

The terms of this Appendix M: Royal Mail Mailmark® shall continue to have effect in line with terms stated in paragraph 3.2 of the Royal Mail Mailmark® Schedule:20

Appendix M: Royal Mail Mailmark®

1. Introduction

Royal Mail Mailmark® is about you applying a barcode to each of your Mailing Items to enable our automation processing machines to read them. Adding a Mailmark™ barcode to each Mailing Item enables the performance of your Mailmark Mailing to be monitored and measured whilst being handled in our automation. This provides additional reporting on an item by item basis and so gives you greater transparency with the benefit of providing extensive data analysis on your Mailmark Mailing performance.

This Appendix M sets out the design and technical requirements and recommendations to enable you to meet the Mailmark barcode specifications for Letters and Large Letters. In addition it sets out details of the different types of Mailmark barcodes available for you to use and where to find the technical specification needed to create your Mailmark barcode and access and understand the performance data analysis available to you.

The specification for Royal Mail Mailmark® is designed to enable our automation to process the Mailing Items at high speed as they pass through the machines as many as four or five times before assigned to the final delivery point. Please note that whilst the best performance of your Mailing Items and data analysis reporting will be achieved if all specification attributes are met and incorporated into your Mailing Item design, we have classed some of the attributes as "recommended" which allows you more flexibility of your pack design.

Please note: unless stated as **recommended**, all attributes are **required**.

For clarity, our definitions of **required** and **recommended** are set out here:

- required attributes are those that you must meet in order to access the Mailmark Option. Failure to do so may lead to a Surcharge or adjustment to the Access Charges irrespective of the Mailing Item's performance; and
- recommended attributes are those that we strongly recommend you comply with but do not need to be strictly abided by. You acknowledge that where you do not apply a recommended attribute and we can link poor machineable performance to that divergence you may be invoiced a Surcharge.

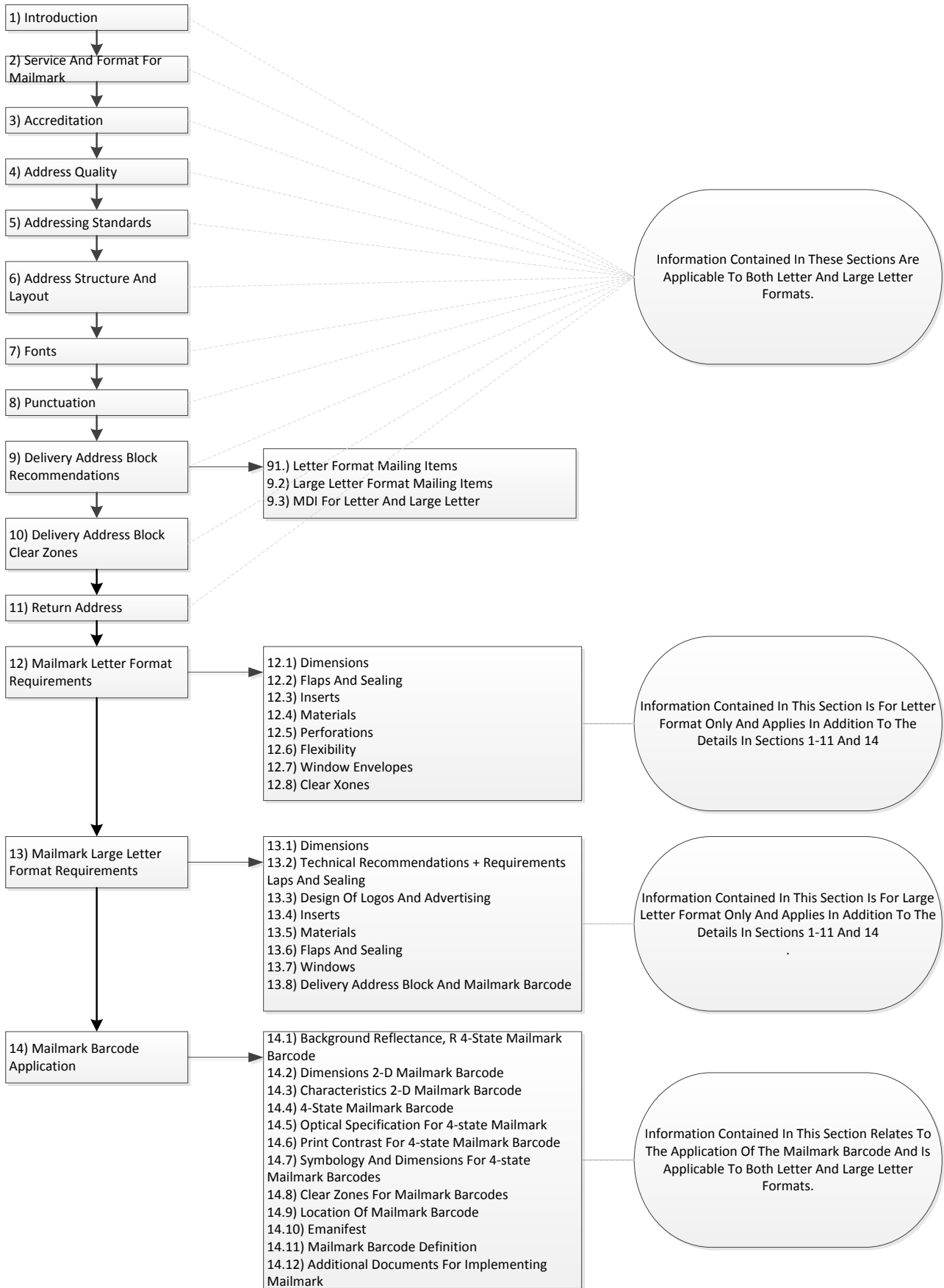
Prior to the first handover of any Mailmark Mailing, you will need to sign the Royal Mail Mailmark® Schedule which details the terms and conditions under which the Mailmark Option is offered, and complete the implementation activities. Our Mailmark Managers will be able to guide you through the Mailmark implementation timeline.

One of the benefits of Mailmark is the provision of data analysis and consignment level performance reporting. To take advantage of this information it is necessary for you to upload your Docket via DocketHub and to also provide additional mailing data onto our Web service, the eManifest Handling System (eMHS) (or an alternative system as otherwise agreed) in the form of an eManifest.

The sections in this Appendix M are compiled for ease of reference in the following way:

- sections 1-11 and section 14 apply to both Letter and Large Letter Mailing Items;
- section 12 applies only to Letter format Mailing Items in addition to the requirements in sections 1-11 and 14;
- section 13 applies only to Large Letter format Mailing Items in addition to the requirements in section 1-11 and 14.

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2. Services and formats available with the Mailmark Option

The Mailmark Option can be used with the following sortation, formats and service options provided that the mailing Items meet the machine-readable requirements set out in this appendix:

Sortation level:	Access 70
Format:	Letter; Large Letter.
Additional options:	Advertising Mail; Responsible Mail Entry; Responsible Mail Intermediate; Business Mail Large Letter.

3. Accreditation (Quality Assurance Process)

The Mailmark Option offers the benefit of being able to assess the performance of your Mailing Items. There is therefore no need for an upfront accreditation check of your Mailing Item design or address, Postcode and Delivery Point Suffix (DPS) accuracy. However, if you wish any 'peace of mind' checks done on your physical Mailing Items please contact your Access Account Manager.

You need to be able to create and apply Mailmark barcodes and you must be able to upload eManifests into eMHS. If you would like to check that you can do so successfully please contact your Access Account Manager.

4. Address quality

The performance of your mailing consignment is optimised when each Mailing Item is:

- ✓ well designed;
- ✓ every Mailmark Mailing Item has a full and accurate address and Postcode;
- ✓ the address and Postcode on the Mailing Item is consistent with the Postcode and the DPS contained within the Mailmark barcode on the Mailing Item and the corresponding item record in the eManifest; and
- ✓ the address, Postcode and DPS elements correctly match the record held in PAF®.

Our sorting machines use PAF® as one source of data to successfully sort and sequence your Mailing Items without manual or other intervention.

If poor Mailing Item design or poor address and Postcode accuracy mean that your Mailing Items require manual handling or other intervention then a Surcharge will be payable or appropriate pricing adjustments will be made to the affected Mailing Items.

If address and postcode accuracy drops below 90% (or 95% for Responsible Advertising Mail Intermediate level) when compared to PAF® you may see an invoice adjustment to cover the costs of us conveying poorly addressed Mailing Items.

5. Addressing standards

5.1 Address content

A Delivery Address must be present on every Mailing Item (on the same side as the Indicum) and must contain at least:

1. the addressee name;
2. the geographic address which consists of:
 - one premise element (e.g. house number, house or building name, organisation) (e.g. 34, Bell House, Royal Mail);
 - one thoroughfare element (e.g. The Mews, Western Road); and
 - one locality information element (e.g. dependent locality, post town) (e.g. Hedge End, OXFORD). Where there is both a locality and a post town in the corresponding PAF® record it is recommended that both are included; and
3. the Postcode

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If there is no thoroughfare element contained in the PAF® this need not be included. The Delivery Address may optionally contain an additional single line immediately above the addressee name to contain your Mailer Defined Information (MDI) - for example, a reference number, or SSC.

mailer defined information*	Optional	e.g. ZW4367
Addressee element	Name Title	D Faydherbe Operations Director
Premise elements	Organisation	Royal Mail
	Sub-building	South Wing
	Building name	Bell House
	Building number	B 25 Bell Complex
Thoroughfare elements	Dependent thoroughfare	The Mews
	Thoroughfare	300 Western Road
Locality elements	Double dependent locality	Otterley
	Dependent locality	Hedge End
	Post Town	OXFORD
Postcode	Postcode	OX4 5ZZ

* see Address structure and layout for details on MDI

To optimise the performance of your Mailmark Mailing we recommend that every Mailing Item has an address set out in a manner that makes it machine readable. We recommend that:

- no element is wrapped over two or more lines;
- where two elements appear on the same line (e.g. premise and thoroughfare elements (e.g. 300 Western Road)) they are only separated by 1 or 2 character spaces;
- no two elements are separated by punctuation;
- no two words are more than 5mm apart;
- there are no blank lines;
- all lines in the Delivery Address are left justified;
- the post town is on a line of its own;
- the Postcode is the last element of the Delivery Address and is on a line of its own;
- the County is not included; and
- the Country is not included.

The recommended layout for the last two lines of a Delivery Address is set out below:

Post Town
POSTCODE

The following layouts are not recommended but are acceptable as long as there is no other text on the front of the Mailing Item or insert that looks like an address:

Post Town County
POSTCODE

County
POSTCODE

Post Town
County POSTCODE

Thoroughfare or Locality element
Post Town POSTCODE

Premise elements

You must include at least one of these 4 elements, so that a single delivery point is defined. You don't have to include all the premise elements, even if they are included in PAF® but building numbers must be applied on the same line as the Dependent thoroughfare or thoroughfare information.

Organisation	Royal Mail
Sub-building	South Wing
Building name	Bell House
Building number	B 25 Bell Complex

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Thoroughfare elements

PAF® will give one of 3 possible combinations but please note that:

1. the dependent thoroughfare descriptor (i.e. Avenue, Road, Street, Lane, etc.) must be applied on the same line as the dependent thoroughfare information (e.g. Acacia);
2. the thoroughfare descriptor must be applied on the same line as the thoroughfare information (e.g. Western):
 - no thoroughfare: no need to include anything in this part of the address;
 - a thoroughfare but not a dependent thoroughfare: include the thoroughfare; and
 - both a dependent thoroughfare and a thoroughfare: include the former. If space allows you can also include the thoroughfare, though it's not compulsory; and
3. building numbers must be applied on the same line as the dependant thoroughfare or thoroughfare information.

Dependent thoroughfare	1 Acacia Avenue
Thoroughfare	Western Road

Locality elements

You must include at least one locality element. You don't have to include them all, even if they are included in PAF®.

To optimise the performance of your Mailmark Mailing Item we recommend that every entire Delivery Address is printed in Title Case with the exception of:

- the Post Town which must be printed in Title Case or UPPER CASE. e.g. Milton Keynes, ROSS-ON-WYE; and
- the Postcode must always be printed in UPPER CASE.

Double dependent locality	Otterley
Dependent locality	Hedge End
Post Town	OXFORD

Postcode

Every Mailmark Mailing Item has a full and accurate address and Postcode. In order to be full and accurate the Postcode must be able to generate an address from PAF® which can be matched to the minimum requirements above (at least one premise element, one thoroughfare element and one locality element).

The Postcode must always appear in UPPER CASE letters and numerals on the last line of the Delivery Address.

We recommend that there must be one or two character spaces between the two parts of the Postcode. Typically, the first part (i.e. OX4) is the outward code and this identifies a post town or a district within a post town, the second (i.e. 5ZZ) is the inward code which represents the street information.

Post Town	OXFORD
Postcode	OX4 5ZZ

6. Addressing structure and layout

The Delivery Address Block is comprised of 3 elements:

1. mailer defined information (MDI) – this is an optional line of reference information printed as part of the Delivery Address Block;
2. addressee name;
3. geographical address and Postcode.

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Figure 1:Address Block



There must only be one Delivery Address Block on each Mailing Item and it must be on the same side as the Indicium.

7. Fonts

There are a variety of fonts you can use, though to optimise the performance of your Mailmark Mailing Item we recommend you use one from the 'preferred fonts' list wherever possible.

We also recommend that:

- you regularly check the quality of your print output for clarity;
- you do not use any serif, handwritten, *italic*, *script*, **bold** or underlined fonts or the computer zero symbol Ø;
- the font is of the same size, type, colour and in the case of Large Letters, larger than that used in any Return Address information; and
- non-proportionally spaced fonts are preferred.

