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Information processing — Conversion between the two coded character sets of ISO 646 and ISO 6937-2 and the CCITT international telegraph alphabet No. 2 (ITA 2)

*Traitement de l'information — Conversion entre les jeux de caractères codés de l'ISO 646 et
l'ISO 6937-2 et l'alphabet télégraphique international CCITT n° 2 (ITA 2)*

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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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 6936 was prepared by Technical Committee ISO/TC 97, *Information processing systems*.

This second edition cancels and replaces the first edition (ISO 6936 : 1983), of which it constitutes a technical revision.

Annex A of this International Standard is for information only.

Information processing — Conversion between the two coded character sets of ISO 646 and ISO 6937-2 and the CCITT international telegraph alphabet No. 2 (ITA 2)

1 Scope

The International Standard specifies rules for conversion between the 58 characters (including control functions) of the CCITT International Telegraph Alphabet No. 2 (CCITT Recommendation F.1) and the characters of the ISO 646 and ISO 6937-2 coded character sets.

This International Standard does not specify whether small or capital letters will be used to represent the alphabetic characters of ITA 2.

This International Standard is expected to facilitate interworking between, for example, the international telex service and terminals in data networks in cases where the telex character repertoire is sufficient.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 646 : 1983, *Information processing — ISO 7-bit coded character set for information interchange*.

ISO 2022 : 1986, *Information processing — ISO 7-bit and 8-bit coded character sets — Code extension techniques*.

ISO 6937-2 : 1983, *Information processing — Coded character sets for text communication — Part 2: Latin alphabetic and non-alphabetic graphic characters*.

CCITT Recommendation F.1 (Geneva, 1984), *Operational provisions for the International Public Telegram Service*.

CCITT Recommendation T.50 (Geneva, 1984), *International Alphabet No. 5*¹⁾

CCITT Recommendation T.51 (Geneva, 1984), *Coded character set for Telematic service*.²⁾

CCITT Recommendation S.18 (Geneva, 1984), *Conversions between Alphabets*.

3 Rules for code conversion

3.1 Conversion from ITA 2 to ISO 646 or ISO 6937-2

The conversion of characters shall be as specified in table 1.

Characters for which there are no direct equivalents shall be represented by the graphical representation of the substitute character SUB, unless prior agreement has been made between the interchange parties.

NOTE — Annex A, together with table A.1, provides information on alternative conversions which are in general use in some countries.

3.2 Conversion from ISO 646 or ISO 6937-2 to ITA 2

The conversion of the characters of ISO 646 or the characters of the primary set of ISO 6937-2 shall be as specified in table 2.

The non-spacing characters in the supplementary set of ISO 6937-2 shall be removed from the character string; all other characters in the supplementary set shall be represented by the single character QUESTION MARK.

The control characters of positions 0/1, 0/2, 0/3, 0/4, 0/6, 1/0, 1/5, 1/6, 1/7 and 7/15 are generally not converted because they are removed from the character string by the link control equipment or by convention.

Characters for which there are no direct equivalents shall be represented by the single character, QUESTION MARK, unless prior agreement has been made between the interchange parties.

NOTES

1 The greater number of code combinations available in ISO 646 or ISO 6937-2 means that not every character can be translated unambiguously into a single ITA 2 character. Use of a single character, rather than a multi-character representation will minimize formatting problems.

2 Annex A, together with table A.2, provides information on some alternative conversions which are in use in some countries.

1) CCITT Recommendation T.50 is equivalent to ISO 646.

2) CCITT Recommendation T.51 is equivalent to ISO 6937-2.

Table 1 — Conversion from ITA 2 to ISO 646 or ISO 6937-2

ITA 2 combination number	ITA 2 letter shift	ISO 646 or ISO 6937-2				ITA 2 figure shift	ISO 646 or ISO 6937-2 character	ISO 646 or ISO 6937-2 coding
		Character ¹⁾	Coding	Character ¹⁾	Coding			
1	A	A	4/1	a	6/1	—	—	2/13
2	B	B	4/2	b	6/2	?	?	3/15
3	C	C	4/3	c	6/3	:	:	3/10
4	D	D	4/4	d	6/4	WRU	ENQ ²⁾	0/5
5	E	E	4/5	e	6/5	3	3	3/3
6	F	F	4/6	f	6/6	National use	SUB	1/10
7	G	G	4/7	g	6/7	National use	SUB	1/10
8	H	H	4/8	h	6/8	National use	SUB	1/10
9	I	I	4/9	i	6/9	8	8	3/8
10	J	J	4/10	j	6/10	BELL	BEL	0/7
11	K	K	4/11	k	6/11	(	(	2/8
12	L	L	4/12	l	6/12	)	)	2/9
13	M	M	4/13	m	6/13	.	.	2/14
14	N	N	4/14	n	6/14	,	,	2/12
15	O	O	4/15	o	6/15	9	9	3/9
16	P	P	5/0	p	7/0	0	0	3/0
17	Q	Q	5/1	q	7/1	1	1	3/1
18	R	R	5/2	r	7/2	4	4	3/4
19	S	S	5/3	s	7/3	'	'	2/7
20	T	T	5/4	t	7/4	5	5	3/5
21	U	U	5/5	u	7/5	7	7	3/7
22	V	V	5/6	v	7/6	=	=	3/13
23	W	W	5/7	w	7/7	2	2	3/2
24	X	X	5/8	x	7/8	/	/	2/15
25	Y	Y	5/9	y	7/9	6	6	3/6
26	Z	Z	5/10	z	7/10	+	+	2/11

