
**Communication aids for blind persons —
Identifiers, names and assignation
to coded character sets for 8-dot Braille
characters —**

Part 1:
**General guidelines for Braille identifiers
and shift marks**

*Aides à la communication pour personnes aveugles — Identificateurs,
noms et attribution aux jeux de caractères codés pour caractères Braille
à 8 points —*

*Partie 1: Lignes directrices générales pour les identificateurs Braille et
marques de changement de caractères*



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In exceptional circumstances, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example), it may decide by a simple majority vote of its participating members to publish a Technical Report. A Technical Report is entirely informative in nature and does not have to be reviewed until the data it provides are considered to be no longer valid or useful.

Attention is drawn to the possibility that some of the elements of this part of ISO/TR 11548 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO/TR 11548-1 was prepared by Technical Committee ISO/TC 173, *Technical systems and aids for disabled or handicapped persons*.

ISO/TR 11548 consists of the following parts, under the general title *Communication aids for blind persons — Identifiers, names and assignation to coded character sets for 8-dot Braille characters*:

- Part 1: *General guidelines for Braille identifiers and shift marks*
- Part 2: *Latin alphabet based character sets*

Further parts may be developed to meet the needs of other languages, such as Arabic, Chinese, Japanese, etc.

Introduction

The objective of this Technical Report is, in addition to ISO/IEC 10646-1:2000 which encodes 8-dot Braille patterns, to assign semantics to 8-dot Braille patterns via mapping to other coded character sets. Their coding with the 8-bit code is determined in order to set guidelines for the manufacturing of compatible input and output equipment using the Braille system. This enables visually-impaired persons to interpret the output of data processing equipment and facilitates communication with sighted people.

This Technical Report is neither intended to create a new code nor to alter or modify existing 6-dot Braille systems.

As there are many different character sets used worldwide (e.g. Arabic, Chinese, Japanese, Latin) a corresponding number of reference tables is necessary. The standardization work started with defining general guidelines for Braille identifiers and shift marks as well as in creating the reference for Latin alphabet based character sets; further expansion to other character sets is encouraged.

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Communication aids for blind persons — Identifiers, names and assignation to coded character sets for 8-dot Braille characters —

Part 1:

General guidelines for Braille identifiers and shift marks

1 Scope

This part of ISO/TR 11548 specifies short identifiers for 8-dot Braille patterns in addition to the names specified in ISO/IEC 10646-1:2000.

As there are many different code tables in use dealing with various character sets (e.g. Arabic, Chinese, Japanese, Latin) and for special purposes (e.g. chemistry, mathematics and music notation), this part of ISO/TR 11548-1 also defines a method of shifting between various Braille tables.

This part of ISO/TR 11548 is intended to be used by users and manufacturers of 8-dot Braille input and output devices, interfaces and software for data exchange.

This part of ISO/TR 11548 does not apply to 6-dot Braille, and does not specify any physical dimension of Braille characters.

2 Terms and definitions

For the purposes of this part of ISO/TR 11548, the definitions given in ISO/IEC 10367 and the following apply.

2.1

Braille

writing system consisting of tactile dot combinations to be used by blind persons

2.2

6-dot Braille

dot combination arranged as follows:

1● ●4
2● ●5
3● ●6

2.3

8-dot Braille

dot combination arranged as follows:

1● ●4
2● ●5
3● ●6
7● ●8

2.4

Braille pattern

graphical or tactile representation of one of the 64 (for 6-dot Braille) or 256 (for 8-dot Braille) possible dot combinations without particular meaning assigned to any given pattern

2.5

Braille character

Braille pattern with its assigned meaning

2.6

code table

table showing the character allocated to each bit combination in a code

2.7

Braille table

table showing the Braille character allocated to each element of a code table

2.8

shift mark

control character indicating that one or more succeeding coded elements are to be interpreted for switching between different Braille tables

2.9

Braille identifier

set of four characters used to identify a Braille pattern

3 Braille pattern structure, identification and coding

3.1 Braille pattern structure

The dots of the Braille pattern will be assigned to digits 1 to 8 as follows:



The designation of dots 1 to 6 corresponds to that of 6-dot Braille. The additional dots 7 and 8 are added beneath.

NOTE In some 8-dot Braille character sets dots 7 and 8 are added above the 6-dot pattern. These are not subject of this Technical Report.

In ink-print representation of Braille patterns (Braille characters), a full circle corresponds to a tangible (set) dot while empty circles serve as position indicators for dots not set within the dot matrix. In addition to their ink-print representation, the Braille pattern is defined in Table 1 by indicating the designation digits of the required (tangible) dots.

3.2 Universal multiple-Octet Coded Character Set (UCS)

Within the Universal Multiple-Octet Coded Character Set (UCS) according to ISO/IEC 10646-1, the 256 Braille patterns have been encoded in the Basic Multilingual Plane at code positions U+2800 to U+28FF (see Annex A).

The Braille pattern for each UCS-character is directly derived from the character code, as follows: subtract 2800₁₆ from the character code. If bit 0 is 1, then dot 1 is black (raised); if bit 1 is 1, then dot 2 is black (raised); and so on. The Braille pattern at U+2800 is blank.

