold the dots and detail of the film. This alters the result of a PMS colour making it lighter than the PMS colour selected (The darker PMS colours are effected most).

2.4 Four Colour Process

- Four colour process (picture disc) print uses standard **CMYK** colour combination and is best used to produce fine photographic images with a picture like result.
- It is important to four colour process work that the below specifications are met.

Screen ruling:	150 lines per inch (lpi)	
Screen angles:	Yellow	90°
	Magenta	45°
	Cyan	75°
	Black	105°
Type of dots:	Elliptic	
Density range:	Highlights -	15%
	Shadows -	80%

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- **A Chemical or Digital Proof that is a result of the film MUST be supplied with all titles.**
- **It is recommended that a white base be printed with all four colour process jobs. This gives the process colours a brighter and more realistic finish on the disc.**
  - ❖ **NOTE: It is difficult to achieve a solid colour from the CMYK combination and therefore it is much better result to print solid colours as a spot PMS colour. Refer to section 2.2 for specifications**

3. ACCEPTANCE / REJECTION CRITERIA

- **ACCEPTANCE:**
- Print output with colour of tone/shade to ± 10% to proof supplied as per Technicolor specification.
- For PMS ± 15% to proof supplied as per Technicolor specification.
- If proofs provided are not to Technicolor specifications, the print will be acceptable to 50% to proof supplied.
- **REJECTION:**
- Incorrect colour printed as per proof supplied as per Technicolor specification.
- Print missing on disc as per proof supplied as per Technicolor specification.
- Smudge, blotchy, ink on data side and /or squeegee lines.

4. ADDITIONAL INFORMATION

4.1 Printable Area

- Minimum internal print diameter is 20.0 mm
- Maximum external print diameter is 116 mm
- Standard base sizes:
  - Diagram A – DVD 5 / 9
  - Diagram B – DVD 10
  - Diagram C – CD
- Special sizes are also accepted but they must not exceed 116 mm in diameter and must not run over into non-printable areas

4.2 Printable Base

- Printing on an optical disc can be done either with a white base (simulating paper base) or straight onto the raw disc with the metallised layer showing through (base is the metallised disc itself).
- When printing straight onto the raw disc with the metallised layer showing through (base is the metallised disc itself), please refer to Diagram D for special minimum internal print diameter
- If a special doughnut is selected, please note that it should be 0.5 mm smaller than the color print on top for registration purposes. If knockouts for images or text are also used, the same 0.5 mm spacing requirement should be met for registration purposes.

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4.3	**Colour Content**
•	Half Tone Colours
•	As much as possible, limit the use of images with the following dot percentages for artworks: • Screen print: 15 % to 85 % dot percentage. • Halftone print with percentages below or above those stated will present dot loss or dot gain respectively, causing a colour mismatch between the colour proof and actual print.
•	Black Lettering and Black Background
•	The 4 colour process black ink is not a true black but a halftone (translucent) black ink. Black lettering and rich black images can only be obtained as a combination of the following colours: • Yellow: 50% dot • Magenta: 50% dot • Cyan: 50% dot • Black: 100% dot • Make sure the black lettering and special images are created with the above dot percentages. Never use the following CYMK combinations to generate deep black colours: • Yellow: 0% dot • Magenta: 0% dot • Cyan: 0% dot • Black: 100% dot • This will render a grey image when printing. Technicolor is not responsible for colour mismatch when a job is supplied with black lettering and black background with the above colour definition.
4.4	**Contrast**
•	For increasing the contrast of letters and images on top of a background, maintain the following standards
•	Halftone lettering does not print specially in small or fine-line sizes. Maintain either 100% or 0% dot in letters. If a special halftone colour is desired in small or fine letters, it is best to define a PMS colour for them.
•	Black borders increase the contrast of a letter compared to the surroundings.
•	If the background is dark, use light coloured letters and vice versa
5.	**DISCLAIMER**
•	**Technicolor Australia endeavour to print the best quality disc possible, but will not be responsible for the outcome of the screen print if the specifications herein are not met and a proof is not supplied.**

