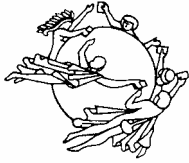


S19-6 Draft B



UNIVERSAL POSTAL UNION

Physical encoding standards

Encoding on envelopes – Placement area definitions

- UPU status: **none; proposal for update of S19-5 which is at status 1 for areas F1, F2, R1 and R2 on items of size up to C5; 0 for other areas and sizes. See scope for details.**
- Date of adoption at this status: **29 January 2002**
- Date of approval of this version: **n.a.**

Users are reminded that there is only one current version of any document so it is important that users verify that they have the most recent one. UPU Standards are updated in their entirety. To ensure that you have the most recent update, please refer to our Catalogue of UPU Standards on our website at www.upu.int

Disclaimer

This document contains the latest information available at the time of publication. The Universal Postal Union offers no warrants, express or implied, regarding the accuracy, sufficiency, merchantability or fitness for any purpose of the information contained herein. Any use made thereof is entirely at the risk and for the account of the user.

Warning – Intellectual Property

The Universal Postal Union draws attention to the possibility that the implementation of this standard might involve the use of a claimed intellectual property right. Recipients of this document are invited to submit, with their comments, notification of any relevant rights of which they are aware and to provide supporting documentation.

As of the date of approval of this standard, the Universal Postal Union had not received such notice of any intellectual property which might be required to implement this standard, other than what is indicated in this publication. Nevertheless, the Universal Postal Union disowns any responsibility concerning the existence of intellectual property rights of third parties, embodied fully or partly, in this Universal Postal Union Standard.

Copyright notice

© UPU, 2004. All rights reserved.

This document is copyright-protected by the UPU. While its reproduction for use by participants in the UPU standards development process is permitted without prior permission from the UPU, neither this document nor any extract from it may be reproduced, stored or transmitted in any form for any other purpose without prior written permission from the UPU.

Requests for permission to reproduce this document for other purposes should be addressed to:

Universal Postal Union – International Bureau
Standards Programme
3000 Berne 15
SWITZERLAND
Tel: + 41 31 350 3111
Fax: + 41 31 350 3110
E-mail: standards@upu.int

Reproduction for sales purposes might be subject to royalty payments or a licensing agreement.

Contents

Forewordiv

Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Symbols and abbreviations.....	2
5 Coordinate system	3
6 Encoding areas on the front side	3
6.1 Area F1	3
6.2 Area F2	4
6.3 Area F3	4
6.4 Area F4	5
6.5 Area F4X.....	6
6.6 Area M1.....	7
6.7 Area M1W	8
6.8 Pictorial Representation of possible overlap	8
7 Encoding areas on the reverse side	9
7.1 Area R1	9
7.2 Area R2.....	9
7.3 Pictorial Representation	10
8 General encoding restrictions	10
8.1 Area F1	10
8.2 Area F2	10
8.3 Area F3	11
8.4 Area F4	11
8.5 Area F4X.....	11
8.6 Area M1.....	11
8.7 Area M1W	11
8.8 Area R1	12
8.9 Area R2.....	12
9 Printing on items, item skew and its impact on data capture	12
Bibliography	15

Foreword

Postal services form part of the daily life of people all over the world. The Universal Postal Union (UPU) is the specialised institution of the United Nations that regulates the universal postal service. The postal services of its 189 member countries form the largest physical distribution network in the world. Some 5 million postal employees working in over 660 000 post offices all over the world handle an annual total of 425 billion letter-post items in the domestic service and almost 6,7 billion in the international service. Some 4,5 billion parcels are sent by post annually. Keeping pace with the changing communications market, Posts are increasingly using new communication and information technologies to move beyond what is traditionally regarded as their core postal business. They are meeting higher customer expectations with an expanded range of products and value-added services.

Standards are important prerequisites for effective postal operations and for interconnecting the global network. The UPU's Standards Board develops and maintains a growing number of standards to improve the exchange of postal-related information between posts, and promotes the compatibility of UPU and international postal initiatives. It works closely with posts, customers, suppliers and other partners, including various international organisations. The Standards Board ensures that coherent standards are developed in areas such as electronic data interchange (EDI), mail encoding, postal forms and meters.

UPU standards are drafted in accordance with the rules given in Part V of the "General information on UPU standards" and are published by the UPU International Bureau in accordance with Part VII of that publication.

This standard defines areas on postal items which may be used for the printing or encoding of information needed to support postal processing. It may be submitted for endorsement by CEN and shall be amended only after prior consultation with CEN/TC 331 in accordance with the Memorandum of Understanding between CEN and the UPU.

This sixth version of the standard cancels and replaces all previous versions. Changes to the fifth version, which are marked by means of a vertical bar in the margin, are:

- addition of the Standards glossary in *Normative references*;
- addition of appropriate references to the *Letter Post Convention, article 10, RE 208 and 209*;
- combination of the pictorial representations of F1, F2 and F3 into one diagram;
- modification of the definition of area F3, which is now 5 mm higher, and 1,5 mm narrower, than in the previous definition. This change was made in the light of further investigation of the effects of skew and to accommodate a request of Japan Post;
- modification of the definition of areas F4 and F4X, making them reverse and inverted L shapes;
- modification of references to S18d, which has been split into two parts, with S18d dedicated to flats and S18e to small letters;
- addition of NOTES, a clause and diagram relating to possible overlap between areas on the front of items;
- removal of the reference, in 8.1, to the possibility of using R1 for an ID-tag that is not compliant with S18, since the interim period in which this was allowed has now expired;
- replacement of references to Israel and Italy, in 8.3, by references to the actual organizations involved; addition of Japan Post to the list of organizations allowed to use F3 for an ID-tag that is not compliant with S18e;
- replacement of the expiry date specified in 8.3 by a provision allowing the Standards Board to fix a date after due consultation with the affected organisations;
- correction of a typographic error in 8.5, which erroneously referred to F4 instead of F4X;
- since the period has now expired, removal of the reference, in 8.8, to an interim period in which R1 could be used for an ID-tag that was not S18 compliant; addition of an explicit clarification that R1 may not be used for encoding information other than an S18 ID-tag;

- addition of a new clause on skew and other registration errors, and on their impact on printing specifications and data capture systems.

Although these are not incorporated in the present version, users of the standard may wish to take account of the intent that a future version of the standard is intended to incorporate definitions for:

- areas which may be used for the printing of digital postage marks;
- the area to be used for the printing of facing identification marks;
- delivery and sender address areas.

Pending publication of these additional area definitions, users of the standard wishing further information, or wishing to contribute to the definition, are invited to contact the Standards Board secretariat.

Introduction

This standard consists primarily in a definition of areas on postal items (area F1, area F2, etc.) and of general rules regarding the use of those areas for postal encoding purposes. It is expected to result in:

- 1 easier definition and management of other standards concerned with encoding on envelopes;
- 2 clarity of guidelines regarding the use of the envelope surface for the encoding of postal data;
- 3 avoidance of incompatibilities between different administrations' use of the envelope for encoding.

The requirements specified in the standard are documented under five main headings:

- 5 *Coordinate system*: This defines the point of reference for all measurements.
- 6 *Encoding areas on the front side*: This defines a number of areas, designated F1, F2, etc, on the front side.
- 7 *Encoding areas on the reverse side*: This defines a number of areas, designated R1, R2, etc, on the reverse side.
- 8 *General encoding restrictions*: This part of the standard defines a number of general restrictions, applicable to the placement of codes on letter-mail items which are passed to another administration for processing.
- 9 *Printing on items, item skew and its impact on data capture*: This discusses the impact of skew or other registration errors both on the position at which information is printed on an item and on its apparent position relative to readers used for data capture. It includes recommendations regarding both the specification of the size and nominal positioning of data to be printed in a defined area and on the scan area that should be covered by data capture systems.

Physical encoding standards – Encoding on envelopes – Placement area definitions

1 Scope

This standard provides a definition of encoding areas on letter-mail items. It is intended as a single document which defines all areas on letter-mail items which may be used by postal handling organizations for the encoding of information on such items.