The name of the blank pattern is "BRAILLE PATTERN BLANK". The names of the remaining patterns are "BRAILLE PATTERN DOTS-*numbers*", with *numbers* replaced by the sequence of dot numbers (in ascending order) which are black (raised).

3.3 Braille identifier

The 8-dot Braille patterns are identified by Braille identifiers. Braille identifiers begin with the designation letter B which is followed by a three-digit octal number. This octal number is calculated as follows. Values with octal representation corresponding to powers of 2 are assigned to the dots of the Braille pattern in the following way:

| | | |
|-----|-----|-----|
| 1 | ● ● | 10 |
| 2 | ● ● | 20 |
| 4 | ● ● | 40 |
| 100 | ● ● | 200 |

The octal number in question is obtained by adding the values corresponding to the tangible (set) dots. This sum lies between zero for no dot set (BRAILLE PATTERN BLANK) and 377, in the event that all 8 dots are set. Numbers smaller than 100 shall be expanded to three digits by inserting leading zeroes.

EXAMPLE The Braille identifier of the Braille pattern with dots 1, 2, 4 and 7 set, which leads to octal values 1, 2, 10 and 100, the sum of which is 113, is B113.

The following table gives a comprehensive overview of Braille patterns listed according to their Braille identifiers, location in UCS according ISO/IEC 10646-1, the Braille pattern, dot combinations in digits (dots) and the name assigned by ISO/IEC 10646-1.

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Table 1 — 8-dot Braille patterns

| Braille Identifier | UCS location | | Braille pattern | Dots | Name |
|--------------------|----------------------|-----|-----------------|------|---------------------------|
| | G=00 P=00 Row 28 dec | hex | | | |
| B000 | 000 | 00 | ⠠ | — | BRAILLE PATTERN BLANK |
| B001 | 001 | 01 | ⠠ | 1 | BRAILLE PATTERN DOTS-1 |
| B002 | 002 | 02 | ⠠ | 2 | BRAILLE PATTERN DOTS-2 |
| B003 | 003 | 03 | ⠠ | 12 | BRAILLE PATTERN DOTS-12 |
| B004 | 004 | 04 | ⠠ | 3 | BRAILLE PATTERN DOTS-3 |
| B005 | 005 | 05 | ⠠ | 13 | BRAILLE PATTERN DOTS-13 |
| B006 | 006 | 06 | ⠠ | 23 | BRAILLE PATTERN DOTS-23 |
| B007 | 007 | 07 | ⠠ | 123 | BRAILLE PATTERN DOTS-123 |
| B010 | 008 | 08 | ⠠ | 4 | BRAILLE PATTERN DOTS-4 |
| B011 | 009 | 09 | ⠠ | 14 | BRAILLE PATTERN DOTS-14 |
| B012 | 010 | 0A | ⠠ | 24 | BRAILLE PATTERN DOTS-24 |
| B013 | 011 | 0B | ⠠ | 124 | BRAILLE PATTERN DOTS-124 |
| B014 | 012 | 0C | ⠠ | 34 | BRAILLE PATTERN DOTS-34 |
| B015 | 013 | 0D | ⠠ | 134 | BRAILLE PATTERN DOTS-134 |
| B016 | 014 | 0E | ⠠ | 234 | BRAILLE PATTERN DOTS-234 |
| B017 | 015 | 0F | ⠠ | 1234 | BRAILLE PATTERN DOTS-1234 |
| B020 | 016 | 10 | ⠠ | 5 | BRAILLE PATTERN DOTS-5 |
| B021 | 017 | 11 | ⠠ | 15 | BRAILLE PATTERN DOTS-15 |
| B022 | 018 | 12 | ⠠ | 25 | BRAILLE PATTERN DOTS-25 |
| B023 | 019 | 13 | ⠠ | 125 | BRAILLE PATTERN DOTS-125 |
| B024 | 020 | 14 | ⠠ | 35 | BRAILLE PATTERN DOTS-35 |
| B025 | 021 | 15 | ⠠ | 135 | BRAILLE PATTERN DOTS-135 |
| B026 | 022 | 16 | ⠠ | 235 | BRAILLE PATTERN DOTS-235 |
| B027 | 023 | 17 | ⠠ | 1235 | BRAILLE PATTERN DOTS-1235 |

Table 1 (continued)

