

UNDERSTANDING
COMMON MAILMARK
PROCESSING ISSUES

CITIPOST MAIL

Contents

1. Principles of Royal Mail's technical specifications
2. Common Barcode issues
3. Common processing issues due to mailpiece design
4. Common design errors
5. Rationale and summary of key general requirements
6. Rationale and summary of key design requirements
7. 'One piece mailer' definition and processing expectations
8. 'One piece mailer' designs
9. Key processing issues
10. Checklist
11. Useful sections in the customer Mailmark reports

Principles of Royal Mail's technical specifications

1. User Guide

- Requirements have been designed based on what Royal Mail's machines are capable of processing.
- Includes designs requested by, and tested for customers.
- Factors in that Royal Mail have 3 different letter machine types and 1 large letter machine type.
- Reflects that a letter may have up to 8 or more machine sorts before delivery.

2. Choosing to use a non-tested design

Customers are required to handover mailing items meeting the specification they pay for. If a customer chooses not to do so then charges may be applied for non-conformant mail pieces/mail campaigns.

- If the mail can be processed on the correct machine without issues and achieves a minimum of 90% barcode read rate then the principle of Mailmark is applied and no further checks on the mailing would be done post mailing.
Note: no pre-processing checks are done by Royal Mail staff, mail is taken to the machines and processing is attempted.
- If the mail cannot be processed as expected then Royal Mail's iRP checks may be undertaken post mailing and charges applied.

3. Implications of mailing out of specification items




- Damage to the items mailed.
- Damage to other customer postings.
- Machine jams, machine damage.
- Item jams, item rejects.
- Items rejected at the start of processing and requiring manual sortation or diversion to alternative machines which process different formats.
- Items detected as doubles which impacts item level reporting and contributes to missorts.
- Item level adjustment charges.
- Conversion of the mailing to an alternative product type or format.



4. Support

- Royal Mail's Mailmark, QA and Technical teams are available to check mailpiece designs and, if applicable, undertake testing for letter format items. Please speak to your Citipost Mail Client Relationship manager to access these support functions.

Common Barcode Issues

Barcode Types

Barcode Visual		
Type 7	Type 9	Type 29
		
<p>Size: 24x24 modules (Squares)</p> <p>Minimum size: 12x12mm @ 0.5mm modules</p> <p>Maximum size: 16.8x16.8mm @ 0.7mm modules</p> <p>Capacity: 51 characters</p> <p>Of which, customer space: 6 characters</p>	<p>Size: 32x32 modules (Squares)</p> <p>Minimum size: 16x16mm @ 0.5mm modules</p> <p>Maximum size: 22.4x22.4mm @ 0.7mm modules</p> <p>Capacity: 90 characters</p> <p>Of which, customer space: 45 characters</p>	<p>Size: 16x48 modules (Squares)</p> <p>Minimum size: 8x24mm @ 0.5mm modules</p> <p>Maximum size: 11.2x33.6mm @ 0.7mm modules</p> <p>Capacity: 70 characters</p> <p>Of which, customer space: 25 characters</p>

Barcode Visual	
Type L	Type C
	
<p>Number of bars: 78</p> <p>Physical size: approx. 89mm</p> <p>Bars per inch: 21.2</p> <p>Content: 26 characters</p> <p>Of which, customer space: none</p>	<p>Number of bars: 66</p> <p>Physical size: approx. 76.2mm</p> <p>Bars per inch: 21.2</p> <p>Content: 22 characters</p> <p>Of which, customer space: none</p>

Common Issues

- Printed in the 'Route Code'
- Printed in the 'Tag Code' clear zone.
- Printed underneath a double film or poly seal.
- Print heads blocked & causing a white line to run through the code.
- Printed on a substrate which is too porous and results in unclear barcode modules / bars.
- Printed on a substrate which does not allow the ink to set.
- Printed too close to the edge of the pack resulting the barcode surface being uneven.