Fonts or Typefaces with the following characteristics are recommended:

- **size** – Height: 2mm min; 7mm max. Width: 7mm max;
- **dimension** – minimum ratio of lower case height (b) to upper case height (a) of between 2:3 and 3:4. A ratio of width (c) to height (a) of approximately 2:3;



- **consistency** –each line of the address should be of the same typeface and size;
- **quality** –characters should be complete, clear, uniform and of high resolution, with individual stroke thickness of between 8% and 16% of the height of the character;
- **material** - the material on which the Delivery Address is printed should be at least 35% in the red region (600nm) when measured by a spectral reflectometer, and should be white, cream, buff or other light or pastel shade that has a minimum reflectance difference of at least 30%;
- **contrast** – there should be a contrast between the characters and the background on which they are printed of at least 50% (55% if it is to be read through a window). Please note that positive contrast or inverse printing (Delivery Address Block lighter than the background) is not permitted;
- **character spacing** – there should be a fixed pitch of between 10 and 12 characters per inch (or between 10 and 12 point size), with clear vertical gaps of at least 0.25mm between the extremities of adjacent characters;
- if you are using **proportionally spaced text**, you should keep spacing of at least +0.75, as this significantly improves the rate at which addresses can be read; and
- **line spacing** – you should have uniform spacing between all lines of the address of at least 1mm - 4mm and there are no blank lines.

Recommended Fonts

Non-Proportionally Spaced Preferred Fonts (7)

Acceptable Proportionally Spaced Fonts (22) Size

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Size 10-12pt	10- 12pt	
Courier Courier New Letter Gothic Lucida Console Lucida Sans Typewriter OCR B Word Gothic	Arial Avant Garde Calibri Estrangelo Edessa Eurostile Frankfurt Gothic Franklin Gothic (Book) Gautami Geneva Gill Sans Helvetica	Latha Lucida Sans Mangal News Gothic MT Optima Ravi Shruti Trebuchet MS Tunga Univers Verdana

8. Punctuation

To optimise the performance of your Mailmark Mailing Item we recommend that:

- punctuation and non-alpha numeric symbols are only used in the Delivery Address where it appears in the corresponding PAF® record. For full details on allowable punctuation within a PAF® record please see PAF® Digest, available from www.royalmail.com or ask your Access Account Manager;
- punctuation is only used in the addressee's name, addressee title, department name or in the MDI within the Delivery Address Block; and
- punctuation is not used to separate address elements or components within an address element.

Alternatively, you may remove all punctuation from the address, even if it is contained in the corresponding PAF® record.

9. Delivery Address Block recommendations

The Delivery Address Block is defined by having an imaginary rectangle drawn around the outer extremities of the address including the addressee name and, where included, the MDI.

9.1. Letter format Mailing Items

To optimise the performance of your Mailmark Mailing Item we recommend that the Delivery Address Block:

- is beneath and to the left of the Indicum which must always appear in the top right hand corner of the Mailing Item whether it is landscape or portrait;
- is at least 15mm from the short edges of the Mailing Item;
- is at least 18mm from the long edge of the Mailing Item furthest away from the Indicum;
- is at least 40mm from the long edge nearest the Indicum if there is something else on the Mailing Item which looks like an address;
- when positioned near the top, the Postcode is at least 50mm from the long edge of the Mailing Item nearest to the Indicum; and
- has edges that each are parallel with one of the four edges of the Mailing Item (i.e. it should not be skewed (i.e. squashed or stretched in any direction to form a parallelogram that does not have four 90 degree vertices)) or rotated (i.e. it retains four 90 degree corners but no longer has edges that are parallel with the edges of the Mailing Item).

9.2. Large Letter format Mailing Items

To optimise the performance of your Mailmark Mailing Item we recommend that the Delivery Address Block:

- is beneath and to the left of the Indicum which must always appear in the top right hand corner of the Mailing Item whether it is landscape or portrait;
- is at least 40mm from the top edge of the Mailing Item; and
- is at least 15mm from the left and right edges of the Mailing Item.

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Please note that we do recommend no more than 20mm of excess poly around the Large Letter Mailing Item.

9.3. MDIs included on Letter and Large Letter format Mailing Items

For Letter and Large Letter formats where you have chosen to have an MDI we recommend that it:

- is in a single line which has no more than 64 characters;
- is above the addressee name;
- is left justified and aligned with the rest of the elements in the Delivery Address Block;
- maintains the same line spacing as the rest of the Delivery Address Block; and
- uses typeface as opposed to pictures or non-typeface graphics.

It is a requirement that you do not include any type of barcode as an MDI above the addressee name. (The 2D Mailmark barcodes have space within them for customer use which could be used for mailer defined type information).

Please note that a Mailmark barcode can appear adjacent to a Delivery Address Block.

10. Delivery Address Block clear zone

Recommendations to optimise the performance of your Mailmark Mailing Item:

- no other text/information that could be construed as a Delivery Address should be included on the front of the Mailing Item. This includes any areas of an insert which may appear in the window of the Mailing Item arising from insert movement; and
- with the exception of the Mailmark barcode (see next point) that there should be a clear zone of 5mm or more to be around the extremities of the full Delivery Address Block. By 'clear', we mean clear of print, patterning, graphics or any text including when the Mailing Item is tapped in turn on each of the four sides.

Figure 2: Clear zones



We anticipate that the most likely position for a Mailmark barcode will be adjacent to the Delivery Address Block.

A Mailmark barcode may encroach on the 5mm clear zone which is recommended around the Delivery Address Block but there must always (and, for clarity, this is a requirement, not a recommendation) be a clear zone of:

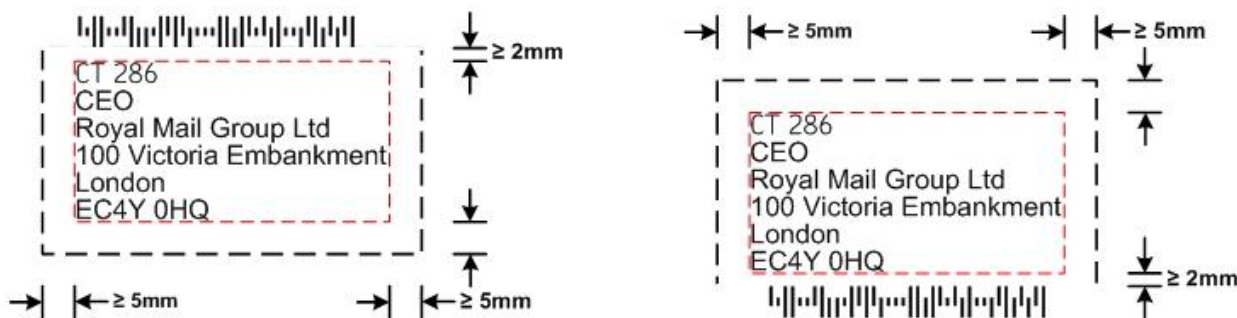
- at least 2mm between the Delivery Address Block and a Royal Mail 4-State Mailmark barcode (see Figure 3); or
- at least 4 times the size of the modules in the Mailmark barcode between the Delivery Address Block and a 2D data matrix Mailmark barcode. A 2D data matrix is made up of modules and these can vary in size from 0.5mm and 0.7mm. The clear zone must therefore be at least 2mm when printed at 0.5mm and at least 2.8mm when printed at 0.7mm.

If a Mailmark barcode is placed adjacent to the Delivery Address Block then the imaginary rectangle drawn around the outer extremities of the Mailmark barcode and the Delivery Address Block forms the **'Delivery Address and Mailmark Block'**.

The following diagrams show the 2mm clear zone required between a Royal Mail 4-state Mailmark barcode and the Delivery Address Block (not to scale):

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Figure 3: Delivery Address and Mailmark Block



Please note that:

- The same principle applies to the gap between a 2D data matrix Mailmark barcode and the Delivery Address Block.
- It is mandatory that the Mailmark barcode and clear zone remains visible at all times.

Labels

The left, right, top and bottom edges of the Delivery Address Block or Delivery Address and Mailmark Block must be at least 2mm away from the edge of any label, and can only be this close if there is a total of 5mm clear area between the left, right, top and bottom edges of the Delivery Address Block and any print, graphics or patterning on the envelope or any other surrounding material.

Please note:

There is a requirement for there always to be a gap of at least 4 times module size between a 2D data matrix Mailmark barcode and the edge of any label and there must always be a gap of 2mm between a Royal Mail 4-state Mailmark barcode and the edge of any label.

Inserts

- where the Delivery Address Block or Delivery Address and Mailmark Block is on an insert within a window or viewed through polymer, the Delivery Address Block or Delivery Address and Mailmark Block (with the exception of the MDI (if present), addressee name and title and Organisation name) must be fully visible, with the left, right and bottom edges of the Delivery Address Block or Delivery Address and Mailmark Block (with the exception of the MDI, if present, Addressee's name and title, and Organisation name) at least 2mm away from the window edge (4 times module size between a 2D Mailmark and the edge of a window);
- if the Mailmark barcode appears directly below the Delivery Address Block no clear zone is required within the window above the Delivery Address and Mailmark Block. In this situation some or all of the MDI (if present), the addressee's name and title, and the Organisation name may tap out of the window (to the top or to the right) as long as they are capable of being tapped back in;
- there remains the recommendation of a 5mm clear zone around the top, bottom, left and right edges of the Delivery Address Block or Delivery Address and Mailmark Block, which is free from text, graphics or patterning. Therefore the clear zone recommendations that are not met within the window can be met through the provision of further clear zones on the envelope;
- please note that the window edge itself is not considered an infringement of the 5mm Address Block clear zone but it is considered an infringement on the Mailmark barcode clear zone; and
- no part of the Delivery Address Block (aside from the MDI, if present, addressee's name and title, and Organisation name) taps out of the window on a paper envelope or the 'clear' window area on a polymer envelope or polywrapped item.

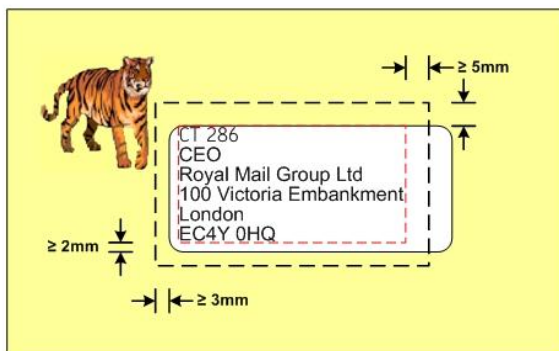
During design, printing and enclosing, you should take into account the various tolerances associated with these processes to ensure that each Mailing Item within your mailing consignment meets these recommendations.

The recommendations and requirements set out in this section apply at all times, including after the Mailing Item is tapped on any of its four edges to induce maximum insert movement.

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For clarification, please see Figure 4, which shows a Delivery Address Block with the 2mm and 5mm clear zones represented in a window (not to scale):

Figure 4: Insert clear zones



Please note:

Whilst the window edge within the 5mm zone should be clear of print, graphics or patterning it can be any colour as long as it is clear solid and meets the print contrast ratio recommendations.

Mailmark barcodes may also be positioned above, below, to the left or to the right of the Delivery Address Block and may also be positioned (window size permitting) vertically. It is recommended that they are always parallel with one edge of the Delivery Address Block and with one edge of the Mailing Item.

11. Return Address

Requirements

It is a requirement that each Mailing Item includes a return address on the outside of the Mailing Item in a manner that we can machine read it and the address must be preceded with the words 'Return Address' on its own on the first line (in the position normally taken by the addressee name in a Delivery Address).

We recommend that the return address:

- is entirely within 40mm of the top of the Mailing Item (preferably on the back face of the Mailing Item);
- is entirely at least 75mm from the right hand edge if on the front of the Mailing Item;
- includes all the elements of the geographic address laid out below the 'Return Address' line of text and adheres to the layout recommended for a Delivery Address;
- is, if on the front of the Mailing Item, made up of font that is smaller in size than the font that is used in the Delivery Address;
- is one of the non-proportional fonts detailed in the font list that is recommended for the Delivery Address.

We recommend that the Postcode of the return address is encoded into the Mailmark barcode (if the Mailmark barcode that you have chosen has that data field).

Please note: For mail pieces that are classified as large letters because they are thicker than 5mm, we will only be able to process returned items if the return address is placed on the reverse of the mail piece within 40mm of the top.

12. Mailmark Letter format specifications

The requirements and recommendations set out in this section 12 are additional to the requirements and recommendations already set out in sections 1 – 11 and section 14, but are specific to Letter format Mailing Items. You should prepare your Mailmark Letter format Mailing Items in line with sections 1 – 12 and section 14.

12.1 Letter dimension requirements

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Letter format Mailing Items must be rectangular (portrait or landscape) or square, and each Mailing Item must have four straight edges and four right-angled (90°) corners.

The Letter dimension requirements are set out in the table below. These dimensions apply to the finished Mailing Item.

Format:	Size:	Weight:	Thickness:	Shape:
Letter	Rectangle: Max: 165mm x 240mm Min: 110mm x 140mm Square: Max: 165mm x 165mm Min: 140mm x 140mm	Max: 100gms	Max: 5mm Min: 0.25mm	Each corner to be 90°. Portrait, landscape or square.

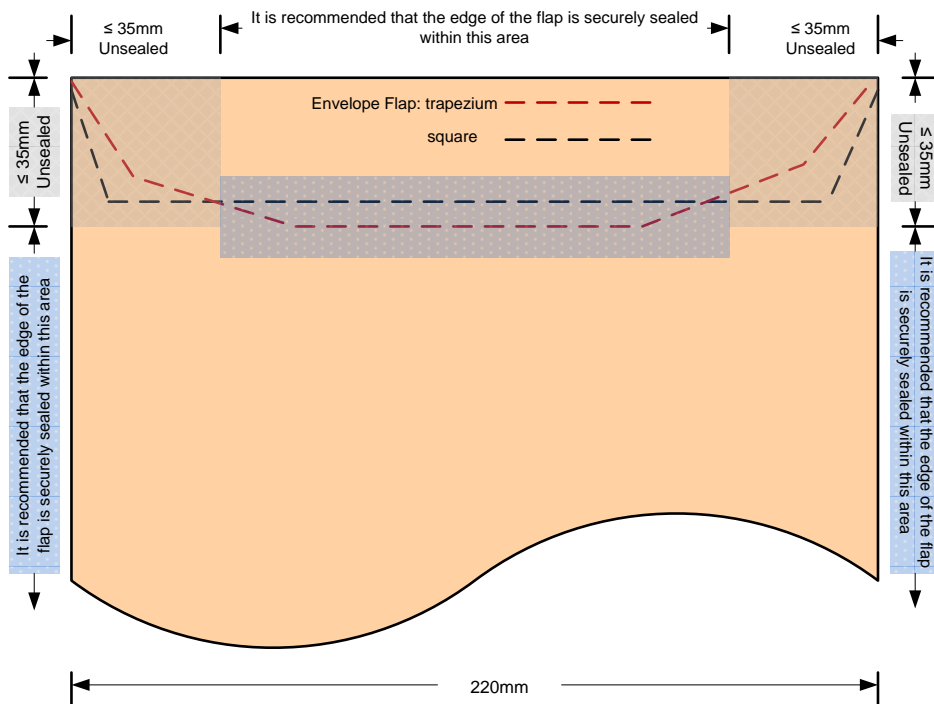
12.2 Flaps and sealing

It is recommended that the opening flaps are gummed and sealed as far along the edge as possible and that the remaining three edges are fully and totally sealed. The sealing recommendations vary depending on whether the Mailing Items are presented in bags or trays.