The definition of these areas within a single standard is intended to simplify management of the use of envelopes for postal encoding purposes and to make it simpler to document and maintain individual item encoding standards.

NOTE 1 Postal encoding refers to the use of envelope surfaces (both front and reverse side) for the encoding of information, including address data, indicia, ID-tags, item identifiers, post codes, etc.

The use of the areas defined herein is specified by other standards which refer to this document. The areas defined may be used, for encoding of letter-mail items sent between administrations, only in accordance with this standard and any which refer to it. In case of conflict between documents, the referring standard takes precedence.

NOTE 2 The main purpose of this standard is to provide a single definition of areas on letter-mail items (envelopes), which can be referred to by other encoding standards.

NOTE 3 For mail items which are processed entirely within an administration, the administration concerned is free to encode the items as they see fit. This standard applies only to items which are passed to another administration for processing. For such items, the application of this standard, and the individual encoding standards which refer to it, is mandatory. Administrations are encouraged, but not obligated, to apply it for internal (domestic) mail items also.

NOTE 4 It is anticipated that, as individual encoding standards are developed, this standard will be adapted to define any new areas required. However, it may be that such updates cannot practically be synchronized. In such case, the (new) individual encoding standard takes precedence over this one.

On letter-mail items of size up to and including C5, the definitions of and provisions regarding areas F1, F2, R1 and R2 have been adopted as status 1 (draft standard) requirements by the UPU Standards Board. For larger items, and for other areas, the specifications herein carry only status 0 (working draft) and are subject to change prior to UPU Standards Board ratification at status 1.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this standard. For references which mention specific version numbers or dates, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For references without date or version number, the latest edition of the normative document referred to applies.

UPU Standards glossary

S18: ID-tagging of letter-mail items

NOTE Standard S18 defines the information content, structure and representation of the UPU ID-tag for letter-mail items.

3 Terms and definitions

A number of common terms used in this document are defined in the UPU Standards glossary, in documents referred to in Normative References and in the Bibliography. Definition of other frequently used or particularly important terms as well as other terms introduced in this document are given below.

3.1 back

see reverse side

S19-6 Draft B

3.2 bottom

bottom (lowest) edge of a postal item in landscape orientation

3.3 face

see front side

3.4 front side; face

side of a postal item which carries the evidence of postage paid, or, if no such evidence is carried, the side which carries the delivery address in human-readable form

NOTE The front, or face, is what is conventionally understood by that term – but it needs to be clearly defined for standardization purposes.

3.5 landscape; landscape orientation (oblong postal item)

orientation of the item, face towards the observer, in which the shorter sides of the item are vertical and the longer sides are horizontal, with:

- the evidence of postage paid to the top, or, if there is no evidence of postage paid:
- with the human readable address oriented the right way up in case it is printed parallel with the longer sides;
- with the human readable address rotated anti (counter-) clockwise through 90° in case it is printed parallel to the shorter sides.

NOTE 1 Landscape is essentially the orientation in which items would normally be viewed by a human reader, i.e. face towards the reader, address the correct way up, proof of postage paid at the top right. However, the above definition also covers cases in which there is no proof of postage paid; items which are square (see below) and items on which the address is printed parallel to the short edge. Non-rectangular items (such as circle-shaped postcards) are not covered by this standard.

NOTE 2 Though many mail processing systems do process items in landscape orientation, some do not. The definition should therefore not be taken as implying any specific orientation for automated processing purposes.

3.6 landscape; landscape orientation (square postal item)

orientation of the item, face towards the observer, with:

- the evidence of postage paid at the top right, or, if there is no evidence of postage paid;
- the human readable delivery address the right way up.

NOTE Square items are not compliant with Letter Post Convention article 10, RE 209 (Standardized items), which requires that the length of an item shall be at least 1,4 times its height.-

3.7 leading edge

right hand edge of a postal item in landscape orientation (see Figures 1 and 2)

NOTE The term leading edge should not be taken as implying the direction of transport of the item in mail processing equipment.

3.8 origin

bottom right hand corner of a postal item in landscape orientation (see Figures 1 and 2); point from which all measurements given in this standard are made

3.9 reverse side; back

obverse of the front side

3.10 top

top (highest) edge of a postal item in landscape orientation

3.11 trailing edge

left hand edge of a postal item in landscape orientation (see Figures 1 and 2)

NOTE The term trailing edge should not be taken as implying the direction of transport of the item in mail processing equipment.

4 Symbols and abbreviations

The symbols and abbreviations used in this document are defined in the UPU Standards glossary

5 Coordinate system

All measurements in this standard are given in millimetres. As shown in Figures 1 and 2, horizontal measurements are from the leading edge; vertical measurements are from the bottom edge of the item in landscape orientation.

NOTE That is, measurements are from the bottom right on the front side; from the bottom left of the reverse side.

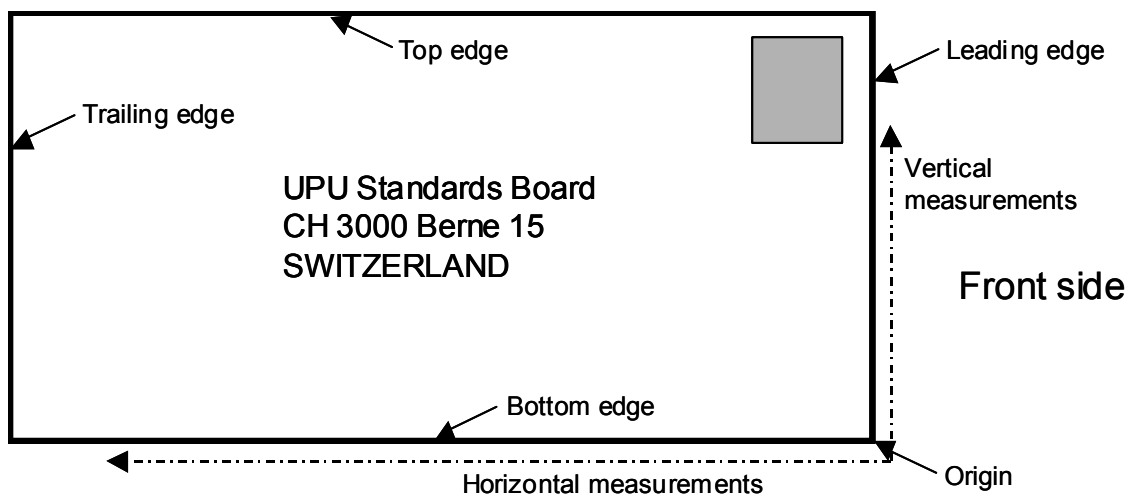


Figure 1 – Front Side (Face), showing Origin and Top, Bottom and Leading and Trailing Edges

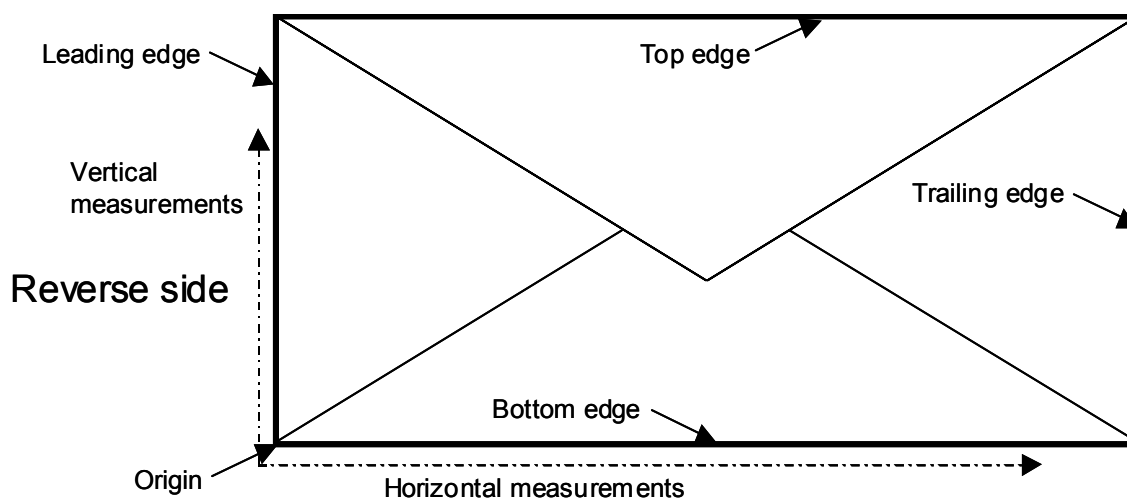


Figure 2 – Reverse Side (Back), showing Origin and Top, Bottom and Leading and Trailing Edges

6 Encoding areas on the front side

6.1 Area F1

Area F1 is the area 140 mm wide¹ and 15 mm high at the bottom right on the front side of an item (see Figure 3²).

