

Design Specifications for Cheques and Deposit Forms

Publication 11.5



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Preface

This publication has been prepared by Australian Financial Institutions in conjunction with the Security Printers Association and Xplor Asia Pacific for designers, printers and customers who wish to use individually designed cheques and deposit forms.

Copies of this publication can be obtained from -

Australian Payments Clearing Association Limited
Level 24
25 Bligh Street
Sydney NSW 2000
Tel: (02) 9221 8944
Fax: (02) 9221 8057

Publication 11.5 replaces the specifications contained in Australian Payments Clearing Association Publication 11.4.1 and all previous versions. The publication gives the maximum and minimum dimensions for documents. It also includes requirements for design and layout, with particular emphasis on the location, dimensions and print requirements of the area for the Magnetic Ink Character Recognition (MICR) system and the "Areas Of Interest" used for the Intelligent Character Recognition system for image based processing.

TECHNICAL DETAILS OF THE MICR SYSTEM MAY BE FOUND IN THE CURRENT EDITION OF THE INDUSTRY'S PUBLICATION 3 "MAGNETIC INK CHARACTER RECOGNITION (MICR)" OR ITS SUBSEQUENT REPLACEMENT.

Layout is dealt with in regard to:

- Financial Institution Name
- Branch Domicile
- Payee and Amount in words
- Account Name
- MICR Clear Band and MICR line
- Position of Signature(s)
- Amount in Figures Box and Protection Area
- Date

The information is to be located in the specified positions to facilitate the work of entering, reading and processing. In the following sections recommended forms are illustrated.

In view of the developments that have taken place and are continuing to take place in the finance industry, Financial Institutions require that customers consult them before printing, particularly if any departure is contemplated from the requirements in this publication or the current version of Publication 3 "Magnetic Ink Character Recognition"

Printers must also ensure that the design layout and proof of the final version has the approval of the customer's Financial Institution before printing commences.

Samples of the printed product must be supplied to the customer's Financial Institution for evaluation, and for orders of greater than 20,000 forms the product must not be released until confirmation of conformance is received from that Financial Institution.

Paragraph amended, effective 12/1999

In accordance with ISO practice, the word "must" indicates a mandatory requirement, and "may" and "should" indicates a preferred requirement.

Introduction to Version 11.5

This revision of the standard has been expanded to include the specifications of the front and back of the payment document and to meet the latest requirements for electronic imaging.

This revised standard maintains the previous basic specifications for design, location, reflectance and Print Contrast Signal (PCS) of the dollar amount field. This need has become more important as more payments are automatically scanned and amount recognition is performed by machine. It is important that the design and location of the dollar amount field be standardised to allow recognition algorithms to efficiently locate the amount, and the background of the amount field should not contribute to any errors in the reading of the dollar amount.

New to this revision of the standard are background requirements for the other data fields of payment documents. The processes of electronic scanning and imaging necessitate the use of adequate contrast between the data element that is being captured and the immediate background:

1. to ensure that data elements are legible
2. to ensure that data elements are not obscured by background clutter
3. to allow reliable conversion from electronic greyscale to binary images and to minimise the size of the electronic image file.

This standard is intended to be compatible with existing MICR encoded document specifications and does not alter requirements for the paper used or the print quality of the MICR encoding.

This standard is intended for use in conjunction with:

- APCA Publication 3.3 – Magnetic Ink Character Recognition (MICR) which details specifications for MICR encoded characters and paper for MICR encoded documents.

When this standard is superseded by a revision approved by the issuing body, the revision shall apply.

Financial Institutions are concerned that changes in technology have increased the incidence of counterfeiting and the forging and/or alteration of cheques. To address these concerns, this version contains significant changes to the security features that are to be used when printing cheques. In addition, guidelines are included to cover the security arrangements considered appropriate for the manufacture of cheques, and their subsequent secure use and storage by the issuer.

Metric Measurements

The majority of measurements given in this publication are derived from cheque printing equipment manufactured using imperial measurements. The necessary accuracy in conversion to metric measurement can often only be obtained with an unwieldy number of significant digits. Metric equivalents are thus given to the nearest millimetre.

To enable the necessary accuracy to be retained, and to provide for a clear understanding of the measurement calculations (particularly in relation to tolerance specifications) the practice has been adopted of quoting all measurements in the base in which they were originally established. Metric alternatives to imperial measurements are invariably given in brackets; imperial alternatives to metric measurements, being unnecessary, generally are not.

Table of Contents

Preface

Introduction to Version 11.5

Metric Measurements

1. Principles of Document Design

1.1 Cheques and Deposit Forms

1.2 Legal Definitions

1.2.1 Cheques

1.3 Procedures

1.3.1 Register of Organisations (Suppliers)

1.3.2 Financial Institution's Approval Procedures for Printing

1.3.3 Evaluation

1.3.3.1 Print Orders for 20,000 Forms or Less

1.3.3.2 Print Orders for Greater Than 20,000 Forms

1.4 Document Sizes

1.5 Document Processing by Image Technology

1.5.1 Introduction

1.5.2 Design Requirements for Image Technology

1.5.3 Definitions

1.5.4 Background Reflectance and PCS Specifications

1.5.5 Pre-Printed, Computer Printed and Hand-written Data Specifications

1.5.6 Security

2. Cheques

2.1 Types of Cheques

2.1.1 Business Cheques

2.1.2 Personal Cheques

2.1.3 Financial Institution Cheques

2.1.4 Cheques for Machine Printing

2.1.5 Continuous Cheques for Machine Printing

2.2 General Requirements for the Layout of Cheques

2.2.1 Financial Institution Name and Customer Name

2.2.2 Branch Domicile

2.2.3 Payee

2.2.4 Amount in Words

2.2.5 Account Name

2.2.6 MICR Line

2.2.7 Position of Signature(s)

2.2.8 Date

2.2.9 Amount in Figures and \$-Sign

2.2.9.1 Area for the Amount in Figures and \$-Sign

2.2.9.2 \$-Sign

2.2.9.3 Amount in Figures

2.2.9.4 Protection Area

2.2.10 Completion of the Amount in Figures

2.2.10.1 Handwritten Cheques

2.2.10.2 Machine-Printed Cheques

2.2.11 Visual Guides

2.2.11.1 Field Guide

2.2.11.2 Dropout Rectangle

2.2.12 Stamp Duty

- 2.2.13 Warning Band
- 2.2.14 Financial Institution

2.3 Other Layout Requirements

- 2.3.1 Crossings
- 2.3.2 Clear Bands
- 2.3.3 Colours
- 2.3.4 "For and on behalf of"
- 2.3.5 Printing on Reverse of Cheque
- 2.3.6 Carbonising
- 2.3.7 Paper
- 2.3.8 Company Name and ACN or ARBN
- 2.3.9 Continuous Cheques
- 2.3.10 Cheque Serial Number
- 2.3.11 Additional Information on Document
- 2.3.12 Financial Institution's Acceptance of Cheque Design

3. Deposit Forms

3.1 General Requirements for the Layout of Deposit Forms

- 3.1.1 Financial Institution Details
- 3.1.2 Teller's Initials
- 3.1.3 Branch Stamp
- 3.1.4 Item Count
- 3.1.5 CREDIT - Account Personalisation
- 3.1.6 Document Descriptor
- 3.1.7 Date
- 3.1.8 Deposit Details
- 3.1.9 Total Amount Area
 - 3.1.9.1 *Area for the Total Amount and \$-Sign*
 - 3.1.9.2 *\$-Sign*
 - 3.1.9.3 *Total Amount*
 - 3.1.9.4 *Protection Area*
- 3.1.10 Completion of the Total Amount
 - 3.1.10.1 *Handwritten Deposit Forms*
 - 3.1.10.2 *Machine-Printed Deposit Forms*
- 3.1.11 Visual Guides
 - 3.1.11.1 *Field Guide*
 - 3.1.11.2 *Dropout Rectangle*
- 3.1.12 MICR Line
- 3.1.13 Transaction Code
- 3.1.14 Optional Detail Area
- 3.1.15 Printing on Reverse of Document
- 3.1.16 Clear Bands and Background
- 3.1.17 Financial Institution's Acceptance of Form Design

3.2 Credit Summary Slips

3.3 Transfer Credit Forms

- 3.3.1 Requirements for the Layout of Transfer Credit Forms
- 3.3.2 Receiving Account Details
- 3.3.3 Initiating Financial Institution

3.4 Multi Payment Deposit

- 3.4.1 Requirements for the Layout of Multi Payment Deposit
- 3.4.2 Bar Code
- 3.4.3 Printing on Reverse
- 3.4.4 Colour

4. Butts and Payment Advices

5. Perforations, Edge Notching and Holes in Documents

5.1 Continuous Stationery

5.2 Edge Notching and Holes In Documents

5.3 Binding

6. Security

6.1 Security Features

6.1.1 Printing

6.1.1.1 Deposit/Voucher level

6.1.1.2 Base Level

6.1.1.3 Intermediate level

6.1.1.4 High Level

6.1.2 Security Features

6.1.2.1 Paper Security Features

6.1.2.2 Ink Security Features

6.1.2.3 Design Security Features

6.1.2.4 Warning Band

6.1.2.5 Ink Coverage

6.2 Premises and Negotiable Document Security

6.2.1 Premises Security

6.2.2 Destruction Of Waste

6.2.3 Secure Storage

6.2.4 Confidentiality

6.2.5 Transport/Despatch

6.3 End User Security

7. General Information

7.1 Window-Faced Envelopes

7.2 Sampling Requirements

7.3 Stamp Duty Requirements

7.4 Document Writing/Signing/Payee Protection Machines

7.5 Production Errors - Cheques and Deposit Forms

7.6 Paper for MICR Encoded Documents

Appendix A

Measurement of Print for Image Capture

Print Contrast Signal

DCR Compared to PCS

Appendix B

Measurement of Print Contrast Signal and Dynamic Contrast Ratio

Measurement of Print Contrast Signal

Measurement of Dynamic Contrast Ratio

Testing Equipment

Appendix C

Examples of Field Guide Design

Recommended Specifications for Hand Print Boxes

Appendix D

\$ Sign Representation

Appendix E

1. Approval/Authorisation Scenarios

- 1.1 Approval of New Design with MICR
- 1.2 Base Design Approval
- 1.3 New Documents with Approved Base Design
- 1.4 Reprint with No Changes
- 1.5 Approval of Split Print Orders

2. Design Conformance Requirements for Allocation of DAN

3. MICR/Colour Authorisation and Allocation of PAN

4. Allocation of DAN and PAN

- 4.1 Design Approval
- 4.2 Printing Approval
- 4.3 Confirmatory Authority

5. MICR/Colour Evaluation

Appendix F

1. Financial Institution Contact List For Enquiries Regarding DANs Or PANs

1. Principles of Document Design

1.1 Cheques and Deposit Forms

Design specifications have been established which have resulted in cheques, deposit forms and other payment forms, hereinafter referred to as documents, being suited for both manual and electronic processing. These specifications have been revised to incorporate the requirements of improvements to these systems, which can now "read" the amount in both handwritten and machine printed numerics.

Documents have been divided into a number of areas that provide for the insertion of information. Except where specifically stated, dimensions of areas are dependent on the amount of information to be entered, whether by handwriting, typewriter or other printers.

Documents should be designed so that anyone, by a glance rather than by close scrutiny, can readily recognise the correct dollar amount. To comply with this principle the MANDATORY position for the amount in figures is at the right-hand side of the document. All other information must be kept well away from the amount in figures. Information must not appear to the right of the amount in figures.

The document design must also enable the name of the Financial Institution on which the cheque is drawn to be determined at a glance. The Financial Institution name must be in the upper portion of the form. The design should also be such that the signature of the drawer and the printed name of the account can be readily located. The printed name of the account should be adjacent to the signature. The area reserved for signature(s) must be free of other printing which could interfere with legibility and placed to keep signatures from encroaching into areas reserved for the amount in figures and magnetic ink encoding.

Draft layout of forms must be submitted to the Financial Institution concerned for design approval before proceeding with expensive artwork, see Section 1.3. Financial Institutions will not accept a design unless the principles outlined in these specifications are observed. It should be noted that production of documents must not commence until approval from the Financial Institution is obtained, ie a Design Approval Number (DAN) and Printing Approval Number (PAN) have been allocated and a Confirmatory Authority issued.

MICR encoding of documents must conform to prescribed standards detailed in APCA Publication 3.3 "Magnetic Ink Character Recognition (MICR)".

It is essential that paper used for printing of forms be of the required standard, reference must be made to APCA Publication 3.3, Section 6 – Paper for MICR Encoded Documents.

The following matters must be addressed to prevent potential problems:

- Carefully review the layout of any proposed document in relation to the standards contained in this publication.
- Keep the clear band reserved for MICR encoding purposes free of all printing other than the protective tints.
- Avoid the use of dark colours in the background of the document that could interfere with vital information.
- Use appropriate colours, refer to Appendices A and B.
- Documents must not contain advertising messages of any kind other than a company logo.
- Discuss your ideas with the relevant Financial Institution.

Cheques are essentially operational documents and must be both person and machine readable, regardless of the manner in which they have been completed.

The main ways used to differentiate between debits and credits are printing the word "Debit" or "Credit", the use of colour and/or distinguishing trancodes. Practical means for an Image Processing System to identify the difference is via the MICR codeline, position of the data, or the words "Debit" or "Credit" printed as scan-readable.

1.2 Legal Definitions

1.2.1 Cheques

A cheque is an unconditional order in writing that:

- (a) is addressed by a person to another person (being a Financial Institution);
- (b) is signed by the person giving it; and
- (c) requires the Financial Institution to pay on demand a sum certain in money.

An instrument that does not comply with these rules or that orders any act to be done in addition to the payment of money, is not a cheque.

Financial Institution means:

- (a) the Reserve Bank of Australia; or
- (b) a bank within the meaning of the Banking Act 1959; or
- (c) a building society, credit union or special services provider; or
- (d) a person who carries on State banking within the meaning of paragraph 51(xiii) of the Constitution; or
- (e) a person (other than a person referred to in paragraph (a), (b), (c) or (d)) who carries on the business of banking outside Australia.

1.3 Procedures

1.3.1 Register of Organisations (Suppliers)

APCA maintains a register of organisations (suppliers) which provide a service for the printing of cheques and deposit forms. Suppliers include trade printers, Financial Institutions and/or their customers who print and MICR encode their own documents in house, graphic artists, forms designers and developers/suppliers of commercial software which incorporate a cheque printing feature, etc.

An organisation may ask any Financial Institution to submit a written request to APCA for registration or request registration direct. An organisation may have one registration or may have multiple sites registered as separate organisations where they operate as independent units.

A three digit Printer Identifier will be allocated by APCA to each organisation that applies for registration (multiple Printer Identifiers in the case of registration of multiple sites). The Printer Identifier is to be quoted by the supplier when requesting design approval and/or printing approval from the customer's or other relevant Financial Institution. The identifier is also used by the Financial Institution when allocating a Design Approval Number (DAN) and a Printing Approval Number (PAN).

1.3.2 Financial Institution's Approval Procedures for Printing **Amended, effective 02/2001**

Before production commences the printer must obtain DAN, PAN and a Confirmatory Authority from the customer's or other relevant Financial Institution. Depending on the circumstances, a printer may submit a request for approval of a base design from any Financial Institution prior to submitting requests for printing approval from the customer's Financial Institution. Alternatively, both requests may be submitted to the customer's Financial Institution together.

Once a request for design and/or printing approval has arrived at the designated point of the relevant Financial Institution, refer Appendix F, the request for approval must be actioned within three days.

Approval to print, once issued by the relevant Financial Institution, is valid for three months from the date of issue of the Confirmatory Authority. Should the ordered documents not be printed in that time, the printer is to submit a further request to the Financial Institution for re-approval.

The approval processes and related flow charts in Appendix E describe the four standard approval/authorisation scenarios that have been developed. These are:

1. Approval of new design with MICR
2. Base design approval
3. New document with approved base design
4. Reprint with no changes.

Also in Appendix E are the requirements for design approval and allocation of a DAN as well as the requirements for the allocation of a PAN and the issue of a Confirmatory Authority.

1.3.3 Evaluation

Section 1.3.3 has been extensively revised, effective 12/1999

The printer is to supply to the Financial Institution that issued the PAN, samples taken from the actual print run for evaluation at the rate specified in Section 7.2 of this Publication. Refer also Appendix E.

The Financial Institution is to evaluate the samples for conformance to the standards for:

- MICR
- Colour
- Security
- Design
- Paper

as set out in this Publication and APCA Publication 3.3.

The results of the evaluation must be advised to the printer in writing, by fax or electronic mail.

1.3.3.1 Print Orders for 20,000 Forms or Less

For print orders of 20,000 forms or less, the printer may release the forms on completion as directed on the Confirmatory Authority, without waiting for the results of the MICR evaluation by the Financial Institution.

The Financial Institution must complete the evaluation and advise the results to the printer within five business days of despatch of the sample by the printer.

If non-compliance with this publication or Publication 3.3 is discovered during the evaluation, the printer is responsible for recalling the incorrectly printed forms.

The cost of re-printing, should it be necessary, is to be borne by the errant party. The printer will be required to provide, if applicable, a Certificate of Destruction within two weeks to the Financial Institution to confirm that all non-complying forms have been recalled, and destroyed.

Where the total volume ordered for successive prints for the same account exceeds 20,000 forms in total over a period of three months, each order is to be treated for evaluation purposes as if it is for an order of greater than 20,000, see Section 1.3.3.2

1.3.3.2 Print Orders for Greater Than 20,000 Forms

[Revised]

For print orders of greater than 20,000 forms, the printer must not release the forms until the result of the evaluation is received or a period of five business days has elapsed from the date the samples were despatched to the Financial Institution.

In the case of a failed evaluation and where the Financial Institution has not notified the printer within five business days, it is the responsibility of the Financial Institution to liaise with its customer to rectify the situation.

The cost of re-printing, should it be necessary, is to be borne by the errant party. The printer will be required to provide, if applicable, a Certificate of Destruction within two weeks to the Financial Institution to confirm that all non-complying forms have been recalled, and destroyed.

For partial print runs of 20,000 forms or less, from an order of over 20,000, each print run is to be treated for evaluation purposes as if it is for an order of greater than 20,000.

1.4 Document Sizes

The maximum and minimum dimensions (excluding butts and/or other attachments) for all documents, except Transfer Credit Forms (see Section 3.3), must be in accordance with Figure 1.

Equipment used for MICR and Image processing systems is capable of handling documents of any size within the limits of :-

Length: 6 1/4" (159 mm) up to 8 1/4" (210 mm)

Height: 2 3/4" (70 mm) up to 3 2/3" (93 mm)

Creasing or folding of documents encoded with magnetic ink characters can cause jamming in, or rejection by, high speed electronic sorting equipment and should be avoided. For large size documents a length of 7 1/2" (190mm) rather than 8 1/4" (210mm) is preferable as this will ensure that any centre fold does not pass through MICR characters in the code line.

All horizontal dimensions are measured from the right edge, all vertical dimensions from the bottom edge. It is therefore important that these edges must form a right angle and be true in every way.

Envelopes used to mail cheques and deposit forms should be of an Australia Post preferred size and designed to accommodate documents without folding. For window-faced envelopes see Section 7.1.