12.2.1 Sealing Tolerances -Trayed Mail

For DL and C5 sized Letters with rectangular or trapezium shaped opening flaps presented in trays only, there is a recommended tolerance of up to 35mm from the left and right edges and 35mm from the top edge where the flaps do not have to be gummed or sealed.

Figure 5: Sealing tolerances - tray

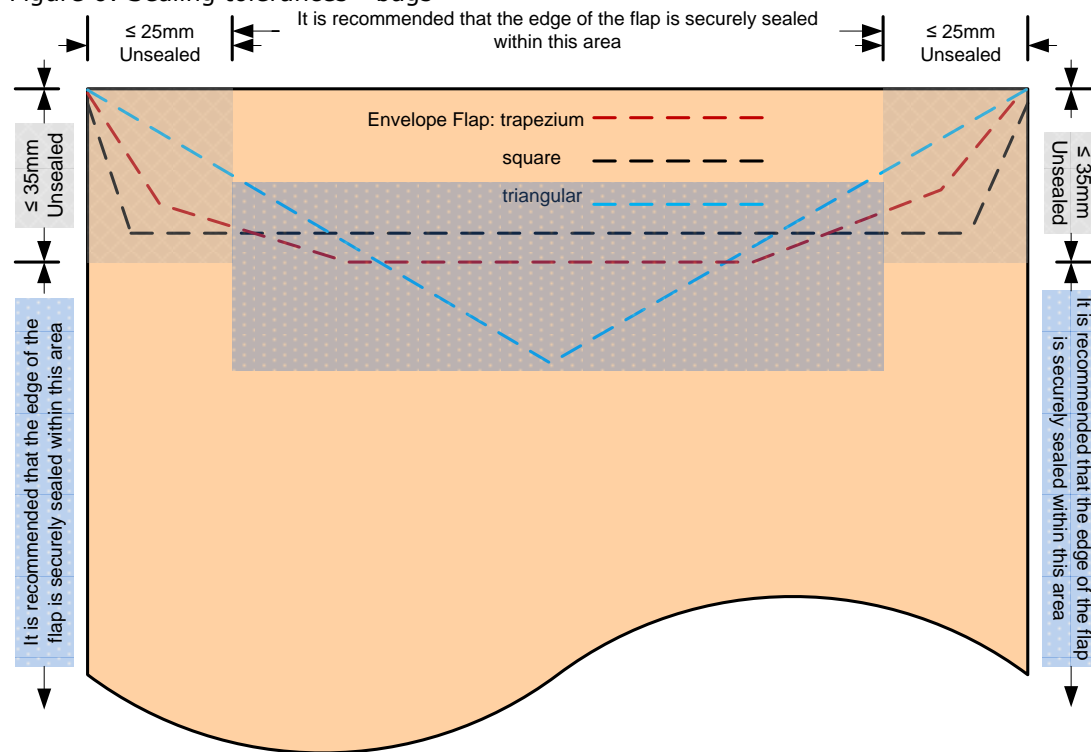


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12.2.2 Sealing Tolerances – bagged mail

For all other Letter Mailing Items there is a recommended tolerance of up to 25mm from the right and left edges and 35mm from the top edge where the flaps do not have to be gummed or sealed.

Figure 6: Sealing tolerances - bags



12.2.2 Sealing Advice (for envelope edges, not including the closing flap)

The objective is that the sealed side seams cannot easily be lifted. This is achieved if the glue is close enough to the edge.

The envelope will have a fold and an opening flap. It is recommended that it is sealed continuously and securely on the remaining sides which are not the closing flap i.e. the glue used to seal the sides must be in the form of a continuous seal and placed in such a position that the two elements of unglued paper cannot be easily lifted, separated, folded or torn.

12.3 Inserts

Mailing items must not have contents that burst out of and cause damage to the Mailing Item or that move to such a degree that the Mailing Item buckles as it passes through our machines. It is therefore recommended that the largest paper insert movement is restricted as follows:

- for Letters up to 2mm thick, no more than 30mm within the Mailing Item; and,
- for Letters over 2mm and up to 5mm thick, no more than 20mm within the Mailing Item.

It is recommended that the paper used for the insert has opacity of at least 85% (BS ISO 2471) to prevent any character on the reverse side showing through affecting the read of the Delivery Address or Mailmark barcode.

It is a requirement that the Mailing Items do not include any metal items that are larger than a standard paperclip or staple as our machines will reject these Mailing Items automatically.

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12.4 Material

Material requirements

- envelopes must be made out of paper only;
- you cannot use polythene, plastic or transparent materials or envelopes with apertures; and
- if you wish to apply a Mailmark barcode to Letter format Mailing Items that are polywrapped, you can do so provided that you present, declare and pay for the items as Large Letters.

Material recommendations

It is recommended that:

- **Opacity** - the paper used for the envelope and the paper which the address is printed on is more than 85% opaque to prevent any character on the reverse side showing through (BS ISO 2471 paper and board);
- **Porosity** - the paper has porosity of <700 ml/minute;
- **Absorbency** - the paper has absorbency of 15-35gsm of water in one minute; and
- **Density** - the paper has a density no less than 70g per square metre (gsm). Postcards are recommended to be made of paper with a density no less than 200gsm and should be at least 0.25mm thick.

12.5 Perforations

It is recommended that the Mailing Items have perforations or tear-off strips that meet the specifications detailed below in order to ensure they can be processed efficiently and without any damage being caused.

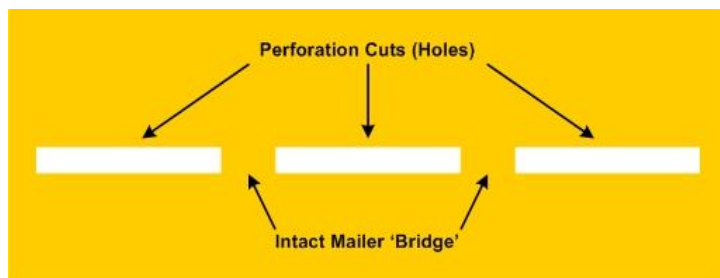
You have the option of using either 'roulette' or 'zip Strip' perforations, or designing a 'pressure seal' envelope which effectively has double roulette perforations on the reverse.

12.5.1 Roulette Perforations

It is recommended that:

- the perforations be die cut into the Mailing Item, the cut being the hole, and the bridge being the paper that is left intact and subsequently torn when the Mailing Item is opened;

Figure 7: Perforations

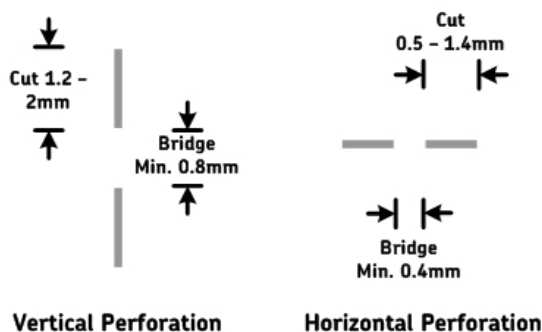


- the paper weight for the Mailing Items be $\geq 100\text{gsm}$;
- the perforations be located to both 'short' sides of the Mailing Item, and one of the long sides of the Mailing Item, i.e. only 3 sides should be perforated;
- the perforations are inset from the edge of the Mailing Item by $12 \pm 1\text{mm}$;
- the cut of the short side perforations are set at 1.3 – 2mm and with a bridge of 0.8mm as illustrated in Figure 9. Each cut should be of uniform size and each bridge should be of uniform size;
- the cut of the long side perforation is set at 0.5 – 1.4mm and with a bridge of 0.4mm as illustrated in figure 9. Each cut should be of uniform size and each bridge should be of uniform size;
- the cuts are rectangular in shape and have a width of 0.1mm;
- the short side perforations extend from each edge of the envelope;
- the long side perforation do not extend beyond the short side perforations;
- the Indicium is not printed over the perforations. This effectively reduces the area available for your Indicium as follows:

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- in landscape orientation where the Indicium is adjacent to both 'long' edge and 'short' edge perforations the Indicium should be inset and be $12 \pm 1\text{mm}$ on 2 sides. This limits the area available for your Indicium to a maximum of 64mm by 29mm;
- in landscape orientation where the Indicium is adjacent to just the 'short' edge perforation the Indicium is recommended to be inset on 1 side by $12 \pm 1\text{mm}$. This limits the area available for your Indicium to a maximum of 64mm by 40mm;
- in portrait orientation where the Indicium is adjacent to just the 'short' edge perforation the Indicium is recommended to be inset on 1 side by $12 \pm 1\text{mm}$. This limits the area available for your Indicium to a maximum of 75mm by 29mm;
- in portrait orientation where the Indicium is adjacent to both 'long' edge and 'short' edge perforations the Indicium is recommended to be inset and be $12 \pm 1\text{mm}$ on 2 sides. This limits the area available for your Indicium to a maximum of 64mm by 29mm;
- no other colour is visible through the perforations in the Tag and Route Clear Zones;
- the perforated edges are securely sealed all round from the perforation to the letter edges;
- the glue does not run out onto the outside of or produce protruding mounds on the Mailing Item;
- the glue is fully cured before you handover your mailing to us; and
- the tensile strength of the glue is recommended to be $\geq 0.4\text{N}$ and fibre tear must be exhibited on separation.

Figure 8: Perforation sizes



12.5.2 Pressure seal envelope

A pressure seal envelope is a single sheet of paper which has been folded either two or three times to make a DL or C5 size Mailing Item. The short sides need to be sealed and are opened by means of a standard perforation. One long side has to be a fold, the other will be sealed and have effectively a 'double' perforation to allow the item to be fully opened.

It is recommended that:

- the short sides have perforations through all layers of the Letter (there will be 3 layers of paper for DL or 2 layers of paper for C5 size Mailing Items); and
- the long side has a roulette perforation that does not go through to the front of the Mailing Item. The Mailing Item is opened by removing the short edge perforated strips first and then tearing back the tear off strip on the reverse.

Design and general requirements for pressure seal envelopes:

- the Mailing Item is produced from a single sheet of paper;
- inserts are not permitted;
- DL design must be $\geq 100\text{gsm}$ (3 ply);
- C5 design must be $\geq 150\text{gsm}$ (2 ply);
- landscape or portrait are permitted;
- Mailing Items must not be square;
- perforations to be on both short sides;
- the roulette tear strip must be on the back of the Letter; and
- the longest edge from the Indicium must be a fold (bottom edge for landscape, left side for portrait).

Perforated strip (short edges):

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It is recommended that:

- the Roulette Perforation specification is followed
- the cut of the perforated strip perforations is set at 1.3mm – 2mm and with a bridge of ≥ 0.8 mm; and
- the cuts are rectangular in shape and have a width of ≤ 0.1 mm.

Perforated strip (long edge on reverse):

It is recommended that:

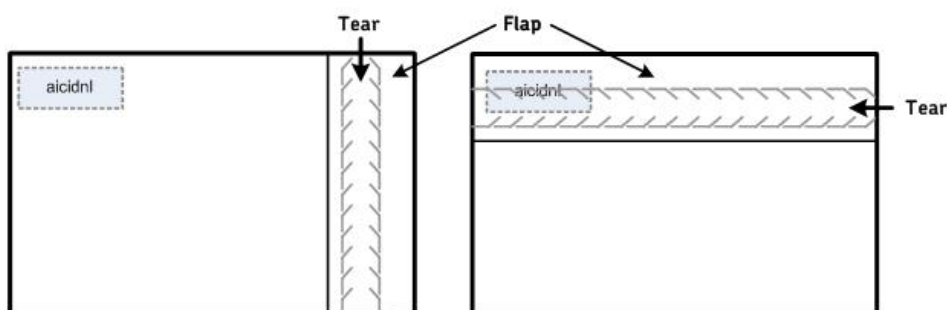
- only one roulette tear strip is on each Letter;
- is the strip be die cut into the Letter;
- is the strip be placed on the back of the Letter (i.e. the side which does not have the Delivery Address and Indicum) and should run parallel to the long edge;
- is the strip be >10 mm from the long edge of the Letter and should be >10 mm wide;
- the cut is set at <3.3 mm and with a bridge of >0.6 mm;
- each cut is of uniform size;
- each bridge is of uniform size;
- the cuts are rectangular in shape and have a width of <0.1 mm;
- if the 'long' perforation extends into the 'short' side perforations, it is securely sealed i.e. the strips are totally sealed along their length;
- the edge between the tear strip and the edge of the Letter is securely sealed along its entire length;
- sealing adhesive is < 80 microns thick;
- the glue does not run outside of or produce protruding mounds on the Mailing Item;
- the glue is fully cured before you handover your mailing to us; and
- the tensile strength of the glue is ≥ 0.4 N and fibre tear should be exhibited upon separation.