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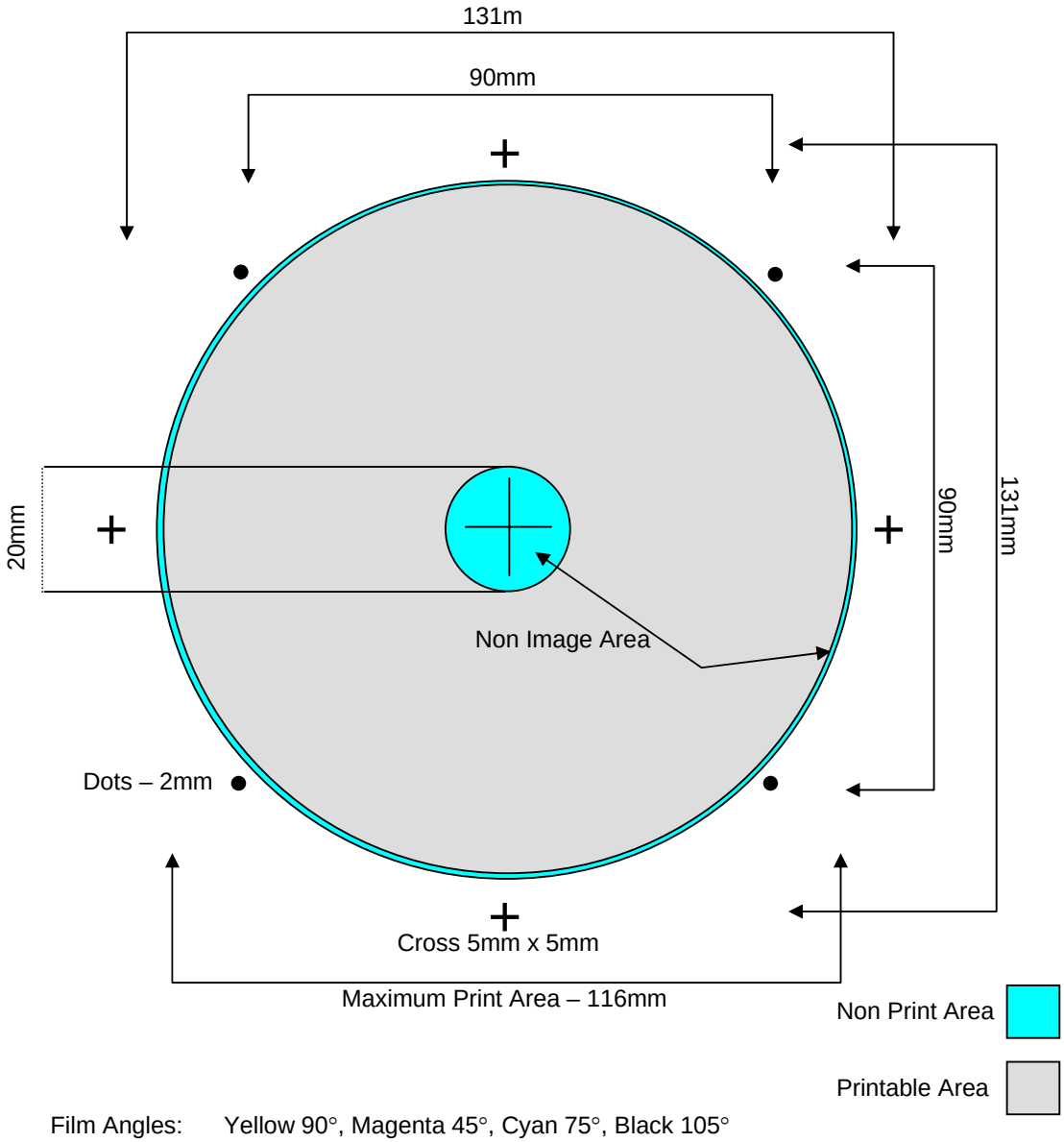
Diagram A

DVD 5 and DVD 9 Label Art Specifications



Film Angles:	Yellow 90°, Magenta 45°, Cyan 75°, Black 105°
Dot Size	150dpi for all 4 colour process & 133dpi for all other tone work
Type Size	Minimum 5pt for positive print & 7pt for negative print (reversed out)
Line Size	Minimum 0.15mm for positive print & 0.25 for negative print
Note	**Part number and colour must appear on each piece of film and proof**