Figure 1

Minimum Size for Forms

Suggested layout only
Drawn to Scale (1:1)

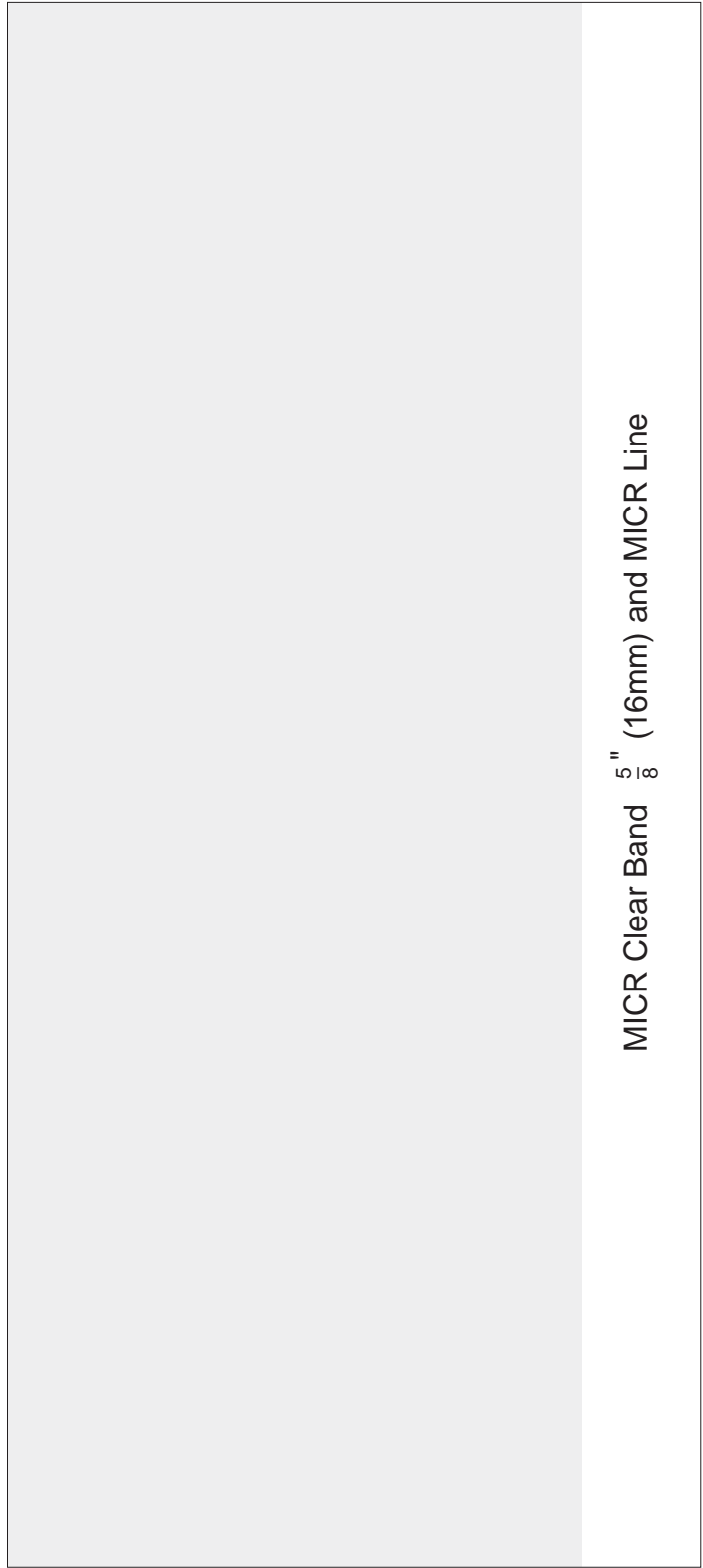
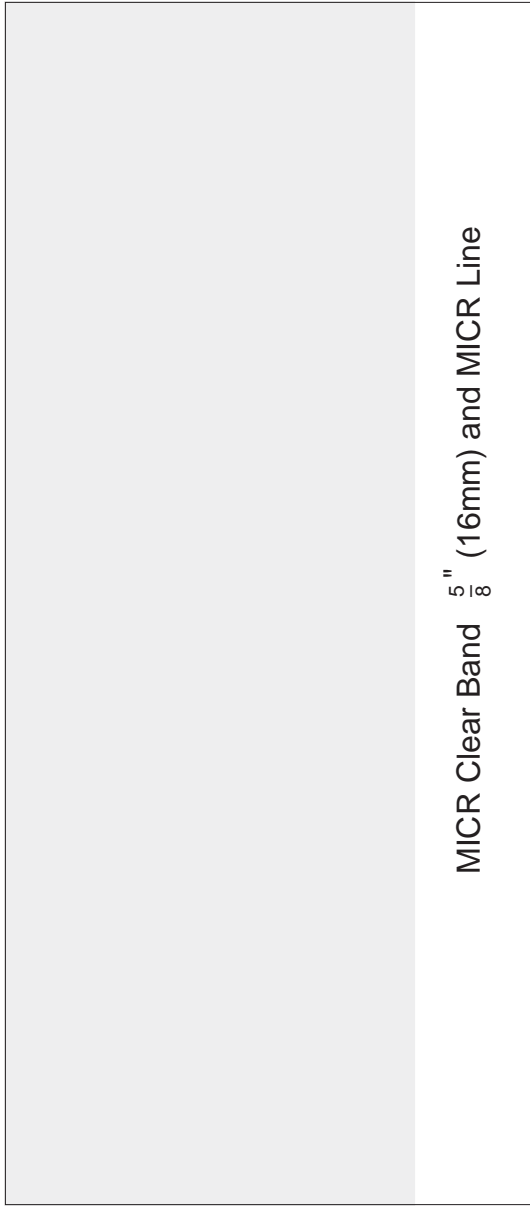
$6\frac{1}{4}'' \times 2\frac{3}{4}''$ (159mm x 70mm)

Except Transfer Credit Forms (see Figure 6)

$7\frac{1}{2}'' \times 3\frac{1}{4}''$ (190mm x 83mm)

Maximum Size for Forms

$8\frac{1}{4}'' \times 3\frac{2}{3}''$ (210mm x 93mm)



1.5 Document Processing by Image Technology

1.5.1 Introduction

To benefit from image technology it is necessary to put in place new standards for the printing of all financial documents. The standards are described throughout this publication.

Advances in Optical Character Recognition (OCR) and Intelligent Character Recognition (ICR) have made it possible to improve the automation of financial document processing by means of image technology. This technology provides the route for the conversion of documents into a digitised format for electronic processing, and storage by using computer hardware and software.

Electronic imaging of financial documents places new requirements on the overall design of documents so that they are readily legible when viewing the image of a document, rather than the document itself. Documents properly designed for imaging ensure that all essential information will be captured by the imaging process, the images will be useable and legible, and that the file sizes of images will be low enough so that they can be stored and moved in a cost efficient manner.

The capture of paper-based documents is via a scanner. ICR is used to read hand-written or machine-printed amounts on documents, and an image of the document may be archived in a scanned format on optical discs, CD ROM or other electronic storage media to facilitate retrieval.

Not all printed documents can be successfully reproduced as an image by scanning mechanisms. This is mainly due to the depth of shade, or colour of the ink used in the printing process. Dark colours usually reproduce as black, and most pastel colours do not reproduce at all. Written or printed text on a dark background will be difficult to detect as the writing blends into the background. Conversely text will be clearly visible on a pastel background as the text will be seen, but the background will not. All information that is to be retained, whether printed on the original document, hand-written, stamped or machine-printed, must thus be printed in a colour that will be seen by the scanner.

Printed inks can be classified as scan readable or scan non-readable. Inks whose properties fall in the mid-range between scan readable and scan non-readable should be avoided as they can make the document difficult to read by imaging techniques. Boxes or lines around the area where the amount in figures/total amount are entered on documents can create recognition problems for OCR and ICR and hence such boxes or lines must be printed as scan non-readable. The level of recognition of inks by scanners is dealt with in Appendices A and B

1.5.2 Design Requirements for Image Technology

The process of imaging documents eliminates colour in the conversion of a paper document to a captured image. Accordingly, printing financial documents adds some unique requirements, over and above those normally required for human viewing, to preserve reliable recognition of data elements. Since colour is lost, detection and recognition of information is highly dependent on the contrast between the written information and the printed background. In image processing a process of dynamic thresholding is often used to retain this vital information and discard the background. This specification provides measurement methodologies to predict the outcome of dynamic thresholding, and ensures legibility and efficient processing of the documents. See Appendix B for more details.

Successful imaging and recognition can be affected by many factors in the document design, including background colour, screening, background pattern of the document, security patterns, and the ink used to print the data. The effect of all these can be assessed by reflectance and contrast measurements.

The dynamic thresholding method of measuring reflectance and contrast has been found to be superior to Print Contrast Signal measurements and is given consideration in this standard. Analysis tools that utilise images eliminate operator induced error as there will be no interpretation required to select the reflectance sample. Document colours that appear bright to the human eye will have high reflectance because they reflect most of the illuminating light. Conversely, printing that appears dark, absorbs most light and reflects little light, and is thus low in reflectance.

Print Contrast Signal or PCS is a measure of the difference of reflectance of two adjacent regions, one of which is called the background region. PCS measurement always requires the selection of two

regions of reflectance measurement, a print or data region and an adjacent background region, both of which are open to human interpretation.

Dynamic Contrast Ratio (DCR) measurements are similar to PCS measurements but are done automatically and dynamically in an image processing computer program as specified in Appendices A and B.

1.5.3 Definitions

Aligning Edge: The lower edge of the document when its face is viewed.

Area Of Interest (AOI): Refers to a rectangular area 0.250 inch high along the length of each particular data element field.

Average Area Reflectance (DC Image): With reference to dynamic contrast (DC) images within areas of interest, average area reflectance determination includes every pixel in a 0.125 inch square.

Background Clutter: The remnants of background in a binary image that interferes with legibility of written or printed data.

Background Reflectance: A calculation of background reflectance on the Amount in Figures rectangle, its Protection Area and the Optical MICR clear band. All pixels are averaged in the minimum area of 0.125 inch square.

Binary Image: A black and white image where each pixel can be stored in memory by one bit of information since it is either black or white.

Convenience Amount Recognition (CAR): A term used mainly in USA. In an image system, ICR is the application of Intelligent Character Recognition to the function of locating and recognising the characters in a convenience amount field.

Data Elements: Information that is contained on a financial document that is legally necessary to convey funds. A signature, payee, name and amount are each examples of data elements which are legally necessary.

Dynamic Contrast (DC) Image: A generic binary image, ie. a black and white image generated from a greyscale image by comparing the reflectance value of each pixel to the average of all pixels (including itself) in the 0.125 inch squares with the immediate surrounding area thereby allowing converting the pixel to a black or white image.

Dynamic Contrast Ratio (DCR): The mathematical formula for creating a dynamic contrast image. It is the same as the formula for PCS, but the calculation is performed at a pixel level. In the DCR computation the background reflectance, R_b , is defined as the average of all pixels in a 0.125 inch square which includes the central pixel. The reflectance of the central pixel is R_c . See Appendix B.

Dynamic Thresholding: The process used to convert a greyscale image to a binary (black and white) image. See Appendix B.

Greyscale Image: An image where each pixel can have a full range of grey tonal values, between 16 and 256 levels, dependant on the system used.

Human Visible Spectrum: The wavelengths of light that can be observed by the human eye, ranging between 400 and 700 nanometres, with the peak human response at 555 nanometres. These wavelengths span the full range of pure colours; 400 nanometres is perceived as deep blue, 550 nanometres is yellow-green, and 700 nanometres is deep red.

Intelligent Character Recognition (ICR): In an image system, algorithms may be used to provide character or symbol recognition from the captured or stored image data.

Imaging: A system based on monochrome scanning of financial documents, processing discrete picture elements to remove data redundancy, followed by compression and storage of the image data. Images can be retrieved, decompressed and displayed on image work stations, or printed on a printer either locally or remote to the storage site.

Legible: That which is capable of being read or deciphered. Information that must be of sufficient quality to be viewed and seen easily, accurately, without ambiguity under the conditions specified. Legibility problems in cheque images are caused by two phenomena; firstly, low average background reflectance causes low contrast with written data, which then drops out of a binary image, and secondly, excessive background clutter remaining in a binary image interferes with human interpretation of written data.

Optical Character Recognition (OCR): OCR is defined as the high speed process of converting machine printer numerals, letters and symbols into computer processable information by an optical scanning system.

Optical Clear Band: A 0.300 inch high band which has included within it the MICR print band. Both bands are co-located in the 5/8 inch clear band across the bottom of the form.

Paxel: A group of black pixels (equal to or more than 6 of 9) in a binary image, measuring 0.010 inch square, that is the smallest dark area of background clutter which has been determined to affect the legibility of hand-written data on cheques.

Paxel Count/String: The number of contiguous paxels that, when joined in any shape, line or combination, can create a background clutter problem that can affect the legibility of hand-written data on cheques.

Pixel: A contraction of "picture element", the smallest area of a document considered in capturing an electronic image. Common pixel densities in imaging are 200 and 240 pixels per inch.

Print Contrast: The difference between the reflectance of a printed point and the reflectance of the background on which it is printed.

Print Contrast Signal (PCS): The ratio of the print contrast of a particular printed point with respect to the reflectance of a reference or background region. See Appendices A and B.

Reflectance: The relative brightness of an illuminated paper surface, as seen by the human eye, indicated by values between 0 and 100%. The eye modifies the apparent brightness at different wavelengths according to its response to the human visible spectrum. Equipment that measures reflectance requires a filter that matches its response to that of the human eye. The smallest sample used is usually a 0.008 inch circular aperture in order to average out effects of dots in screened printing.

1.5.4 Background Reflectance and PCS Specifications

It has been found that PCS measurements are not always adequate to determine precisely what will remain in a binary (black and white) image. PCS can only predict scanner performance in a very localised area with absolutely uniform background. Most documents, however, have a continuously varying background and require a more dynamic approach, such as used in industry reader/sorter scanners. Furthermore, PCS will not predict to what degree background clutter in a binary image will constitute a threat to legibility of hand-written data. However, actual binary images, termed dynamic contrast images in their generic form, can be used for this evaluation. An automated method of creating a DC image and counting clusters of black pixels, called Paxel Count, is described in Appendix B.

Manual reflectance measurements for the Amount in Figures rectangle, its Protection Area and the MICR optical clear band can be made taking multiple samples within the 0.125 inch x 0.125 inch AOI.

Reflectance and PCS calculations shall be made using a reflectance measurement system having a circular aperture of 0.008 inch in the local background and averaging these measurements (see Appendix B for more details). This method of measuring background reflectance assumes that the background of the payment document in the regions of interest is relatively uniform, otherwise a large number of area samples must be taken in the area of interest for each data element to reliably determine its representative background reflectance.

PCS within the Amount in Figures/Total Amount rectangle, its Protection Area and the MICR optical clear band, is calculated by measuring the reflectance of a candidate pattern point with a circular

aperture of 0.008 inch.

Measurements in the AOI's (Areas Of Interest) which include the date, payee, amount-in-words, and signature fields should be made assuming that the user data are contained in horizontally oriented AOI rectangles sized at 0.250 inch (top to bottom) and having a length equal to the line length for each field, but not including the line.

Table 1

Area Of Interest Specification				
Areas on Document	Reflectance	Paxel Count/ String (max)	PCS	Notes
Date AOI	45% average min	8	n/a	within AOI
Amount in Words AOI	45% average min	8	n/a	within AOI
Payee AOI	45% average min	8	n/a	within AOI
Signature/s AOI	45% average min	8	n/a	within AOI
Amount-in-figures AOI	60% minimum		0.30 max	PCS within rectangle area
Protection Area	60% minimum		0.30 max	PCS within clear area
MICR clear band	60% minimum		0.30 max	PCS within MICR optical clear band background
MICR characters			0.60 min	PCS with respect to MICR optical Clear background
All regions of interest			0.60 min	PCS of pre-printed data with respect to surrounding background

1.5.5 Pre-Printed, Computer Printed and Hand-written Data Specifications

This section defines the portion of the document that must be scan-readable. The scan readable data, which may be pre-printed, and/or printed/handwritten at the time of document issue, includes the bank name and domicile, date, dollar sign, amount in figures, amount in words and signature/s. These areas are designated as "Areas Of Interest" (AOI) as they contain vital information pertaining to the document being imaged. The minimum PCS of each of these data elements shall be 0.60 with respect to its immediate surrounding background. Printing of these data elements may be done with black and other ink colours, as long as the minimum PCS value is maintained.

Table 2 illustrates the relationship between background reflectance and the reflectance of printed data to obtain a PCS of 0.60.

To improve readability of hand-written information with respect to the document background the use of pens with medium writing tips, and the use of black or blue-black ink is recommended. To assist with scanning, it is recommended that document backgrounds be designed to attain the highest reflectance, and the printing for specified data elements be the lowest practical reflectance consistent with human aesthetics, ie. producing documents exceeding the minimum requirements of this standard.

Table 2

When Background Reflectance is:	The Maximum Reflectance of Printed Data is:
60%	24.0%
65%	26.0%
70%	28.0%
75%	30.0%
80%	32.0%
85%	34.0%

1.5.6 Security

In an image processing system many documents will not be scrutinised by human eye in their original form before being processed, and may not even be viewed on an image screen when recognition determines the amount correctly. In many cases, no scrutiny of the item will occur at all. Therefore the need for automatic fraud protection becomes stronger with imaging.

Not all security features are compatible with digital imaging systems. Security designs which are "Image Compatible" are expected to preserve legibility and yield acceptable compressed image storage. Security features which utilise high contrast fine line structures usually cause marginal image data element legibility and large storage requirements.

Document designers should use caution in evaluating/selecting from among the variety of security printing features available (refer Section 6), paying attention to the reflectance and PCS of the background which surrounds any of the data elements as defined in this standard. Many security processes may contradict low PCS requirements for the background within the areas of interest.

In general, some security printing features do not perform well with image technology. For example, a cheque using a security pantograph, when imaged, usually shows a hidden image just as intended on a photocopy. Some imaging scanners will cause the hidden image to appear on a particular document while others will not. The hidden image must not intrude into the Amount in Figure and its Protection Area, and it is preferred that a hidden image does not intrude into any AOI.

Some security features will still require manual inspection or scrutiny since image technology will not provide adequate representation in the digitised image. For example, the use of multi-coloured backgrounds or micro-printing may not be detectable in the resulting image.

2. Cheques

2.1 Types of Cheques

2.1.1 Business Cheques

These are documents specially printed with the customer's name as distinct from standard documents supplied by Financial Institutions.

For business documents it is necessary to adopt form sizes sufficient to accommodate all necessary information. Use of a form 7 1/2" (190mm) in length would normally be adequate and avoids most problems associated with folding of the document.

2.1.2 Personal Cheques

Documents used by other than business customers are usually size 2 3/4" x 6 1/4" (70mm x 159mm).

Personal cheques may have the name of the customer printed on them in accordance with the arrangement between the customer and their Financial Institution.

2.1.3 Financial Institution Cheques

Inserted, effective 31/08/2002

This is a special category of cheques drawn by a Financial Institution on itself. Financial Institutions Cheques include instruments drawn by banks (traditionally called "bank cheques"), building societies, credit unions and other authorised deposit-taking institutions within the meaning of the Banking Act 1959, where the Financial Institution is both the drawer and drawee.

General requirements for the layout of Financial Institution Cheques are described in Section 2.2.14.