12.5.3 Zip Tie Perforations

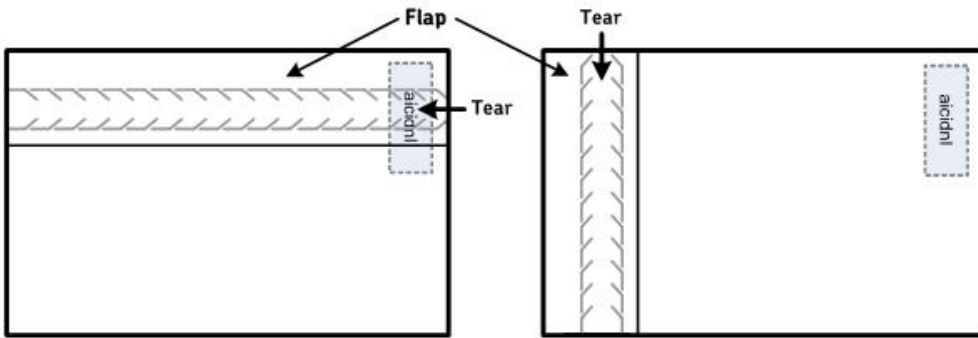
Recommendations:

- the Mailing Items may be presented in both landscape and portrait orientation;
- the zip tie should be die cut into the Mailing Item;
- the paper weight for the Mailing Item should be ≥ 150 gsm;
- the zip tie should always be placed on the back of the Mailing Items;
- the zip tie may be positioned either horizontally or vertically, but the 'tear' direction of the tie is dependent upon the orientation of the Mailing Item. Figure 9 illustrates the back of the landscape and portrait oriented Mailing Items, the orientation, and 'Tear' directional requirements (the relative position of the Indicum on the front of the Mailing Item being illustrated).

Figure 9: Perforation positioning and tear direction



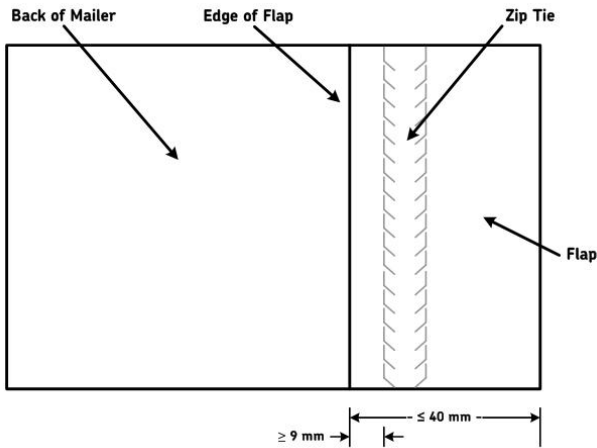
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It is recommended that:

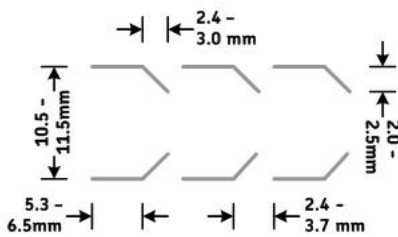
- the zip tie is located on a flap that is $\leq 40\text{mm}$ wide, as illustrated in Figure 10 and
- the zip tie is positioned $\geq 9\text{mm}$ from the edge of the flap, as illustrated in Figure 10.

Figure 10: Perforation positioning



The dimensional for the cut of the zip tie are provided in Figure 11.

Figure 11: Zip tie dimensions



It is recommended that:

- all cuts and bridges are of uniform size;
- the cuts are rectangular in shape and have a width of $\leq 0.1\text{mm}$;
- the glue used to seal the flap does not run out onto the outside of or produce protruding mounds on the Mailing Item;
- the glue is fully cured before you handover your mailing to us; and
- the tensile strength of the glue must be $\geq 0.4\text{N}$ and fibre tear should be exhibited on separation.

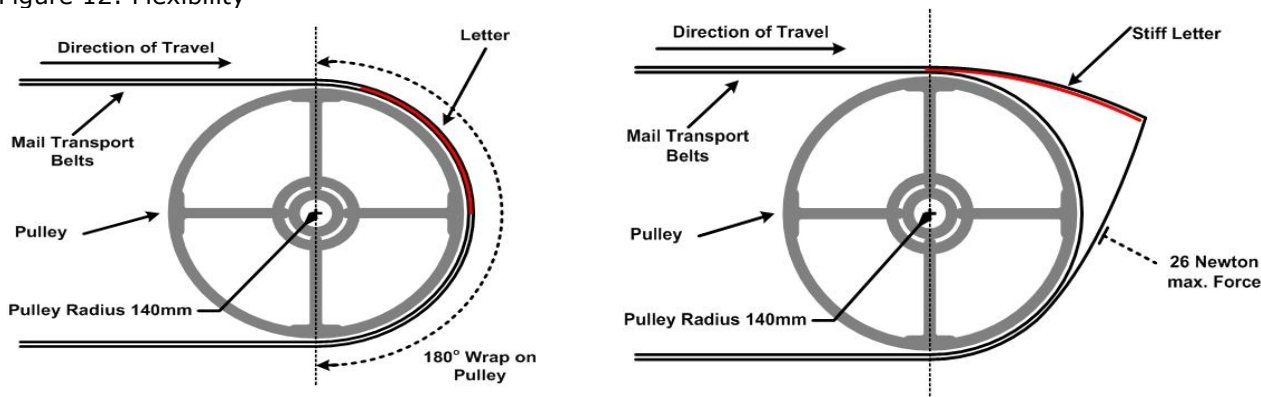
12.6 Flexibility

It is recommended that Mailing Items are flexible enough to be capable of being processed in our sorting machines without damage to the Mailing Item, or other Mailing Items. Each Mailing Item should therefore be capable of being transported around a pulley with a radius of 140mm

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with a maximum force of 26 Newtons. Items that are too stiff will not be able to meet this recommendation, as illustrated in Figure 12.

Figure 12: Flexibility



12.7 Window envelopes – general

It is recommended that:

- **gloss** –the maximum gloss value of the window material is 150 when measured at 60° in accordance with ASTM 2457 'Standard Test Method for Specular Gloss of Plastic Films';
- **haze** –the window haze should not exceed 75% in accordance with ASTM D1003 'Standard Test Method for Haze of Plastic Films;'
- **strength** – the window is robust enough not to become deformed. It should be fixed to the envelope evenly across the surface area it is in contact with; and
- **location** – it is recommended that only one window (two at maximum) appears on the front of the Mailing Item and that the window(s) do(es) not take up more than 50% of the surface area of the surface area.

12.7.1 Windows on the reverse

For Letter format Mailing Items only, a maximum of one window is permitted on each face i.e. one on the front and one on the back.

Window dimensions:

- front window dimensions: the shape must be rectangular, <174mm long and <45mm high; and
- back window dimensions: the shape must be circular, <48mm diameter.

Window position:

If a window is on the back face of the Mailing Item the perimeter of the window must be 31mm ± 2mm from the bottom of the envelope and centred along the long edge.

12.8 Clear zones

Clear zones are the areas on your Mailing Items that you must leave free of any text or markings. They are used by our machines to identify the Delivery Address Block, Delivery Address and Mailmark Block and Mailmark barcode and enable us to print and read tag and route codes.

You are recommended to leave a clear zone on each Mailing Item where we can apply a unique tag code. For landscape Mailing Items this area starts 60mm from the bottom edge up to 10mm high, stretching 100mm from the right hand edge. Portrait Mailing Items should be rotated to be landscape with the Indicium in the top left hand corner and the tag code clear zone is as set out for landscape Mailing Items.

We also recommend that you leave a clear zone that starts from the bottom edge up to 18mm high, stretching to 130mm from the right edge.

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13. Mailmark Large Letter requirements

The recommendations and requirements set out in this sections 13 are additional to the recommendations and requirements already set out in sections 1 – 11 and section 14 but are specific to Large Letter format Mailing Items. You should prepare your Mailmark Large Letter format Mailing Items in line with sections 1 – 12 and section 14.

Getting started with the Large Letter format

In addition to Mailing Items with dimensions that fall within the Large Letter size criteria, any Letter format Mailing Items that are polywrapped must also be presented, declared and paid for as Large Letters.

13.1 Large Letter dimensions

Format	Size	Weight	Thickness	Shape
Large Letter	<u>Rectangle:</u> Max: 245mm x 345mm Min: 162mm x 229mm <u>If square:</u> Max: 245mm x 245mm Min: 229mm x 229mm	Max: 750gms Min: 10gms	Max: 10mm Min: 1mm	Each corner to be 90 °. Portrait, landscape or square

13.2 Technical recommendations and requirements

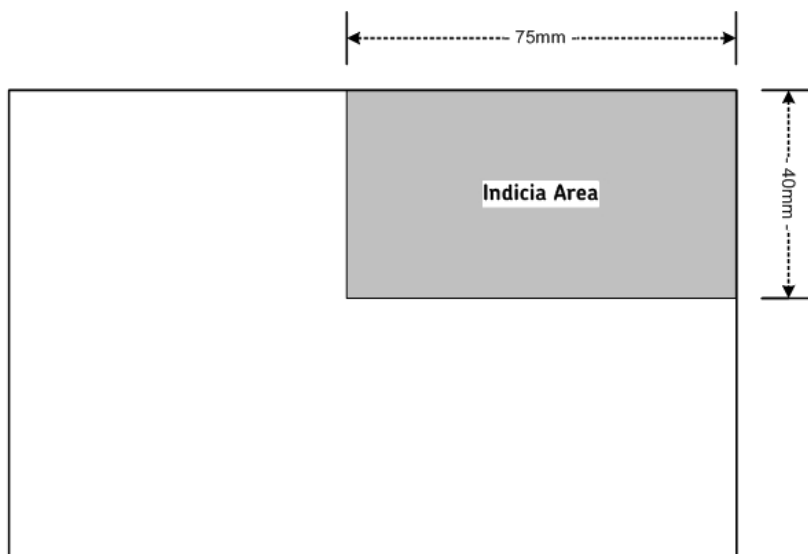
This section covers general recommendations and requirements for paper and polymer envelopes and polywrapped Mailing Items.

13.3 Position of Logos or Advertising

To reduce any potential for address interpretation errors, any logo or advertising slogan printed on the Mailing Item are not recommended to look like an address, geographical location, country or a Royal Mail bag or bundle label, and they must not be printed in the Delivery Address Block, over the Mailmark barcode, in any clear zones around either the Delivery Address Block and/or the Mailmark barcode, or in the Indicia area. Slogans where the company name contains the words 'Return', 'Address' and 'Undelivered' are not recommended.

Please note: You must maintain a clear zone of at least 2mm around the indicium

Figure 13: Logo positioning



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13.4 Inserts

It is recommended that:

- for any insert other than the paper contents, they are fixed in position so they don't move around during processing. You can use glue or self-adhesive tabs to fix any inserts;
- inserts, other than paper that are placed in an envelope, are fixed in position and attached to the insert, so that they cannot move around during the processing of the Mailing Item. The inserts may include small metal objects such as keys, coins, and badges; and
- if you do choose to have any inserts, where you have 'step changes' in the thickness of the Mailing Item, the spatial distortion (i.e. variation in the thickness of the contents - see figure 15) should not be more than 50% of the thickness of the Mailing Item up to a maximum of 10mm, and the address should be on the 'flat side of any Mailing Item. It cannot be placed on any irregular or convex shaped sides.

Figure 14: Spatial distortion



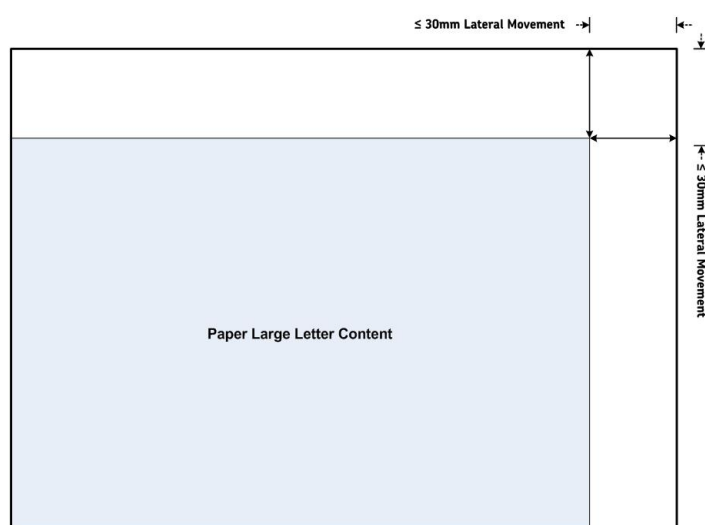
Paper envelopes

For paper envelopes, depending on the thickness of your Mailing Item, to prevent damage to your Mailing Item and other Mailing Items there are limitations on how much 'empty' envelope you are recommended to have i.e. the thicker the item, the less 'empty' envelope you are recommended to have (see figure 16).

The following applies to the movement of the largest paper insert:

- if your Mailing Item is $\leq 2\text{mm}$ thick there is no restriction on the lateral movement of the largest paper insert up to the maximum envelope size of 345mm ; and
- for any Mailing Item which has a thickness of $>2\text{mm}$ then the lateral movement of the largest insert within the Mailing Item is recommended to be $\leq 20\text{mm}$ or less.

Figure 15: Insert movement paper



Polymer envelopes

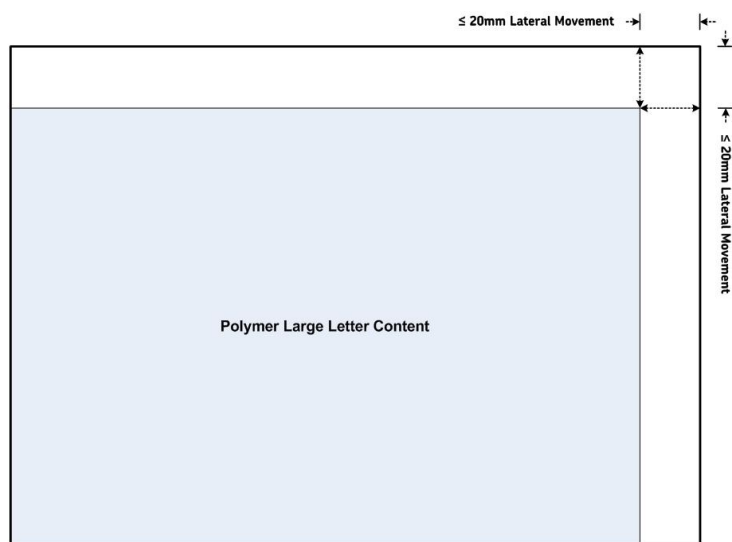
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For polymer envelopes or polywrapped Mailing Items, where the polymer is transparent only the largest insert must be visible to the front of the Large Letter and the lateral movement is recommended to be <20mm (see figure 17). There is no requirement for the content to be referenced to the bottom left corner, but you should ensure that there is no more than 20mm along the long edges and no more than 20mm along the short edges.