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Note: Drawings Not To Scale

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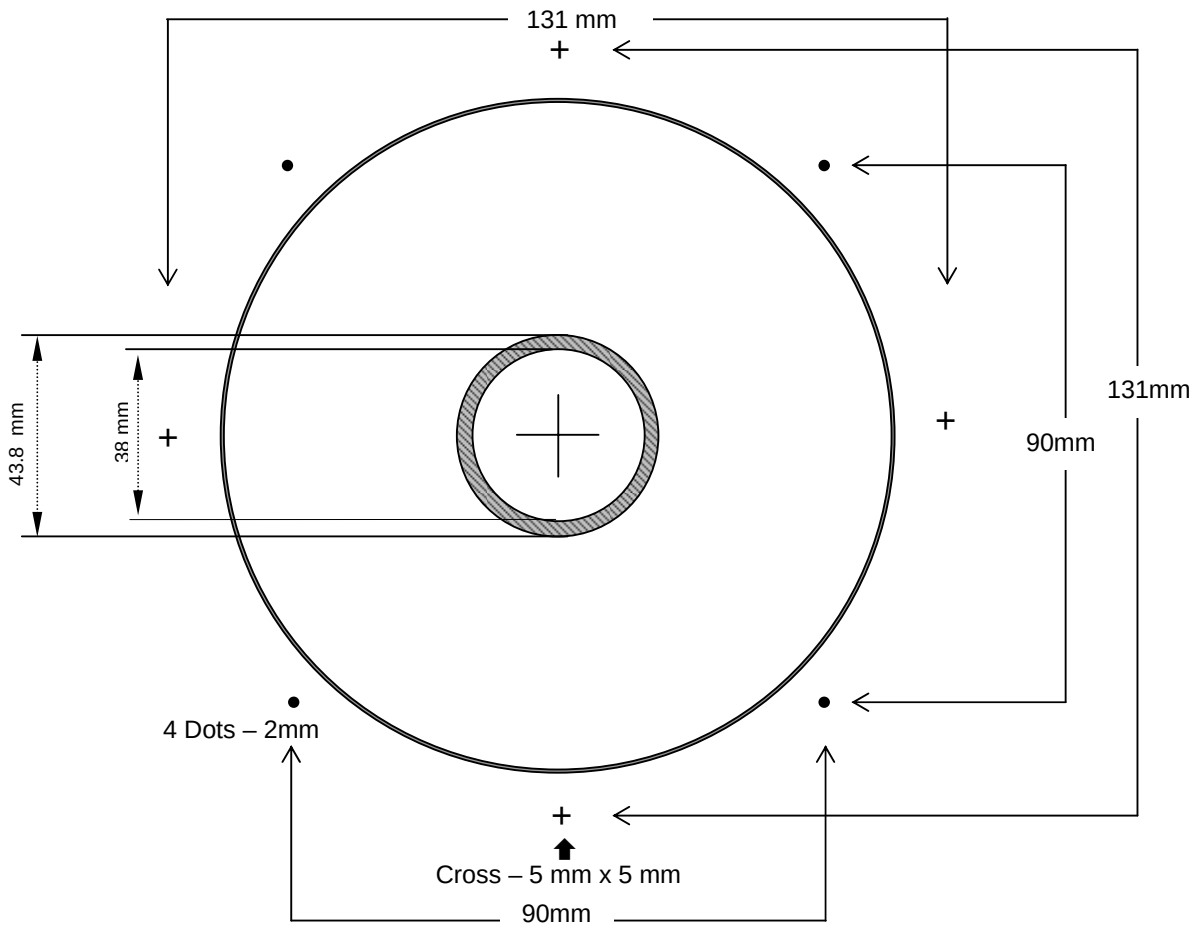
Diagram B