| Braille Identifier | UCS location | | Braille pattern | Dots | Name |
|--------------------|-------------------------|-----|-----------------|-------|----------------------------|
| | G=00 P=00 Row 28 dec | hex | | | |
| B030 | 024 | 18 | ⠠ | 45 | BRAILLE PATTERN DOTS-45 |
| B031 | 025 | 19 | ⠡ | 145 | BRAILLE PATTERN DOTS-145 |
| B032 | 026 | 1A | ⠢ | 245 | BRAILLE PATTERN DOTS-245 |
| B033 | 027 | 1B | ⠣ | 1245 | BRAILLE PATTERN DOTS-1245 |
| B034 | 028 | 1C | ⠤ | 345 | BRAILLE PATTERN DOTS-345 |
| B035 | 029 | 1D | ⠥ | 1345 | BRAILLE PATTERN DOTS-1345 |
| B036 | 030 | 1E | ⠦ | 2345 | BRAILLE PATTERN DOTS-2345 |
| B037 | 031 | 1F | ⠧ | 12345 | BRAILLE PATTERN DOTS-12345 |
| B040 | 032 | 20 | ⠨ | 6 | BRAILLE PATTERN DOTS-6 |
| B041 | 033 | 21 | ⠩ | 16 | BRAILLE PATTERN DOTS-16 |
| B042 | 034 | 22 | ⠪ | 26 | BRAILLE PATTERN DOTS-26 |
| B043 | 035 | 23 | ⠫ | 126 | BRAILLE PATTERN DOTS-126 |
| B044 | 036 | 24 | ⠬ | 36 | BRAILLE PATTERN DOTS-36 |
| B045 | 037 | 25 | ⠭ | 136 | BRAILLE PATTERN DOTS-136 |
| B046 | 038 | 26 | ⠮ | 236 | BRAILLE PATTERN DOTS-236 |
| B047 | 039 | 27 | ⠯ | 1236 | BRAILLE PATTERN DOTS-1236 |
| B050 | 040 | 28 | ⠰ | 46 | BRAILLE PATTERN DOTS-46 |
| B051 | 041 | 29 | ⠱ | 146 | BRAILLE PATTERN DOTS-146 |
| B052 | 042 | 2A | ⠲ | 246 | BRAILLE PATTERN DOTS-246 |
| B053 | 043 | 2B | ⠳ | 1246 | BRAILLE PATTERN DOTS-1246 |
| B054 | 044 | 2C | ⠴ | 346 | BRAILLE PATTERN DOTS-346 |
| B055 | 045 | 2D | ⠵ | 1346 | BRAILLE PATTERN DOTS-1346 |
| B056 | 046 | 2E | ⠶ | 2346 | BRAILLE PATTERN DOTS-2346 |
| B057 | 047 | 2F | ⠷ | 12346 | BRAILLE PATTERN DOTS-12346 |

Table 1 (continued)

| Braille Identifier | UCS location | | Braille pattern | Dots | Name |
|--------------------|----------------------|-----|-----------------|--------|-----------------------------|
| | G=00 P=00 Row 28 dec | hex | | | |
| B060 | 048 | 30 | ⠠ | 56 | BRAILLE PATTERN DOTS-56 |
| B061 | 049 | 31 | ⠡ | 156 | BRAILLE PATTERN DOTS-156 |
| B062 | 050 | 32 | ⠢ | 256 | BRAILLE PATTERN DOTS-256 |
| B063 | 051 | 33 | ⠣ | 1256 | BRAILLE PATTERN DOTS-1256 |
| B064 | 052 | 34 | ⠤ | 356 | BRAILLE PATTERN DOTS-356 |
| B065 | 053 | 35 | ⠥ | 1356 | BRAILLE PATTERN DOTS-1356 |
| B066 | 054 | 36 | ⠦ | 2356 | BRAILLE PATTERN DOTS-2356 |
| B067 | 055 | 37 | ⠧ | 12356 | BRAILLE PATTERN DOTS-12356 |
| B070 | 056 | 38 | ⠨ | 456 | BRAILLE PATTERN DOTS-456 |
| B071 | 057 | 39 | ⠩ | 1456 | BRAILLE PATTERN DOTS-1456 |
| B072 | 058 | 3A | ⠪ | 2456 | BRAILLE PATTERN DOTS-2456 |
| B073 | 059 | 3B | ⠫ | 12456 | BRAILLE PATTERN DOTS-12456 |
| B074 | 060 | 3C | ⠬ | 3456 | BRAILLE PATTERN DOTS-3456 |
| B075 | 061 | 3D | ⠭ | 13456 | BRAILLE PATTERN DOTS-13456 |
| B076 | 062 | 3E | ⠮ | 23456 | BRAILLE PATTERN DOTS-23456 |
| B077 | 063 | 3F | ⠯ | 123456 | BRAILLE PATTERN DOTS-123456 |
| B100 | 064 | 40 | ⠠ | 7 | BRAILLE PATTERN DOTS-7 |
| B101 | 065 | 41 | ⠡ | 17 | BRAILLE PATTERN DOTS-17 |
| B102 | 066 | 42 | ⠢ | 27 | BRAILLE PATTERN DOTS-27 |
| B103 | 067 | 43 | ⠣ | 127 | BRAILLE PATTERN DOTS-127 |
| B104 | 068 | 44 | ⠤ | 37 | BRAILLE PATTERN DOTS-37 |
| B105 | 069 | 45 | ⠥ | 137 | BRAILLE PATTERN DOTS-137 |
| B106 | 070 | 46 | ⠦ | 237 | BRAILLE PATTERN DOTS-237 |
| B107 | 071 | 47 | ⠧ | 1237 | BRAILLE PATTERN DOTS-1237 |