Please note:

For polymer envelopes or polywrapped Mailing Items you will need to allow for any lateral movement when defining the Delivery Address Block location. The assumption must be made that the poly may fold during processing and, should this happen we still need a defined clear area from the edge to ensure the Delivery Address Block can be read.

Figure 16: Insert movement polymer



13.5 Material - Construction

13.5.1 Paper envelopes

It is recommended that:

- the envelope paper weight is no less than 70gsm;
- the paper weight for single piece (folded and sealed) Mailing Items is no less than 100gsm;
- the paper weight for Large Letter sized postcards is no less than 200gsm; and
- the Mailing Items do not have perforations.

13.5.2 Polymer envelopes and polywrap

- polymer envelopes must be made of polymer film e.g. polyethylene; and
- materials produced from polymer fibres that are randomly distributed and non-directional (laid as a web) and bonded together by heat and pressure are not acceptable e.g. Tyvek.

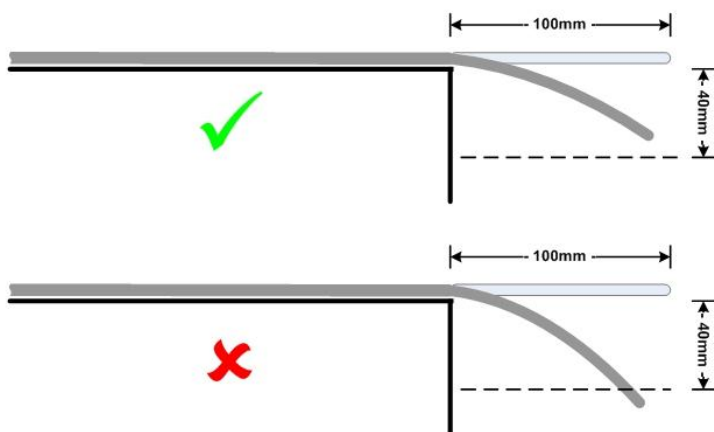
13.5.3 Material - general recommendations and requirements

- **Absorbency** - (paper based envelopes) 15–35g of water in 1 minute (BS EN 20535 - Paper and board. Determination of water absorptiveness);
- **Glue** - Any adhesives used in the production of envelopes are recommended not to leak onto the open surface of the envelope and produce protruding mounds and is recommended to be fully cured when the mail is presented to Royal Mail. It is a requirement that Mailing Items are not stuck together as we may not be able to read items that are and your Appe will appear incomplete. When polymer envelopes are used, the glue is recommended to be stronger than the polymer and is recommended not to produce protruding mounds on the mail item;
- **Opacity** - ≥85 % (BS ISO 2471 - Paper and board. Determination of opacity (paper backing));
- **Porosity** - <700 ml/minute (BS 6538-2 - Air permeance of paper and board);

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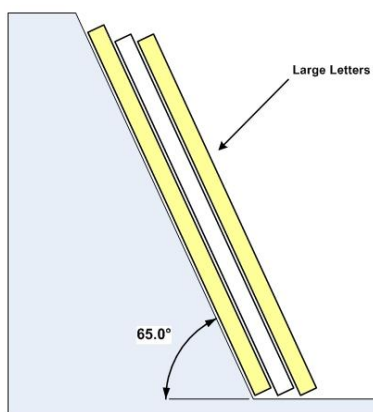
- **Rigidity / Stiffness** - The acceptable rigidity / stiffness are recommended to be $\geq 8\text{N}\cdot\text{mm}$. There is no upper limit on Mailing Item stiffness. This can be measured as follows (see figure 18):
 - a single large letter should be placed on a flat surface with the shortest edge of the large letter overhanging a straight edge of a flat surface by a horizontal distance of 100mm;
 - the leading edge of the large letter is then released and allowed to bend down under its own weight;
 - if the leading edge drops to 40mm or more, then the stiffness is less than 8N.mm and the large letter on machine-readable.

Figure 17: Rigidity



- **Separation** - The Mailing Items must not be stuck together and it is recommended that they are capable of separating to allow them to be effectively processed. When placed on a slope of 65° to the horizontal, the Mailing Items are recommended to be capable of separating, by sliding one from another, under the force of gravity (see figure 19); and

Figure 18: Separation



- **Shape** – Mailing items are required to be rectangular or square within the permitted dimensions and can be laid out in landscape or portrait format. We do require you to ensure that the four sides are all straight lines and intersected by a 90° angled corner.

13.5.4 Polywrap outer

- the film is required to be intact, undamaged and must not be punctured or torn apart from perforations(although perforations are not recommended)?;

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- the film must be > 15 µm (15 microns) thick when measured at any point on the large letter other than the seal;
- it is recommended that any Mailmark barcode printed on the film must adhere to the film and must not break up or wear during processing;
- it is recommended that any text printed on the film adheres to the film and must not break up or wear during processing;
- only be a single layer of film must cover the Delivery Address Block and Mailmark barcode ; and
- it is recommended that the film is sufficiently strong enough to tolerate handling without tearing or splitting at the seals.

13.5.5 Print contrast recommendations

- Print Contrast Ratio for addresses printed on envelopes should be ≥50 %;
- Print Contrast Ratio for addresses printed on window inserts should be ≥55 %;
- Minimum Reflective Difference should be ≥30 %; and
- Minimum Background Reflectance should be ≥35 %.

13.5.6 Print contrast recommendations

Inverse printing i.e. negative contrast is not permitted (i.e. Address Block lighter than background).

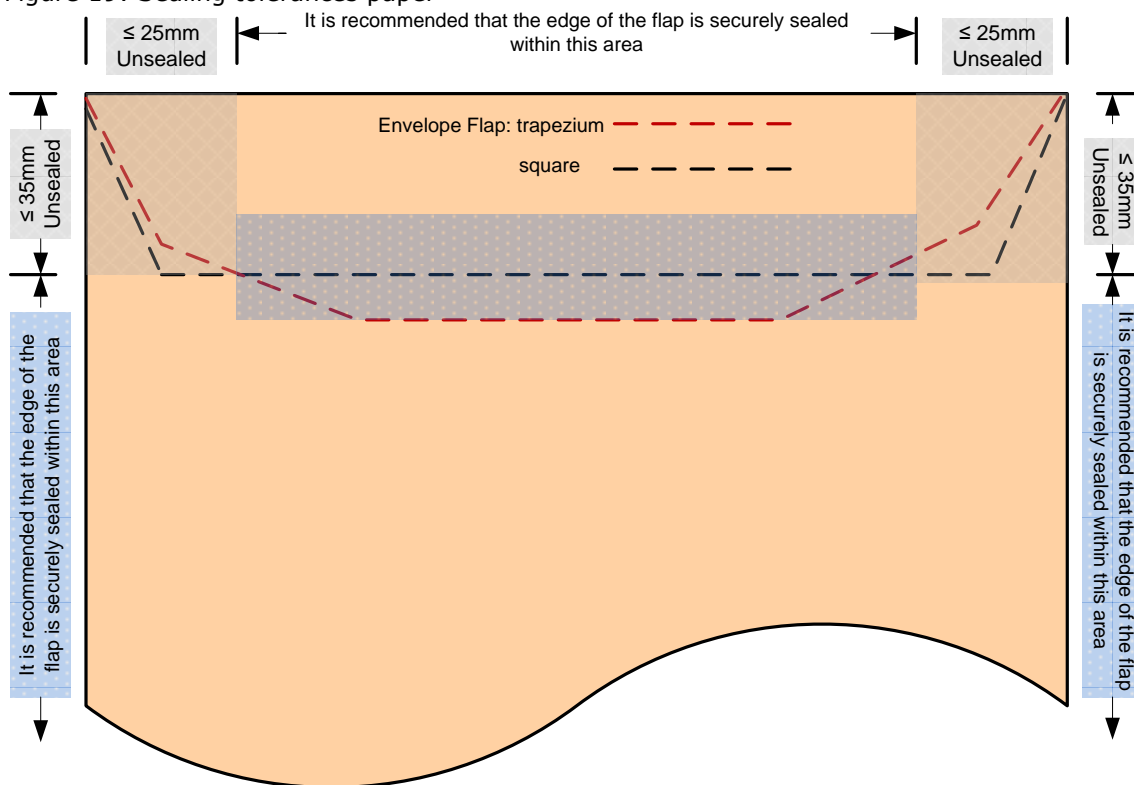
13.6 Flaps and sealing

This section is divided into paper and polymer/polywrap recommendations and requirements as they are different.

Paper envelopes

- it is recommended that the paper envelopes are sealed securely on the back, front and edges;
- a tolerance of 35mm x 25mm is permitted on the opening flap. Regardless of whether the opening flap is placed on the front or reverse of the Mailing Item (the front being where the Delivery Address Block and the Indicum are located) it is recommended to be sealed to within 35mm from the fold of the envelope and 25mm from the envelope side.

Figure 19: Sealing tolerances paper



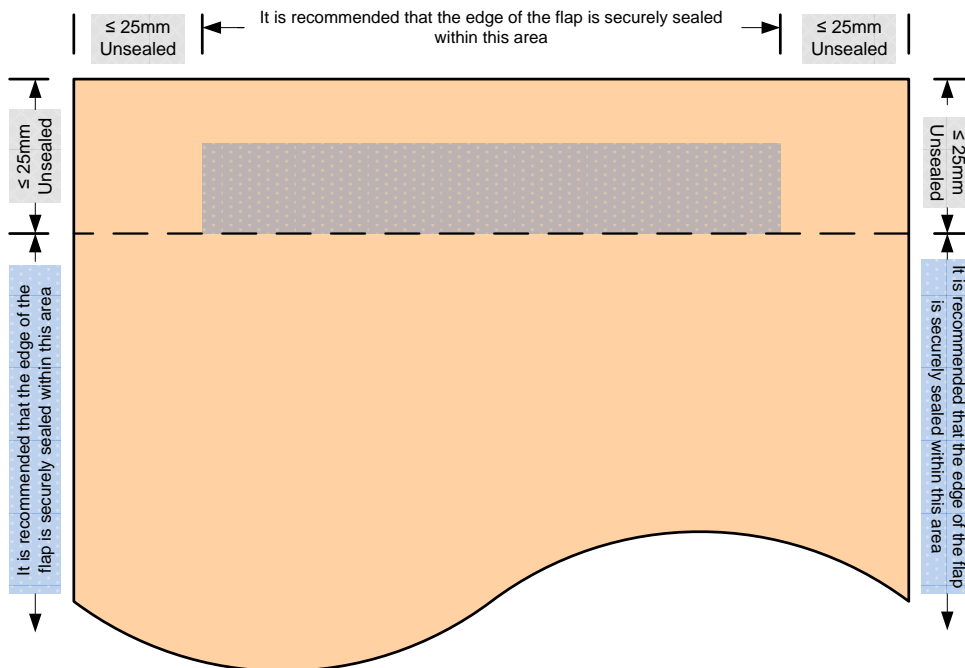
The terms of this Appendix M: Royal Mail Mailmark® shall continue to have effect in line with terms stated in paragraph 3.2 of the Royal Mail Mailmark® Schedule:20

Polymer envelopes

It is recommended that:

- Polymer envelopes are sealed along all the edges and have the opening flap on the back; and
- the opening flap is sealed to within a minimum of 25mm from the fold of the envelope flap and 25mm from the sides of the envelope (see figure 20).

Figure 20: Sealing tolerances polymer



Poly wrapped Mailing Items

Mailing items which are poly wrapped must be securely sealed on the front, back and side edges.

The recommendations for any seal which runs along the length, or width, of the item are as follows:

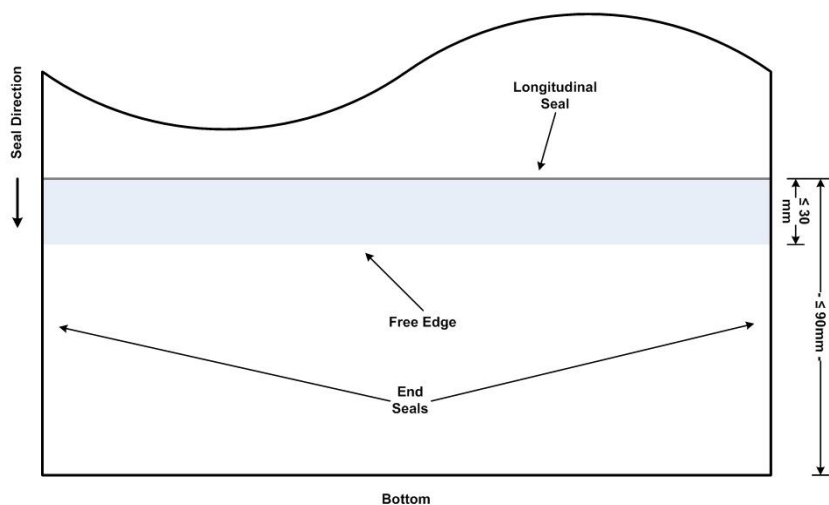
- this seal should be sealed at each end along the full length of the seal;
- the free edge of the seal should be less than 30mm deep;
- the preferred location for the seal is the back of the Large Letter; and
- due to the recommendations for the seal when placed on the front, it cannot be across the width of the Mailing Item (but if on the reverse it can).

If you have chosen not to have the seal on the reverse and have placed it on the front then please ensure you also meet the following requirements:

- the seal must not be over the Delivery Address Block or over the Mailmark barcode; and
- the seal must be towards the bottom of the Large Letter and be no more than 90mm from the bottom edge (see figure 21).

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Figure 21: Sealing poly



13.7 Windows (paper envelopes)

Although you are only permitted one window on your Mailing Item, you do have the option of using this window for either the Delivery Address Block or for advertising information. You do need to ensure that the window is not an open space i.e. there must be a transparent film covering the aperture and that it is square or rectangular (circular windows are not permitted).