¹ This assumes the use of envelopes which comply with Letter Post Convention Article 10, RE 209 (Standardized items), which specifies a minimum item size of 140 mm by 90 mm. It does not prevent the admission of shorter items, in the case of which area F1 extends across the full width of the item.

² For convenience, the following figures are based on a 170 mm by 120 mm envelope drawn approximately to scale. However, the area definitions apply to any width and height of envelope. This is simulated by showing a diagonal break across the envelope. To save wasting paper, only the top or bottom part of the envelope is actually shown.

NOTE Area F1 is conventionally used by administrations for identification and/or post coding of domestic mail items; its encoding on inter-administration letter mail is not permitted under UPU regulations.

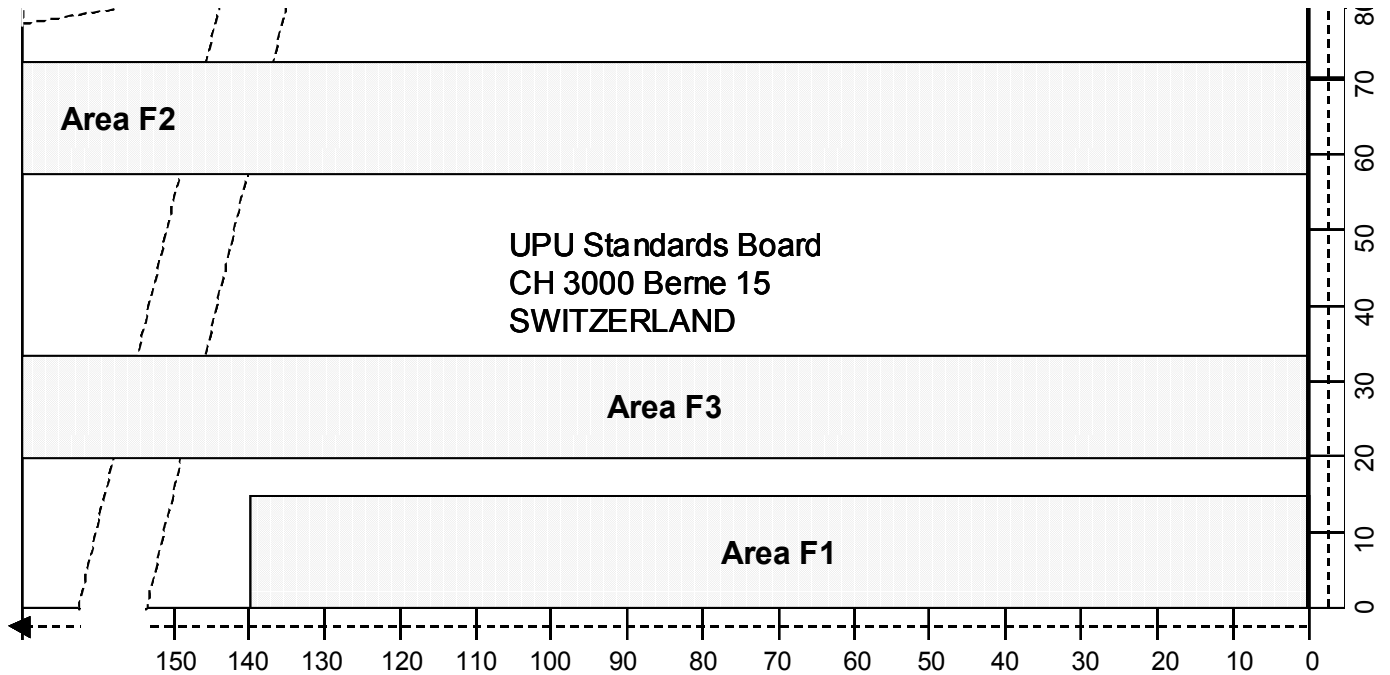


Figure 3 – Encoding Areas F1, F2 and F3 (only showing the bottom part of the envelope)

6.2 Area F2

Area F2 is a 15 mm high horizontal strip, centred (65 ± 3) mm from the bottom, extending across the full width of the front side of an item (see Figure 3).

NOTE 1 That is, the lower edge is 57.5 mm and the upper edge 72.5 mm from the bottom of the envelope.

NOTE 2 Area F2 is used by some administrations for post coding purposes.

NOTE 3 Area F2 extends across the full width. However, to ensure compatibility of encoding across the range of envelope sizes, it is likely that only the first 140 mm (127 mm in the USA) will actually be used for encoding in the foreseeable future.

NOTE 4 Though this is not shown in the figure, it is possible that area F2 overlays the top line(s) of the address. It should be noted that on small items (less than 112.5 mm high), area F2 overlaps with areas M1 and M1W (see sections 6.6 and 6.7).

6.3 Area F3

Area F3 is a 13,5 mm high horizontal strip, with boundaries 20 mm and 33,5 mm from the bottom, extending across the full width of the front side of an item (see Figure 3).

NOTE 1 Area F3 is the area defined for the encoding of an ID-tag on the front of letter-mail items of size up to B5.

NOTE 2 Area F3 extends across the full width. However, to ensure compatibility of encoding across the range of envelope sizes, it is likely that only the first 140 mm (127 mm in the USA) will actually be used for encoding in the foreseeable future.

NOTE 3 Though this is not shown in the figure, it is possible that area F3 overlays the bottom line(s) of the address.

6.4 Area F4

As shown in figure 4, area F4 is the area, shaped like a reverse letter L, with sides 120 mm, 80 mm and 40 mm long and with its long edges 15 mm from the bottom and leading edges of the item. On items which are less than 135 mm high, the top of the area is limited by the top edge of the item.

NOTE 1 Area F4 is the primary area defined for the encoding of an ID-tag on the front of flats.

NOTE 2 This area deliberately overlaps with area F3. This is so that ID-tags which have been printed in area F3 in accordance with UPU standard S18e will be readable if the item concerned is processed on a flats processing system which looks for the ID-tag in area F4.