Common Processing Issues due to Mail Piece Design

1. Non-adherence to the 'One Piece Mailer' designs, including paper wrapped letters

- Peelable adhesive used rather than that which exhibits fibre tear.
- Inclusion of non-paper inserts.
- Fold designs (gate, concertina, roll fold).

2. Contents vs Outer

- Excess paper on the top and short edges of letters with paper wrapped items i.e. not tightly wrapped.
- Excess poly / paper on the short edges for large letters.

3. Flexibility / Stiffness

- Letter format catalogues with too many pages, too many advertising inserts, all pages high quality gsm.
- Letter format catalogues with perfect bound spines.
- Large letter format items very thin and flimsy.
- Items too thick.

4. Sealing

- Items poorly sealed or incorrect adhesive applied.

5. Design

- Lower quality gsm paper used.
- Customers create 'hybrid designs'.
- Unwrapped (naked) letter format.
- Poly wrapped letter format.
- High gloss finish.
- Single ply postcards.
- French folded A4 'magazine' into letter format.
- Gusset style envelopes.
- Fold in the incorrect orientation or location

Common Design Errors

Dimensions and thickness

The pack is measured by the finished size. The min thickness of a letter is 0.25mm and a large letter 0.5mm, this overrides minimum gsm requirements. If items do not meet the minimum thickness, there is greater chance of items being damaged and causing machine jams.

Paper quality and paper weight

Must meet the design being mailed. This supports the correct and efficient processing of the items.

Flexibility

Perfect bound spines are not acceptable for letters and letters must be able to bend. Some letter catalogue mailings have too many pages/inserts or very high-quality gsm for the outer which makes the pack too stiff.

Excess paper or polywrap

If excessive, can catch on the machines and cause damage.

Adhesive

The type and application is very important, particularly for 'one piece mailers. e.g. Light pressure seal adhesive does not give the pack strength and robustness needed.

Opening flap

The location and design is important because, if in the wrong place, could catch on the automation during processing. Packs which have openings half across the centre of the pack (window style), die cut apertures or where one side of the pack is shorter than the other (leaving a single ply edge) are out of specification and will cause processing issues.

Fold

There must be a fold on all items. This fold must be on the edge Royal Mail process the mail which is known as the 'reference edge'. The reference edge is the long edge underneath the Indicia on square or landscape items, or the long edge to the left of the Indicia for portrait items. This applies to both letters and large letters.

Spines

For unwrapped Large Letters, the spine must be on the reference edge. This is the long edge underneath the Indicia on square or landscape items, or the long edge to the left of the Indicia for portrait items. For any insert, e.g. a catalogue, the spine must be on the reference edge. This applies to both letters and large letters.

Delivery and Return Address

The font, print, location and formatting is important as these are read used by the machines to reconcile against the postcode and barcode, identify areas of interest (for processing) and identify areas to ignore.

Clear Zones

Mailmark barcode must not fall in these clear areas (frame around the outer, the route code and tag code) or they won't be effectively read by the machines.

Pack edges

All edges of mailers, particularly 'one-piece designs must meet.

Tab seals

If used for letter mailings, they must be orientated correctly against the spine of the pack, there must be sufficient and they must be in the right locations.

