TECHNICAL REPORT

ISO/TR 11548-1

First edition
2001-12-15

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

Reference number
ISO/TR 11548-1:2001(E)

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Printed in Switzerland

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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is entirely informative in nature and does not have to be reviewed until the data it provides are considered to be no longer valid or useful.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 interprete 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.

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:

1● ●4
2● ●5
3● ●6
7● ●8

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)

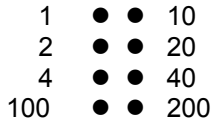
Within the Universal Multiple-Octet Coded Character Set (UCS) according to ISO/IEC 10646-1, the 256 Braille patterns have been encoded in the Basic Multilingual Plane at code positions U+2800 to U+28FF (see Annex A).

The Braille pattern for each UCS-character is directly derived from the character code, as follows: subtract 2800_{16} 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:



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.

Table 1 — 8-dot Braille patterns

Braille Identifier	UCS location G=00 P=00 Row 28 dec	hex	Braille pattern	Dots	Name
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 G=00 P=00 Row 28 dec	hex	Braille pattern	Dots	Name
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 G=00 P=00 Row 28 dec	hex	Braille pattern	Dots	Name
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 G=00 P=00 Row 28 dec	hex	Braille pattern	Dots	Name
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 G=00 P=00 Row 28 dec	hex	Braille pattern	Dots	Name
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 G=00 P=00 Row 28 dec	hex	Braille pattern	Dots	Name
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 G=00 P=00 Row 28 dec	hex	Braille pattern	Dots	Name
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 G=00 P=00 Row 28 dec	hex	Braille pattern	Dots	Name
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 G=00 P=00 Row 28 dec	hex	Braille pattern	Dots	Name
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 G=00 P=00 Row 28 dec	hex	Braille pattern	Dots	Name
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 G=00 P=00 Row 28 dec	hex	Braille pattern	Dots	Name
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

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 unambigously, 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 beeing 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 Assignation 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		7	1, 2	switch to Latin alphabet based character sets (according to ISO/TR 11548-2)