As we do not wish to limit your options when it comes to designing or purchasing window envelopes, we do not have any specific requirements for the strength of the window but we do recommend that when we do receive the Mailing Items from you:

- the window film is not flimsy i.e. should be sufficient strength and quality that it is not visibly creased or crumpled;
- it is flat and securely and evenly sealed to the inside of the envelope, with corners of the aperture that are curved rather than straight as this will help prevent damage occurring when the Mailing Items are going through the final machine sortation stage;
- it does not take up more than 25% of the surface area on the side where it is found;
- the window area where it is used for an address should fall within the Delivery Address Block area – please see figures, 22, 25, 28 and 30;
- **Gloss** - (window and poly film): The gloss value should be ≤ 150 (American standards of testing and materials (ASTM) 2457 Measured at 60 degrees); and
- **Haze** - (window and poly film): The haze value should be $\leq 75\%$ (ASTM D1003-00 Procedure A (Hazemeter)).

13.8 Delivery Address Block and the Mailmark barcode

When printing the Delivery Address the recommended maximum characters per line of the Address Block is 64 and please ensure that the content of one address line is not wrapped onto a second line i.e. Team Valley Trading Estate must be printed on the same line and not spread over two.

We recommend that you use one of the fonts and sizes detailed in section 7 of this Appendix M and ensure that each line of the address has characters which are the same font and point size and that the spacing between the words is less than 5mm.

Figures 22 - 31 are separated into paper and poly, trayed and untrayed and includes C5 (162mm x 229mm) format because of the smaller area, due to the Indicum and return address area, permitted for the Delivery Address Block.

The Delivery Address Block and the Mailmark barcode cannot be located in the following areas (see also Figures 22 -31):

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on paper envelopes:

- the Indicum area (40mm from the top of the envelope x 75mm from the right);
- the return address area (40mm down from the top and no less than 75mm from the right);
- the 'Tag Code Zone' (referenced on the longest edge of the Large Letter, 33mm up from the bottom right corner and covering an area 30mm high and 110mm long);
- the 'Route Code Zone' (referenced that starts from the bottom edge up to 18mm high, stretching to 130mm in from the right hand edge of your mail piece);
- a 'frame' around the Mailing Item (15mm around the perimeter i.e. the bottom, left and right edges); and
- over the edge of the envelope flap.

on polymer envelopes or polywrapped items:

- the Indicum area (40mm from the top of the envelope x 75mm from the right);
- the return address area (40mm down from the top and no less than 75mm from the right);
- the 'Tag Code Zone' (referenced on the longest edge of the Large Letter, 33mm up from the bottom right corner and covering an area 30mm high and 110mm long – this must include the lateral movement i.e. the excess poly of which 20mm is the maximum permitted);
- the 'Route Code Zone' (referenced that starts from the bottom edge up to 18mm high, stretching to 130mm in from the right hand edge of your mail piece long – this must include the lateral movement i.e. the excess poly of which 20mm is the maximum permitted);
- a 'frame' around the perimeter of the Mailing Item (up to 35mm i.e. a mandatory 15mm and the remaining clear area is the excess poly of which 20mm is the maximum permitted Therefore, if for example, your Mailing Item only had 10mm excess polywrap then you would be expected to leave 25mm clear); and
- over the edge of the envelope flap.

Label and Tag code application areas

To allow us to give you as creative a specification as possible we have removed any mandatory requirements specific to areas where our Tag codes or labels and Tag codes will be affixed. The information within this Appendix M will allow you to make an informed decision when it comes to designing your pack design.

When you present the Mailing Items in trays, there will be fewer areas where the Mailmark barcode or label with a Mailmark barcode could be applied. This is because the Mailing Items will then only be presented to the machine in one of two ways. However, when mail is bagged it has to then be tipped and trayed at the receiving office and this increases the likelihood of the Tag code or label and Tag code being applied to any one of four areas.

In general, if you have a plain paper outer envelope then a Tag code will be sprayed directly onto the Mailing Item and if you have a very creative Mailing Item or if it is polywrapped or in a poly envelope then a label will be applied and a Tag code sprayed onto the label.

Please note:

- these defined areas relate to how the Mailing Item is presented to the machines, so there may be instances where a label could be applied a little higher or slightly more towards the left than indicated. This applies to polywrapped Mailing Items specifically and is purely because the excess poly around the insert may fold; and
- 'the bottom edge' of a Mailing Item is always the longest edge on which the Mailing Item will be fed through and presented to the machine. Mailing items are always processed in 'landscape format', trayed square Mailing Items are processed with the Delivery Address Block and Indicum uppermost with the Indicum to the top right.

Trayed

Trayed Mailing Items are presented to the machines according to the orientation of the Delivery Address Block and Indicum as follows:

- landscape Mailing Items (Figures 22, 23 and 24) - the address will be upright and the Indicum in the top right hand corner; and
- portrait Mailing Items (Figures 25, 26 and 27) - will be rotated to lie on one of the longest edges so that the Indicum is vertical in the top left hand corner and the address in a vertical position.

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Paper envelope, polymer envelope and polywrap items

When you tray your Mailing Items, because the orientation of the Mailing Item within the tray affects how it is fed through the machine there will be one possible area where we will apply a label if necessary and spray a 'tag code' mark – you must include the 'excess poly' to the area below (i.e. add a maximum of 20mm to the right and 20mm to the bottom):

- starts from the right hand edge and 33mm from the bottom edge; and
- the code application area is 110mm long and 30mm high.

Unbagged, bagged or in ALPS

When the Mailing Items are in bags or ALPS, then the Mailing Items are presented in landscape orientation. They are only put to the machine along one of their longest edges therefore Tag code marks could be applied in one of two areas for Mailing Items $\geq C5$ (162mm x 229mm), or one of four areas for Mailing Items $\leq C5$.

Paper envelope, polymer envelope and polywrap items

When you do not present your Mailing Items in trays, because the orientation of the Mailing Item is not pre-defined there will be two possible areas where we will apply a label if necessary and spray a 'tag code' mark - you must include the 'excess poly' to the area below (i.e. add a maximum of 20mm to each edge):

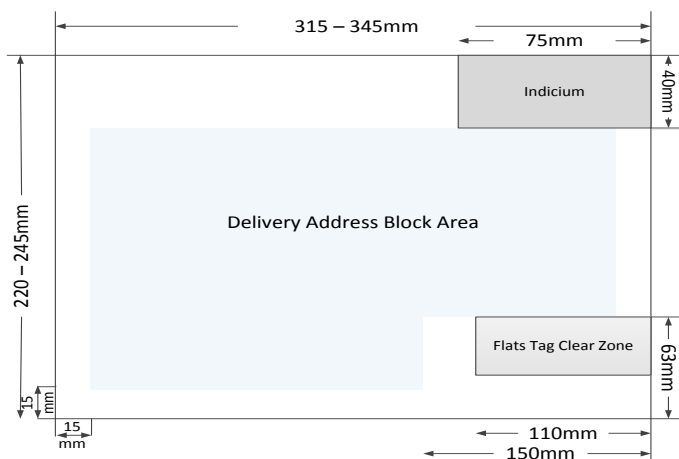
- starts in from the bottom right hand edge and 33mm up from the bottom edge, is 110mm long and 30mm high; and
- starts from the top left hand edge and 33mm down from the top left edge, and is 110mm long and 30mm deep.

Please note:

For polymer envelopes or polywrapped Mailing Items you will need to allow for any lateral movement when defining the Delivery Address Block location. The assumption must be made that the poly may fold during processing and, should this happen we still need a defined clear area from the edge to ensure the Delivery Address can be read. See Figures 28, 29, 30 and 31.

Figure 22: trayed landscape paper

This indicates that if you were to tray landscape Mailing Items then any code marks would be applied in the bottom right corner. It is required that Mailmark barcodes are only applied to the blue shaded area and recommended that they appear near the Delivery Address Block.



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Figure 23: trayed landscape poly

This indicates that if you were to tray landscape Mailing Items then any adhesive label and code marks would be applied in the bottom right corner. It is required that Mailmark barcodes are only applied to the blue shaded area and recommended that they appear near the Delivery Address Block.

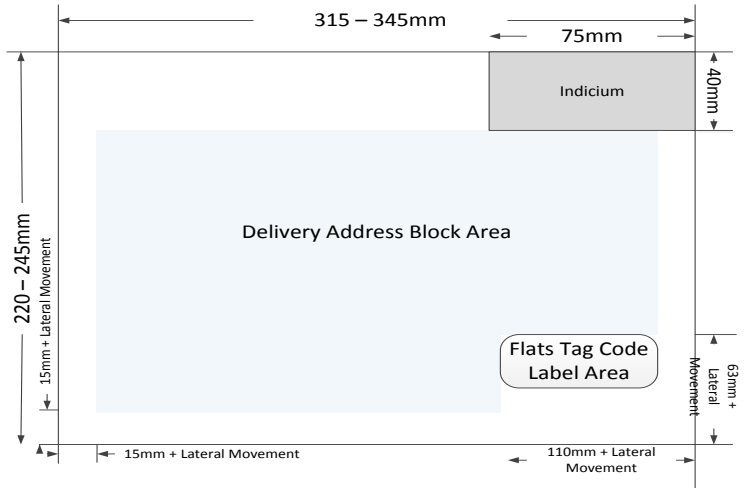
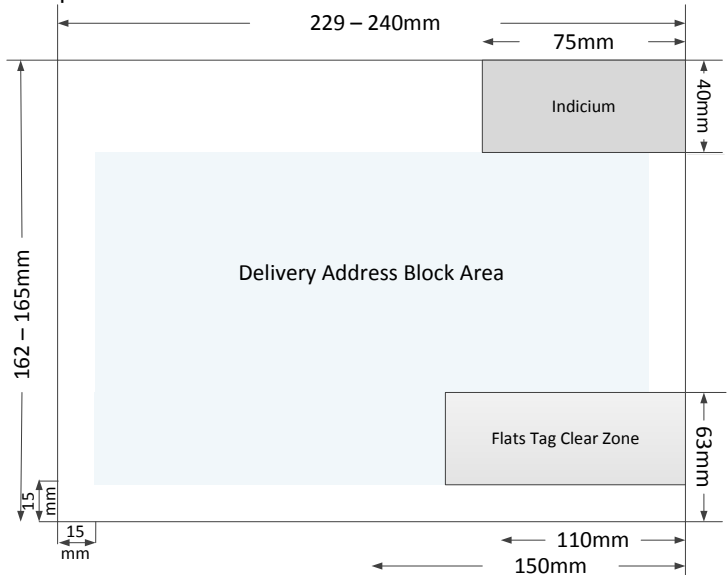


Figure 24: trayed poly C5 162mmx229mm landscape

This indicates that if you were to tray C5 items then any adhesive label and code marks would be applied in the bottom right corner. It is required that Mailmark barcodes are only applied to the blue shaded area and recommended that they appear near the Delivery Address Block.



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Figure 25: trayed portrait paper

This indicates that if you were to tray a portrait Mailing Item then any code marks would be applied in the bottom left corner if the Indicum was in the top right corner. It is required that Mailmark barcodes are only applied to the blue shaded area and recommended that they appear near the Delivery Address Block.

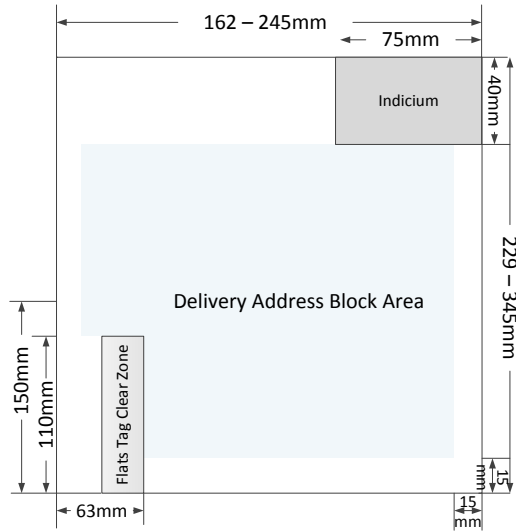


Figure 26: trayed portrait poly

This indicates that if you were to tray a portrait Mailing Item then any label and code marks would be applied in the bottom left corner if the Indicum was in the top right corner. It is required that Mailmark barcodes are only applied to the blue shaded area and recommended that they appear near the Delivery Address Block.

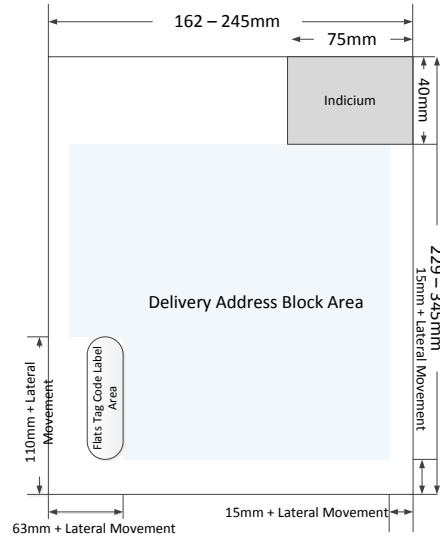
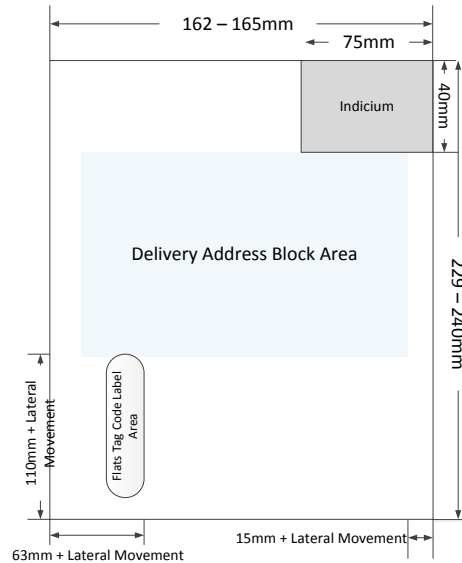


Figure 27: trayed portrait poly C5 162mmx229mm

This indicates that if you were to tray a portrait Mailing Item then any code marks would be applied in the bottom left corner if the Indicum was in the top right corner. It is required that Mailmark barcodes are only applied to the blue shaded area and recommended that they appear near the Delivery Address Block.