Rationale and Summary of Key general Requirements

Specification	Design	Rationale
Addressing standards	<p>Delivery and Return Address location, font, font colour used and structure.</p> <p>Requirement that the address (Delivery and Return) has a good contrast i.e. is dark and not white on a dark background.</p> <p>Requirement that no other address is placed on the front of the mailpiece.</p>	<p>Royal Mail's sortation software recognises which address to sort the mail to using font, structure & location.</p> <p>Printing in white does not enable an address to be read correctly.</p> <p>The Delivery Address and Mailmark Barcode are reconciled against each other and PAF (Postcode Address File) referenced to sort the mail correctly.</p> <p>If a Default DPS is used and/or the Barcode is not read then the Delivery Address helps with the sortation.</p>
Barcode	<p>Print standards, location and content.</p> <p>Requirement that there is a good contrast between the barcode and substrate on which it is printed.</p>	<p>Required for the correct sortation and item level reporting and class determination.</p>
Flex	<p>Letters cannot be stiff i.e. no perfect bound spines and letter format catalogues should not have too many pages.</p>	<p>Spines must be on the edge on which Royal Mail process the mail to enable efficient sortation. Letters have to flex (S shape as a rough guide) so they can go round belts and rollers.</p> <p>Large letters cannot be too floppy or won't process effectively.</p>
Indicia	<p>Specific design requirements including size and print colour.</p> <p>The print quality supports licence identification.</p>	<p>The machines use the indicia to detect the mail stream (1st, 2nd, Economy Retail and DSA) and to orientate the mail during processing.</p>
Inserts	<p>Paper only for 'one-piece' mailers</p> <p>No metal objects (letters)</p> <p>Pre-advised fixed locations</p>	<p>Non paper inserts have not been tested on 'one-piece' mailers & may cause items to be rejected, item and machine damage. Credit cards have not been generically tested.</p> <p>Sachets of cream or liquid have not been tested but may be okay in large letters if a single sachet of a small volume e.g. free face cream sample.</p>
Paper or Poly outer	<p>Paper only for Letters</p> <p>Poly or Paper for Large Letters</p>	<p>Royal Mail's letter sorting machines simply cannot process poly wrapped or unwrapped items.</p>
Postcards - traditional single ply	<ol style="list-style-type: none"> 1. Must be a minimum of 0.25mm thick 2. Are not permitted for Economy mailings (Network Access) 3. Are not permitted with Incentives 	<p>Single ply postcards are difficult to singulate (separate) during processing which impacts item level reporting and adversely affects processing. Machine jams, items being detected as doubles and not singulating can happen when the item is too thin or has a highly glossy finish.</p> <p>Doubles are likely to result in missorts.</p>

Specification	Design	Rationale
Sealing	Edges and opening flaps must be fully sealed. Adhesive must exhibit fibre tear, the only mailer which doesn't require this is the 'Feature Mailer'.	The packs need to be strong enough to have multiple machine sorts, remain intact during processing and not be damaged or cause damage. Having non-permanent adhesive can cause inserts to come loose or packs to open/be damaged/cause damage. Note that temperature changes or high/low temperatures may impact the adhesive sensitivities so this should be considered.
Size	Pack dimensions are based on the finished mailpiece, including the excess poly or paper. For both letters and large letters there is a maximum permitted for the excess paper or poly. This is to ensure minimum movement of the largest inserts (lateral movement).	Minimum & maximum sizes enable items to be processed & trayed (large letters are dropped into trays by the machines). The excess poly & paper permitted ensures items can be processed at speed and are not caught, do not cause jams & limit damage.
Tabs	Minimum of 3 required on any letter format item, its high risk if 5 are not used for heavier packs. The pack must be able to flex and the fold/spine must be on the edge the mail is processed.	The location and strength of the tab seals are in place to ensure the item is not damaged during processing.
Fold (Reference Edge)	Must always be on the edge on which Royal Mail process the mail. This is; Square letters = underneath the Delivery Address & Indicia Landscape letters = underneath the Delivery Address & Indicia Portrait letters = to the left of the Delivery Address & Indicia Landscape large letters = underneath the Delivery Address & Indicia Portrait large Letters = to the left of the Delivery Address and Indicia	The edge must be fold or the item(s) may be detected as doubles (i.e. two mail pieces stuck together) and rejected. Also, the mail may be damaged, cause jams and machine breakdown.
Flap - opening	The preferred location for an envelope is on the long top edge and on the reverse. If on the short side of a letter envelope, it should be on the back left edge as viewed from the front of the Letter. For a one piece mailer it must be on the long edge (opposite edge on which Royal Mail process the mail) along the top.	This is to support the correct processing of mail, item singulation, prevention of items catching or being damaged and ensure that items can be processed separately.
'One piece mailer' options. Standard is referred to simply as 'paper wrap'	<ol style="list-style-type: none"> Standard. Paper folded & sealed, with a flap. May be sealed around paper inserts. Advertising. As per standard but slightly larger landscape design (165mm H x 248mm L) Can only be up to 3mm thick and 70gm in weight. Coupon. Paper wrap, pocket on the inner fold to hold coupons or similar. Feature mailer. One-fold, 4pp, no opening flap. Machineable postcard. 2/3 ply design, not designed to be opened. Fold and Seal. A one page, folded, sealed mailpiece with a perforated flap, designed to open to give access to printed content inside 	The designs are prescriptive with the size, paper gsm, design, sealing, contents and adhesive requirements as these ensure the mail can be processed correctly and at speed, are not damaged, do not cause jams or machine damage and do not cause damage to other customer mail.