ITA 2 combination number	ITA 2 character (either shift)	ISO 646 or ISO 6937-2 character	ISO 646 or ISO 6937-2 coding
27	CARRIAGE RETURN	CR	0/13
28	LINE FEED	LF	0/10
29	LETTER SHIFT	(See note 3)	
30	FIGURE SHIFT	(See note 3)	
31	SPACE	SP	2/0
32	NU (not normally used)	NUL	0/0

- 1) Small or capital letters may be used, however intermixing of small and capital letters is not allowed.
- 2) This character is used only to operate the answer-back unit of the corresponding instrument in the International Public Services.
- 3) These characters have no corresponding function in ISO 646 or ISO 6937-2. Conversion equipment operates the appropriate shift and discards the characters.

Table 2 — Conversion from ISO 646 or ISO 6937-2 to ITA 2

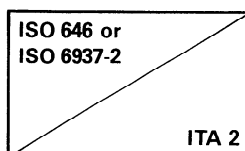
	0	1	2	3	4	5	6	7
0	NUL NU	DLE removed	SP SP	0 0	@ ?	P P	' ?	p P
1	SOH removed	DC1 ?	! ?	1 1	A A	Q Q	a A	q Q
2	STX removed	DC2 ?	" ?	2 2	B B	R R	b B	r R
3	ETX removed	DC3 ?	#(£) ?	3 3	C C	S S	c C	s S
4	EOT removed	DC4 ?	¤(\$) ?	4 4	D D	T T	d D	t T
5	ENQ WRU	NAK removed	% ?	5 5	E E	U U	e E	u U
6	ACK removed	SYN removed	& ?	6 6	F F	V V	f F	v V
7	BEL BELL	ETB removed	' ,	7 7	G G	W W	g G	w W
8	BS ?	CAN ?	((	8 8	H H	X X	h H	x X
9	HT ?	EM ?	))	9 9	I I	Y Y	i I	y Y
10	LF LF	SUB ?	* ?	: :	J J	Z Z	j J	z Z
11	VT ?	ESC ?	+ +	; ?	K K	[?	k K	{ ?
12	FF ?	IS4 ?	/ ,	< ?	L L	\ ?	l L	 ?
13	CR CR	IS3 ?	- -	= =	M M	] ?	m M	} ?
14	SO ?	IS2 ?	. .	> ?	N N	^ ?	n N	- ?
15	SI ?	IS1 ?	/ /	? ?	O O	- ?	o O	DEL removed

NOTES

1 Characters allocated to LETTER SHIFT or FIGURE SHIFT are specified in table 1. If the last shift that occurred differs from the next one required, it is essential for the converted character to be preceded by the appropriate shift character. This operation is necessary each time a change of shift is required.

2 For position 0/0, see A.4.

3 For positions 2/3 and 2/4 in ISO 646, see 4.3.2 in ISO 646.



Annex A

(informative)

Alternative conversions between ISO 646 and ITA 2

A.1 This International Standard (see note to 3.1 and note 2 to 3.2) permits alternative conversions for characters which have no direct equivalents, provided these conversions are agreed between interchange parties. Other alternatives may be used.

A.2 Tables A.1 and A.2 list conversions which are in use in some countries.

A.3 In some nationally adapted applications of ITA 2 and ISO 646 specified conversion rules are required because national characters have been allocated in different order in the coded character sets concerned.

A.4 NUL is equivalent to "all space" (combination 32 or NU) in ITA 2.

Table A.1 — Examples of alternative conversions from ITA 2 to ISO 646

ITA 2			ISO 646 (IRV)		
Shift	Combination number	Character	Character	Coding	Remarks
a) Figure	6	National use		5/11	See clause A.3
Figure	7			5/12	
Figure	8			5/13	
b) Figure	6	National use		7/11	Se clause A.3
Figure	7			7/12	
Figure	8			7/13	
c) Either	29	LETTER SHIFT	IS2	1/14	
Either	30	FIGURE SHIFT	IS1	1/15	
d) Either	29	LETTER SHIFT	DEL	7/15	
Either	30	FIGURE SHIFT	DEL	7/15	
e) as d) but with additional agreement that only shift characters following the first one are converted to 7/15. The first one is treated according to table 1 in the body of this International Standard.					