Table 1 (continued)

| Braille Identifier | UCS location | | Braille pattern | Dots | Name |
|--------------------|-------------------------|-----|-----------------|--------|-----------------------------|
| | G=00 P=00 Row 28 dec | hex | | | |
| B110 | 072 | 48 | ⠠ | 47 | BRAILLE PATTERN DOTS-47 |
| B111 | 073 | 49 | ⠡ | 147 | BRAILLE PATTERN DOTS-147 |
| B112 | 074 | 4A | ⠢ | 247 | BRAILLE PATTERN DOTS-247 |
| B113 | 075 | 4B | ⠣ | 1247 | BRAILLE PATTERN DOTS-1247 |
| B114 | 076 | 4C | ⠤ | 347 | BRAILLE PATTERN DOTS-347 |
| B115 | 077 | 4D | ⠥ | 1347 | BRAILLE PATTERN DOTS-1347 |
| B116 | 078 | 4E | ⠦ | 2347 | BRAILLE PATTERN DOTS-2347 |
| B117 | 079 | 4F | ⠧ | 12347 | BRAILLE PATTERN DOTS-12347 |
| B120 | 080 | 50 | ⠨ | 57 | BRAILLE PATTERN DOTS-57 |
| B121 | 081 | 51 | ⠩ | 157 | BRAILLE PATTERN DOTS-157 |
| B122 | 082 | 52 | ⠪ | 257 | BRAILLE PATTERN DOTS-257 |
| B123 | 083 | 53 | ⠫ | 1257 | BRAILLE PATTERN DOTS-1257 |
| B124 | 084 | 54 | ⠬ | 357 | BRAILLE PATTERN DOTS-357 |
| B125 | 085 | 55 | ⠭ | 1357 | BRAILLE PATTERN DOTS-1357 |
| B126 | 086 | 56 | ⠮ | 2357 | BRAILLE PATTERN DOTS-2357 |
| B127 | 087 | 57 | ⠯ | 12357 | BRAILLE PATTERN DOTS-12357 |
| B130 | 088 | 58 | ⠰ | 457 | BRAILLE PATTERN DOTS-457 |
| B131 | 089 | 59 | ⠱ | 1457 | BRAILLE PATTERN DOTS-1457 |
| B132 | 090 | 5A | ⠲ | 2457 | BRAILLE PATTERN DOTS-2457 |
| B133 | 091 | 5B | ⠳ | 12457 | BRAILLE PATTERN DOTS-12457 |
| B134 | 092 | 5C | ⠴ | 3457 | BRAILLE PATTERN DOTS-3457 |
| B135 | 093 | 5D | ⠵ | 13457 | BRAILLE PATTERN DOTS-13457 |
| B136 | 094 | 5E | ⠶ | 23457 | BRAILLE PATTERN DOTS-23457 |
| B137 | 095 | 5F | ⠷ | 123457 | BRAILLE PATTERN DOTS-123457 |

Table 1 (continued)

| Braille Identifier | UCS location | | Braille pattern | Dots | Name |
|--------------------|----------------------|-----|-----------------|--------|-----------------------------|
| | G=00 P=00 Row 28 dec | hex | | | |
| B140 | 096 | 60 | ⠠ | 67 | BRAILLE PATTERN DOTS-67 |
| B141 | 097 | 61 | ⠡ | 167 | BRAILLE PATTERN DOTS-167 |
| B142 | 098 | 62 | ⠢ | 267 | BRAILLE PATTERN DOTS-267 |
| B143 | 099 | 63 | ⠣ | 1267 | BRAILLE PATTERN DOTS-1267 |
| B144 | 100 | 64 | ⠤ | 367 | BRAILLE PATTERN DOTS-367 |
| B145 | 101 | 65 | ⠥ | 1367 | BRAILLE PATTERN DOTS-1367 |
| B146 | 102 | 66 | ⠦ | 2367 | BRAILLE PATTERN DOTS-2367 |
| B147 | 103 | 67 | ⠧ | 12367 | BRAILLE PATTERN DOTS-12367 |
| B150 | 104 | 68 | ⠨ | 467 | BRAILLE PATTERN DOTS-467 |
| B151 | 105 | 69 | ⠩ | 1467 | BRAILLE PATTERN DOTS-1467 |
| B152 | 106 | 6A | ⠪ | 2467 | BRAILLE PATTERN DOTS-2467 |
| B153 | 107 | 6B | ⠫ | 12467 | BRAILLE PATTERN DOTS-12467 |
| B154 | 108 | 6C | ⠬ | 3467 | BRAILLE PATTERN DOTS-3467 |
| B155 | 109 | 6D | ⠭ | 13467 | BRAILLE PATTERN DOTS-13467 |
| B156 | 110 | 6E | ⠮ | 23467 | BRAILLE PATTERN DOTS-23467 |
| B157 | 111 | 6F | ⠯ | 123467 | BRAILLE PATTERN DOTS-123467 |
| B160 | 112 | 70 | ⠰ | 567 | BRAILLE PATTERN DOTS-567 |
| B161 | 113 | 71 | ⠱ | 1567 | BRAILLE PATTERN DOTS-1567 |
| B162 | 114 | 72 | ⠲ | 2567 | BRAILLE PATTERN DOTS-2567 |
| B163 | 115 | 73 | ⠳ | 12567 | BRAILLE PATTERN DOTS-12567 |
| B164 | 116 | 74 | ⠴ | 3567 | BRAILLE PATTERN DOTS-3567 |
| B165 | 117 | 75 | ⠵ | 13567 | BRAILLE PATTERN DOTS-13567 |
| B166 | 118 | 76 | ⠶ | 23567 | BRAILLE PATTERN DOTS-23567 |
| B167 | 119 | 77 | ⠷ | 123567 | BRAILLE PATTERN DOTS-123567 |