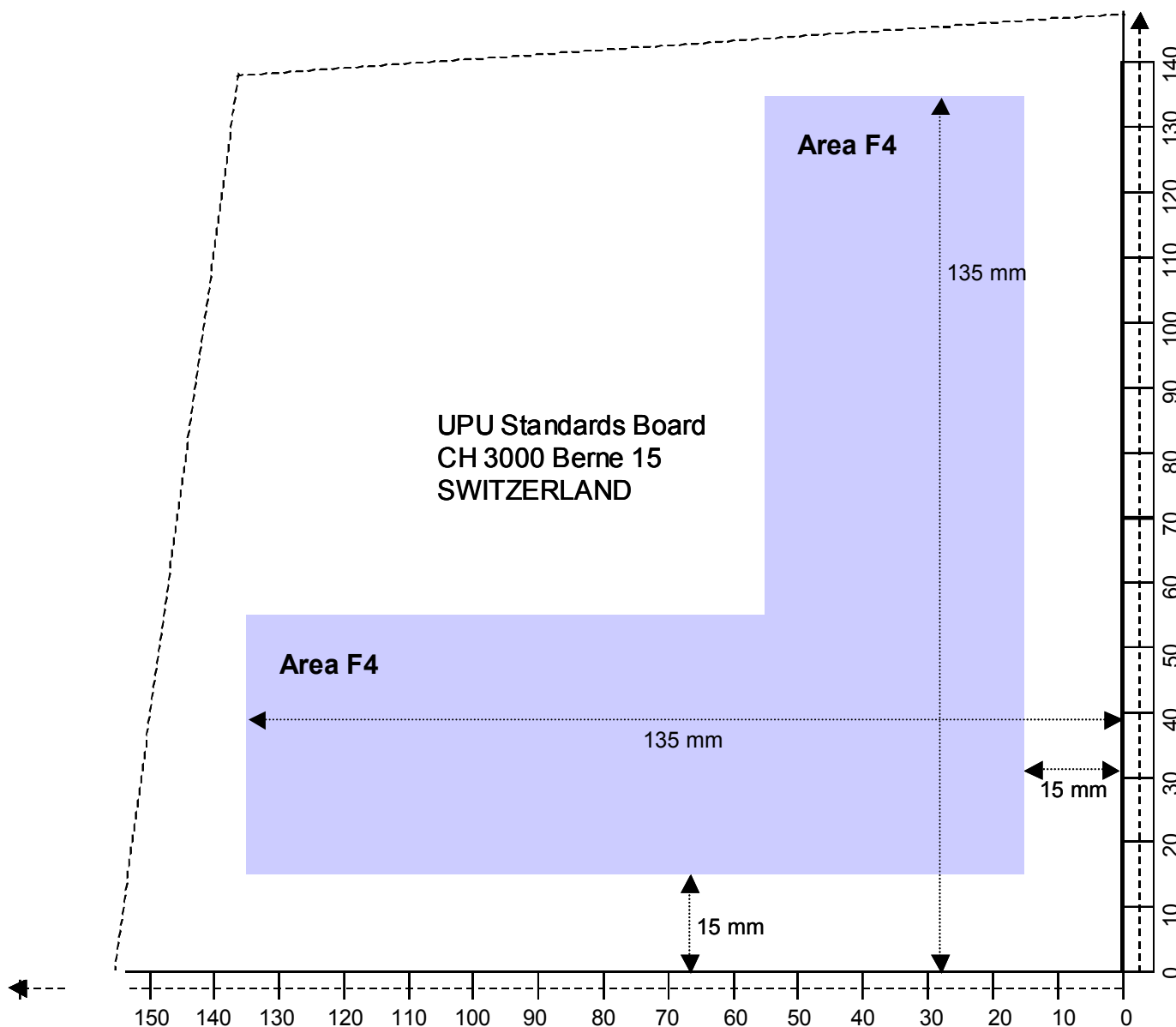


Figure 4 – Encoding Area F4 (only the bottom right of the envelope is shown)

NOTE 3 Though this is not shown in the figure, it is possible that area F4 overlays part or all of the address.

6.5 Area F4X

As shown in figure 5, area F4X is the area, shaped like an upside down letter L, with sides 120 mm, 80 mm and 40 mm long and with its long edges 15 mm from the top and trailing edges of the item. On items which are less than 135 mm high, the bottom of the area is limited by the bottom edge of the item.

NOTE 1 Area F4X is the secondary or alternate area defined for the encoding of an ID-tag, on the front of flats, by flats processing systems which are unable to guarantee item orientation.

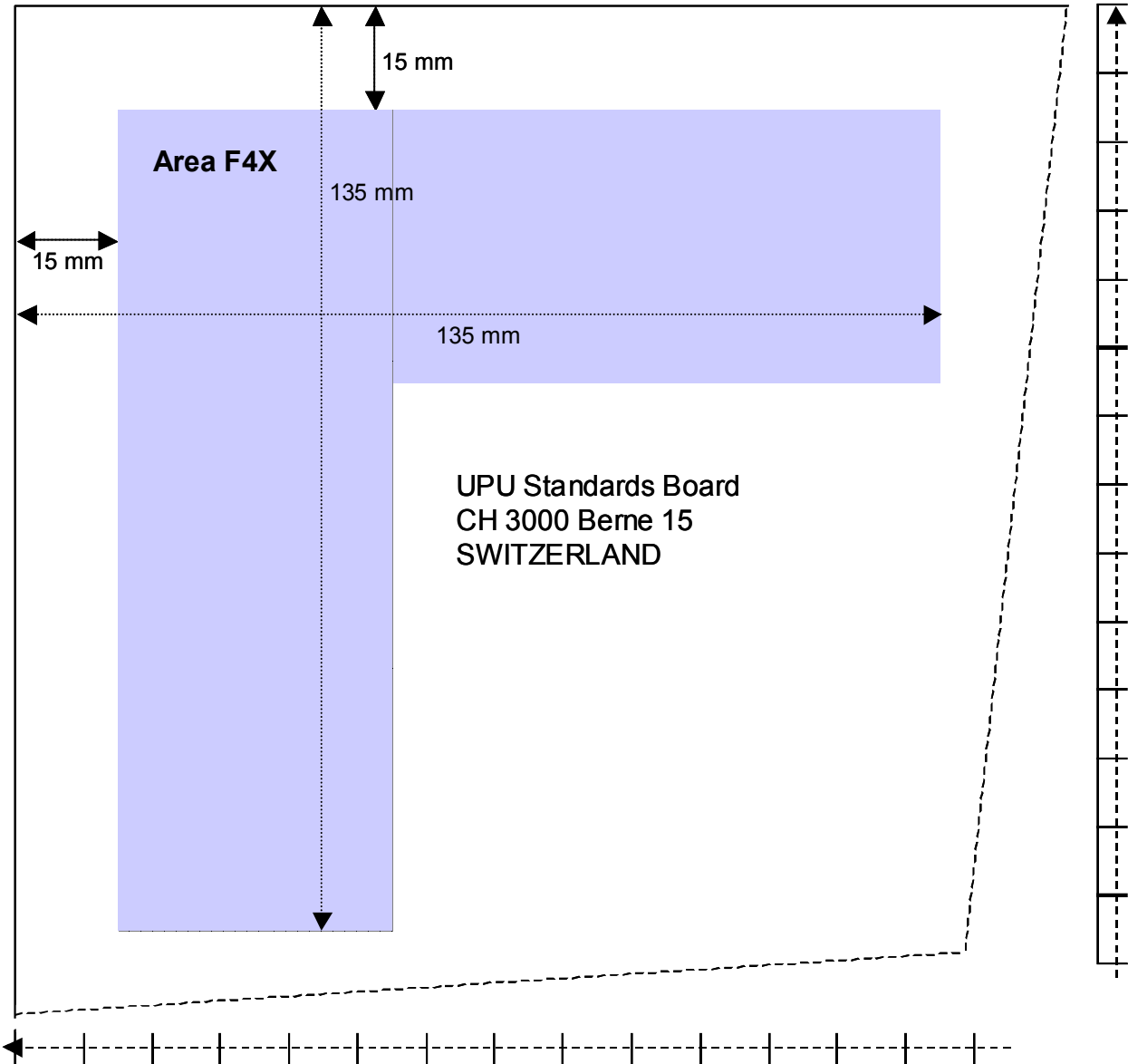


Figure 5 – Encoding Area F4X (only the top left part of the envelope is shown)

NOTE 2 Though this is not shown in the figure, it is possible that area F4X overlays part or all of the address. It is also possible that areas F4 and F4X overlap: this will be the case if the item is less than 190 mm long.

6.6 Area M1

Area M1 is the 74 mm wide by 40 mm high area at the top right hand corner of the item.

NOTE 1 Area M1 is the area, defined in the letter post regulations, for the application of post marks (see Letter Post Convention article 10, RE 209).