Specification	Design	Rationale
Perforation options	<ol style="list-style-type: none"> 1. Pressure Seal. This is a payslip landscape design. Perforations along each short edge which are entirely removed. A roulette perforation running along the top length on reverse which tears off in a single strip to open. 2. Roulette. This is payslip landscape design. All perforated strips are removed in their entirety. The short edge perforations run along the full vertical length. The long edge along the bottom has a perforated strip which start and finishes 'inside' the side perforations to make an H shape. 3. Zip Strip. two lines of parallel cuts in the paper to form a 'zip' on the reverse which is used to open the mailpiece. 	<p>The design, location of the perforations, the size of the cuts and bridges and the paper gsm of the pack are in place to ensure the items can be processed without tearing, damage or machine issues.</p> <p>No inserts are permitted for the Pressure or Roulette perforated options.</p>
Paper - gsm minimum	<p>Envelopes - 70gsm Postcards = 200gsm One Piece standard Letter = 100gsm One Piece Advertising Letter = 100gsm Fold and Seal = 120gsm Feature One Piece = 150-190gsm Coupon Mailer = 115gsm Machineable Postcard = 120-150gsm Roulette Perforations = 100gsm Pressure seal = 100-150gsm depending on size Tab seal multi fold = 100gsm Tab seal booklet = 100gsm for outer cover Tab seal single fold cards = 150gsm Tabs = 80gsm Unwrapped large letter = 100gsm for outer cover, 50gsm inner Paper wrapped large letter outer wrap = 90gsm Gatefold unwrapped large letter outer cover = 115gsm</p>	<p>The paper strength has been defined after formal testing of the various designs and mail types.</p> <p>The paper take into account whether the items have inserts, how they will be processed and how many times they could be machine sorted.</p> <p>The paper is linked to the adhesive type and application (dots and/or continuous seal) because, combined, they can give the pack the strength needed to machine sort.</p> <p>When any component of the pack changes e.g. paper, contents (tested & untested) or adhesive then the machineability of the pack may be impacted. i.e. better quality paper with adhesive with low tack/clean removability properties may not give the item durability during processing.</p>
Size - excess paper or poly	<p>For both letters and large letters there is a maximum permitted excess paper or poly.</p> <p>Letters up to 2mm thick = 30mm Letters over 2mm thick = 20mm Large Letters generic= 30mm Large Letters paper wrap = 20mm</p>	<p>While not in Royal Mail's current requirements, excess paper around the width of a pack can cause processing issues.</p>

One Piece Mailer Definition and Processing Exceptions

Definition

A rectangular or square shaped mailpiece made from rectangular or square paper that is folded and sealed.

It may be designed to be opened or to enclose an insert.

Its unfolded edges are sealed using either inner adhesive spots or a continuous adhesive line.

Key to note: it provides a one-piece alternative to the traditional envelope i.e. there will only be two folds, one on each long edge.

Design of 'one piece mailers'

The requirements in the Royal Mail Technical Specification, for all mail, are mandatory.

Some requirements, are marked as 'High Risk' or 'Low Risk'.