Table 1 (continued)

| Braille Identifier | UCS location | | Braille pattern | Dots | Name |
|--------------------|-------------------------|-----|-----------------|---------|------------------------------|
| | G=00 P=00 Row 28 dec | hex | | | |
| B170 | 120 | 78 | ⠠ | 4567 | BRAILLE PATTERN DOTS-4567 |
| B171 | 121 | 79 | ⠡ | 14567 | BRAILLE PATTERN DOTS-14567 |
| B172 | 122 | 7A | ⠢ | 24567 | BRAILLE PATTERN DOTS-24567 |
| B173 | 123 | 7B | ⠣ | 124567 | BRAILLE PATTERN DOTS-124567 |
| B174 | 124 | 7C | ⠤ | 34567 | BRAILLE PATTERN DOTS-34567 |
| B175 | 125 | 7D | ⠥ | 134567 | BRAILLE PATTERN DOTS-134567 |
| B176 | 126 | 7E | ⠦ | 234567 | BRAILLE PATTERN DOTS-234567 |
| B177 | 127 | 7F | ⠧ | 1234567 | BRAILLE PATTERN DOTS-1234567 |
| B200 | 128 | 80 | ⠨ | 8 | BRAILLE PATTERN DOTS-8 |
| B201 | 129 | 81 | ⠩ | 18 | BRAILLE PATTERN DOTS-18 |
| B202 | 130 | 82 | ⠪ | 28 | BRAILLE PATTERN DOTS-28 |
| B203 | 131 | 83 | ⠫ | 128 | BRAILLE PATTERN DOTS-128 |
| B204 | 132 | 84 | ⠬ | 38 | BRAILLE PATTERN DOTS-38 |
| B205 | 133 | 85 | ⠭ | 138 | BRAILLE PATTERN DOTS-138 |
| B206 | 134 | 86 | ⠮ | 238 | BRAILLE PATTERN DOTS-238 |
| B207 | 135 | 87 | ⠯ | 1238 | BRAILLE PATTERN DOTS-1238 |
| B210 | 136 | 88 | ⠰ | 48 | BRAILLE PATTERN DOTS-48 |
| B211 | 137 | 89 | ⠱ | 148 | BRAILLE PATTERN DOTS-148 |
| B212 | 138 | 8A | ⠲ | 248 | BRAILLE PATTERN DOTS-248 |
| B213 | 139 | 8B | ⠳ | 1248 | BRAILLE PATTERN DOTS-1248 |
| B214 | 140 | 8C | ⠴ | 348 | BRAILLE PATTERN DOTS-348 |
| B215 | 141 | 8D | ⠵ | 1348 | BRAILLE PATTERN DOTS-1348 |
| B216 | 142 | 8E | ⠶ | 2348 | BRAILLE PATTERN DOTS-2348 |
| B217 | 143 | 8F | ⠷ | 12348 | BRAILLE PATTERN DOTS-12348 |

Table 1 (continued)

| Braille Identifier | UCS location | | Braille pattern | Dots | Name |
|--------------------|----------------------|-----|--------------------------|--------|-----------------------------|
| | G=00 P=00 Row 28 dec | hex | | | |
| B220 | 144 | 90 | ⠠ | 58 | BRAILLE PATTERN DOTS-58 |
| B221 | 145 | 91 | ⠠⠠ | 158 | BRAILLE PATTERN DOTS-158 |
| B222 | 146 | 92 | ⠠⠠⠠ | 258 | BRAILLE PATTERN DOTS-258 |
| B223 | 147 | 93 | ⠠⠠⠠⠠ | 1258 | BRAILLE PATTERN DOTS-1258 |
| B224 | 148 | 94 | ⠠⠠⠠⠠⠠ | 358 | BRAILLE PATTERN DOTS-358 |
| B225 | 149 | 95 | ⠠⠠⠠⠠⠠⠠ | 1358 | BRAILLE PATTERN DOTS-1358 |
| B226 | 150 | 96 | ⠠⠠⠠⠠⠠⠠⠠ | 2358 | BRAILLE PATTERN DOTS-2358 |
| B227 | 151 | 97 | ⠠⠠⠠⠠⠠⠠⠠⠠ | 12358 | BRAILLE PATTERN DOTS-12358 |
| B230 | 152 | 98 | ⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 458 | BRAILLE PATTERN DOTS-458 |
| B231 | 153 | 99 | ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 1458 | BRAILLE PATTERN DOTS-1458 |
| B232 | 154 | 9A | ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 2458 | BRAILLE PATTERN DOTS-2458 |
| B233 | 155 | 9B | ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 12458 | BRAILLE PATTERN DOTS-12458 |
| B234 | 156 | 9C | ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 3458 | BRAILLE PATTERN DOTS-3458 |
| B235 | 157 | 9D | ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 13458 | BRAILLE PATTERN DOTS-13458 |
| B236 | 158 | 9E | ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 23458 | BRAILLE PATTERN DOTS-23458 |
| B237 | 159 | 9F | ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 123458 | BRAILLE PATTERN DOTS-123458 |
| B240 | 160 | A0 | ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 68 | BRAILLE PATTERN DOTS-68 |
| B241 | 161 | A1 | ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 168 | BRAILLE PATTERN DOTS-168 |
| B242 | 162 | A2 | ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 268 | BRAILLE PATTERN DOTS-268 |
| B243 | 163 | A3 | ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 1268 | BRAILLE PATTERN DOTS-1268 |
| B244 | 164 | A4 | ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 368 | BRAILLE PATTERN DOTS-368 |
| B245 | 165 | A5 | ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 1368 | BRAILLE PATTERN DOTS-1368 |
| B246 | 166 | A6 | ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 2368 | BRAILLE PATTERN DOTS-2368 |
| B247 | 167 | A7 | ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 12368 | BRAILLE PATTERN DOTS-12368 |