2.1.4 Cheques for Machine Printing

Renumbered, effective 31/08/2002

These are documents completed by accounting machine or computer printer and are usually of the business variety. The positioning of the details is in many cases determined by the requirements of the particular equipment or software package used. If a non-impact printer is used, please also refer to Publication 3.3, Section 4.3 – Non-impact MICR printing. Customers designing their own documents to suit the requirements of a particular system must still observe the principles of layout detailed in this section and procedures for approval in Section 2.3.13.

Australia Post's requirements for the four-state delivery bar-code are not compatible with the design and security requirements for cheques as detailed in this Publication. The four State delivery bar-code is therefore not to be printed on cheques, nor should the payee's address. See also section 7.1.

2.1.5 Continuous Cheques for Machine Printing

Renumbered, effective 31/08/2002

Documents, usually of the business variety, which are printed on continuous stationery must be guillotined or burst before issue to remove the sprocket hole selvages. Only slit perforations or micro-perforations are permissible on any edge (see Section 5).

Cutting devices, used for the removal of sprocket holes and for document separation, must allow for the correct positioning of any encoding in relation to the reference edges of the document and give clean edges to vouchers.

When the selvedge on continuous documents is not perforated, guide marks must be provided to indicate the correct guillotining position.

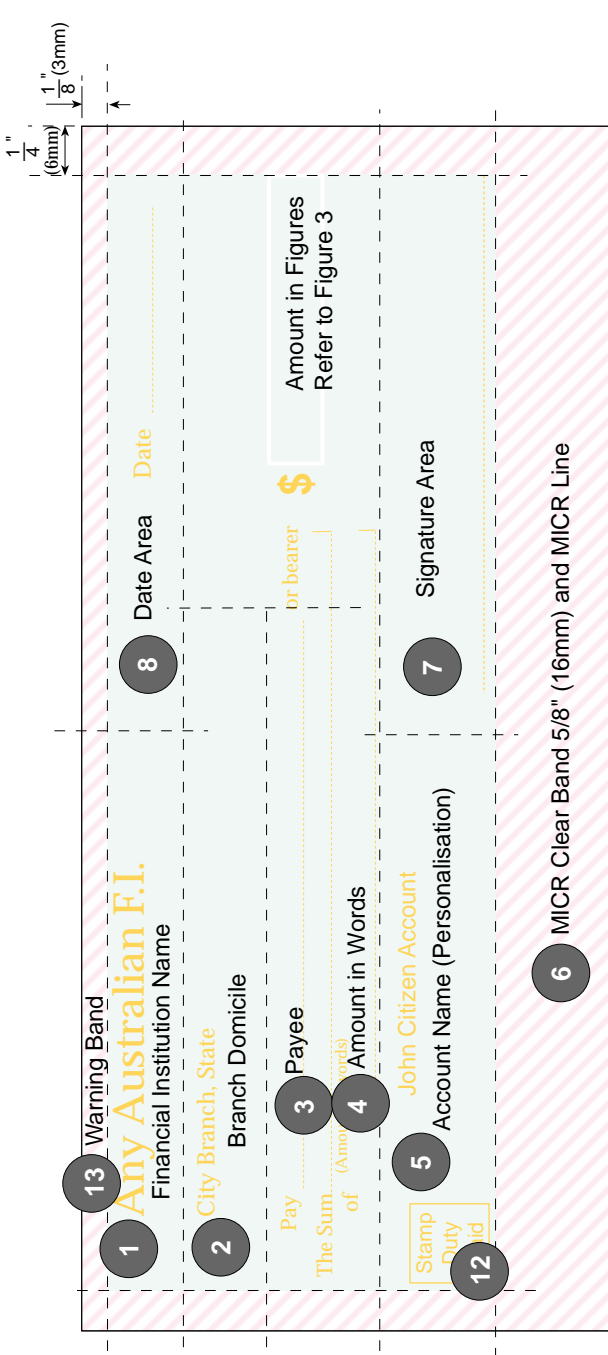
Australia Post's requirements for the four-state delivery bar-code are not compatible with the design and security requirements for cheques as detailed in this Publication. The four State delivery bar-code is therefore not to be printed on cheques, nor should the payee's address. See also section 7.1.

Figure 2
Data Elements Common to Cheques

Suggested layout only
 Drawn to Scale (1:1)

Minimum Size

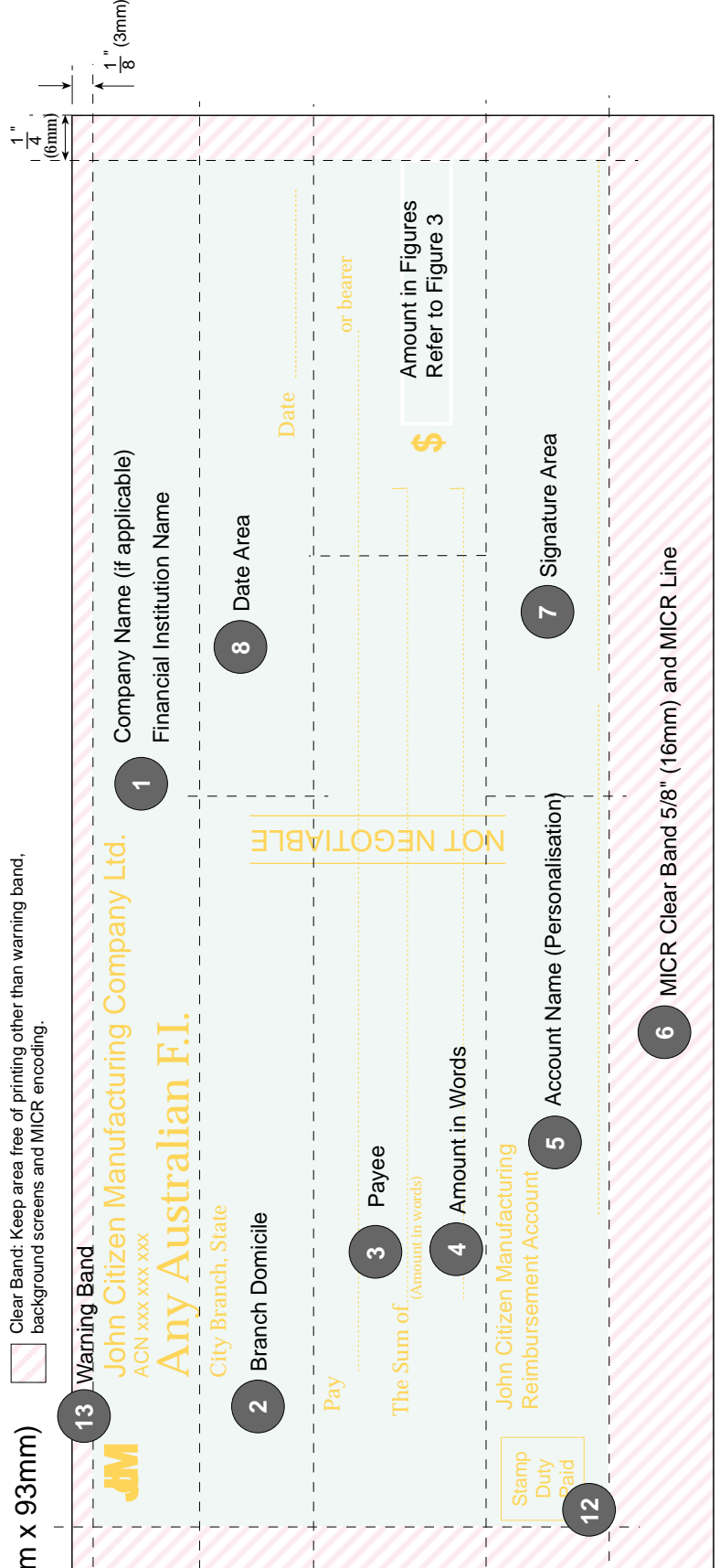
6 1/4" x 2 3/4" (159mm x 70mm)



Maximum Size

8 1/4" x 3 2/3" (210mm x 93mm)

Clear Band: Keep area free of printing other than warning band, background screens and MICR encoding.



2.2 General Requirements for the Layout of Cheques

Cheques have been divided into a number of "areas" which provide for insertion of information to assist with both manual and electronic processing by Financial Institutions. Except where specifically stated, dimensions of areas are dependent on the amount of information to be entered, whether by handwriting, typewriter or other machines.

A suggested document layout showing placement of various details is illustrated in figures 2 and 3. Many variations to design are acceptable, subject to the specifications contained in this publication and the approval of the relevant Financial Institution.

The following data elements (described below) are designated as Areas Of Interest (AOI), therefore the foreground must be printed as scan readable:

- Financial Institution Name and domicile
- Customer Name
- Account Title and/or Trading Name (if applicable)
- Payee
- Amount in Words
- Signature(s)
- Date
- Amount in Figures and \$-sign
- Not Negotiable Crossing (if applicable)
- Stamp Duty Panel (if applicable)

It is recommended that printing of data in the AOIs should be in a sans serif font. Text must be in a size of not less than 8 points and preferably 10 points or larger. The Amount in Figures must be in a size of not less than 10 points and preferably 12 points or larger.

2.2.1 Financial Institution Name and Customer Name

1

The name of the Financial Institution on which the cheque is drawn must not be less than 1/8" (3mm) in height and sufficiently prominent to be able to be recognised against all other information on the document. Refer to the relevant Financial Institution for requirements regarding presentation of their logo if used.

The customer's legal and/or trading name, and/or logo may appear in the upper portion of the document. See also Section 2.3.8.

2.2.2 Branch Domicile

2

The correct branch domicile/address should be positioned below the Financial Institution's name and must be printed in the following format as appropriate:

CBD Branches

Branch name (if applicable), Street Address, City, State.

For example: 300 Collins St., Melbourne, Vic.

Suburban and Country Branches

Branch name (if applicable), Town, Street Address, State.

For example: Wodonga, 123 Smith St., Vic.

The name of the state is always to be abbreviated, without full stops between letters (eg NSW). Thoroughfare abbreviation is optional, eg "St" for Street or "Rd" for Road etc.

Refer to the Confirmatory Authority for correct details.

2.2.3 Payee

3

If not completed by machine printing, this field must have a vertical terminating bar printed at the end of each line in order to discourage the cheque writer from writing into the Amount in Figures area.

The Payee's name should start at the left-hand end of the line and not extend beyond the vertical

terminating bar. Examples are shown below:

Pay John Citizen | **or bearer**
or
Pay to the order of John Citizen |

2.2.4 Amount in Words

4

If not completed by machine printing, this field must have a vertical terminating bar printed at the end of each line in order to discourage the cheque writer from writing into the Amount in Figures area.

The Amount in Words should start at the left-hand end of the line and not extend beyond the vertical terminating bar. In first of the examples shown below, the second line is optional:

Example 1

The Sum of _____ |
_____ |

Example 2

The Sum of	Dollars				Cents
	Thousands	Hundreds	Tens	Units	
	Nil	*Nine*	*Eight*	*Zero*	*15*

Example 3

The Sum of \$**956.81**

When the amount normally expressed in words is to be inserted by machine in figures with either the words "dollars" and "cents" or the \$-sign, asterisks must be inserted before and after the amount and the digits so aligned that no figure can be inserted between the dollars and cents columns. The Amount in Figures must still be printed within the area specified at Section 2.2.9. The relevant Financial Institution may require the customer to execute an indemnity.

2.2.5 Account Name

5

All account name(s) must comply with the Confirmatory Authority and current corporate and business name legislation and must be positioned allowing for the requirements of signatures (refer Sections 2.2.1, 2.2.7 and 2.3.8).

2.2.6 MICR Line

6

The MICR line must include the customer's account number, a cheque serial number and the BSB of the Financial Institution where the account is conducted.

2.2.7 Position of Signature(s)

The recommended position for the signature is in the bottom half of the document below the Amount in Figures, above the MICR Clear Band and located so the signature does not intrude into the Amount in Figures area or the MICR Clear Band. Printing of signature line(s) is mandatory and should be placed in accordance with the aforementioned requirements.

Where more than one signature is required, these may be placed on the same line or one above the other. If signature(s) are preprinted the Financial Institution may require an Indemnity.

Figure 3
Data Elements Common to all
Cheques

Drawn to scale (1:1)

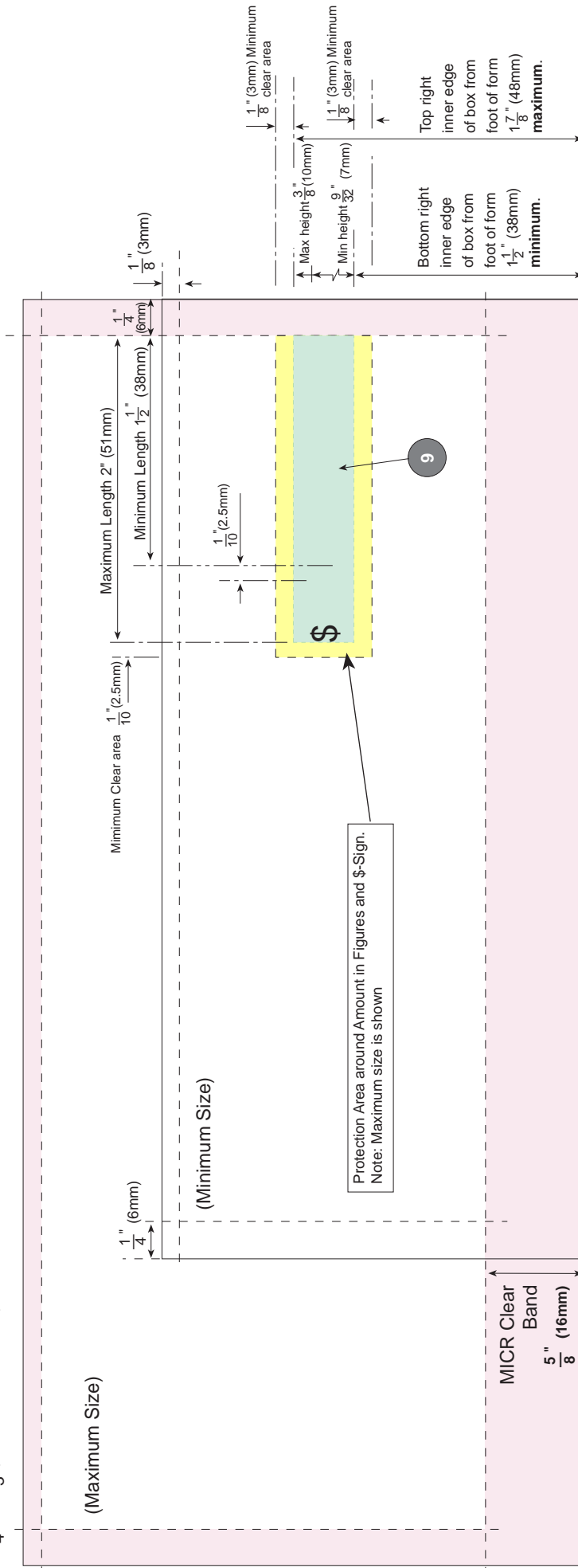
(refer sections: 2.2.9, 2.2.10, 2.2.11)

Minimum Size

$6\frac{1}{4} \times 2\frac{3}{4}$ (159mm x 70mm)

Maximum Size

$8\frac{1}{4} \times 3\frac{2}{3}$ (210mm x 93mm)



Protection Area around Amount in Figures and \$-Sign.
 Note: Maximum size is shown

Clear Band: Keep area free of printing other than warning band, background screens and MICR encoding.

Protection Area: Keep free of any scan readable printing.
 Note: Maximum size is shown.

Imaginary Area for Amount in Figures & \$-Sign:
 (Size inclusive of the \$-Sign)

Minimum: $\frac{9}{32}$ (7mm) X $1\frac{1}{2}$ (38mm).

Maximum: $\frac{3}{8}$ (10mm) X 2" (51mm) including \$-Sign.

Note: Maximum size is shown.

2.2.8 Date

The date should be placed in the top right corner of the cheque above the "Amount in Figures" area.

8

2.2.9 Amount in Figures and \$-Sign

Refer Figures 2 & 3

9

2.2.9.1 Area for the Amount in Figures and \$-Sign

The Amount in Figures and \$-sign are to be located in an imaginary rectangle. The size of the rectangle may vary according to need.

Amount in Figures Imaginary Rectangle	
Dimensions	Specifications
Width	Minimum - 1 1/2" (38mm) Maximum - 2" (51mm)
Height	Minimum - 9/32" (7mm) Maximum - 3/8" (10mm)
Minimum distance of bottom right-hand corner from bottom reference edge of document	1 1/2" (38mm)
Maximum distance of top right-hand corner from bottom reference edge of document	1 7/8" (48mm)
Distance of right-hand edge from right-hand reference edge of document	Minimum - 1/4" (6mm) Maximum - 3/4" (19mm)
Distance of left-hand edge from right-hand reference edge of document	Minimum - 1 3/4" (44mm) Maximum - 2 1/4" (57mm)

Documents where the Amount in Figures were designed to conform to the specifications of Publication 11.4 , October 1995 or Publication 11.4.1, August 1997 remain acceptable until such time as a redesign is undertaken.

2.2.9.2 \$-Sign

The \$-sign must be present on all cheques and printed as scan readable. It must not be handwritten as it provides a target for Image scanning equipment and should be formatted in accordance with Appendix D.

If a field guide or Rectangle is used, the \$-sign must be centred vertically on the guide.

Documents where the \$-sign was designed to conform to the specifications of Publication 11.4 , October 1995 or Publication 11.4.1, August 1997 remain acceptable until such time as a redesign is undertaken.

Location specifications for the \$-sign	Specifications
Distance from the left-hand edge of the \$-sign to the right-hand reference edge of the document	Minimum - 1 3/4" (44mm) Maximum - 2 1/4" (57mm)
Distance of bottom of stroke from bottom reference edge of document	Minimum - 1 1/2" (38mm)
Distance of top of stroke from bottom reference edge of document	Maximum - 1 7/8" (48mm)

2.2.9.3 Amount in Figures

The Amount in Figures must be printed or written to the right of the \$-sign. It must not touch the \$-sign to the left nor intrude into the 1/4" (6mm) vertical clear band to the right. To avoid fraudulent alteration of the Amount in Figures, it should be written or printed as close as possible to the \$-sign. Where the Amount in Figures is machine-printed, protecting asterisks may be used, see Section 2.2.10.2, to fill the gap between the \$-sign and the Amount in Figures. Nothing, other than protecting asterisks, is to be printed as scan readable to the right of the Amount in Figures.

2.2.9.4 Protection Area

A protection area must be maintained around the \$-sign and Amount in Figures. No other scan readable printing or writing is to approach closer than 1/10" (2.5mm) to the left of the \$-sign, and 1/8" (3mm) above and below the \$-sign and Amount in Figures.

2.2.10 Completion of the Amount in Figures

2.2.10.1 Handwritten Cheques

Where the Amount in Figures is handwritten a visual guide as described at Section 2.2.11 must be provided and be positioned within the imaginary rectangle described at Section 2.2.9.1.

The \$-sign must be pre-printed and centred vertically in relation to the guide or rectangle and positioned within the area defined at Section 2.2.9.2.

2.2.10.2 Machine-Printed Cheques

Where the Amount in Figures is machine or computer printed, a field guide or drop-out rectangle is not required provided the background is printed as scan non-readable. However, if a field guide or dropout rectangle is used, conformance to the specification at Section 2.2.11 must be observed.