DVD 10 Label Art Specification

Double Sided Identification Ring



Double Sided Print Area for DVD

Non Printable Areas

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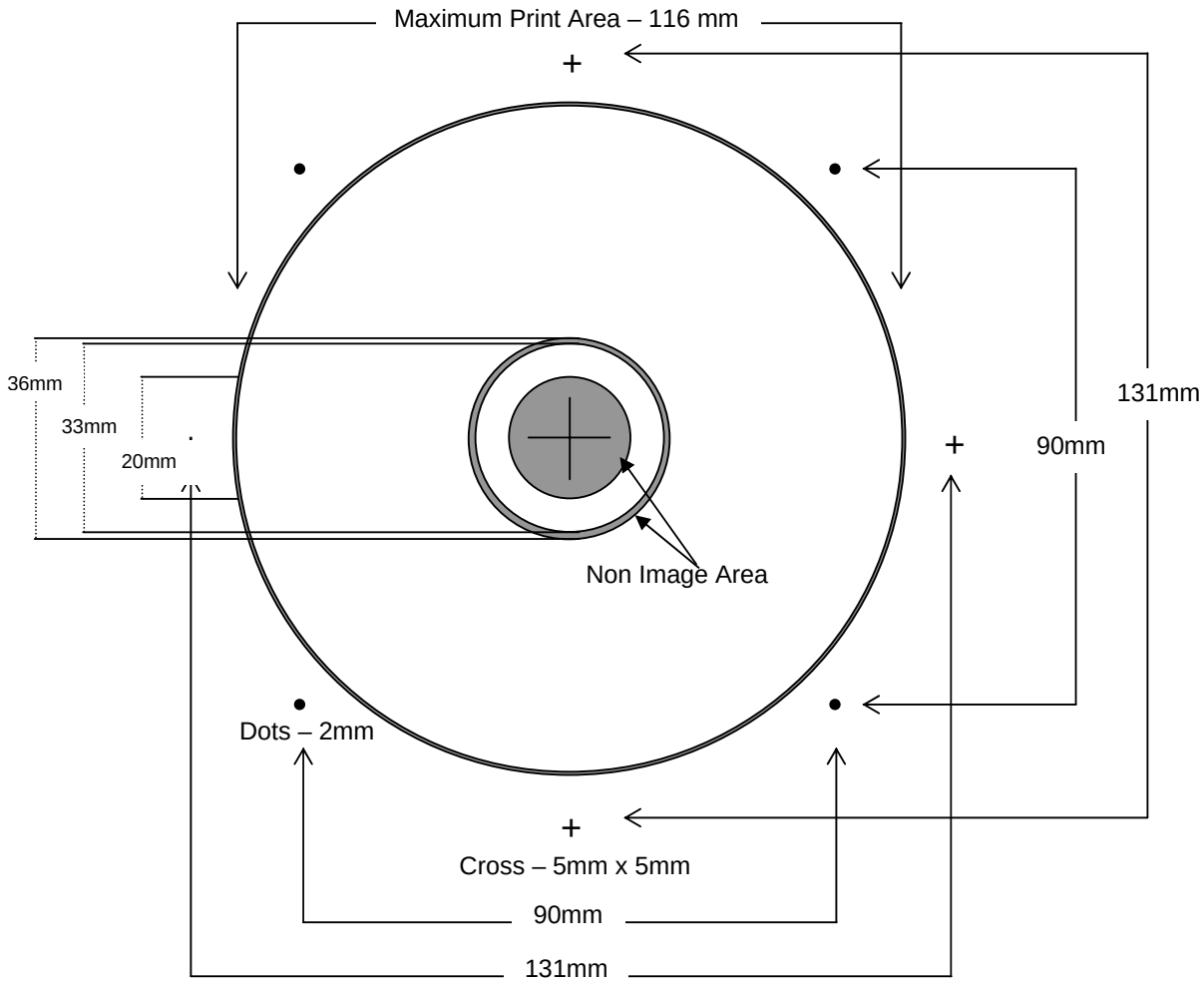
Diagram C

Standard CD Label Art Specifications



Printable Areas

Non-Printable Areas

Film Angles:	Yellow 90°, Magenta 45°, Cyan 75°, Black 105°
Dot Size	150dpi for all 4 colour process & 133dpi for all other tone work
Type Size	Minimum 5pt for positive print & 7pt for negative print (reversed out)
Line Size	Minimum 0.15mm for positive print & 0.25 for negative print
Film	All film to be supplied to be Positive Right Reading on emulsion
Note	**Part number and colour must appear on each piece of film and proof**