Table 1 (continued)

| Braille Identifier | UCS location | | Braille pattern | Dots | Name |
|--------------------|-------------------------|-----|-----------------|---------|------------------------------|
| | G=00 P=00 Row 28 dec | hex | | | |
| B250 | 168 | A8 | ⠠ | 468 | BRAILLE PATTERN DOTS-468 |
| B251 | 169 | A9 | ⠡ | 1468 | BRAILLE PATTERN DOTS-1468 |
| B252 | 170 | AA | ⠢ | 2468 | BRAILLE PATTERN DOTS-2468 |
| B253 | 171 | AB | ⠣ | 12468 | BRAILLE PATTERN DOTS-12468 |
| B254 | 172 | AC | ⠤ | 3468 | BRAILLE PATTERN DOTS-3468 |
| B255 | 173 | AD | ⠥ | 13468 | BRAILLE PATTERN DOTS-13468 |
| B256 | 174 | AE | ⠦ | 23468 | BRAILLE PATTERN DOTS-23468 |
| B257 | 175 | AF | ⠧ | 123468 | BRAILLE PATTERN DOTS-123468 |
| B260 | 176 | B0 | ⠨ | 568 | BRAILLE PATTERN DOTS-568 |
| B261 | 177 | B1 | ⠩ | 1568 | BRAILLE PATTERN DOTS-1568 |
| B262 | 178 | B2 | ⠪ | 2568 | BRAILLE PATTERN DOTS-2568 |
| B263 | 179 | B3 | ⠫ | 12568 | BRAILLE PATTERN DOTS-12568 |
| B264 | 180 | B4 | ⠬ | 3568 | BRAILLE PATTERN DOTS-3568 |
| B265 | 181 | B5 | ⠭ | 13568 | BRAILLE PATTERN DOTS-13568 |
| B266 | 182 | B6 | ⠮ | 23568 | BRAILLE PATTERN DOTS-23568 |
| B267 | 183 | B7 | ⠯ | 123568 | BRAILLE PATTERN DOTS-123568 |
| B270 | 184 | B8 | ⠰ | 4568 | BRAILLE PATTERN DOTS-4568 |
| B271 | 185 | B9 | ⠱ | 14568 | BRAILLE PATTERN DOTS-14568 |
| B272 | 186 | BA | ⠲ | 24568 | BRAILLE PATTERN DOTS-24568 |
| B273 | 187 | BB | ⠳ | 124568 | BRAILLE PATTERN DOTS-124568 |
| B274 | 188 | BC | ⠴ | 34568 | BRAILLE PATTERN DOTS-34568 |
| B275 | 189 | BD | ⠵ | 134568 | BRAILLE PATTERN DOTS-134568 |
| B276 | 190 | BE | ⠶ | 234568 | BRAILLE PATTERN DOTS-234568 |
| B277 | 191 | BF | ⠷ | 1234568 | BRAILLE PATTERN DOTS-1234568 |

Table 1 (continued)