The \$-sign may be machine printed at the same time as the Amount in Figures and both must be positioned in the area defined at Section 2.2.9.1. When the \$-sign is pre-printed, it must be positioned within the area defined at Section 2.2.9.2, and the Amount in Figures machine-printed to the right of the sign and positioned as defined at Section 2.2.9.1 and centred vertically in relation to the sign.

Amended, effective 06/99

Asterisks should be printed to protect the beginning and/or the end of the Amount in Figures, ie between the \$-sign and the dollar amount and/or after the cents amount. No other characters other than asterisks are permitted.

The dollar amount must be separated from the cents amount only by a decimal point.

2.2.11 Visual Guides

A visual guide may be provided to aid the drawer of the cheque for the location of the Amount in Figures. For machine-printed cheques a guide is optional. The form of the guide may be either a field guide or a dropout rectangle. The guide must be located within the imaginary area specified in Section 2.2.9.1.

2.2.11.1 Field Guide

A field guide must be either:

- Printed in a screen or lines as scan non-readable; **OR**
- Defined by a line formed by reversing out the background printing, ie the guide may be white.

The form of the field guide must be as recommended for cheques in Appendix C.

The \$-sign, if printed outside the guide, should touch the guide so as to limit opportunity for fraudulent alteration of the amount in figures.

For security purposes, it is recommended that a background security pattern or screen is always printed inside the field guide, and when present, must always be printed as scan non-readable.

2.2.11.2 Dropout Rectangle

A dropout rectangle is produced by the use of a different colour or screen density of the original colour and must be scan non-readable. The \$-sign is usually printed inside the rectangle.

For security purposes, it is recommended that a background security pattern or screen is always printed in the dropout rectangle.

2.2.12 Stamp Duty

See Section 7.3. ([click here](#))

12

2.2.13 Warning Band

Inserted, effective 31/08/2002

See Section 6.1.2.4. ([click here](#))

13

2.2.14 Financial Institution Cheques

Inserted, effective 31/08/2002

Financial Institution Cheques to be printed must conform to the design and security requirements as prescribed in this Publication. Where Financial Institution Cheques are issued on behalf of corporate purchasers, the Drawee Financial Institution may agree with the purchaser to allow the purchaser's name, ACN/ARBN/ABN, and company logo/brand to be printed on the cheque.

The words "Financial Institution Cheque" (or "Bank Cheque") must be prominently displayed on the face of the cheque if the additional information is to be printed. Such additional information must be less prominent than the Drawee Financial Institution's name and logo. Care must be exercised in the display, size and placement of the purchaser's logo, to ensure that there is no confusion over who is the drawer of the cheque.

The Drawee Financial Institution retains the discretion to decide whether it is prepared to allow non-corporate purchasers of Financial Institution Cheques to insert their name and other details on the cheque.

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2.3 Other Layout Requirements

2.3.1 Crossings

A crossing is two parallel transverse lines and serves as a direction to the paying institution that the item may only be paid through a Financial Institution and not cashed.

The optional addition of the words "Not Negotiable" and "Account Payee Only" which must be printed substantially between the two parallel lines.

It is desirable that crossings forming part of a cheque be conspicuous and placed as close as possible to the centre of the document. It is unwise to place the crossing near any edge of a document as it may be possible to cut or tear the document and so remove the crossing.

Printed crossings must not extend into the name of the Financial Institution or its branch name or into the 5/8" (16 mm) MICR clear band across the bottom of the document and must be at least 2 1/2" (63 mm) from the right hand edge of the document. The crossing must be printed as scan readable.

2.3.2 Clear Bands

Printing is not permitted in the clear band areas except for backgrounds, and MICR encoding in the 5/8" band at the foot of the document. It is strongly preferred that backgrounds do not intrude into the MICR clear band.

The following clear bands (see Figure 3) must be maintained:

- 5/8" (16 mm) on foot of document
- 1/4" (6 mm) on each side of document
- 1/8" (3 mm) on head of document

2.3.3 Colours

The background of a document must be of an unobtrusive design and must be printed as scan non-readable.

The foreground information must be visually recognisable against the background and must be printed as scan readable.

See also Appendix A.

2.3.4 "For and on behalf of"

The words "For and on behalf of" are required in some instances. This will protect a duly authorised signatory on behalf of a named principal from personal liability on a cheque. Please contact your Financial Institution for more details. These words must be printed as scan readable.

2.3.5 Printing on Reverse of Cheque

No printing other than backgrounds is permitted on the reverse side of the Clear Band areas (see Figure 3 and Section 2.3.2). Any printing on the reverse of the document must be printed as scan non-readable so as not to interfere with trace numbers and stamps applied by the Financial Institution during processing.

2.3.6 Carbonising

The background image created by the use of carbon ink or wax is incompatible with image processing equipment and therefore its use is discouraged. Carbonising is permissible only on the reverse side of cheques and is to be restricted to the smallest possible area, but must not intrude into the MICR clear band (refer Figure 3).

Printers must take care in the selection of background colour when a carbon strip is used. The resultant colour on the face of the cheque must not exceed the maximum permitted PCS level for background colour.

Carbonless paper (CB) or interleaved one-time carbon is preferred for encoded documents.

Any coating applied on the front or reverse must not encroach into the 5/8" (16mm) MICR clear band.

2.3.7 Paper

Cheques must be printed on sensitised paper conforming to specifications detailed in Section 6 of Publication 3.3. See also Section 6 of this publication regarding security requirements.

2.3.8 Company Name and ACN or ARBN

The company's legal name and ACN or ARBN must appear on the cheque in accordance with current corporate and business name legislation and must not be printed in less than 8 points in size for fonts with a regular stroke width and not less than 10 points in size for fonts with an irregular stroke width.

On specially printed cheques, the customer's trading name and/or corporate logo will usually appear at Bullet Point 1 (refer Figure 2). If the legal name appears here, the ACN or ARBN must immediately follow.

If the customer's legal name is not at Bullet point 1 it must be at Bullet point 4 with the ACN or ARBN following. Information appearing at Bullet point 1 may be repeated at Bullet point 4 and optionally additional information such as the trading name and/or account title (eg. Dividend A/C), if required.

2.3.9 Continuous Cheques

Cheques produced in continuous form must have all sprocket hole selvages removed before distribution.

Cutting devices used for the removal of sprocket holes and for document separation must allow for the correct positioning of any encoding in relation to the reference edges of the document and give clean edges.

When the selvedge on continuous deposit forms is not perforated, guide marks must be provided to indicate the correct guillotining position. See also Section 5 - Perforations.

Only slit perforations or micro-perforations are permissible on any edge or within the document. The horizontal perforation between the payment advice and the cheque must comply with the requirements of Section 5 - Perforations.

2.3.10 Cheque Serial Number

Some Financial Institutions may require the serial number to be printed in plain characters (in addition to MICR encoding). Refer to relevant Financial Institution.

It is recommended that the number to be printed in plain characters (normal type font) be located within an imaginary rectangle measuring 1 1/4" (32mm) wide by 3/8" (10mm) high with the top right-hand corner being 1/8" (3mm) from the top of the form and 1/4" (6mm) from the right-hand side.

2.3.11 Additional Information on Document

Some Financial Institutions may require additional information printed in plain characters (normal type font) in the body of the document; for form and location refer to the relevant Financial Institution.

2.3.12 Financial Institution's Acceptance of Cheque Design

Before production commences the printer must obtain a Design Approval Number (DAN) if not already held and a Printing Approval Number (PAN) from the customer's or other relevant Financial Institution. See Section 1.3 and Appendix E.

Upon approval for printing, the Financial Institution will issue a Confirmatory Authority.

3. Deposit Forms

Deposit forms must be printed in scan readable blue or black on white automation grade paper, which complies with the specifications detailed in Section 6 of Publication 3.3.

If it is desired to use a tint background, the tint used must be scan non-readable blue. It is not necessary to use any form of security background and/or sensitised paper for these forms. Foreground information must be printed in scan readable colours, see also Appendix A. A wider choice of colours is permitted for Multi Payment Deposits, see Section 3.4.4.

The following design specifications have been developed to suit both manual and electronic capture/processing of deposit forms. These specifications incorporate requirements of image processing systems that can "read" the amount in both handwritten and machine printed numerics.

For deposit forms with a butt or payment advice attached, see also Section 4.

Continuous Deposit Forms are usually designed as Transfer Credit Forms, see Section 3.3. For deposit forms produced in continuous form, reference is also to be made to the specifications at Section 5.

The following data elements (described below) are designated as Areas Of Interest (AOI), therefore the foreground must be printed as scan readable:

- Financial Institution Details
- Credit - Account Personalisation
- Account Title and/or Trading Name (if applicable)
- Transaction Code (if applicable)
- Document Descriptor
- Date
- Total Amount and \$-sign

It is recommended that printing of data in the AOIs should be in a sans serif font. Text must be in a size of not less than 8 points and preferably 10 points or larger. The Total Amount must be in a size of not less than 10 points and preferably 12 points or larger.

3.1 General Requirements for the Layout of Deposit Forms

Refer Figure 4

3.1.1 Financial Institution Details

1

The form of the Financial Institution name must comply with individual Financial Institution's requirements. It is generally located in the top left-hand corner of the document.

3.1.2 Teller's Initials

2

The teller's initials should be on the left side of the form. This will ensure that the entry of initials will not intrude into the data areas.

3.1.3 Branch Stamp

3

The branch stamp should be placed adjacent to, directly below, or combined with the Teller's Initials area.

3.1.4 Item Count

4

The area for the item count should be located below or adjacent to the Branch Stamp.

3.1.5 CREDIT - Account Personalisation

5

The area for account personalisation must contain "For **CREDIT** of" and the name of the account being credited and must be located above the 5/8" (16 mm) MICR clear band.

Figure 4

Data Elements Common to all Deposit Forms

Suggested layout only
Drawn to scale (1:1)

Minimum Size

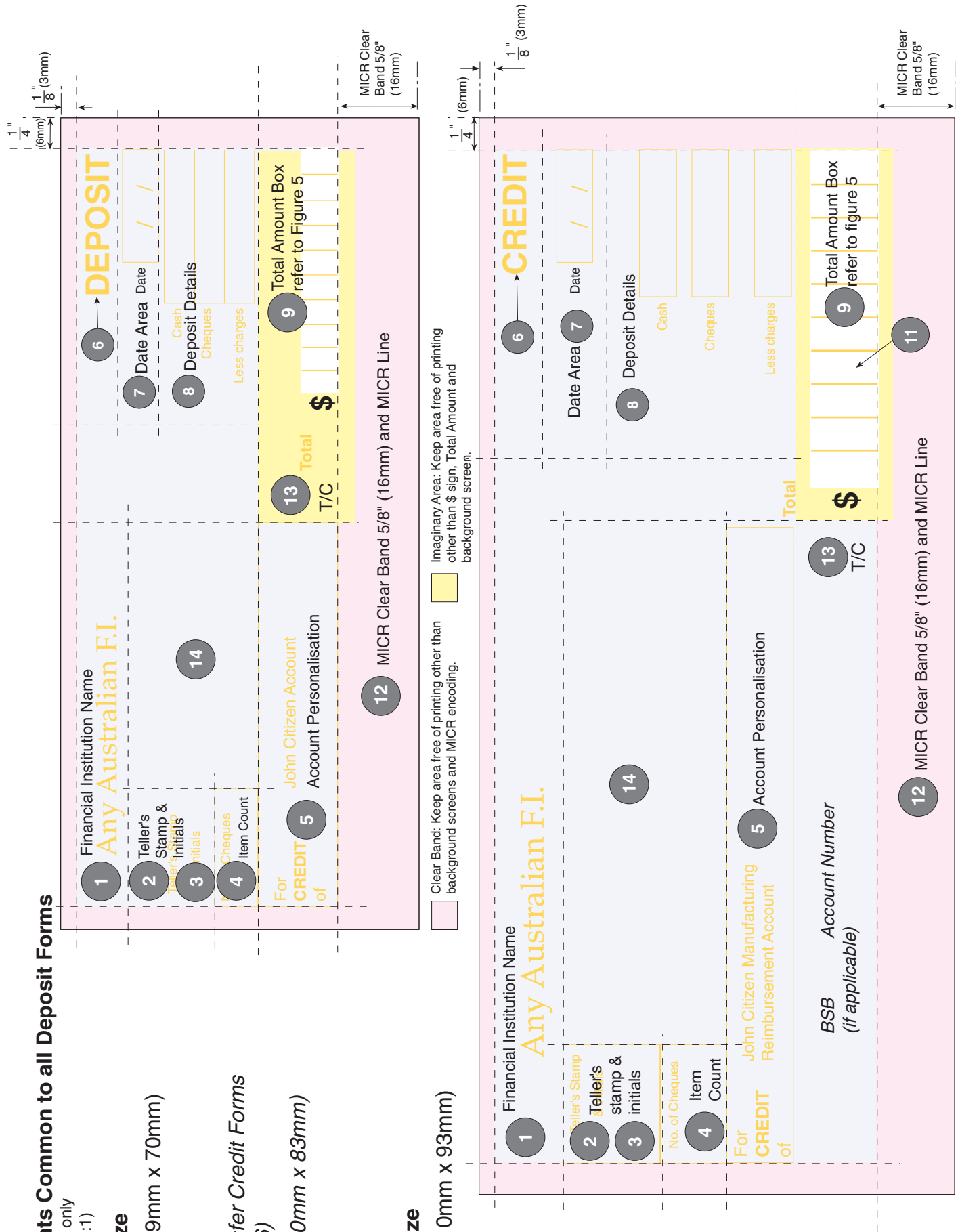
6 1/4" x 2 3/4" (159mm x 70mm)

*Except Transfer Credit Forms
(see Figure 6)*

7 1/2" x 3 1/4" (190mm x 83mm)

Maximum Size

8 1/4" x 3 2/3" (210mm x 93mm)



3.1.6 Document Descriptor

- 6 The word "CREDIT" or "DEPOSIT" must be placed within an imaginary area measuring 3/8" (10 mm) high and 1" (25 mm) wide, with the top right-hand corner of the area being 1/8" (3 mm) down from the top and 1/4" (6 mm) in from the right-hand edge of the form. The word must be printed in scan readable bold type and may be printed in either upper and lower case or all upper case letters. The upper case letter(s) must be 3/16" (5 mm) minimum in height.

3.1.7 Date

- 7 The date must be placed on the top right-hand corner of the document below the Document Descriptor so that it is easily visible.

3.1.8 Deposit Details

- 8 The Deposit Details area is between the Date Area and the Total Amount Box. This area is used for the deposit breakup (Notes, Coins, Cheques, etc.).

3.1.9 Total Amount Area

Refer figure 5

- 9 3.1.9.1 Area for the Total Amount and \$-Sign

The Total Amount and \$-sign are to be located in an imaginary rectangle which may be varied in size according to need, ie it must be of sufficient size to accommodate the maximum number of digits of the amount likely to be deposited taking into consideration the style of visual guide if used.

Total Amount Imaginary Rectangle	
Dimensions	Specifications
Width	Minimum - 2" (51mm) Maximum - 2 3/4" (70mm) Recommended for personal deposit forms - 2" (51mm) Recommended for business deposit forms - 2 3/8" (60mm)
Height	Minimum - 9/32" (7mm) Maximum - 1/2" (13mm)
Distance of bottom right-hand corner from bottom reference edge of document	Minimum - 5/8" (16mm)
Distance of top right-hand corner from bottom reference edge of document	Maximum - 1 1/8" (29mm)
Distance of right-hand edge from right-hand reference edge of document	Minimum - 1/4" (6mm)
Distance of left-hand edge from right-hand reference edge of document	Maximum - 3" (76mm)

3.1.9.2 \$-Sign

The \$-sign must be present on all deposit forms and must not be handwritten. It provides a target for Image scanning equipment and should be formatted in accordance with Appendix D.

The \$-sign must be pre- or machine-printed to the left of the Total Amount. If a field guide or Dropout Rectangle is used, the \$-sign must be centred vertically on the guide.

3.1.9.3 Total Amount

The Total Amount is to be printed or written to the right of the \$-sign. It must not touch the \$-sign to the left nor intrude into the 1/4" (6mm) vertical clear band to the right. Where the Total Amount is machine-printed, asterisks may be used to fill the gap between the \$-sign and the amount. No scan readable printing other than asterisks are permitted to the right of the Total Amount.

3.1.9.4 Protection Area

A protection area is to be maintained around the \$-sign and Total Amount. No other scan readable printing or writing is to approach closer than 1/10" (2.5mm) to the left of the \$-sign, and 1/8" (3mm) above and below the \$-sign and Total Amount.

3.1.10 Completion of the Total Amount

3.1.10.1 Handwritten Deposit Forms

Where the Total Amount is handwritten a visual guide as described at Section 3.1.11 is to be provided and must be positioned within the imaginary rectangle described at Section 3.1.9.1.

The width of the visual guide must be sufficient to allow for the writing of the maximum number of digits of the amount likely to be deposited.

The \$-sign must be pre-printed and centred vertically in relation to the guide and positioned within the area defined at 3.1.9.1. A decimal point must be pre-printed as a separator between the dollar amount and the cents amount.

3.1.10.2 Machine-Printed Deposit Forms

Where the Total Amount is machine-printed, a field guide or dropout rectangle is not required. The \$-sign may be machine-printed at the same time as the amount. The Total Amount and \$-sign must be positioned in the area defined at 3.1.9.1 and 3.1.9.3.

The dollar amount must be separated from the cents amount by a decimal point only.

3.1.11 Visual Guides

A visual guide must be provided to aid the writer of the deposit form for the location of the Total Amount when hand-written. The form of the guide may be either a field guide or a dropout rectangle. The guide is to be located within the imaginary area specified in Section 3.1.9.1. The lower outside edge of the visual guide must not encroach into the MICR clear band.

3.1.11.1 Field Guide

A field guide is to be either:

- Printed as scan non-readable lines or screen; **OR**
- Defined by a line formed by reversing out the background printing, ie the guide may be white.

The style of the field guide is to be as recommended for deposit forms in Appendix C.

3.1.11.2 Dropout Rectangle

A dropout rectangle is produced by the use of a different colour or screen density from the original colour and must be scan non-readable. It may be un-printed (white), as long as the remainder of background of the document is printed. The \$-sign should be printed inside the rectangle.