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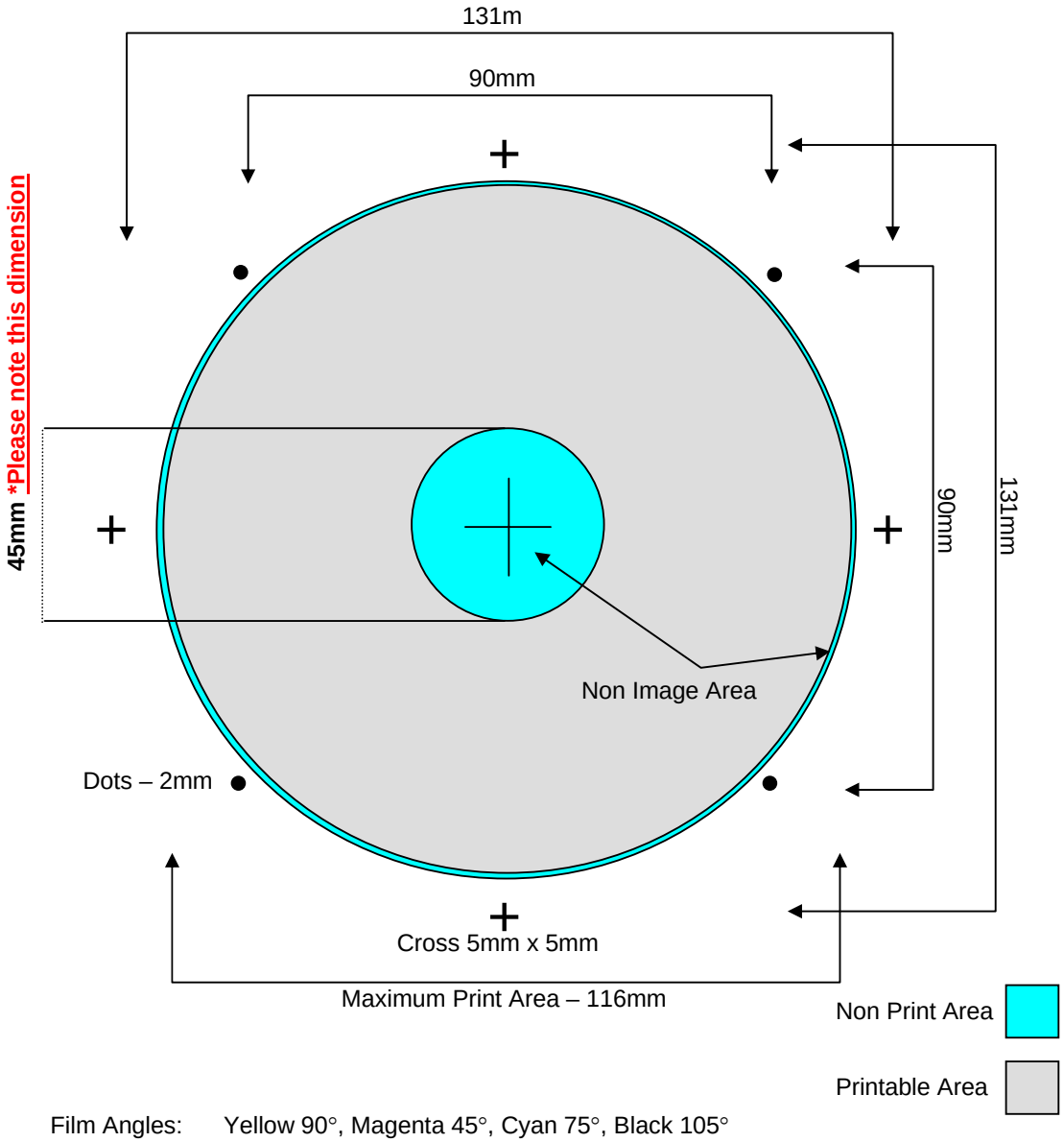
Diagram D

DVD 5 and DVD 9 Label Art Specifications for

Printing straight onto the RAW DISC with the Metallised Layer showing through



Film Angles:	Yellow 90°, Magenta 45°, Cyan 75°, Black 105°
Dot Size	150dpi for all 4 colour process & 133dpi for all other tone work
Type Size	Minimum 5pt for positive print & 7pt for negative print (reversed out)
Line Size	Minimum 0.15mm for positive print & 0.25 for negative print
Note	**Part number and colour must appear on each piece of film and proof**

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