| Braille Identifier | UCS location | | Braille pattern | Dots | Name |
|--------------------|----------------------|-----|-------------------------|--------|-----------------------------|
| | G=00 P=00 Row 28 dec | hex | | | |
| B300 | 192 | C0 | ⠠ | 78 | BRAILLE PATTERN DOTS-78 |
| B301 | 193 | C1 | ⠠⠠ | 178 | BRAILLE PATTERN DOTS-178 |
| B302 | 194 | C2 | ⠠⠠⠠ | 278 | BRAILLE PATTERN DOTS-278 |
| B303 | 195 | C3 | ⠠⠠⠠⠠ | 1278 | BRAILLE PATTERN DOTS-1278 |
| B304 | 196 | C4 | ⠠⠠⠠⠠⠠ | 378 | BRAILLE PATTERN DOTS-378 |
| B305 | 197 | C5 | ⠠⠠⠠⠠⠠⠠ | 1378 | BRAILLE PATTERN DOTS-1378 |
| B306 | 198 | C6 | ⠠⠠⠠⠠⠠⠠⠠ | 2378 | BRAILLE PATTERN DOTS-2378 |
| B307 | 199 | C7 | ⠠⠠⠠⠠⠠⠠⠠⠠ | 12378 | BRAILLE PATTERN DOTS-12378 |
| B310 | 200 | C8 | ⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 478 | BRAILLE PATTERN DOTS-478 |
| B311 | 201 | C9 | ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 1478 | BRAILLE PATTERN DOTS-1478 |
| B312 | 202 | CA | ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 2478 | BRAILLE PATTERN DOTS-2478 |
| B313 | 203 | CB | ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 12478 | BRAILLE PATTERN DOTS-12478 |
| B314 | 204 | CC | ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 3478 | BRAILLE PATTERN DOTS-3478 |
| B315 | 205 | CD | ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 13478 | BRAILLE PATTERN DOTS-13478 |
| B316 | 206 | CE | ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 23478 | BRAILLE PATTERN DOTS-23478 |
| B317 | 207 | CF | ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 123478 | BRAILLE PATTERN DOTS-123478 |
| B320 | 208 | D0 | ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 578 | BRAILLE PATTERN DOTS-578 |
| B321 | 209 | D1 | ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 1578 | BRAILLE PATTERN DOTS-1578 |
| B322 | 210 | D2 | ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 2578 | BRAILLE PATTERN DOTS-2578 |
| B323 | 211 | D3 | ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 12578 | BRAILLE PATTERN DOTS-12578 |
| B324 | 212 | D4 | ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 3578 | BRAILLE PATTERN DOTS-3578 |
| B325 | 213 | D5 | ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 13578 | BRAILLE PATTERN DOTS-13578 |
| B326 | 214 | D6 | ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 23578 | BRAILLE PATTERN DOTS-23578 |
| B327 | 215 | D7 | ⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠ | 123578 | BRAILLE PATTERN DOTS-123578 |

Table 1 (continued)

| Braille Identifier | UCS location | | Braille pattern | Dots | Name |
|--------------------|-------------------------|-----|-----------------|---------|------------------------------|
| | G=00 P=00 Row 28 dec | hex | | | |
| B330 | 216 | D8 | ⠠ | 4578 | BRAILLE PATTERN DOTS-4578 |
| B331 | 217 | D9 | ⠡ | 14578 | BRAILLE PATTERN DOTS-14578 |
| B332 | 218 | DA | ⠢ | 24578 | BRAILLE PATTERN DOTS-24578 |
| B333 | 219 | DB | ⠣ | 124578 | BRAILLE PATTERN DOTS-124578 |
| B334 | 220 | DC | ⠤ | 34578 | BRAILLE PATTERN DOTS-34578 |
| B335 | 221 | DD | ⠥ | 134578 | BRAILLE PATTERN DOTS-134578 |
| B336 | 222 | DE | ⠦ | 234578 | BRAILLE PATTERN DOTS-234578 |
| B337 | 223 | DF | ⠧ | 1234578 | BRAILLE PATTERN DOTS-1234578 |
| B340 | 224 | E0 | ⠨ | 678 | BRAILLE PATTERN DOTS-678 |
| B341 | 225 | E1 | ⠩ | 1678 | BRAILLE PATTERN DOTS-1678 |
| B342 | 226 | E2 | ⠪ | 2678 | BRAILLE PATTERN DOTS-2678 |
| B343 | 227 | E3 | ⠫ | 12678 | BRAILLE PATTERN DOTS-12678 |
| B344 | 228 | E4 | ⠬ | 3678 | BRAILLE PATTERN DOTS-3678 |
| B345 | 229 | E5 | ⠭ | 13678 | BRAILLE PATTERN DOTS-13678 |
| B346 | 230 | E6 | ⠮ | 23678 | BRAILLE PATTERN DOTS-23678 |
| B347 | 231 | E7 | ⠯ | 123678 | BRAILLE PATTERN DOTS-123678 |
| B350 | 232 | E8 | ⠰ | 4678 | BRAILLE PATTERN DOTS-4678 |
| B351 | 233 | E9 | ⠱ | 14678 | BRAILLE PATTERN DOTS-14678 |
| B352 | 234 | EA | ⠲ | 24678 | BRAILLE PATTERN DOTS-24678 |
| B353 | 235 | EB | ⠳ | 124678 | BRAILLE PATTERN DOTS-124678 |
| B354 | 236 | EC | ⠴ | 34678 | BRAILLE PATTERN DOTS-34678 |
| B355 | 237 | ED | ⠵ | 134678 | BRAILLE PATTERN DOTS-134678 |
| B356 | 238 | EE | ⠶ | 234678 | BRAILLE PATTERN DOTS-234678 |
| B357 | 239 | EF | ⠷ | 1234678 | BRAILLE PATTERN DOTS-1234678 |