Figure 5
Data Elements Common to all Deposit Forms

Suggested layout only
 Drawn to scale (1:1)
 (Refer sections: 3.1.9, 3.1.10, 3.1.11)

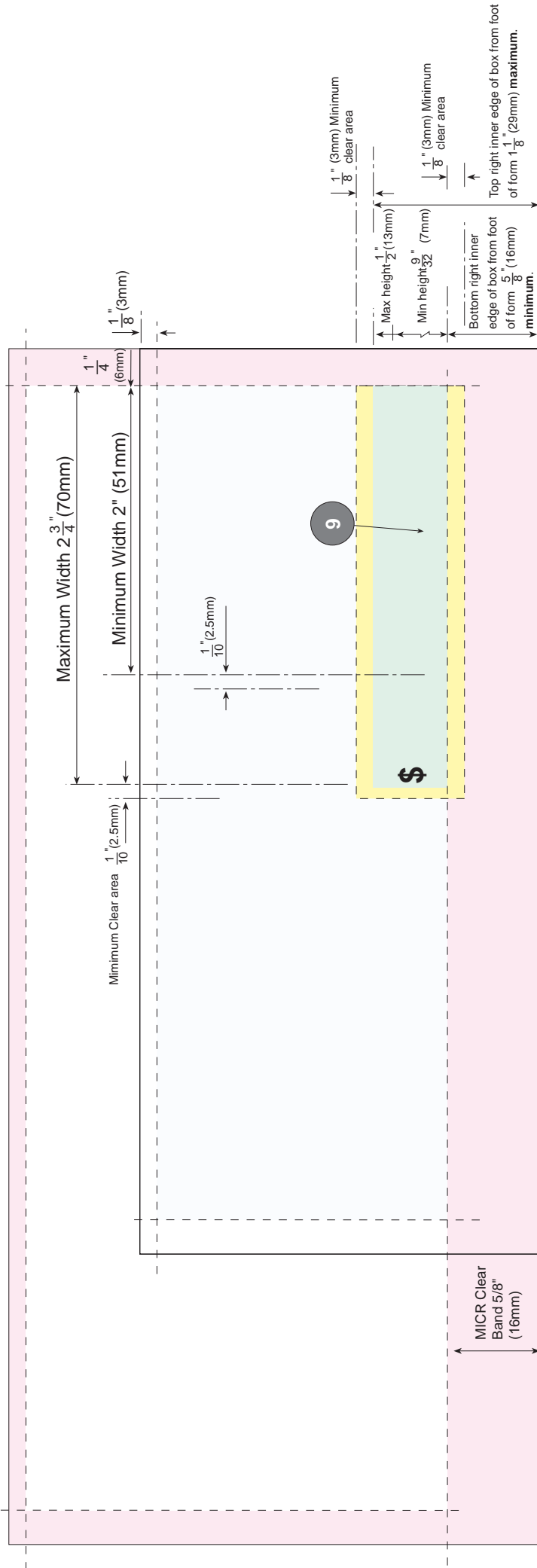
Minimum Size

$6\frac{1}{4}'' \times 2\frac{3}{4}''$ (159mm x 70mm)

Maximum Size

$8\frac{1}{4}'' \times 3\frac{2}{3}''$ (210mm x 93mm)

Recommended Widths:
 Personal Deposit forms $2''$ (51mm)
 Business Deposit forms $2\frac{3}{8}''$ (60mm)



Clear Band: Keep area free of printing other than background screens and MICR encoding.

Protection Area: Keep free of any scan readable printing.
 Note: Maximum size is shown.

Imaginary Area for Total Amount Box:
 (Size inclusive of the \$-Sign)

Minimum: $\frac{9}{32}''$ (7mm) X $2''$ (51mm).

Maximum: $\frac{1}{2}''$ (13mm) X $2\frac{3}{4}''$ (70mm) including \$-Sign.

Note: Maximum size is shown.

3.1.12 MICR Line

12

The MICR line must include the customer's account number, the BSB of the Financial Institution where the account is conducted, and optionally a reference (agent) number in the Extra Auxiliary Domestic field and Transaction Code to ensure efficient processing.

3.1.13 Transaction Code

13

The Transaction Code, if required, is to be printed in a normal type font in the area between the Total Amount and the Account Personalisation and must be printed as scan readable. Refer to the relevant Financial Institution to determine the applicable Transaction Code and whether it is to be pre-MICR encoded.

3.1.14 Optional Detail Area

14

This area is not committed for specific use and may be used for the listing of cheques lodged, cash breakup, depositor's signature, and/or fees, etc.

3.1.15 Printing on Reverse of Document

Amended, effective 31/08/2002

No printing other than backgrounds is permitted on the reverse side of the deposit form in the reverse MICR Clear Band area.

3.1.16 Clear Bands and Background

The background, if printed, must be an unobtrusive design and printed as scan non-readable. Printing is not permitted in the clear band areas except for backgrounds and MICR encoding in the 5/8" band at the foot of the document. Backgrounds should not intrude into the MICR clear band.

The following clear bands (see Figure 4) must be maintained:

- 5/8" (16 mm) on foot of deposit
- 1/4" (6 mm) on each side of deposit
- 1/8" (3 mm) on head of deposit

3.1.17 Financial Institution's Acceptance of Form Design

Before production commences the printer must obtain a Design Approval Number (DAN) of not already held and a Printing Approval Number (PAN) from the customer's or other relevant Financial Institution. See Section 1.3 and Appendix E.

Upon approval for printing, the Financial Institution will issue a Confirmatory Authority.

3.2 Credit Summary Slips

Large numbers of cheques being lodged cannot be accommodated on normal business size deposit forms. However, forms larger than the maximum permitted size and/or multi-copy forms are not suitable for processing through reader/sorter machines. To overcome this, personalised and MICR encoded Credit Summary Slips are supplied by some Financial Institutions to customers for use in conjunction with separate cheque listings.

The layout of the Credit Summary Slip must comply with the following requirements of the Deposit Form, see Section 3.1:

<u>Field/Area Title</u>	<u>Reference</u>
Financial Institution Details	3.1.1
Teller's Initials (Optional)	3.1.2
Branch Stamp (Optional)	3.1.3
Item Count (Optional)	3.1.4
CREDIT - Account Personalisation	3.1.5
Document Descriptor	3.1.6
Date	3.1.7
Total Amount Area	3.1.9
Completion of Total Amount	3.1.10
Visual Guides	3.1.11
MICR Line	3.1.12
Transaction Code (Optional)	3.1.13
Optional Detail Area	3.1.14
Printing on Reverse of Document	3.1.15
Clear Bands and Background	3.1.16
Financial Institution's Acceptance of Form Design	3.1.17

Optional = refer to the relevant Financial Institution for guidance.

3.3 Transfer Credit Forms

Refer Figure 6.

Transfer Credit Forms are supplied to customers for transfer of funds between Financial Institutions and Branches within Australia.

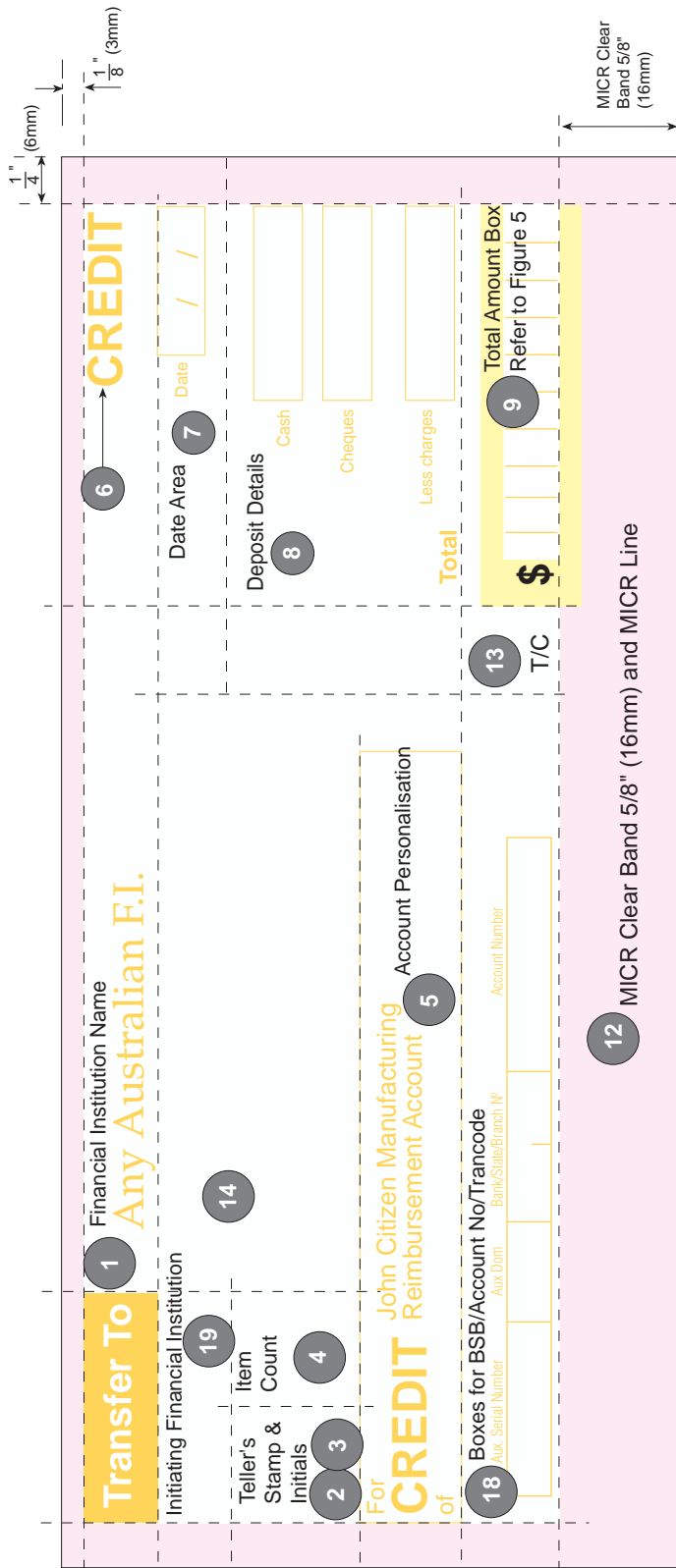
Additional information can be recorded on these deposit forms in the form of reference numbers which are subsequently MICR encoded in the Extra Auxiliary Domestic Field. Any company to which a User Identification Number has been allocated must ensure that deposit forms used for payments such as dividends, debenture note interest, etc. are a minimum length of 7 1/2" (190mm) to accommodate MICR encoding of the additional field.

Customers who lodge large volumes of transfer credit forms on a regular basis should give consideration to the use of the Direct Entry System. Reference should be made to your Financial Institution for further details.

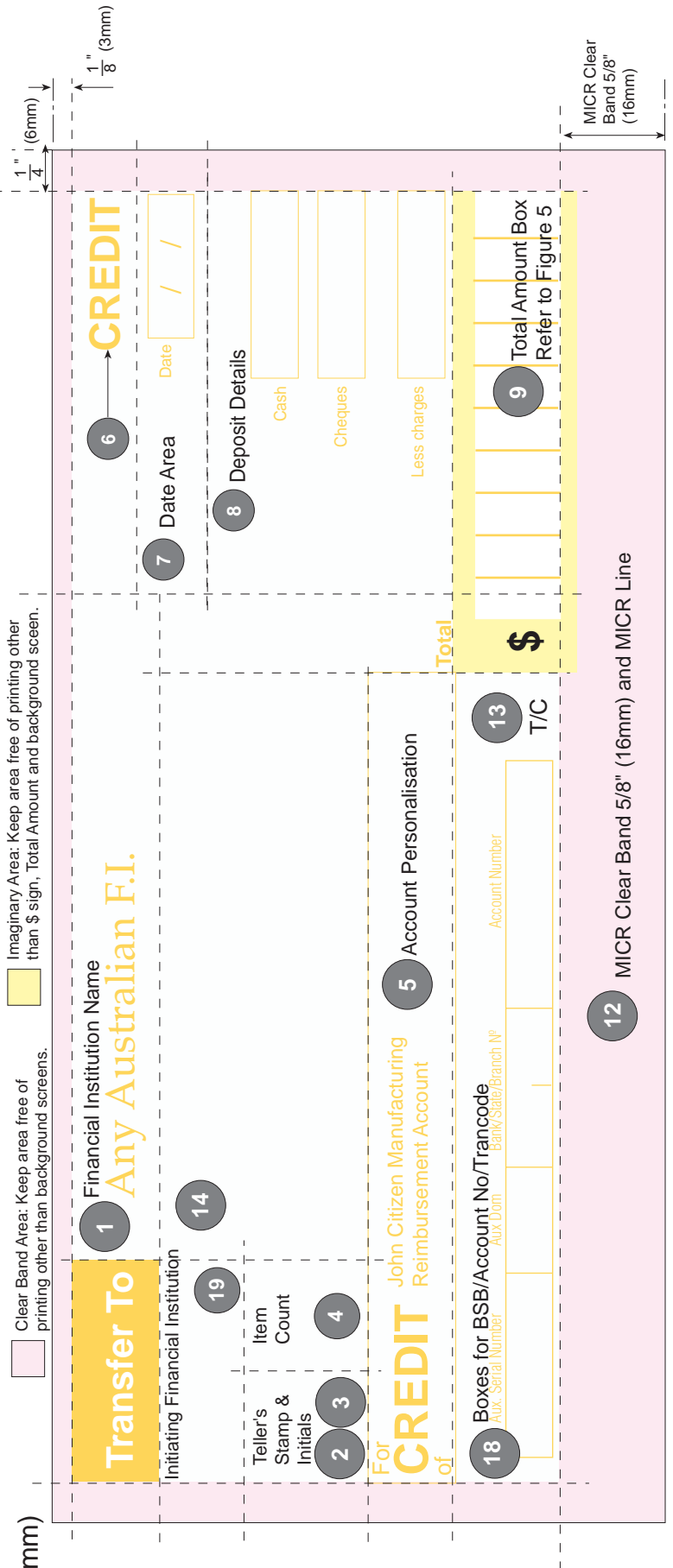
Figure 6
Data Elements Common
on Transfer Credit
Forms

Suggested layout only
 Drawn to scale (1:1)

Minimum Transfer
Credit Size
 $7\frac{1}{2}'' \times 3\frac{1}{4}''$
 (190mm x 83mm)



Maximum Transfer
Credit size
 $8\frac{1}{4}'' \times 3\frac{2}{3}''$
 (210mm x 93mm)



3.3.1 Requirements for the Layout of Transfer Credit Forms

The layout of the Transfer Credit Form must comply with the following requirements of the Deposit Form, see Section 3.1:

<u>Field/Area Title</u>	<u>Reference</u>
Financial Institution Details	3.1.1
Teller's Initials	3.1.2
Branch Stamp	3.1.3
Item Count (Optional)	3.1.4
CREDIT - Account Personalisation	3.1.5
Document Descriptor	3.1.6
Date	3.1.7
Deposit Details	3.1.8
Total Amount Area	3.1.9
Completion of Total Amount	3.1.10
Visual Guides	3.1.11
MICR Line	3.1.12
Transaction Code (Optional)	3.1.13
Optional Detail Area	3.1.14
Printing on Reverse of Document	3.1.15
Clear Bands and Background	3.1.16
Financial Institution's Acceptance of Form Design	3.1.17

Optional = refer to the relevant Financial Institution for guidance.

3.3.2 Receiving Account Details

18

Hand print boxes are to be provided as a visual guide to aid completion by the depositor of the receiving account details for later image capture or MICR encoding. The data may comprise an agent number in the extra auxiliary domestic field, the BSB, the account number and a transaction code (refer to the relevant Financial Institution for guidance).

The boxes for hand print are to be placed below the area for the Credit - Account Personalisation and above the MICR clear band along the length of the form to the left of the Total Amount area.

Refer Appendix C for recommended dimensions for hand print boxes.

3.3.3 Initiating Financial Institution

19

The name of the initiating Financial Institution must be printed as scan readable.

3.4 Multi Payment Deposit

Refer Figure 4.

Municipal councils, public authorities and large subscription-based organisations can produce personalised payment request forms with a Deposit Form attached.

The deposit form portion of the document is usually MICR encoded to facilitate rapid processing by the collection agency, and therefore the form must meet the specifications used for MICR encoded documents. The deposit form may be designed to accommodate multiple methods of payment, eg over the counter at Financial Institutions, Lockbox, over the counter at other designated lodgment organisation(s), Bill Pay and by credit card.

Additional information is usually recorded on multi payment deposits as an agent or reference number. This number is usually MICR encoded in the Extra Auxiliary Domestic field with a corresponding Transaction Code. Refer to the relevant Financial Institution for details. When an agent or reference number is MICR encoded on to the deposit form the minimum length must be 7 1/2" (190mm) to accommodate the of the additional field.

3.4.1 Requirements for the Layout of Multi Payment Deposit

The layout of the Multi Payment Deposit must comply with the following requirements of the Deposit Form, see Section 3.1:

<u>Field/Area Title</u>	<u>Reference</u>
Financial Institution Details	3.1.1
Teller's Initials	3.1.2
Branch Stamp	3.1.3
Item Count (Optional)	3.1.4
CREDIT - Account Personalisation	3.1.5
Document Descriptor	3.1.6
Date	3.1.7
Deposit Details	3.1.8
Total Amount Area	3.1.9
Completion of Total Amount	3.1.10
Visual Guides	3.1.11
MICR Line	3.1.12
Transaction Code (Optional)	3.1.13
Optional Detail Area	3.1.14
Clear Bands and Background	3.1.16
Financial Institution's Acceptance of Form Design	3.1.17

Optional = refer to the relevant Financial Institution for guidance.

3.4.2 Bar Code

Bar codes may be printed on the front (MICR encoded side) or reverse of multi payment deposit forms. The preferred placement is within an area 2 3/8" (60mm) wide and 1 1/4" (32mm) high in the top right hand corner of the deposit form as viewed from the front or reverse. If positioned in this area on the front of the deposit, the bar code should be placed below or to the left of the Document Descriptor, see Section 3.1.8 with the date to the right or below the code.

The bar code must not intrude into the clear band areas and be printed as scan readable, preferably black.

3.4.3 Printing on Reverse

Amended, effective 31/08/2002

Printing on the reverse side of the deposit form should be scan non-readable. However, it is recognised that some scan readable printing may be necessary, for example a bar code, but this should be kept to a minimum.

Last two sentences deleted 06/2002

3.4.4 Colour

The deposit form portion of the document may be printed in any ink colour selected by the customer and approved by the Financial Institution concerned (preferably not red), while maintaining requirements of the standard for colour. That is foreground printing must be printed as scan readable and background printing must be printed as scan non-readable. See also Appendix A.

4. Butts and Payment Advices

Butts and payment advices are often attached to cheques providing the payee with details of the payment. The preferred position for butts/payment advices is above or to the left of the cheque or deposit form. The right hand and bottom edges of cheques /deposits are critical for the sorting equipment utilised by Financial Institutions, therefore these must be clean reference edges.

If it is necessary however to place the attachments to the right or bottom edge of a document then the quality of perforations is critical. It must be possible for the payee to easily remove the attachment, leaving a clean reference edge. See also Section 5.

The words "ADVICE TO PAYEE" and "DETACH BEFORE BANKING" must be clearly marked on any butts/payment advices.

5. Perforations, Edge Notching and Holes in Documents

Slit type perforations and micro-perforations (also known as clean edge) are the only acceptable perforation. Other perforations such as pinhole lead to build up of paper fluff and can cause clogging of the reader/sorter equipment.

Printed perforation marks in magnetic ink or toner are not permitted within the MICR clear band. However, it is permitted to use ordinary (non-magnetic) ink, but not toner, at scan non-readable levels within this area.

It is recommended that when documents are folded for insertion into mailing envelopes, one fold be made on the cross perforation. Such folding weakens the perforation and facilitates the removal of the document undamaged. Folds close to the perforation can result in damage to the document which can cause processing difficulties.

5.1 Continuous Stationery

Documents produced in continuous form must have selvages removed before distribution.

Cutting devices used for the removal of selvages and for document separation must allow for the correct positioning of any encoding in relation to the reference edges of the document and give clean edges.

When the selvedge on continuous deposit forms is not perforated, guide marks must be provided to indicate the correct guillotining position.

5.2 Edge Notching and Holes In Documents

Documents must not be produced with notches or other types of indentation on any edge, or contain holes of any shape or size, as these cause the documents to interlock and jam the processing equipment.