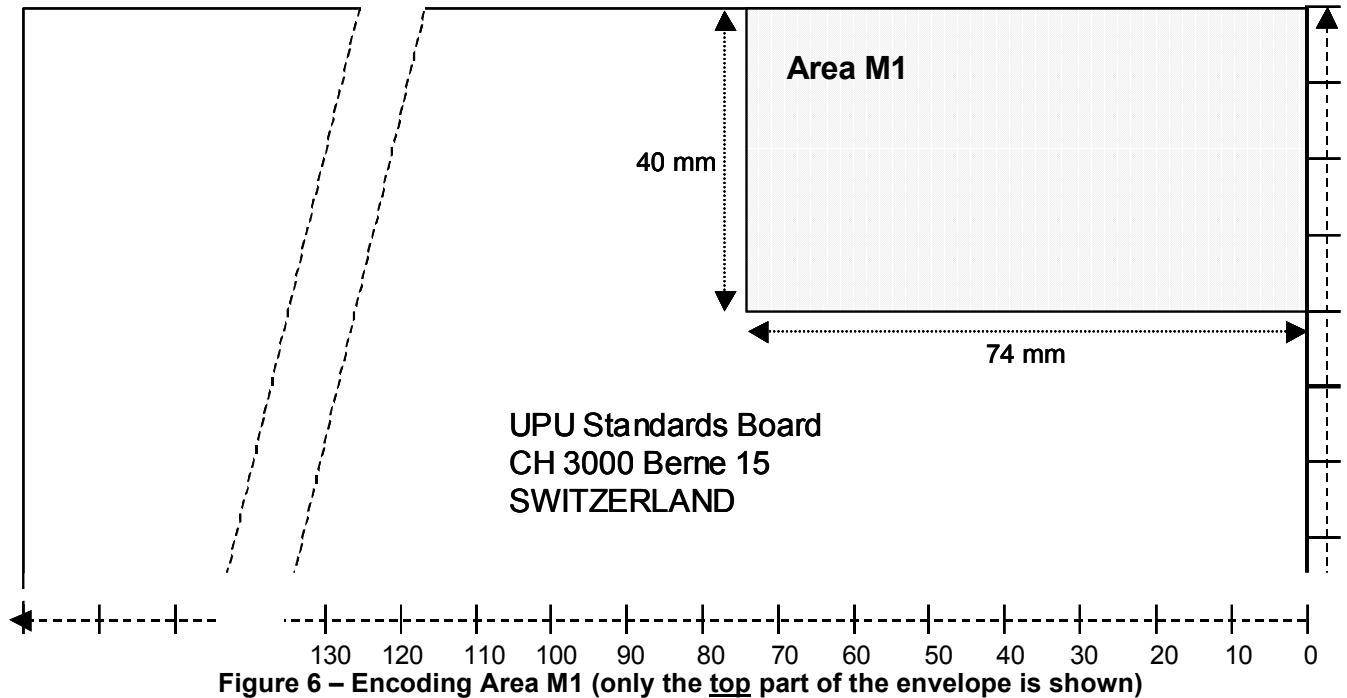


Figure 6 – Encoding Area M1 (only the top part of the envelope is shown)

NOTE 2 In the above diagram, the address is shown as being outside area M1. This is preferable but may not necessarily be the case on small items.

6.7 Area M1W

Area M1W is the 40 mm high area extending across the full width at the top of the item.

NOTE 1 Area M1W encompasses area M1 and the balance of the item to the left of it. It is defined for customer encoding purposes.

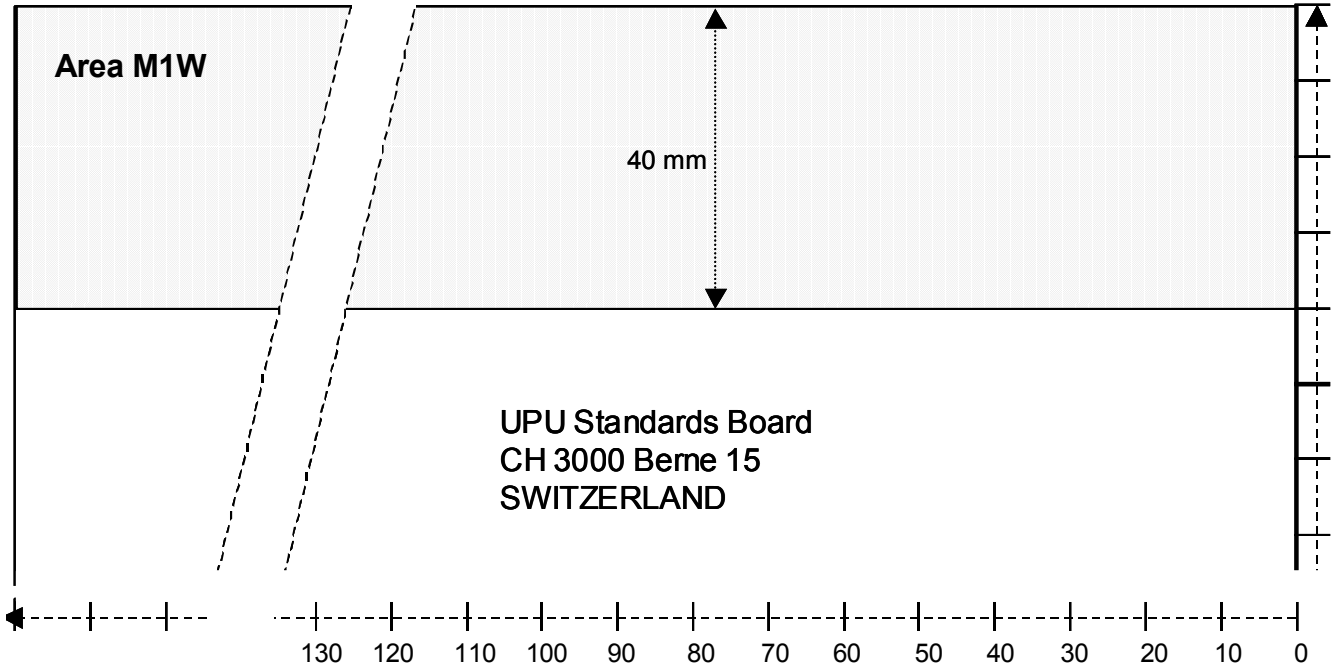


Figure 7 – Encoding Area M1W (only the top part of the envelope is shown)

NOTE 2 In the above diagram, the address is shown as being outside area M1W. This is preferable but may not necessarily be the case on small items.

6.8 Pictorial Representation of possible overlap

As shown in figure 8, some of the areas defined on the front side of items can overlap with each other and/or with the address. Areas F2, F3, F4 and F4X can also overlap with the transparent window on panel envelopes. F1, M1 and M1W cannot, since Letter Post Convention article 10, RE 208 requires the panel to be at least 15 mm from the bottom and 40 mm from the top of the item.

NOTE The figure does not show all possible overlaps. In particular, it does not show M1W, which overlaps with M1 and would overlap with both F4 and F4X. If the address were printed lower, it could overlap with F3. Also, if the item were even smaller (less than 112,5 mm high), M1 and M1W would overlap with F3.