Note: 'High' or 'Low' Risk does not mean the requirements are optional.

'High Risk' = higher risk of processing poorly and are more likely to have charges applied.

'Low Risk' = lower risk of processing poorly and less chance, but still a possibility, of charges being applied.

Processing requirements

Any letter in Royal Mail's network can have up to 8 machine passes prior to delivery and as such they have three expectations;

1. There is a minimum of a 90% read rate for the posting, and,
2. The items can be processed on the correct machine and,
3. The item(s) does not cause processing issues, machine damage, be rejected by the machines or cause damage to other items.

Key to note: these apply to all mail types.

Adjustments

If customers choose not to meet the specification of the published designs and there are issues with the mailing then charges may be applied.

If customers choose not to meet the specification of the published designs and the mail can be processed as expected with the desired read rate on the correct sorting automation then charges are unlikely to be applied. Note, this is specific to mailpiece design and not any other issue e.g. missorts, barcode quality etc.

One Piece Mailer Designs

1. “One piece mailer’ including paper wrap (Standard)

This design is in lieu of a traditional envelope which has the short edges folded and sealed to the inner of the pack.

A ‘One piece mailer’ has two folds and an opening flap and only paper inserts are permitted. The sides and edges must be sealed with adhesive which shows fibre tear when separated. Dimensions are as per current Mailmark Letter minimum and maximum requirements.

This provides a one-piece alternative to the traditional envelope which by definition excludes ‘roll fold’ mailers.

2. Advertising Paper Wrap

This design is identical to the ‘one piece mailer’ as it has two folds and an opening flap and only paper inserts are permitted. The sides and edges must be sealed with adhesive which shows fibre tear when separated. The difference is that the dimensions of this pack are different; maximum of 165mm high x 248mm long. Maximum thickness is 3mm and maximum pack weight is 70gms.

3. Feature ‘one piece mail

This is a single fold mailer, which can be sealed with hot melt adhesive which provides thickness variation and machineability.

Key to note: the specification was changed to state only one fold is permitted. Multi fold / roll fold mailers have not been tested and do cause processing issues.

4. Coupon mailer

This is a multi fold mailer, with an opening flap, which is designed to have a booklet inserted into a ‘pocket’. The sides and edges must be sealed with adhesive which exhibits fibre tear when separated. The insert must be affixed and rest on the long edge on which Royal Mail process the item.

5. Machineable 2/3 ply postcard

Designed with a variation in thickness which supports the item(s) being processed efficiently. It is not intended to be opened and must be sealed with permanent adhesive. The construction of the pack creates part 3 layer and part 2 layer of paper.

6. Fold and Seal

This is a one page, folded and sealed mailpiece design which a U shaped perforation that is designed to open to give access to printed content inside. There is a flap but this is permanently sealed to give the pack strength and a variation in thickness.

Key Processing Issues

Examples of issues by design	'One piece mailer' Standard and Advertising	Feature Mailer	Coupon Mailer	2/3 Ply machinable postcard	Letter Traditional envelope
Item rejected or damaged due to excess paper. Requirements are; <ul style="list-style-type: none"> • Max movement of the largest paper insert for item up to 2mm = no more than 30mm • Max movement of the largest paper insert for item over 2mm = no more than 20mm • Pack not tightly wrapped around the width 	✓	✗	✗	✗	✓
Item rejected for being inflexible e.g. <ul style="list-style-type: none"> - catalogue with inserts and multiple pages - pack with perfect bound spine 	✓	✗	✓	✗	✓
Items causing machine jams, due to; <ul style="list-style-type: none"> • Sides of the pack being open / opening due to adhesive not fixing • Adhesive which isn't strong enough to show fibre tear being used • Incorrect inserts (e.g. plastic cards) • Item too thin (Postcards and letters = 0.25mm, large letters = 0.5mm) 	✓	✓	✓	✗	✓
Item damage, due to; <ul style="list-style-type: none"> • Sides of the pack open due to adhesive not fixing • Adhesive which isn't strong enough to show fibre tear being used • Incorrect inserts (e.g. plastic cards) • Poor quality paper outer (gsm) • Highly recycled paper. i.e. the paper used for envelopes with certain catalogue inserts will wear and tear on its edges during processing 	✓	✓	✓	✗	✓

✗ The design of the mailpiece (if correct) by default negates the issue noted.