5.3 Binding

The application of glues, or other forms of binding, is not permitted on the right hand and bottom reference edges on any document.

6. Security

Financial Institutions are concerned that changes in technology, through the use of colour photocopiers and the ready accessibility of sophisticated printing equipment, has increased the incidence of counterfeiting and the forging and/or altering of cheques.

There is therefore a need for the proper protection of the finance industry's negotiable documents.

Australian Courts have ruled that the drawer of a negotiable document owes a duty to the Financial Institution to exercise reasonable care in the drawing of the document, taking into account the possibility that others will break the law.

The background must be printed to afford protection against fraudulent alteration by reaction to chemical or physical alteration. When cheques are not printed to provide this protection the Financial Institution may require an indemnity from the customer.

Paragraphs deleted, effective 02/2001

Protection against counterfeiting and fraudulent alteration of cheques is obtained by choosing the right combination of security features. The choice of good security features protects your corporate identity and reputation, minimises monetary loss and eliminates the inconvenience and time involved that occurs when investigating possible fraud.

Cheques printed by recognised security printers who understand the importance of the security features detailed in this publication, and which are printed under controlled conditions, offer the best solution available.

Recognised security printers also ensure that cheques are printed to enable clear recognition of all variable details as required by Financial Institutions for image capture and processing.

Last three paragraphs inserted, effective 02/2001

6.1 Security Features

There will be four levels of security for the printing of documents, dependent on their risk level. The number of security features to be used increases with the risk level and is to be selected from the list given in Section 6.1.2. This list is sub-divided into paper, ink and design, and a description of the effect of the specific features is included.

The specifications cover the minimum security features that are required to protect the document type from forgery or counterfeiting.

Paragraph amended, effective 06/99

To conform to the requirement to exercise due care, as mentioned above, it may be considered beneficial to add to these minimum levels to further improve security. A list of recommended features is included in Section 6.1.2, this choice being the responsibility of the document purchaser and/or their Financial Institution.

6.1.1 Printing

6.1.1.1 Deposit/Voucher Level

For use on:

- Deposit forms
- Credit summaries
- Intra/internal Financial Institution vouchers
- Warrants

Minimum requirements:

- Plain paper for MICR encoded documents
- Conventional ink(s) or toner

6.1.1.2 Base Level

For use on:

- Bank supplied customer cheques

Minimum requirements:

- Sensitised paper for MICR encoded documents **plus**
- Conventional ink(s) or toner **and**
- one primary ink security feature

6.1.1.3 Intermediate Level

For use on:

- Specially Printed Cheques

Minimum requirements:

- Sensitised paper for MICR encoded documents **and**
- one primary ink security feature **plus**
- one of the three following options:
 - * Watermarked paper
 - * One secondary ink security feature Amended, effective 02/2001
 - * One design security feature

In addition, a warning band (see Section 6.1.2.4) must be printed on all Specially Printed Cheques.

Amended, effective 28/02/2003

6.1.1.4 High Level

For use on:

- Financial Institution Cheques
- Drafts
- Money Orders

Minimum requirements:

- Sensitised, watermarked paper for MICR encoded documents **or**
- **Transparentising Ink on sensitised paper for MICR encoded documents plus** Inserted, effective 31/08/2002
- Conventional ink(s) or toner,
- One primary ink feature **and**
- **One** secondary ink security features **plus** Amended, effective 31/08/2002
- One design security feature

In addition, a warning band (see Section 6.1.2.4) must be printed on all Financial Institution Cheques and Money Orders.

Amended, effective 28/02/2003

6.1.2 Security Features

These are the recommended security features to be incorporated in the above listing. It should be noted that more than one feature may be incorporated in the same paper or ink, for example sensitised, watermarked paper.

6.1.2.1 Paper Security Features

Paper approved by APCA for MICR encoded documents must be UV dull. The security features recommended for paper are:

- **Sensitisation** - the paper is chemical sensitised to react against tampering by solvents, bleaches and acids, and reacts with a colour "flash-up".
- **Watermark** - a three dimensional result is achieved at the paper making stage, providing a finely detailed design, readily identified yet difficult to reproduce via scanning devices. This is preferably multi-dimensional as this eliminates the need to register the device with the print.

Last bullet point was deleted, effective 31/08/2002

Primary features:

- **Aqueous Fugitive** – provides a visual alert, where the ink reacts by completely dissolving and/or the design smudging, if water and/or water based chemicals are applied (test before using with a laser printer).
- **Solvent Sensitive** - the ink reacts by dissolving and the design smudges if an organic solvent is applied, also providing a visual alert.
- **Chemical Sensitive** – the ink reacts to attack by solvents, bleaches, acids etc. by changing colour and providing a visual alert. Only suitable where laser printers are not used (test before using with a laser printer).

Secondary features:

- **Visible and Invisible Fluorescent** – these inks fluoresce under UV light.
- **Metallic** - provide effective defence against colour scanning, usually by reproducing a darker image. Must be restricted in use to small areas, such as company logos.
- **Transparentising Ink** - may be used to simulate a watermark [which can be viewed through the paper when held up to light](#). [The ink must be printed on the reverse and may fluoresce.](#)

Amended, effective 31/08/2002

- **Metameric** - are printed inks in two colours that appear the same colour when viewed under a standard light source, but appear different when viewed under a different light source.
- **Intaglio** - inks, which as part of the intaglio printing process, remain on the surface of the substrate, providing a tactile or "raised" effect. A latent image (hidden wording) may be used in larger formats.
- **Thermochromatic** – ink that changes colour or disappears when the temperature is raised. The colour change is not to be a permanent effect.
- **Photochromatic** – colourless ink that develops colour when exposed to UV or strong light. The colour change is not to be permanent effect.

Last two bullet points added, effective 02/2001

6.1.2.3 Design Security Features

Amended, effective 02/2001 or 08/2001

- **Fine Line Security Patterns** – are to be printed as patterns of intertwining lines. They cannot be printed as a screen. Fine lines are difficult to copy or scan and should be printed in lighter/pastel shades. A line weight of 0.05mm to 0.30mm is recommended, ie lines are to be printed as fine as possible and are to be scan non-readable.

Amended, effective 08/2001

- **Guilloche** - this is a free standing fine line design, which can be overprinted, either visibly or invisibly, onto existing security patterns.
- **Rosette** - as per guilloche. However they are more symmetrical.
- **Micro Printing** – text set in very small letters (usually 0.20mm to 0.30mm in height) that can be easily read through a magnifying glass, but which appear to the unaided eye to be dashed or solid lines.

Amended, effective 02/2001

[Bullet point was deleted, effective 31/08/2002](#)

- **Rainbow or Split Duct** - this method of design can be achieved reprographically or mechanically on the press and relies on a subtle merging of images from one colour into another. Creates difficulty in all methods of counterfeiting.
- **Security pantograph** – a design feature whereby a hidden word or similar appears when the document is photocopied. This feature may not be compatible with Image Capture technology. This must not intrude into the Amount in Figures and its Protection Area. It is preferable that it does not intrude into the other Areas Of Interest (AOI).
- **Optically Variable Devices** – features with multiple reflective images usually on a silver

metallic backing. The feature can be a 3D or 2D image where the image or colour changes when the viewing angle varies. Holograms are one type of OVD. Another type of OVD is Datafoil that permits the viewing of text through the device. If the device is to be applied over the payee's name, Amount in Words or Amount in Figures, duplicate that information for example in smaller type and place the Datafoil over the duplicated text.

Last 2 sentences inserted, effective 31/08/2002

6.1.2.4 Warning Band

Amended, effective 31/08/2002

A warning band must appear on the front or reverse of all Specially Printed Cheques, Financial Institution Cheques, and Money Orders. The band is to assist the recipient of such documents by calling attention to certain security features that are wished to be made obvious.

The text for the band should be kept as simple as possible and may be printed as scan readable or scan non-readable, but must be visually legible in the original document (minimum 6 point type). It is generally printed on the front, but when printed on the reverse, there must be a notice on the front of the document directing attention to the presence of the band on the reverse.

The band or notice must not interfere with any other information printed on the cheque and must not be printed in the MICR clear band, right-hand side clear band, or the area for the Amount in Figures. Some examples of Warning Bands are shown in the "Frequently Asked Questions Regarding Publication 11.5" document available from the APCA web-site.
<http://www.APCA.com.au/Pub115FAQ.pdf>

The band does not need to mention that the document has been printed on sensitised paper using solvent/chemical sensitive or aqueous fugitive ink. It must detail at least one of the security features that have been utilised to protect the document against counterfeiting, and, with the exception of the security pantograph, it must state that the absence of the feature could indicate a fraudulent document.

Where a security pantograph has been used as the only feature to guard against counterfeiting, the warning band may state that the document contains inbuilt security features.

6.1.2.5 Ink Coverage

Amended, effective 31/08/2002

Care is to be taken that the background security pattern or screen provides sufficient ink coverage in the Areas of Interest particularly when a split duct or step and repeat pattern is used to ensure that the reactive ink continues to provide adequate protection against attack on the printed or written data.

6.2 Premises and Negotiable Document Security

The following information is intended as a guide for printers and suppliers of cheques or other negotiable documents as to the level and type of premises and document security that is deemed appropriate.

6.2.1 Premises Security

Manufacturing sites should have external security measures appropriate to their location. Security lighting is recommended and if a security fence is used, the gates must be locked when the premises are unattended.

Buildings should have secure entrances, exits and windows to control access. Visitors should be controlled through a formal reception procedure. Delivery staff should not have access to the production areas. Internal controls are required to confidential areas. The attendance of staff on the premises should be recorded at all times.

An alarm system covering all buildings and access points connected to a security company or police is recommended.

6.2.2 Destruction Of Waste

Production waste, ie spoilt work, run ups, over-runs, should be securely stored prior to secure destruction. Destruction should be by burning, shredding etc, so that the account details or the document cannot be readily re-constructed.

6.2.3 Secure Storage

Origination materials for cheques and negotiable documents should be stored securely in a location that has limited access and is locked when not in use.

Finished product should similarly be kept in a secure location prior to despatch.

6.2.4 Confidentiality

Printers' employees' contracts should contain a confidentiality clause. Suppliers should take steps to ensure that confidential information, such as account details, is not disclosed in an unauthorised manner or by accident.

6.2.5 Transport/Despatch

There should be an auditable despatch system with accurate records of orders despatched, the carrier and receipt by the customer/Financial Institution. Despatch must be made by a secure means as agreed with the customer and only to the address specified on the order or the relevant Financial Institution branch.

6.3 End User Security

The user of cheques has a responsibility to ensure that cheques or negotiable documents are kept in a secure place and to limit access to them. An auditable record of cheques issued, amount paid, payee and signatories should be normal business practice.

Excess, spoilt or obsolete documents should be securely destroyed and an auditable record kept. Destruction should be by burning, shredding etc, so that the account details or the document cannot be readily re-constructed.

7. General Information

7.1 Window-Faced Envelopes

Refer to Australia Post booklet "Letter Post and Electronic Mail within Australia", Section 1.5, Amendment No. 95, 1996, or its subsequent replacement.

Paragraphs deleted, effective 02/2001

In order to minimise the potential for third party theft or fraud, the payee's address should not be printed on the cheque for use in a window-faced envelope, rather it should be printed in the accompanying remittance advice.

Australia Post's requirements for the four State delivery bar-code are not compatible with the design and security requirements for cheques as detailed in this publication. The four State delivery bar-code is therefore not to be printed on cheques and must be printed on the accompanying remittance advice, covering letter or envelope.

Preceding two paragraphs added, effective 02/2001

Envelopes must be large enough to enable documents to be inserted without folding vertically but of a size that prevents the documents from "floating".

7.2 Sampling Requirements

Printers should ensure that sufficient additional forms are printed to provide for evaluation samples.

Financial Institutions require sample forms, taken from every run of MICR encoded documents, for evaluation purposes. The following are minimum requirements, which must be supplied unless sampling instructions from the relative Financial Institution specify otherwise. Samples should be submitted to the relative Financial Institution's evaluation centre as soon as possible after printing. For sampling desktop printers, refer to APCA publication "Non-Impact MICR Printing Standards".

Test sheets (full sheet if more than one-to-view) should be taken from the beginning and end of run and for each 6000 sheets for runs in excess of this figure.

Continuous document samples must be provided at a minimum ratio of one per 6,000 forms printed according to packaging requirements.

Samples (one from each MICR encoded numbering box) should be taken according to the number of numbering boxes used ie.:

- 6 numbering boxes used - 6 samples every 36,000 forms
- 4 numbering boxes used - 4 samples every 24,000 forms
- 2 numbering boxes used - 2 samples every 12,000 forms

Printers should consult the relative Financial Institution for guidance on samples required for jobs in excess of 100,000 forms.

When documents which are part of a system set have attachments eg. customer butts, or have duplicate copies; one complete, untrimmed set/sheet is required in addition to normal samples.

Financial Institutions require that a satisfactory evaluation be completed prior to release of forms by the printer.

7.3 Stamp Duty Requirements

In those states where Stamp Duty is applicable, the "Stamp Duty Paid" panel or "Exempt Stamp Duty" panel, which must measure 12 x 12 mm and be of a design approved by the relative Stamp Duty Office, must appear on the face of the cheque.

Only printers authorised by the particular Financial Institution on which the cheques are drawn are permitted to print Stamp Duty panels. The panel must be printed as scan readable.

Printers must complete the Stamp Duty section on the Order for Specially Printed Cheques/Deposits form, where applicable, before submitting to the relevant Financial Institution.

The licensed printer must hold a valid Printing Approval Number (PAN) and Confirmatory Authority from the relevant Financial Institution before printing can commence.

Printers must observe the requirements of the Financial Institution and Stamp Duty authorities in regard to printing, control, and delivery/release of stamped forms.

7.4 Document Writing/Signing/Payee Protection Machines

Forms completed by document writing/payee protection machines, which produce either a shredded or perforated surface, can cause processing problems. Customers should consult their Financial Institution prior to contemplating the use of this equipment. The details must be printed as scan readable.

7.5 Production Errors - Cheques and Deposit Forms

Quality Control procedures for cheques and deposit forms are detailed in APCA Publication 3.3.

When a Financial Institution detects, or is advised of a printing error the Financial Institution must take the action detailed hereunder:

1. Assess the extent of the problem
2. Arrange the immediate withdrawal of the offending documents
3. Arrange reprint if required.
4. If some offending documents have been issued, advise Australian Payments Clearing Association Limited full details of the error.
5. Provide details of the title and address of the officer within the ledger Financial Institution to whom enquiries can be made.

On receipt of advice from a Financial Institution that an error has occurred, the Australian Payments Clearing Association Limited will verify the accuracy of the matter and if found correct will issue to all Financial Institutions, either direct, or through the appropriate industry representative body, details of the production error, the corrective action taken, and the name of the ledger Financial Institution contact officer.

7.6 Paper for MICR Encoded Documents

Financial Institutions require that paper for cheques, deposit forms and summary slips be of a standard suitable for normal handling and multiple passing through reader/sorter equipment, while maintaining a satisfactory processing rate.

It is essential that paper used for printing of forms be of the required standard as detailed in Publication 3.3, Section 6 – Paper for MICR Encoded Documents.

APCA maintains a Paper Register for MICR Encoded Documents. The register contains a list of paper suppliers/manufacturers who have submitted test results of their cheque and deposit form grade paper that conform to APCA's specifications.

The list is available from APCA on request.

Paper suppliers/manufacturers wishing to have their cheque and/or deposit form grade paper included on the register should contact APCA for more information.

Carbonless paper is preferred to spot carbonising as the latter causes problems with image processing. However, chemical coatings used for carbonless paper may be abrasive (CF type), or not able to give a sufficiently dark image (scan readable), use of this material must be discussed with the relevant Financial Institution.

Appendix A

Measurement of Print for Image Capture

When a printed document is presented in an Imaging system, the system needs to discriminate between the information that is to be read, interpreted, or saved, and the rest of the print. This is achieved by printing the essential information in a dark colour and printing the detail that is not required in a lighter colour. The system can then have its contrast adjusted so that it only detects the darker print. For the documents to be read at high speed, it is necessary to specify the levels of darkness or lightness of colour and a way that these can be measured.

There are two measurement systems available, Print Contrast Signal (PCS) and the more recent Dynamic Contrast Ratio (DCR) system. PCS values are acceptable for all areas of a document but DCR values are an acceptable alternative for measuring for the designated Areas Of Interest.

Print Contrast Signal

The initial method developed for specifying level of darkness or lightness of print is known as Print Contrast Signal (PCS), where the level of “darkness” of a colour is determined by its reflectance relative to the paper on which it is printed. This is expressed on a scale of zero to one. A dark colour has a low reflectance relative to the paper it is printed on, to which the PCS method gives a high value. A light colour has a high reflectance and has a low PCS value.

To achieve reliable performance from the imaging equipment, it has been determined that information that is to be retained must be printed so that the print has a PCS value of 0.6 or more. This is termed scan readable. Information that is not to be retained must be printed so that the PCS value is 0.3 or less, and this is termed scan non-readable. The gap between the PCS value for scan readable and scan non-readable is to improve the performance of the equipment.

The value of the PCS is determined by measuring the reflectance of the paper, or background, and the area whose PCS is being determined. A mathematical formula is then used to calculate the PCS, or the instrument used may carry out the calculation automatically. The detail on how the PCS value is calculated and measured is described in Appendix B.

DCR Compared to PCS

A more refined method of measuring the level of lightness and darkness of print is “Dynamic Contrast Ratio” or DCR. Both DCR and PCS are a measure of contrast and the mathematical formula is the same. They differ in definition of the terms and the way that each is applied.

In DCR, “background” is the average of all pixels in a 0.125 inch square area. As in all computerised scanning, no discrimination of background and foreground is made and this is an overall average, which includes the centre pixel. In PCS a human selection of the background and foreground is made, and a manual sampling is taken to establish average reflectance values for both. This limits the value of PCS when evaluating complex patterns, as arbitrary sampling may give different results from different operators.

A computer software image-processing algorithm applies DCR. Each pixel is compared to the local area (0.125 inch square = 1444 pixels) automatically, and all the black/white decisions result in a binary image. Application of DCR is not only a contrast decision, but also a consideration of the rate of change of reflectance over distance. As no human decision is required the same result is always achieved in analysis based on DCR, within the limits of the equipment used. The output of the measurement is expressed in “paxels” and the maximum value for any Area Of Interest (AOI) is 8 paxels.

Appendix B

Measurement of Print Contrast Signal and Dynamic Contrast Ratio

Measurement of Print Contrast Signal

The Print Contrast Signal (PCS) is a measure based on the reflectance of a specified area in relation to the background reflectance. In the case of a printed cheque, the PCS of a printed ink is the ratio of the reflectance of the printed area to the un-printed cheque paper.

The Print Contrast Signal of a point is defined by the following formula:

$$PCS_B = (R_B - R_P) / R_B$$

Where R_B is the average reflectance of the background within the area of interest and R_P is the reflectance of a small measurement area centred on point P. The reflectance, and consequently the PCS, is measured with an aperture 0.008 inch in diameter. This measurement is performed using the black-backing method as described below.