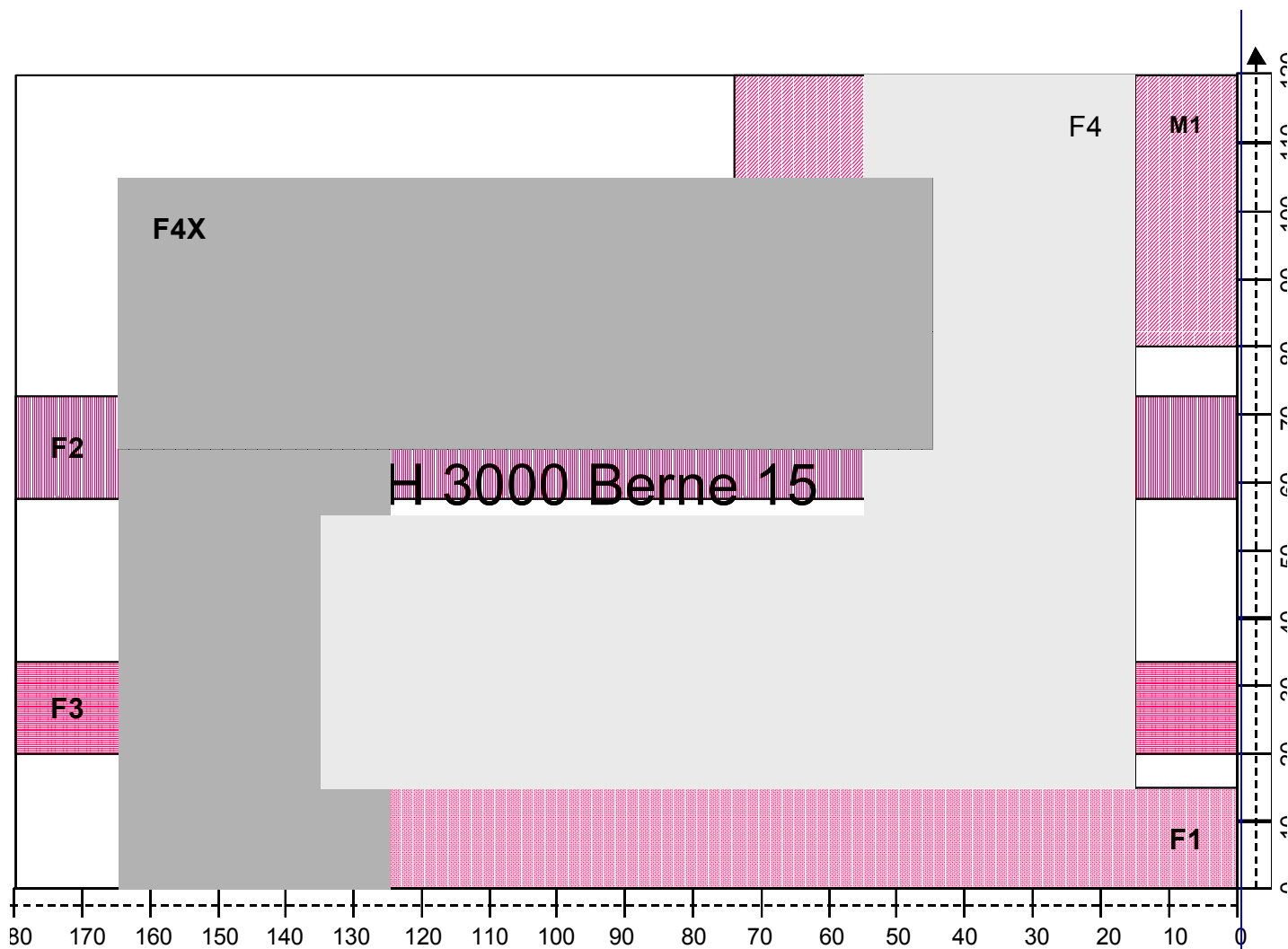


Figure 8 – F1, F2, F3, F4, F4X and M1, illustrating the possibility of overlap

7 Encoding areas on the reverse side

7.1 Area R1

Area R1 is the bottom 20 mm high strip extending across the full width of the reverse side of the item (see Figure 9).

NOTE Area R1 has been selected for encoding of the standard UPU ID-tag for letter-mail items of size up to B5. Under article RE 204 of the Letter Post Manual [2], it should be used only for the encoding of id-tags in accordance with UPU standards S18 and S19.

7.2 Area R2

Area R2 is the horizontal strip between 65 mm and 80 mm from the bottom, extending across the full width of the reverse side of an item (see Figure 9).

NOTE Area R2 is reserved for possible future use as a location for the encoding of revised version(s) of the UPU ID-tag. It should not be encoded without first seeking the advice of the UPU Standards Board.

7.3 Pictorial Representation

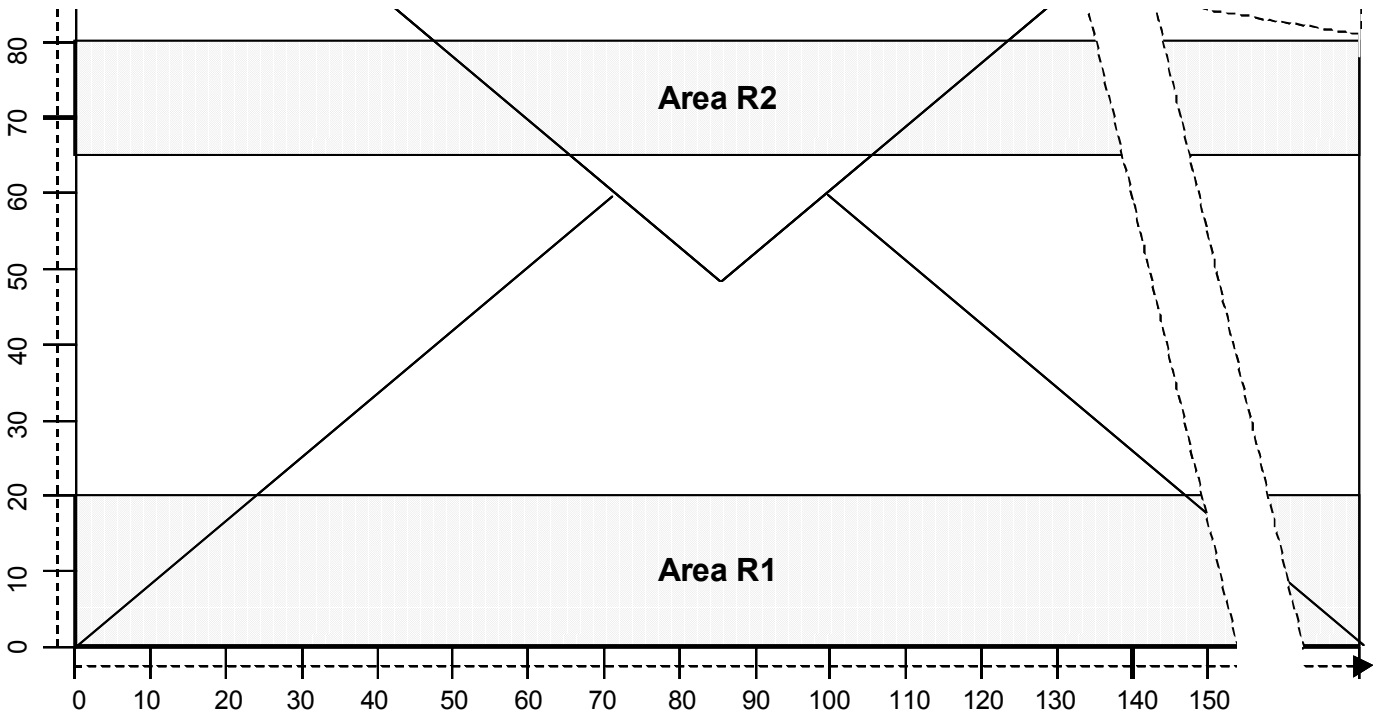


Figure 9 – Encoding areas on the reverse side (only the lower part of the envelope is shown)

NOTE 1 Since the item is here viewed from the reverse side, the origin for measurements, which is at the bottom right of the item when viewed in landscape mode, appears at the bottom left of the diagram.

NOTE 2 Areas R1 and R2 extend across the full width. However, to ensure compatibility of encoding across the range of envelope sizes, it is likely that only the first 140 mm (127 mm in the USA) will actually be used for encoding in the foreseeable future.

8 General encoding restrictions

8.1 Area F1

Except in case of explicit bilateral agreement, area F1 should not be encoded, using fluorescent inks, on inter-administration mail items.