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Figure 28: untrayed landscape paper
 This indicates that if you were to bag or present a landscape Mailing Item in an ALPS then there would be two possible areas a code mark would be applied, bottom right and top left. It is required that Mailmark barcodes are only applied to the blue shaded area and recommended that they appear near the Delivery Address Block.

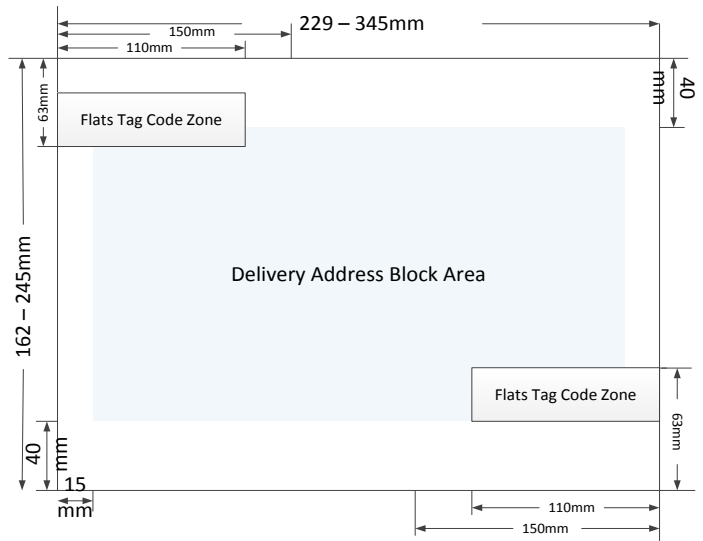
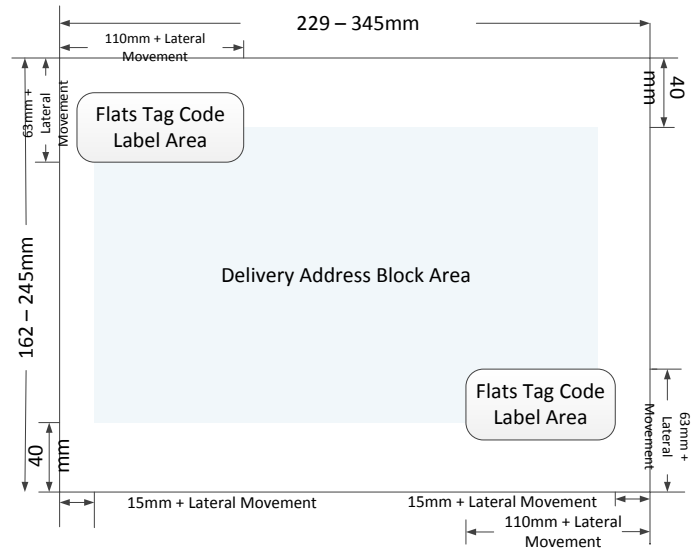


Figure 29: untrayed landscape poly
 This indicates that if you were to bag or present a landscape Mailing Item in an ALPS then there would be two possible areas a label and code mark would be applied, bottom right and top left. It is required that Mailmark barcodes are only applied to the blue shaded area and recommended that they appear near the Delivery Address Block.



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Figure 30: untrayed portrait paper

This indicates that if you were to bag or present a portrait Mailing Item in an ALP then there would be two possible areas a code mark would be applied, bottom right and top left, if the Indicium were in the top right corner. It is required that Mailmark barcodes are only applied to the blue shaded area and recommended that they appear near the Delivery Address Block.

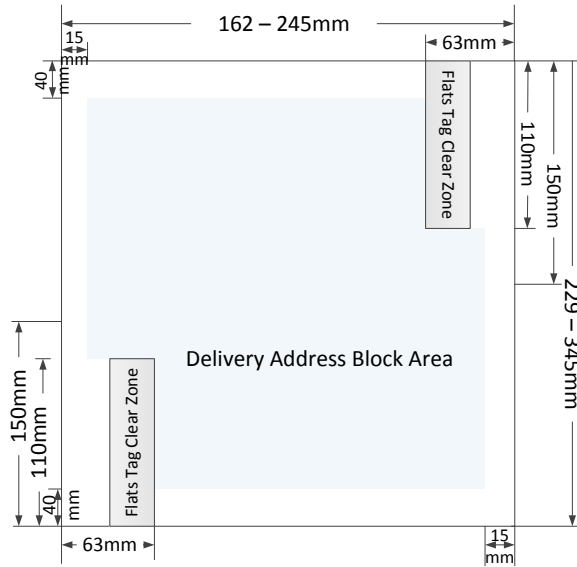
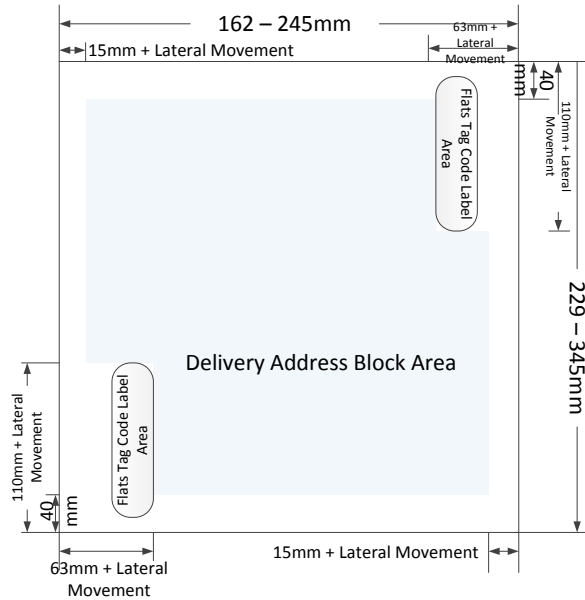


Figure 31: untrayed portrait poly

This indicates that if you were to bag or present a portrait Mailing Item in an ALPS then there would be two possible areas a code mark would be applied, bottom right and top left, if the Indicium are in the top right corner. It is required that Mailmark barcodes are only applied to the blue shaded area and recommended that they appear near the Delivery Address Block.



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14. Mailmark barcode specification

Please note that all specifications set out in this section are requirements unless stated otherwise.

A Mailmark barcodes can be either a:

- 2D data matrix barcode; or
- 4-state barcode.

2D data matrix Mailmark barcodes

There are three types of 2D data matrix barcodes:

- Type 7
- Type 9
- Type 29

2D data matrix barcodes vary in size and shape and they contain different quantities of spare space. 2D data matrix barcodes are made up of black & white square modules. Each module must be printed with minimum size of 0.5mm x 0.5mm and a maximum size of 0.7mm x 0.7mm. Modules must always be square so it is not acceptable to print with a module size of 0.5mm x 0.6mm or 0.7mm.

Figure 32: Example of a 2D data matrix Type 7 barcode



Minimum size 12mm x 12mm when printed with 0.5mm x 0.5mm module size. Total of 51 characters; 6 spare characters.

Figure 33: Example of a 2D data matrix Type 9 barcode



Minimum size 16mm x 16mm when printed with 0.5mm x 0.5mm module size. Total of 90 characters; 45 spare characters. Identified by a cross within box).

Figure 34: Example of a 2D data matrix Type 29 barcode



Minimum size 8mm x 24mm when printed with 0.5mm x 0.5mm module size. Total of 70 characters; 25 spare characters.

Important note:

No information (confidential or otherwise classified) should be placed in the spare space within the 2D data matrix Mailmark barcode that could or would place anyone in danger of breaching their or our data protection obligations.

4-state Mailmark barcodes

There are two types of 4-state barcodes:

- Barcode L (long). Length up to 89mm. No spare space
- Barcode C (consolidated). Length up to 76.2mm. No spare space

Figure 35 Example of a 4-state barcode L



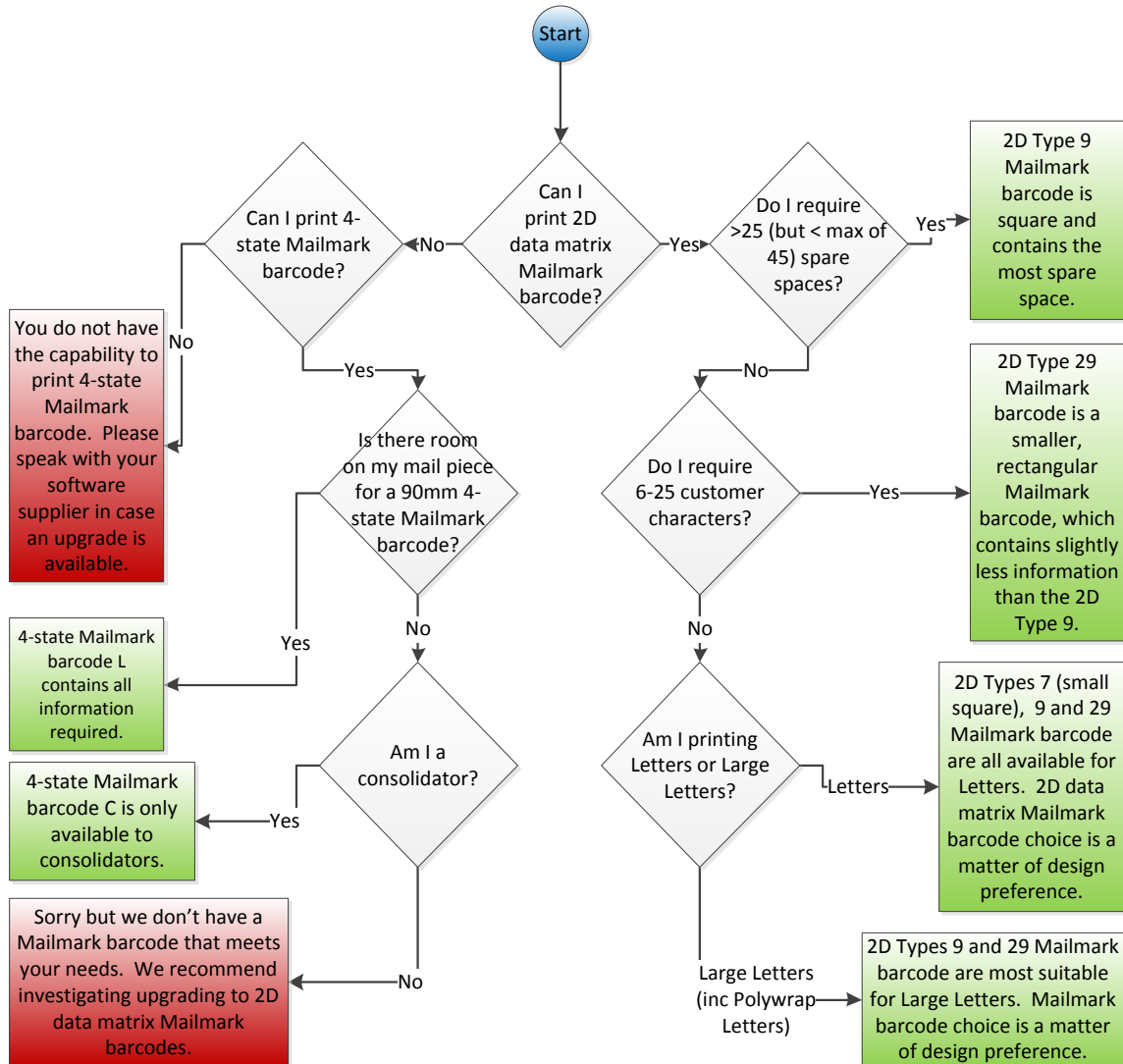
4-state barcode C







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The following diagram helps you work out which Mailmark barcode will best suit your needs.

Which Mailmark™ barcode is right for me?



4-state Mailmark barcode L Approx. 90mm at 22bpi	2D Type 9 Mailmark barcode 16mm x 16mm at 0.5mm module size. Contains 45 spare spaces.	
4-state Mailmark barcode C Approx. 76.2mm at 22bpi	2D Type 29 Mailmark barcode (horizontal). 24mm x 8mm at 0.5mm module size. Contains 25 spare spaces.	
(CBC. Approx 48.5mm at 22bpi)	2D Type 29 Mailmark barcode (vertical). 8mm x 24mm at 0.5mm module size. Contains 25 spare spaces.	
	2D Type 7 Mailmark. 12mm x 12mm at 0.5mm module size. Contains 6 spare spaces	

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14.1 Background Reflectance (BR) and Reflective Difference (RD)

Royal Mail 4-state Mailmark barcode only

In order to provide sufficient reflectance from the Mailing Item material that allows sufficient light to be reflected back, a BR value of a minimum of 35% is required. Mailing items not meeting this requirement will appear as a block of dark grey or even black, making it impossible to identify the Mailmark barcode on the Mailing Item.

In order to provide sufficient contrast between the Mailing Item material and the printed Mailmark barcode, the RD between the Mailing Item background and the BR must be a minimum of 30%. Mailing items not meeting this requirement will appear as black making it extremely difficult to distinguish the Mailmark barcode from the Mailing Item material.

14.2 2D data matrix Mailmark barcode

A 2D data matrix Mailmark barcode is a specified format of a Data Matrix type ECC200 code complying with the international standard ISO/IEC 16022 whose data content matches a configurable set of characters for the first 6 characters of the data. The supported formats from ISO/IEC 16022 and the data content are as specified within the separate document - Mailmark Barcode Definition Document.

2D data matrix Mailmark barcodes must be printed according to the international standard.