Reflectance as measured by a reflectance meter or print contrast meter is an absolute value calibrated by reference to a freshly pressed magnesium oxide (MgO) powder, or barium sulphate powder (BaSO₄) as the 100% value. All reflectance measurements shall be made on equipment having a spectral response as specified below, and using an aperture 0.008 inch in diameter. Reflectance as used in the standard refers to diffuse reflection; that is the reflected light used for measurement excludes spectrally reflected light. Measurement should be accomplished by using the black-backing method; that is the sample being measured should be backed with a black material having no more than 0.5% reflectance.

The PCS can be measured directly with specialised instruments, such as the Macbeth (Model No. PCM II), RDM Image Qualifier (Model No. IQ 1000 or No. IQ 97) or Clearwave Electronics (Model No. 082A or No. 082B). It can also be measured with normal reflectance meters as long as they are fitted with a filter that has a spectral response peak at 555 nanometres and a half peak response at 510 to 610 nanometres (eg. Kodak Wratten No. 106).

Measurement of Dynamic Contrast Ratio

For areas where the concern is the legibility of hand-print or computer- print over the background design, Dynamic Contrast Ratio methods have been found to be the best method of predicting results. For declared "Areas Of Interest", this method is preferred to PCS.

The starting point of generating a Dynamic Contrast Image is a 300 dpi greyscale image, where each pixel can have up to 256 levels of grey. Each pixel is measured through an aperture of 0.008". This is converted to a binary image where each pixel can only have two levels, black or white, and a decision has to be made on each pixel. In this method a Dynamic Thresholding process is used to convert the greyscale image to a bitmap using special software that applies a Dynamic Contrast Ratio algorithm to the image. This is applied over an area of 0.125" square and uses as its reference point the centre pixel (refer Figure B-1). It has been determined that the appropriate ratio is 0.2 and the following formula is applied where R is the % reflectance.

$$DCR = \frac{(R_{\text{area average}} - R_{\text{centre pixel}})}{R_{\text{area average}}}$$

If the DCR is less than or equal to 0.2, the pixel is made white. If the DCR is more than 0.2, the pixel is black. Within a limited range this is a linear relationship, but the following cut off points are used with reference to the centre pixel:

- If the centre pixel's reflectance is less than 20%, it is always black.
- If the centre pixel's reflectance is more than 70%, it is always white.

To determine the effect the background has on the legibility of the data to be retained, this bitmap information is used to measure the potential for interference, which is termed "background clutter". For this purpose, a scoring system is used based on an area 0.010" square which contains 9 pixels. If, within this area, 6 or more of the 9 pixels are black, it is termed a Poxel. Refer Figure B-2.

Whilst individual Paxels do not create a legibility problem, where they are aggregated together the joint effect may cause interference. It has been determined that within an Area Of Interest, which is a box of 0.25" high by the length of the Area, a string of more than 8 touching Paxels will cause a problem. Refer Figure B-3.

A background in an AOI where Paxel strings of more then 8 occur is thus out of specification.

Figure B-1

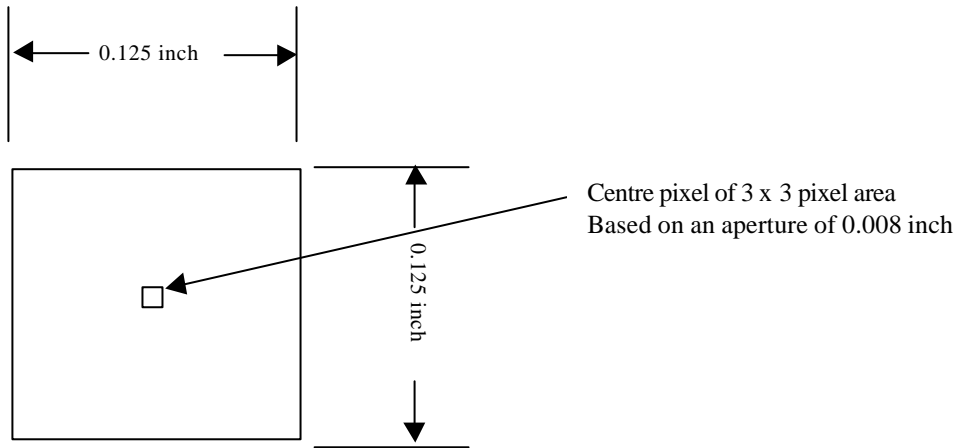


Figure B-2

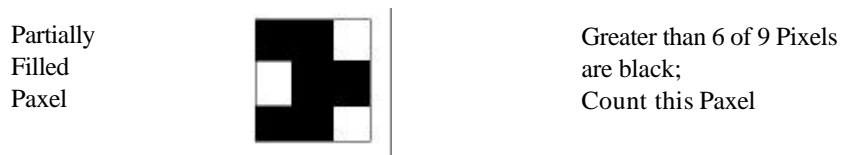


Figure B-3



Paxel Count Greater than 8 in a String;
Problem likely with legibility

Testing Equipment

For current details of suppliers of this equipment, please consult APCA.

Appendix C

Examples of Field Guide Design

The examples illustrated here are only provided to demonstrate some simple ways in which the data fields may be designed to encourage correct positioning of data. This will make character identification simpler and more positive, thus improving the first time read rate and reducing operator intervention. In turn this will result in faster processing of documents.

Recommended for cheques:



Open rectangle style

Recommended for deposits:



Rectangle with split cents



Individual hand print boxes for each character entry position.



Individual hand print boxes plus decimal point and tick mark for thousands



Individual hand print boxes plus decimal point and tick mark every three digits

Lines for the field guides are to be printed as scan non-readable.

A decimal point is not to be pre-printed on cheques.

Where the Total Amount is hand-written on deposit forms, a decimal point is to be pre-printed as scan readable.

Amended effective 06/99

Recommended Specifications for Hand Print Boxes

- Width (inside) 3/16" (4.75mm)
- Height (inside) 1/4" (6.25mm)
- Delimiters Width 1/32" (0.75mm)
- Triple delimiters are used to separate dollars from cents.

Amended effective 06/99

Appendix D

\$ Sign Representation

The dollar sign must be represented by a character that conforms to certain dimension and ratio rules, as shown below, to enable it to be recognised by CAR systems. The OCR B font dollar sign at point sizes 16 and 18 conforms to these requirements. Alternatively if this font is not available, it is preferred that the style of the font used is san serif as this will aid recognition, eg Arial or Helvetica.

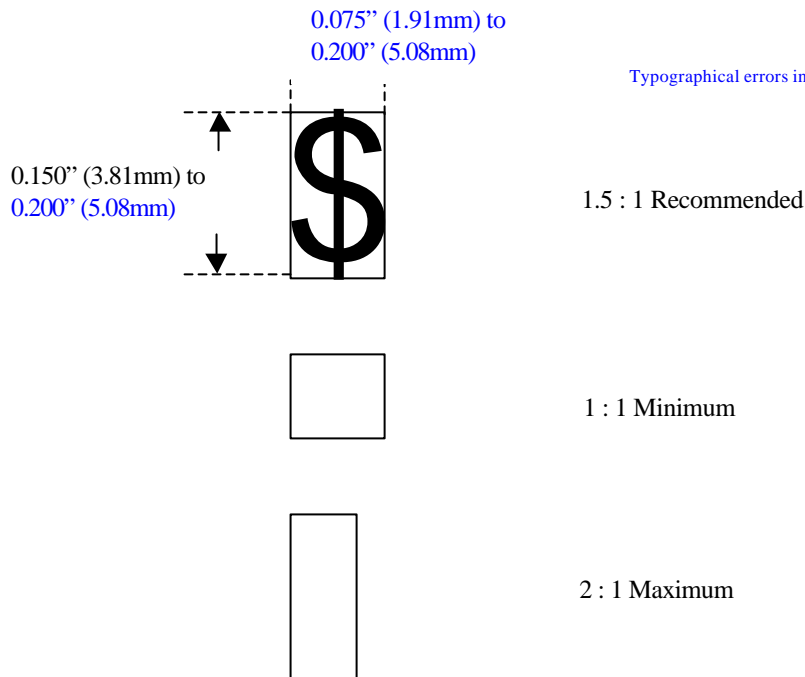
Amended effective 06/99

The pre-printed dollar sign must have:

- a single vertical line through an upper case "S"
- the vertical line must be between 0.013" (0.33mm) and 0.017" (0.43mm) wide
- the recommended height to width ratio is 1.5:1 (aspect ratio)
- the aspect ratio must be between 1:1 and 2:1
- the height must be between 0.150" (3.81mm) and 0.200" (5.08mm)
- the width must be between 0.075" (1.91mm) and 0.200" (5.08mm)

Typographical errors in the measurements corrected 06/99

Aspect ratio



Appendix E

1. Approval/Authorisation Scenarios

The approval processes and related flow charts that follow describe the four standard approval/authorisation scenarios that have been developed. These are:

- Approval of new design with MICR
- Base design approval
- New document with approved base design
- Reprint with no changes.

The requirements are also detailed for design approval and allocation of a Design Approval Number (DAN) as well as the requirements for MICR/Colour authorisation and allocation of a Printing Approval Number (PAN).

1.1 Approval of New Design with MICR

Refer also Scenario 1 flow chart

Assumptions

Request initiated by the customer who engages an artist and/or trade printer (TP).

Process

- (a) Artist or TP prepares draft layout of form. If prepared by an artist or graphic designer, it is handed over to the TP.
- (b) The TP completes a request for a Design Approval Number (DAN) and a Printing Approval Number (PAN) with information as detailed at points 2 and 3 below. The request and artwork are to be submitted to the customer's Financial Institution.
- (c) The customer's Financial Institution is to proceed as follows:
 - (i) The Financial Institution checks for design conformance to Publication 11.5 in terms of point 2 below and allocates a DAN in terms of point 4.1 below.
 - (ii) The Financial Institution then checks for colour conformance to Publication 11.5 if a colour machine proof or colour samples are provided, and checks the data elements and drawer details in terms of point 3 below and allocates a PAN in terms of point 4.2 below.
 - (iii) If any of the checks at (i) and (ii) fail, reference is made back to the TP for resolution/correction.
- (d) The Financial Institution issues a Confirmatory Authority quoting the DAN and PAN to the TP.
- (e) The TP completes the order.
- (f) The TP submits samples from the order to the Financial Institution quoting the PAN.
- (g) The Financial Institution is to evaluate the samples for conformance to Publications 11.5 and 3.3 in terms of point 5 below, and must provide an evaluation report to the TP in writing, by fax or electronic mail.

Paragraphs amended, effective 12/1999
- (h) For orders of 20,000 forms or less the TP may release the forms as directed on the Confirmatory Authority at the same time that samples are submitted to the financial Institution for evaluation.

Point (h) inserted, effective 12/1999
- (i) For orders of greater than 20,000 forms, the TP must not release the forms until the evaluation report has been received or for five business days which ever comes first. If the evaluation has been successful, the TP is to despatch the printed forms as directed on the Confirmatory Authority.

Paragraphs amended, effective 12/1999

1.2 Base Design Approval

Refer also Scenario 2 flow chart

Assumptions

Request initiated by a supplier. A base design may be used by multiple customers, eg in conjunction with a commercial accounting software package.

Process

- (a) The supplier prepares draft layout of form.
- (b) The supplier completes a request for Design Approval Number (DAN) with information as detailed at point 2 below. The request and artwork are to be submitted to a Financial Institution.
- (c) The Financial Institution checks for design conformance to Publication 11.5 in terms of point 2 below and allocates a DAN in terms of point 4.1 below. If any of the checks fail, reference is made back to the supplier for resolution/correction.
- (d) The Financial Institution issues Design Approval quoting the DAN to the supplier.

1.3 New Documents with Approved Base Design

Refer also Scenario 3 flow chart

Assumptions

Request initiated by a customer who engages a supplier who uses an approved base design, see point 1.2 above.

Process

- (a) The supplier completes a request for Printing Approval Number (PAN) with information as detailed at point 3 below quoting the DAN. The request and artwork are to be submitted to the customer's Financial Institution.
- (b) The Financial Institution checks for colour conformance to Publication 11.5 if a colour machine proof or colour samples are provided, and checks the data elements and drawer details in terms of point 3 below and allocates a PAN in terms of point 4.2 below.

If any of the checks fail, reference is made back to the supplier for resolution or correction.
- (c) The Financial Institution issues a Confirmatory Authority quoting the DAN and PAN to the TP.
- (d) The supplier completes the order or engages a TP to print the documents.
- (e) The supplier submits samples from the order to the Financial Institution quoting the PAN.
- (f) The Financial Institution is to evaluate the samples for conformance to Publications 11.5 and 3.3 in terms of point 5 below, and must provide an evaluation report to the TP in writing, by fax or electronic mail.
- (g) For orders of 20,000 forms or less the TP may release the forms as directed on the Confirmatory Authority at the same time that samples are submitted to the Financial Institution for evaluation.
- (h) For orders of greater than 20,000 forms the TP must not release the forms until the evaluation report has been received or for five business days which ever comes first. If the evaluation has been successful, the TP is to despatch the printed forms as directed on the Confirmatory Authority.

Points (f), (g) and (h) are new, effective 12/1999

1.4 Reprint with No Changes

Refer also Scenario 4 flow chart

Assumptions

Request initiated by the customer who engages a trade printer who uses an approved design with DAN, see points 1.1 or 1.2 above and a previously allocated Confirmatory Authority with PAN, see point 1.1 or 1.3 above.

Process

- (a) The TP completes a request for a Printing Approval Number (PAN) with information as detailed at point 3 below quoting the DAN and the last allocated PAN. The request and artwork are to be submitted to the customer's Financial Institution.
- (b) The Financial Institution checks the drawer details in terms of point 3 below and increments the reprint number of the PAN by one. If any of the checks fail, reference is made to the TP for resolution/correction.
- (c) The Financial Institution issues a Confirmatory Authority quoting the DAN and the PAN to the TP.
- (d) The TP completes the order.
- (e) The TP submits samples from the order to the Financial Institution quoting the PAN.
- (f) The Financial Institution is to evaluate the samples for conformance to Publications 11.5 and 3.3 in terms of point 5 below, and must provide an evaluation report to the TP in writing, by fax or electronic mail.
- (g) For orders of 20,000 forms or less the TP may release the forms as directed on the Confirmatory Authority at the same time that samples are submitted to the Financial Institution for evaluation.
- (h) For orders of greater than 20,000 forms the TP must not release the forms until the evaluation report has been received or for five business days which ever comes first. If the evaluation has been successful, the TP is to despatch the printed forms as directed on the Confirmatory Authority.

Points (f), (g) and (h) are new, effective 12/1999

1.5 Approval of Split Print Orders

Section 1.5 is new. Effective 02/2001

Assumptions

The base stock form, without MICR encoding, is printed by Printer A and the other data including MICR encoding and variable information is printed by Printer B. Such requests are usually made for the printing of dividend cheques, council rate notices, etc.

Process

- (a) Printer A is to request approval to print the base stock form in terms of the procedures outlined above as appropriate, but is to state that the order is for base stock printing only, without MICR encoding.
- (b) In variation to the above procedures the Financial Institution is to issue a Confirmatory Authority which is to state that "No MICR Encoding is Required". A DAN and PAN is to be allocated as verification that the form meets the security and design requirements.
- (c) Printer B is to request approval to over print the other data and the MICR encoding in terms of the procedures outlined above as appropriate.
- (d) Accompanying the request for approval to print, Printer B may, at its option, add a request for evaluation to be conducted simultaneously with approval to print, in which case a MICR encoded sample is to be printed on the base stock form and is to be provided to the relevant Financial Institution.
- (e) In terms of the above procedures, the Financial Institution is to allocate a DAN and PAN, and issue a Confirmatory Authority. The Financial Institution may use the same DAN as that allocated for the base stock form. If simultaneous evaluation is also requested the Financial Institution is to include an evaluation report with the Confirmatory Authority.
- (f) If simultaneous evaluation is not requested, samples for evaluation must be submitted in terms of Section 1.3.3.

2. Design Conformance Requirements for Allocation of DAN

The minimum requirements for the allocation of DAN are:

- size
- the artwork must display the location of the following data elements (but not necessarily what will be printed):
 - * bank name (may also include logo)
 - * branch domicile
 - * company logo (optional)
 - * company name (including ACN or ARBN if applicable)
 - * payee
 - * amount in words
 - * field guide/dropout rectangle if amount in figures is not machine printed OR
 - * location of amount in figures if machine printed
 - * date
 - * signature line(s)
 - * crossing
 - * clear bands
- confirmation that the \$-sign will be machine printed if not pre-printed
- printing on reverse
- security features (as proposed by designer/printer).

3. MICR/Colour Authorisation and Allocation of PAN

The minimum requirements for the allocation of PAN are:

- The artwork must display the location and exactly what will be printed of the following data elements:
 - * bank name (may also include logo)
 - * branch domicile
 - * company logo (optional)
 - * company legal name
 - * ACN (if applicable)
 - * trading name (optional)
 - * account title (optional)
 - * payee
 - * amount in words
 - * field guide/dropout rectangle if amount in figures is not machine printed OR
 - * location of amount in figures if machine printed
 - * date
 - * signature line(s)
 - * crossing
 - * stamp duty panel (if applicable)
 - * clear bands
- proof of colour (evidence of compliance with colour standard)
- type of paper to be used
- printing on reverse
- security features (as proposed by designer/printer)

4. Allocation of DAN and PAN

4.1 Design Approval

A Financial Institution will allocate a DAN when the requirements for design approval have been met, see Point 2 above, and advise the requesting printer/designer that layout has been approved and the respective DAN.

The printer/designer is to quote the DAN on all requests to any Financial Institution for Printing Approval when the same approved design of a cheque or deposit form is to be used regardless of which Financial Institution issued the DAN.

The format of the DAN is as follows:

D d ppp bbb nnnnn

D = Constant

d = Revision number of APCA Publication No. 11 under which the design was approved

ppp = Printer Identifier

bbb = Financial Institution's mnemonic approving the design

nnnnn = Five digit reference number.

Example of a DAN issued by AnyBankCorp for a design submitted by XY Business Forms in Clifton under Publication 11.5:

D 5 XYC ABC 98765

4.2 Printing Approval

The relevant Financial Institution will allocate a Printing Approval Number (PAN) when the requirements for printing approval have been met, see Point 3 above.

For reprint orders the existing PAN is to be used. The Financial Institution will increment the reprint number of the PAN by one.

The format of the PAN is as follows:

P d m ppp bbb nnnnn rr

P = Constant

d = Revision number of APCA Publication No. 11 under which the design was approved and colour authorised

m = Revision number of APCA Publication No. 3 under which the MICR was authorised

ppp = Printer Identifier of the supplier printing and/or coordinating the order

bbb = Financial Institution's mnemonic issuing the Confirmatory Authority

nnnnn = Five digit reference number

rr = Two digit reprint number (first print commences at 01).

Example of a PAN issued by AnyBankCorp for a request for printing approval submitted by BY Printing in Sydney under Publications 11.5 and 3.3:

P 53 BYS ABC 76543 01

4.3 Confirmatory Authority

The relevant Financial Institution will issue a Confirmatory Authority to the requesting printer, quoting the DAN and PAN.

The Confirmatory Authority also will include the following information:

- Customer's legal name (and ACN or ARBN if applicable)
- Branch domicile
- MICR encoding character positions for the account number, BSB, serial number for cheques or agent number for deposit forms, and transaction code if applicable.