NOTE 1 Article RE 209 Standardized items of the UPU Letter Post Manual [2] provides that “No wording or extraneous matter whatsoever may appear ... in an area 15 mm high starting from the bottom edge of the item and 140 mm long starting from the right-hand edge of the item ...”. Non-adherence to this provision results in the item(s) concerned ceasing to satisfy the UPU definition of a standard letter. In consequence, such items may be treated, by the delivery post, as falling outside the normal terminal dues system. Of course parties involved are free to reach explicit bilateral agreement allowing the encoding of area F1 on items exchanged between them.

It may be encoded with non-fluorescent inks if, and only if:

- the item carries a UPU ID-tag in area R1 in accordance with UPU standard S18, and
- the recipient administration does not raise any objections to such encoding.

NOTE 2 This qualifies the UPU regulation to reflect actual practice, in which some administrations encode area F1 with non-fluorescing inks, in conjunction with the encoding of an ID-tag in area R1. However, such encoding is not encouraged and any administration making use of it should have the capability to selectively disable the encoding of area F1 on mail which is bound for any administration which reports processing difficulties.

8.2 Area F2

Use of area F2 is not controlled.

Except in the case of an explicit bilateral agreement, an origin administration may not assume that a delivery administration will be able to read and interpret any code marks placed in F2.

Similarly, except by bilateral agreement, a delivery administration may not assume that any code found in area F2 is meaningful.

NOTE Some administrations are already using area F2 for encoding purposes. Its use by additional administrations on inter-administration mail could give rise to incompatibilities and the risk of confusion and is therefore discouraged. Origin administrations are advised that the encoding of information in area F2 on inter-administration mail may give rise to serious disturbance of the delivery administration's automated systems, resulting in delays and mis- or non-delivery of the items concerned.

8.3 Area F3

On items of size up to B5, the first 114³ mm of Area F3 (measured from the leading edge) are intended for the placement of an ID-tag, in accordance with UPU standard S18, either in addition to, or, for equipment with no capability to print on the reverse side of items, instead of the printing of an ID-tag in area R1.

NOTE 1 On small letters, preference should be given to the printing of ID-tags in area R1. Area F3 may be used for the printing of a second version of the ID-tag, where this is desired for back-up purposes. Area F3 alone may be used by equipment which has no capability to print on the reverse side of items. However, since the use of area R1 is preferred, it should not be assumed that administrations which normally use area R1 will be able to read ID-tags printed only in area F3.

Subject to the approval of the UPU Standards Board, administrations may use area F3 for the placement of domestic ID-tags which are not compliant with standard S18e for an interim period to be determined by the Standards Board. Such approval is deemed granted in respect of use of the area for the encoding of existing (domestic) ID-tags by Israel Post, Post Italia and Japan Post.

NOTE 2 Any other administration which is already using the area for the printing of domestic ID-tags, or which has advanced plans for such use, should **immediately** apply to the secretariat of the UPU Standards Board for approval to continue its use on an interim basis. The Standards Board might, in due course, terminate this interim arrangement but will not do so without consultation with, and the giving of adequate notice to, the administrations to which approval has been granted.

Except as provided above, area F3 should preferably not be used for the encoding of any other form of fluorescent or phosphorescent bar code.

NOTE 3 The use of area F3 for the placement of other forms of fluorescent bar code is deprecated, but not forbidden. It should therefore not be automatically assumed that a fluorescent bar code found in area F3 on an incoming item is necessarily an ID-tag. UPU standard S18e should be consulted for information on the features which may be used to determine whether a captured bar code is S18e compliant.

8.4 Area F4

Area F4 is the primary area designated for the printing of ID-tags on items processed on flats sorting equipment. However, its use for other purposes is not controlled and administrations should not automatically assume that a bar code found in this area is an ID-tag.

NOTE See UPU standard S18d for information on the features which may be used to determine whether a captured bar code is S18d compliant.

8.5 Area F4X

Area F4X is the alternate area designated for the printing of ID-tags on items processed on flats sorting equipment. It may be used for this purpose only on equipment which is not capable of discriminating the orientation of the items it processes.

Use of the area for other purposes is not controlled and administrations should not automatically assume that a bar code found in this area is an ID-tag.

NOTE See UPU standard S18d for information on the features which may be used to determine whether a captured bar code is S18d compliant.

8.6 Area M1

Area M1 is an area, defined in the UPU letter post regulations, which is used for the application of evidence of postage payment and for cancellation marks. It should be used in accordance with those regulations.

8.7 Area M1W

Area M1W is one of a number of areas in which customers may be authorized to encode information. Its use will be regulated in customer encoding standards which are in course of development.

NOTE Information on the status of development of customer encoding standards may be obtained from the secretariat of the UPU Standards Board or its Physical Encoding Group.

³ That is: 15 mm leading space, up to 94 mm for the ID-tag bar code, 5 mm trailing space.

8.8 Area R1

Area R1 is for use as follows:

- the first 128 mm from the leading edge may be used only for the purpose of encoding a UPU ID-tag in accordance with standard S18 and shall not be used for the encoding, by a postal operator, of any other information;
- if the item is wider than 128 mm, the balance (from 128 mm to the trailing edge of the item) may be used for the encoding, in fluorescent ink, using any symbology (including human readable characters), of any additional information required by the issuer of the ID-tag or any administration involved in subsequent processing of the item, provided that:
 - such use can be discontinued or modified so as to be compliant with any future version of this standard within a period of 12 months following its status 1 ratification;
 - care is taken not to over-write information encoded in an earlier stage of item processing;
 - a gap of at least 5 mm is left between the end of the previously encoded information and the new information to be encoded;
 - on items with a width of 163 mm or more, the last 20 mm (5 mm gap plus 15 mm encoding area) before the trailing edge is left free for use by the administration responsible for item delivery.

NOTE 1 Area R1 is reserved for the UPU ID-tag and associated data.

NOTE 2 The ID-tag itself may occupy up to 128 mm (leading space of (15+1) mm, a bar code of up to 107 mm and 5 mm trailing space). Subject to the constraints indicated, the balance of the width of the item may be used for the recording of other data. For example, the date/time of processing may be encoded in human readable form to facilitate quality of service checking.

NOTE 3 Administrations are encouraged to advise their customers against the use of area R1 for purposes which might interfere with, or be interfered with by, its use for ID-tag encoding in accordance with S18. In particular, R1 should not contain any fluorescent material other than as allowed for herein.

8.9 Area R2

Area R2 is reserved for future use. Administrations should not encode any information in it.

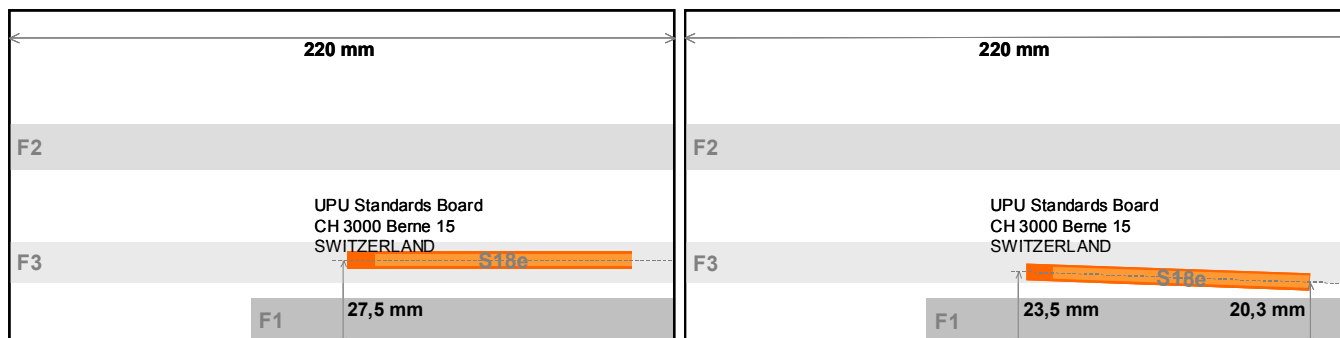
NOTE Area R2 is likely to be needed to support migration to future encoding standards and should not be used for encoding purposes until such use has been authorized in an appropriate standard. Any administration wishing to make use of the area should first seek the advice of the UPU Standards Board.