14.3 Characteristics of 2D Mailmark barcode

- a 2D data matrix Mailmark barcode is a Data Matrix type ECC200 code complying with the international standard ISO/IEC 16022. Version of ISO specification is ISO/IEC 16022:2006;
- a 2D Mailmark can be any of the following formats of Data Matrix type ECC200 as defined in ISO/IEC 16022:
 - 24x24 modules (Also known as Format 7);
 - 32x32 modules (Also known as Format 9); and
 - 16x48 modules (Also known as Format 29);
- 2D data matrix Mailmark barcodes must have a module size in the range of 0.50 – 0.70mm;
- the 2D data matrix Mailmark barcode must not appear within 15mm of the short edges of the Mailing Item, within 18mm of the long edge furthest from the Indicium (for landscape items this is the bottom edge) or in an area that must be kept clear of text or graphics as set out elsewhere in this appendix;
- the 2D data matrix Mailmark barcode must be printed on a background that is of consistent contrast by design, with a positive contrast for the symbol (dark on a light background). Note: Certain recycled paper does give an inconsistent background, but this is acceptable so long as the print quality criteria are achieved. Note the codes are always positive contrast.
- there must always be a clear zone of at least 4 times the module size around any 2D Mailmark barcode. For example if printed with a 0.5mm module size the clear zone must be at least 2mm. With a 0.7mm module size the clear zone must be at least 2.8mm;
- the 2D data matrix Mailmark barcode can be orientated vertically or horizontally but are required to have edges that are parallel with the edges of the Mailing Item;
- the 2D data matrix Mailmark barcode is differentiated from other Data Matrix symbols that may be present on the Mailing Item by a defined string of 6 characters in the first part of the data within the code. All systems that are required to read and extract data from the 2D data matrix Mailmark barcode shall have a configurable file that can contain up to 100 different 6 character strings to identify a 2D data matrix Mailmark barcode type from other Data Matrix codes. The configurable file shall, for each of the 2D data matrix Mailmark barcode types defined by the 6 character string:
 - assign the precedence of each 2D Mailmark barcode string where more than one 2D Mailmark barcode exists on a Mailing Item; and
 - set the threshold limit for the minimum amount of unused error correction by the ECC algorithm that is allowed before rejecting the code read.

The representation of the 6 character string within the configuration file shall comprise of characters A – Z, 0 – 9, or Space. No wild cards will be used;

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- the 2D data matrix Mailmark barcode is differentiated from other Data Matrix symbols by a defined string of 6 characters in the first part of the data within the code. Each of the Royal Mail products that use the 2D data matrix Mailmark barcode has the following data strings in the first part of the data content:
 - UPU identifier – 1 Characters (J);
 - Royal Mail identifier assigned by the UPU – 3 Characters (e.g. GBA, or GB<SPACE>);
 - Information (Product) type ID – 1 Character; and
 - Information type ID version number – 1 Character;
- each attribute within any 2D data matrix Mailmark barcode is of a fixed and defined length. This is to ensure that any individual attribute can be located by specifying the start character of the attribute with reference to the start of the character string;
- the information within the 2D data matrix Mailmark barcode shall comply with the C40 encodation scheme (Character set) as described within ISO 16022. All data that is within the code shall comply with the C40 Basic Character set (Uppercase Alphas, Numerals and SPACE only);
- the data within the barcode will not comply with optional message structures that are referenced from ISO 16022, such as ISO 15434 or 15418. The data will be a single continuous string of data with no header, footer or data identifiers included;
- for 2D data matrix Mailmark barcode, the information contained in the barcode is not sensitive as much of it can be found within human readable information on the Mailing Item and the 2D data matrix Mailmark Supply Chain ID is not relevant to any other Royal Mail or customer account information. Therefore, there is no requirement for encryption;
- all of the attributes must start at a defined point in the data string, so any missing or optional attributes must be filled with the SPACE character unless otherwise stated in the barcode definition. The one exception to this rule is the customer data space that is available in some codes. Any unused data space shall not be filled with space characters as this maximises the amount of error correction employed in the 2D data matrix Mailmark barcode; and
- where space characters have been inserted into the code for the purposes of padding out the code as outlined above, these padding characters will not be included in the data fields after the parsing of the barcode information following barcode reading.

14.4 Royal Mail 4-state Mailmark barcode

4-state Mailmark barcodes look like the existing Royal Mail 4-state barcodes that are used for CBC mailings. However they differ from the existing barcodes as they are made up of encoded content, and the bars within the 4-state Mailmark barcode do not combine to represent alphanumeric characters.

The encoded content will be output as a string of text that consists of 4 characters:

1. D for Descender bar;
2. A for Ascender bar;
3. F for Full bar; and
4. T for Track bar.

The DAFT text strings when presented in the Royal Mail 4-state font form the Royal Mail 4-state Mailmark barcode. Figure 36 shows a Full bar followed by a Descender bar, an Ascender bar and a Track bar.

All systems that are required to read and extract data from Barcode C and L Mailmark shall have a configurable file that can contain up to 100 different 2 character strings to identify different data fields within the code. The configurable file shall for each of the Barcode C/L Mailmark defined by the 2 character string:

- assign the precedence of each Barcode C/L Mailmark string where more than one Barcode C/L Mailmark exists on a Mailing Item;
- set the threshold limit for the amount of error correction by the ECC algorithm that is allowed before rejecting the code read;

The representation of the 2 character string within the configuration file shall comprise of characters 0 – 9 only. No wild cards will be used.

14.5 Optical specification for all Royal Mail 4-state barcode Mailmark

The Mailmark barcode must be printed so that it contrasts with the background, typically black bars on a white background, and the print quality shall be consistent throughout the code.

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The optical characteristics of the printed Mailmark barcode characters can vary substantially, depending on the varied print processes used to produce them, and the quality of the substrate onto which they are printed. Please make sure that the reflectance and print quality characteristics are maintained within acceptable limits, to ensure the reading process is reliable.

14.6 Print Contrast Ratio (PCR) for all Royal Mail 4-state Mailmark barcodes

The PCR is an indication of how well the printed Mailmark barcode on the Mailing Item stands out from the background. For Mailmark barcode mail this must be a minimum of 40%. Positive Contrast or Inverse Printing (Barcode lighter than the Background) is not permitted.

14.7 Symbology, dimensions and tolerances measurement for the Royal Mail 4-state Mailmark barcode

When Mailmark barcodes are magnified, their edges may not always be clearly defined, making accurate measurement more difficult. In order to ensure that measurements are within required specifications, it is necessary to define the edges between each light and dark element of the Barcode. The edge of a bar is defined as:

"the position where the apparent reflectance is exactly halfway between the minimum and maximum reflectance values of the adjacent bar and space, when viewed using a circular sample aperture of less than 0.6X, where X is defined as the nominal width of the bars in the code"

Dimensions for a Royal Mail 4-state Mailmark barcode

Barcode C contains approximately 66 bars

Barcode L contains approximately 78 bars

The Royal Mail 4-state Mailmark barcode has been developed for use with most common printing systems. However, as many of these systems might not be able to match ideal requirements, we have also incorporated systems that read imperfect Royal Mail 4-state Mailmark barcodes to the extent those practical algorithms will allow. The dimensions shown below represent the maximum tolerances that are required when using the Royal Mail 4-state Mailmark barcodes.

Dimension recommendations:

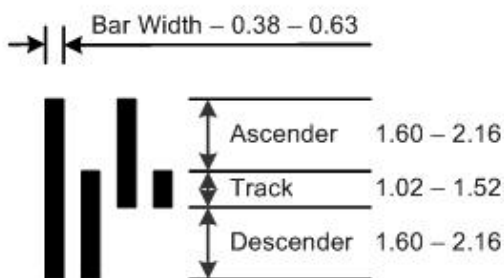
- bar width is set at 0.54mm (with width tolerance of +/- 0.05mm);
- the Ascender and Descender height is set at 1.9mm;
- the track bar is 1.4 times module size high (with height tolerances of +/- 0.1mm); and
- the pitch is 21.2 (+/- 0.2) bars per inch (25.4mm).

Dimension requirements:

- 4-state Mailmark barcode edges must be sharp and clearly defined to help eliminate misreading. For clarification, to ensure that this form of code can be read:
 - the width requirements apply throughout the whole bar i.e. no part of the bar can be less than 0.38mm wide or greater than 0.64 times module size wide; and
 - the print quality must be consistent throughout the code and there must be no gaps between the printed dots within a bar;
- there must be between 20 and 24 bars per 25.4mm which must be equally spaced; and
- the 4-state Mailmark barcode must be a continuous string of characters and must not include gaps or space characters.

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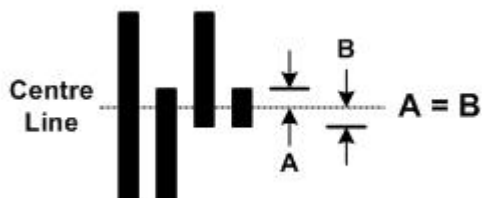
Figure 36 Royal Mail 4-state Mailmark barcode dimensions



Vertical alignment

The track element of the bars must be symmetrical about the centre line of the code +/- 10% of the height of the centre line.

Figure 37 Vertical alignment



14.8 Clear Zone for all Mailmark barcodes

The Clear Zone is the area where the Mailmark barcode is placed in addition to a square or rectangular border of at least 2mm for Royal Mail 4-state Mailmark barcodes on all sides and at least 4 times module size for 2D data matrix Mailmark barcodes on all sides. It consists of a background with constant reflectance, to comply with the optical specification in this appendix for Royal Mail 4-state Mailmark barcode and in the ISO specification for 2D data matrix Mailmark barcode.

It is required that no other text, graphic, picture, window edge, flap, perforations etc. appear in the area taken up by the Mailmark barcode and associated 2mm or at least 4 times module size clear zone. The minimum module size is 0.5mm x 0.5mm; in which case the required clear zone is 2mm. The maximum module size is 0.7mm x 0.7mm; in which case the required clear zone is 2.8mm.

It is a requirement that you do not place a border or lines around the Mailmark barcode or the associated clear zone.

14.9 Location for all Mailmark barcodes

Location requirements:

We require that you place the Mailmark barcode and associated Clear Zone:

- on the same side of the envelope as the Indicum and Delivery Address Block beneath the Indicum;
- is at least 15mm from the short edges of the Mailing Item;
- is at least 18mm from the long edge furthest away from the Indicum (i.e. the bottom edge of a landscape Mailing Item);
- does not infringe on any other Clear Zone set out in this Appendix or other literature (e.g. the clear zone that is required around the Indicum and the route and tag clear zones); and
- has opposite edges that each are parallel with one another (i.e. it should not be skewed (i.e. squashed or stretched in any direction to form a parallelogram that does not have four 90° vertices)).

Location recommendations:

We recommend that the four edges of the Mailmark barcode and the clear zone remain parallel with the four edges of the Mailing Item.

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14.10 eManifest

The eManifest is an electronic record of your Mailmark Mailing Items posted against a non-transferrable SCID on each day. The data within the eManifest, together with the machine processing data validated against it, is used for reporting.

eManifest requirements and procedure:

- an eManifest is a requirement for both 4-state barcode Mailmark Mailings Items and 2D data matrix Mailmark Mailings Items and is in addition to a Manifest;
- an eManifest is created via the eMHS and populated with item level data through a software solution or by the Mail Producer's IT systems. It is required for any Mailmark Mailing Item recorded against a SCID;
- one eManifest is required per SCID per day. It is important that you include all Mailing Item data in the eManifest. If you don't we will see those items as we process them and may invoice the Bill Payer for them for them;
- once the eManifest is created, Mailmark Mailings Items are uploaded to each eManifest via the eMHS by the Mail Producer in one or more Batches;
- when a Batch is completed it is closed by being submitted, and once all Batches are submitted the eManifest must be confirmed; and
- each eManifest will have a unique eManifest ID. This eManifest ID and Supply Chain ID (SCID) must be included in the relevant fields on the Manifest.

Please note:

Each Batch must have a minimum volume of 4,000 Mailing Items. It is possible to split Batches and submit more than one Batch to make use of reporting by Batch, providing each Batch contains the minimum volume of Mailing Items required.

When you must submit your eManifest:

- an eManifest is created via the eMHS and must be confirmed within 2 calendar days from the time of creation;
- the eManifest can be confirmed up to two days prior to the mail handover date;
- the deadline for confirming Network Access Item eManifests is configured to 9pm on the handover date specified in the eManifest. At this time, any remaining open Item eManifests will be automatically confirmed and closed to further Batch submissions.

The deadline for confirming Consolidator Item eManifests is configured to 2am on the handover date specified in the eManifest. At this time, any remaining open Item eManifests will be automatically confirmed and closed to further Batch submissions.

Handing over Mailing Items

Mailing Items should be handed over on the day the eManifest is confirmed. Please note that if Mailing Items are handed over five (5) or more working days after the eManifest is confirmed the Bill Payer may be invoiced twice.

Failure to create an eManifest:

If an eManifest is not created we may process your mail and apply error charges. Please note that without an eManifest we cannot provide reporting.

Mandatory fields within an eManifest:

The following information is required:

Header:

1. Supply Chain ID (SCID)
2. Mail Originator
3. Date (the date of the eManifest confirmation and the handover date)
4. eManifest status (open, finalised, test)
5. eManifest ID

Detail:

1. Unique Mailing Item ID
2. Batch ID
3. Address (full address is recommended, only postcode and DPS are required. Recipient details must not be included)
4. Product attributes (format, weight etc.)

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The Mailmark eMHS implementation guidelines contain more information and is available from your Access Account Director.

14.11 Mailmark barcode Definition Document

There is a choice of Mailmark barcode available. At a high level Mailmark barcodes can be either a 2-Dimensional (2D) Complex Mail Data Mark barcode or 4-state Mailmark barcode. There are three types of 2D CMDM Mailmark barcodes available offering varying space for your non-Royal Mail use. The Mailmark barcode Definition Document provides full details of:

- The specifications for the format and structure of the Mailmark barcode
- The data content of each Mailmark barcode, including the legitimate character sets and ranges of data

14.12 Other useful documents for implementing Mailmark.

We have created the following useful guidelines and technical documents which you will need to refer to as they will provide you with details and instructions on:

- how to create your Mailmark barcode;
- how to ensure your systems correctly interface with the eMHS;
- how to create a 4-state barcode and barcode options; and
- how to encode and decode 4-state barcodes.

For ease we have provided a link to each of the relevant guidelines and technical documents on the Mailmark section of our Website. [Mailmark link.](#)

You are also required to accept the Royal Mail Mailmark Participant Terms and Conditions® (attached below) in order to become a Participant in a Supply Chain, and you acknowledge that before you can use the Mailmark option each of the Mail Originator, Mail Producer, Carrier and Bill Payer in your Supply Chain will need to have accepted the Participant Terms and Conditions to become a Participant.



Access - Participant
Terms and Conditions