Table 1 (continued)

| Braille Identifier | UCS location | | Braille pattern | Dots | Name |
|--------------------|-------------------------|-----|-----------------|----------|-------------------------------|
| | G=00 P=00 Row 28 dec | hex | | | |
| B360 | 240 | F0 | ⠠ | 5678 | BRAILLE PATTERN DOTS-5678 |
| B361 | 241 | F1 | ⠡ | 15678 | BRAILLE PATTERN DOTS-15678 |
| B362 | 242 | F2 | ⠢ | 25678 | BRAILLE PATTERN DOTS-25678 |
| B363 | 243 | F3 | ⠣ | 125678 | BRAILLE PATTERN DOTS-125678 |
| B364 | 244 | F4 | ⠤ | 35678 | BRAILLE PATTERN DOTS-35678 |
| B365 | 245 | F5 | ⠥ | 135678 | BRAILLE PATTERN DOTS-135678 |
| B366 | 246 | F6 | ⠦ | 235678 | BRAILLE PATTERN DOTS-235678 |
| B367 | 247 | F7 | ⠧ | 1235678 | BRAILLE PATTERN DOTS-1235678 |
| B370 | 248 | F8 | ⠨ | 45678 | BRAILLE PATTERN DOTS-45678 |
| B371 | 249 | F9 | ⠩ | 145678 | BRAILLE PATTERN DOTS-145678 |
| B372 | 250 | FA | ⠪ | 245678 | BRAILLE PATTERN DOTS-245678 |
| B373 | 251 | FB | ⠫ | 1245678 | BRAILLE PATTERN DOTS-1245678 |
| B374 | 252 | FC | ⠬ | 345678 | BRAILLE PATTERN DOTS-345678 |
| B375 | 253 | FD | ⠭ | 1345678 | BRAILLE PATTERN DOTS-1345678 |
| B376 | 254 | FE | ⠮ | 2345678 | BRAILLE PATTERN DOTS-2345678 |
| B377 | 255 | FF | ⠯ | 12345678 | BRAILLE PATTERN DOTS-12345678 |

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4 Shift marks

Eight-dot Braille permits the generation of 256 different Braille patterns. Since this number cannot represent the total number of meanings required, it can be foreseen that the same Braille pattern will be used with different meanings, depending on the context. To indicate such secondary meanings unambiguously, the technique of applying shift marks to indicate shifting between several Braille tables shall be used; Braille patterns B314, B356 and B376 shall be used as shift marks as follows:

| Braille identifier | Braille pattern | Dots | Function name |
|--------------------|-----------------|---------|------------------|
| B356 | ⠠ | 234678 | SHIFT MARK ONE |
| B376 | ⠡ | 2345678 | SHIFT MARK TWO |
| B314 | ⠢ | 3478 | SHIFT MARK THREE |

For use together with the above shift marks, the following three groups of parameter characters are defined:

- **Rank indicators:** These define succeeding characters by indicating their rank. Braille characters identified by B001 to B017 are used for this purpose. Character B001 defines the first (or only) meaning of a Braille character, character B002 the second one, and so on. Braille character B000 is not defined.
- **Category indicators:** These define the category or class which the succeeding Braille characters belong to, e.g. Braille alphabet, Braille music notation, Braille mathematic notation. Braille characters identified by B020 to B077 shall be used for this purpose.
- **Character set indicators:** These define the meaning of the succeeding Braille pattern as they are linked to a specific coded character set. Braille characters identified by B100 to B177 are used for this purpose.

The three parameters described above are in a hierarchical connection: It is absolutely necessary to indicate the character set. Within this set it is possible to switch between different categories. The characters within a specific character set or category may have different meanings, indicated by the rank indicator.

SHIFT MARK ONE shall be used together with one subsequent parameter. This pair of characters only applies to the following Braille character. If necessary, additional pairs consisting of SHIFT MARK ONE plus parameter may be inserted before the effected Braille character.

This string represents an inseperable unit, this unit can be embedded in any string of characters without the necessity of being separated from the adjacent characters.

SHIFT MARK TWO shall be followed by at least one parameter; it is valid up to next SHIFT MARK TWO. SHIFT MARK TWO and the pertaining parameter(s) are placed between "BRAILLE PATTERN BLANK"-patterns thus forming a seperated string. To switch back to the situation before the appearance of SHIFT MARK TWO, it is possible to place a single SHIFT MARK TWO between "BRAILLE PATTERN BLANK". The SHIFT MARK ONE character may also be used within a sequence of characters defined in this way.

SHIFT MARK THREE is not yet specified and is reserved for future applications. It may be used together with multi-character parameters.

If no shift mark is used, rank indication B001 and category indication B020 shall apply.

5 Assignment of character set indicators

All characters set indicators not contained in Table 2 are reserved for future standardization and shall not be used.

Table 2 — Character set indicators

| Parameter braille character | | | Used with shift marks | Purpose |
|-----------------------------|------------------------------|------|-----------------------|---|
| ID | Braille pattern | dots | | |
| B100 | <pre> ○ ○ ○ ○ ○ ○ ● ○ </pre> | 7 | 1, 2 | switch to Latin alphabet based character sets (according to ISO/TR 11548-2) |

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