9 Printing on items, item skew and its impact on data capture

Printing on mail items, whether performed by the mailer or within the postal system, generally occurs on equipment in which the mail item is transported past a printing device whose position, or possible range of positions, is fixed relative to the equipment. As a result, the actual position of printing on the item can be affected by maladjustment of the equipment, by errors in the registration of the item in it, by variations in the speed of transport through the equipment and, at least where this is controlled by belts, by fluctuations in the position of the item in a direction perpendicular to the normal direction of transport.

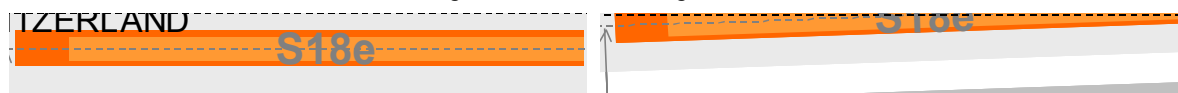
EXAMPLE 1 In most equipment, items are intended to be transported such that one edge (the reference edge) remains parallel to the direction of transport and passes the printing position a fixed distance from a reference surface (the baseplate). Feeding errors can result either in the reference edge being at an angle relative to the direction of transport (skew) and/or in the distance between the baseplate and the reference edge being greater or smaller than normal. Variations in transport speed can be caused by intrinsic variations in the transport mechanism or by slippage; in belt-driven systems, the belts can 'wander' up and down relative to their nominal position, causing variations in the distance between the item reference edge and the baseplate.

EXAMPLE 2 The diagrams below show the effect of 2 degrees of skew during printing of a 4-state ID-tag in area F3, as specified in S18e, on a 220 mm item. The left diagram shows (at 40 % scale) the normal printing position, in which the center line of the bar code is at a height of 27,5 mm. The bar code is well within area F3. The right diagram shows where the bar code would actually be printed if the item is skewed 2 degrees, with the leading edge being raised and the trailing corner being the nominal distance from the equipment baseplate. In this case, the actual center line of the bar code is 20,3 mm from the bottom of the item at one end, and 23,5 mm from the bottom at the other. A significant part of the bar code actually falls outside the nominal print area F3. Even a little additional skew, or a small vertical positioning error combined with skew, could easily result in the bar code encroaching on area F1.



Similarly, readers are normally mounted at a fixed position relative to the equipment baseplate. Whilst cameras intended to read contrast ink are usually designed to scan or cover a wide area and can take account of item skew and registration errors by suitable use of image processing techniques, many bar code readers are designed to scan only a limited area and errors can result if a bar code intended to be read by a given reader falls partly outside of the in the area scanned by the reader and/or if it falls partly in the area scanned by another.

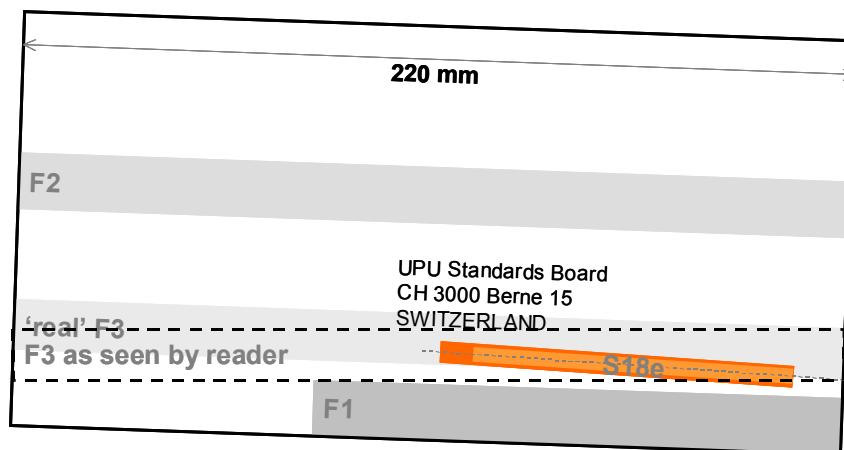
EXAMPLE 3 The two diagrams below show the effect of 2 degrees of skew during reading of an ID-tag printed in F3 on a 220 mm item. The left diagram shows (at 80 % scale), what a reader designed to scan only F3 will see in the absence of skew. The right diagram shows what it will see if the ID-tag is correctly printed, but the item is skewed 2 degrees during reading. As can be seen, skew results in half of the bar code falling outside the scanning area.



It is also possible that skew or registration errors occurring during printing are:

- compensated if similar positioning errors occur during reading, or
- exacerbated by reverse skew, or other registration errors, during reading, which might occur on completely different equipment.

EXAMPLE 4 The following diagram shows the effect of 2 degrees of skew during printing, with 2 degrees of reverse skew during printing. The dotted lines show the upper and lower boundaries of the 'apparent' F3 as seen by the reader, which now has to be capable of compensating for a total of 4 degrees of skew between the bar code and the direction of transport of the item.



Bar code readers and other data capture systems clearly need to take account of, and compensate for, skew and other registration errors. It is stressed that the area definitions in this specification represent the areas within which the appropriate data should actually be printed in 99 % of cases and are intended to take account of skew and registration errors during printing. This means that the size and nominal positioning of printing should be specified in such a way that the data concerned will remain within the defined area even when the item is subject to skew and/or registration errors during the printing process. It is recommended that encoding specifications allow for at least ± 1 mm of vertical positioning error combined with at least ± 1 degree of skew.

NOTE A greater tolerance of skew and registration errors could be required in some instances. It is not, however, necessary to cater for the most extreme possible values. The above recommendations are intended to ensure that area limitations will be respected in 99% of cases. Reader design recommendations (see below) are intended to extend the tolerance limits still further, but even greater tolerance could be required in some cases.

As illustrated above, even if printing is within the defined area on the item, the actual position of that area can be skewed or shifted relative to the area actually scanned by the reader. Readers should therefore be designed to capture data from an area somewhat larger than the nominal printing area, as specified in this standard. Specifically, it is recommended that readers should cover at least the area corresponding to all possible positions of the printing area that could occur if the item is subject to a vertical registration error of ± 1 mm together with a skew of ± 1 degree. Allowing for the fact that skew normally raises one end of the item, this translates into the practical recommendation that, at least for small letters, the area scanned by a reader should extend from 1 mm below to 5 mm above the nominal definition of the area specified above.

EXAMPLE 5 Area F3 covers the band from 2 mm to 33 mm above the bottom of the item. If the item is subject to a 1 mm negative registration error, the bottom of the F3 area will appear, to the reader, to be at a height of 19 mm rather than 20 mm. If the item is subject to both a 1 mm positive registration error and a skew of 1 degree, then (for an item 230 mm long) the topmost corner of F3 will appear to be at a height of $33,5 + 1 + 230\sin(1) = 38,5$ mm. The reader therefore needs to scan from 19 to 38,5 mm, i.e. from 1 mm below to 5 mm above the nominal area definition.

Bibliography

This bibliography provides full reference and sourcing information for all standards and other reference sources which are quoted in the above text. For references which mention specific version numbers or dates, subsequent amendments to, or revisions of, any of these publications might not be relevant. However, users of this specification are encouraged to investigate the existence and applicability of more recent editions. For references without date or version number, the latest edition of the document referred to applies.

It is stressed that only referenced documents are listed here.

UPU documents

NOTE 1 The documents listed below are available from the UPU International Bureau:

Weltpoststrasse 4, Case postale, 3000 Berne 15, Switzerland; Tel: +41.31.350.3111; Fax: +41.31.350.3110; <http://www.upu.int>

[1] General information on UPU standards, accessible on URL <http://www.upu.int>

[2] Letter Post Manual

NOTE 2 The version applicable as at the date of publication of this standard was update 1 of September 2001. Later versions may also be used, but may be subject to change in the numbers of individual articles.