✓ If the design requirements are not met, these issues for the mail type are more probable.

Examples of issues by design	'One piece mailer' Standard and Advertising	Feature Mailer	Coupon Mailer	2/3 Ply machinable postcard	Letter Traditional envelope
Items rejected or, due to fold in the incorrect location, missorted due to double detection. Requirements are; <ul style="list-style-type: none"> Fold to be on the edge on which Royal Mail process the mail Portrait = edge to the left of the Delivery Address Square / landscape = long edge under the Delivery Address 	✓	✓	✓	✗	✓
Item damaged due to having the incorrect adhesive, e.g. <ul style="list-style-type: none"> Pressure seal used, opens during processing Thin layer of adhesive, does not give the pack the necessary robustness Adhesive not applied correctly, unsealed or leaves openings 	✓	✓	✓	✓	✗
Machine damage and item jams, incorrect contents, caused by; <ul style="list-style-type: none"> Non paper contents included Finish of the pack poor, ink rubs off onto the cameras and transfers onto other items Poor quality outer, causes jams and damage to mail Machine belts dislodged and damaged Opening flap in the incorrect location 	✓	✓	✓	✗	✓
Item pre-culled or rejected for being too flimsy or thin, due to; <ul style="list-style-type: none"> Opening fold not included in the design Opening fold not the correct dimensions (gives pack strength) Incorrect gsm used for the outer/design 	✓	✓	✓	✓	✓
Poor Quality Barcodes and Addressing issues, resulting in; <ul style="list-style-type: none"> Barcode not read due to print quality, location, contrast, charges might be applied Address / Barcode not visible, address or barcode not matched to PAF 	✓	✓	✓	✓	✓

✗ The design of the mailpiece (if correct) by default negates the issue noted.

✓ If the design requirements are not met, these issues for the mail type are more probable.

Checklist

1. Pack **dimensions** (applicable to the finished mailpiece).
2. Is the **item permissible** (poly & unwrapped not allowed for Letters, postcards not for Economy and Incentives).
3. Minimum and Maximum **thickness** of the item (postcard, Letter, Large letter).
4. The **flexibility** of letters (a non-technical test is 'S' test).
5. Minimal **excess** paper or polywrap.
6. The **adhesive** type and application suitable for the design.
7. The location and design of the **opening flap**.
8. Location of the **'fold'** for 'One Piece' mailers to be on the reference edge.
9. Location of the **spine** for unwrapped Large Letters or inserts in Letters and Large Letters to be on the reference edge.
10. The **Delivery and Return Address** font, print, location and formatting.
11. Mailmark barcode not to be in the **clear zones** (outer frame, route Codemark and tag Codemark areas).
12. The location of the **Delivery Address and Return Address**.
13. Do all **pack edges** meet on the short and long edges?
14. Is the **paper quality and paper weight** as expected for the outer (envelope, wrap, unwrapped) or one-piece design?
15. If using **tab seals**, are there enough and are they in the right places?

Useful Documents

Technical Specifications

[Royal Mail Wholesale - Appendix M Mailmark Letters](#)

[Royal Mail Wholesale - Appendix M Mailmark Large Letters](#)

[Royal Mail Wholesale - Mailmark](#)

Adjustments Explained

[Royal Mail - Adjustments Explained](#)



Citipost Mail • Unit 3 • Swanwick Court • Swanwick
Alfreton • Derbyshire • DE55 7AS • United Kingdom

citipostmail@citipost.co.uk • +44 (0)203 2600 240

www.citipostmail.co.uk