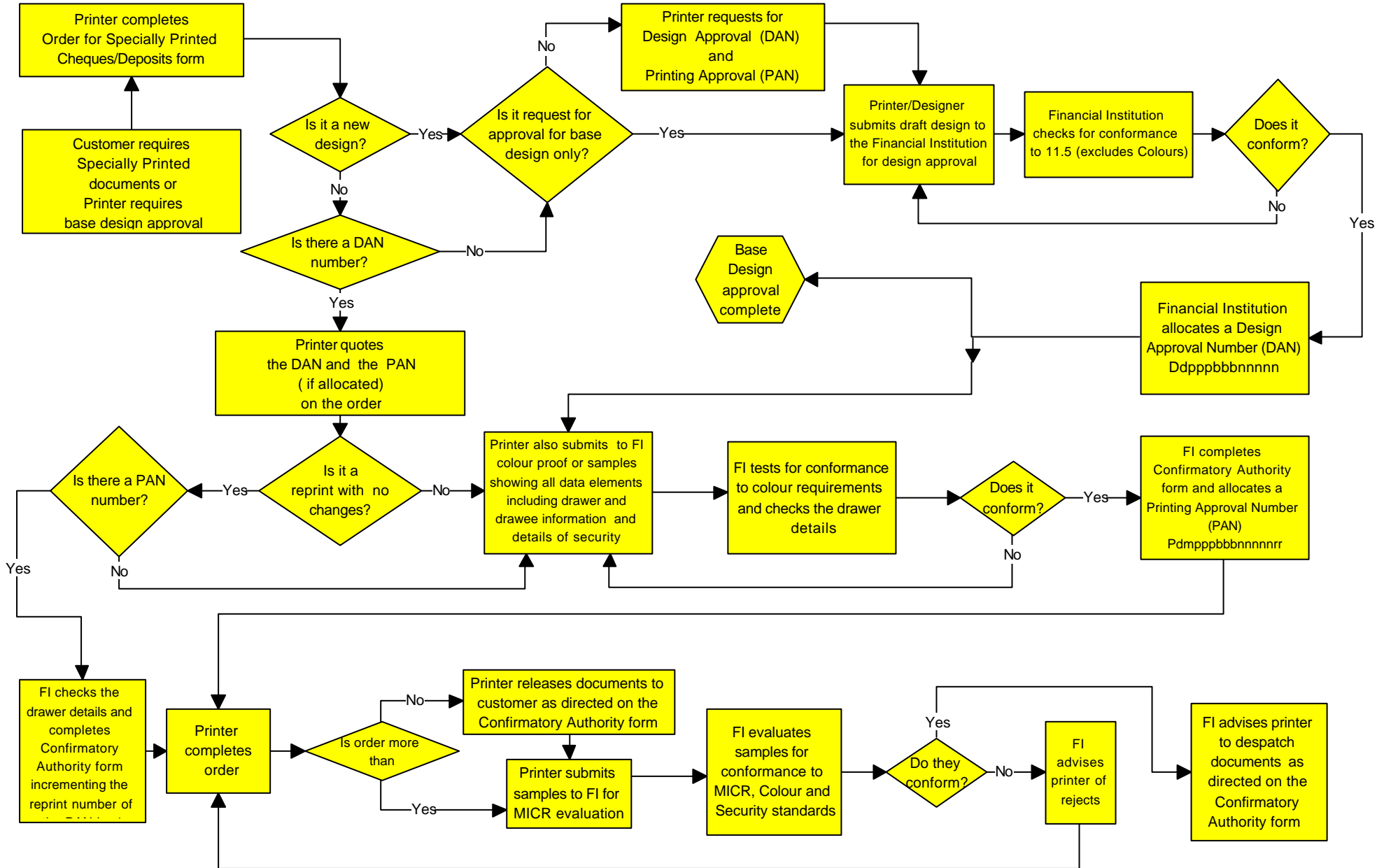
5. MICR/Colour Evaluation

- Samples are compared to original artwork including checking for:
 - * location and content of data
 - * colour
- Colour evaluation includes checking for:
 - * background PCS < 0.30
 - * foreground PCS > 0.60
 - * pixel string not greater than 8 in AOI's
- MICR evaluation including checking for:
 - * conformance to standard
 - * machine acceptance
- clear bands
- printing on reverse
- security features

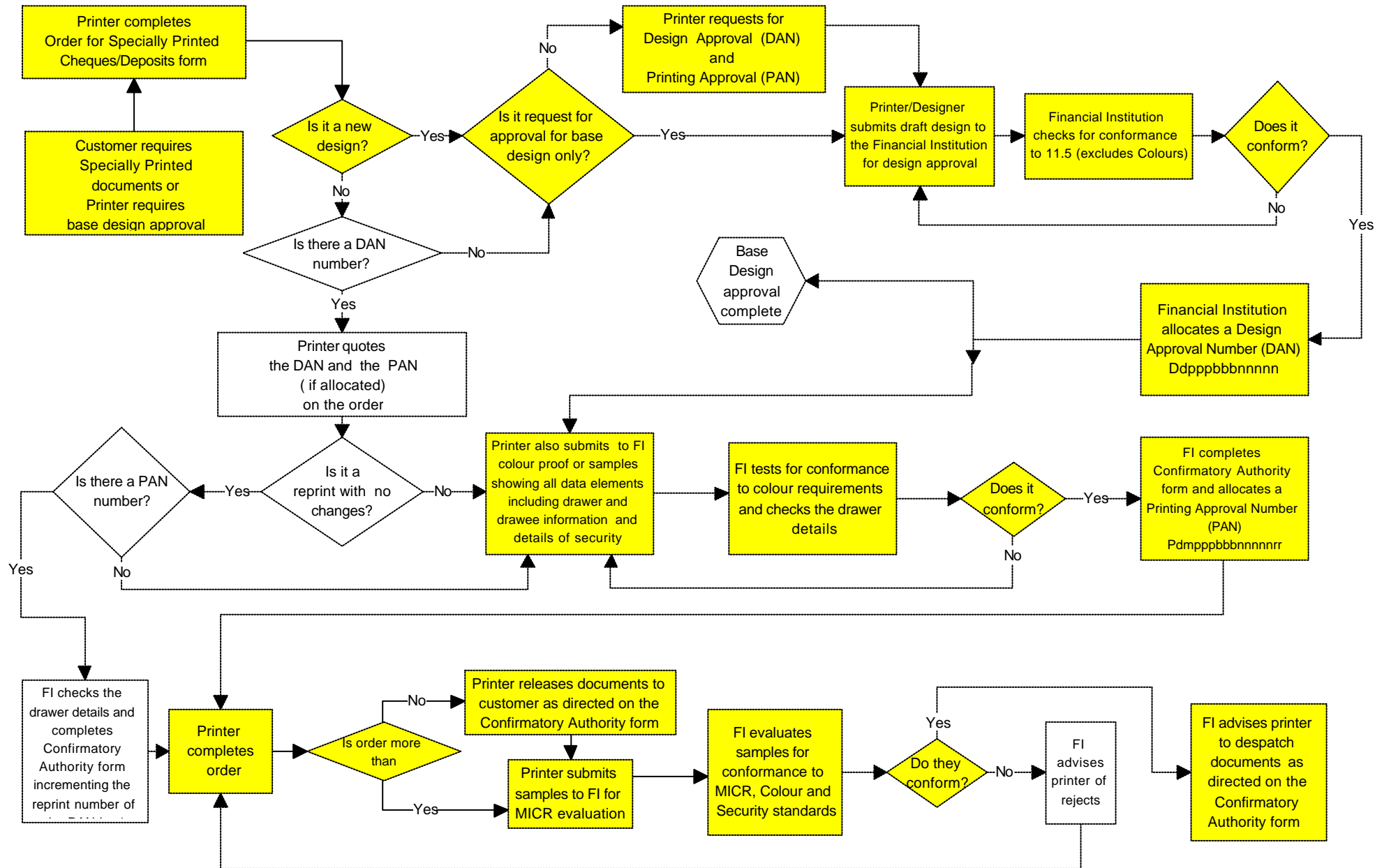
Appendix F

Financial Institution Contact List For Enquiries Regarding DANs Or PANs

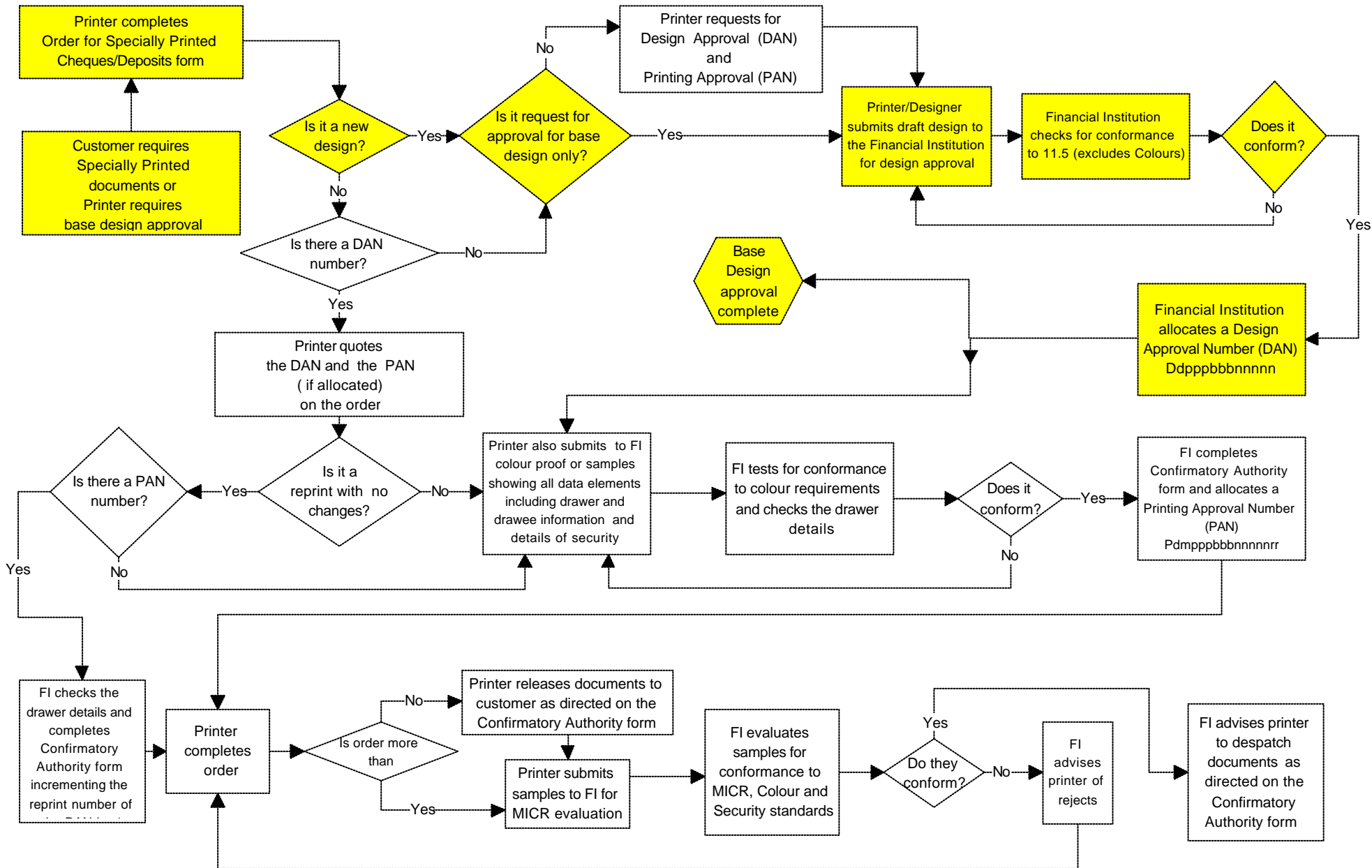
<This information is located in a separate file>



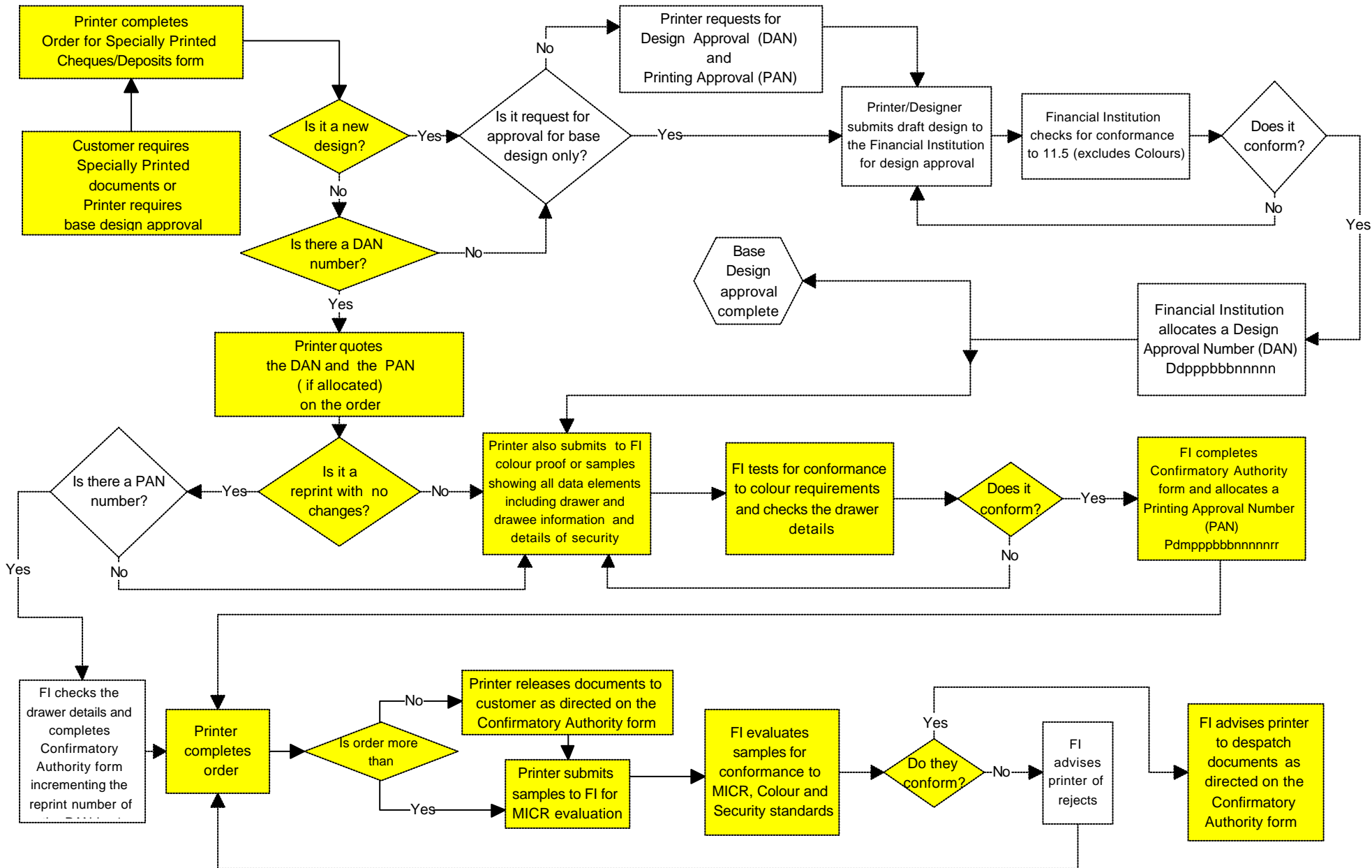
Design Approval, MICR/Colour Authorisation and Evaluation



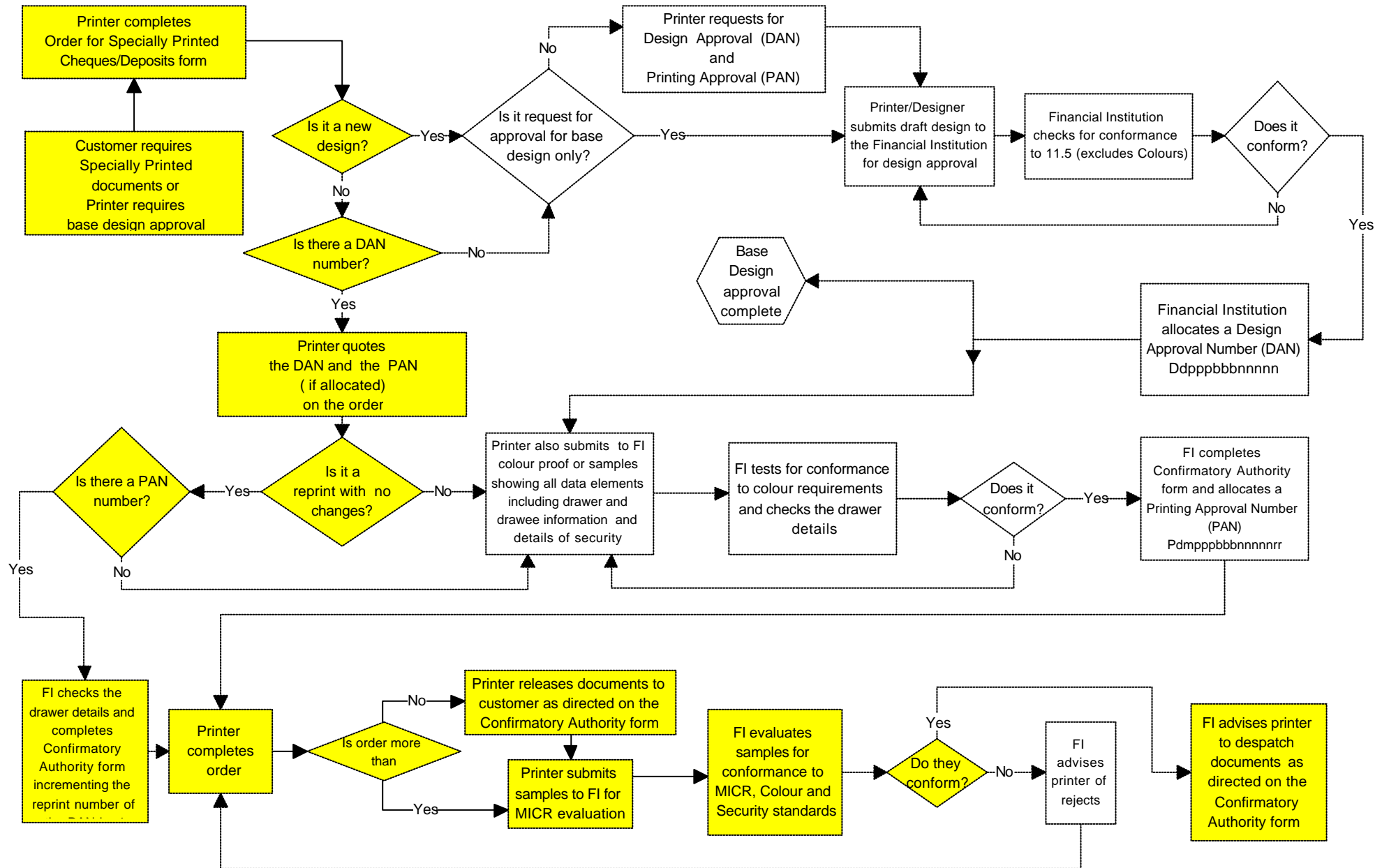
Scenario 1 - Approval for New Design with MICR



Scenario 2 - Base Design Approval



Scenario 3 - New Documents with Approved Base Design



Scenario 4 - Reprint with No Changes