

BELL TELEPHONE LABORATORIES
INCORPORATED

SUBJECT: Final Approval of ASCII
Revision - Case 39065

DATE: AUG 15 1967
FROM: D. A. Kerr

MEMORANDUM FOR FILE

ABSTRACT

A revision of the USA Standard Code for Information Interchange (ASCII) was recently approved by the USA Standards Institute. The new standard is consistent with an equivalent international standard now near final approval, and is also consistent with present Bell System Plans for future data communication system codes.

HO-3142

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On July 7, 1967, the USA Standards Institute certified the final approval of a revision to the USA Standard Code for Information Interchange (ASCII). The new standard, designated USAS X3.4-1967, supersedes the version approved in December of 1965, although this latter version was never released due to the pendency of the subject revision. In practical effect, therefore, the standard which is superseded is actually the original version, X3.4-1963, approved in June of 1963.

Although all standards are subject to obligatory review and possible modification, most people associated with the ASCII project consider X3.4-1967 to be the first real completion of the basic 7-bit code standardization effort, and thus likely to remain relatively stable for some time. The 1963 version was knowingly incomplete, in that much of the code table was yet unassigned and no complete international agreements then existed. The 1965 version attempted to make up these deficiencies, but last minute changes in previously "established" international decisions caused its instantaneous obsolescence.

At the present time an international 7-bit code standard (known as ISO Draft Recommendation #1052) has been approved by the cognizant technical bodies of the ISO (International Organization for Standardization), and is expected to receive final certification momentarily. The new USA Standard conforms in every respect to this international standard, although it should be kept in mind that the international standard reserves certain matters for standardization as appropriate by each country.

Equally important is the fact that this compatibility extends to the 7-bit code now recommended for standardization within the CCITT (International Telegraph and Telephone Consultative Committee), whose specifications are of great significance in international telecommunications.

Attached figures show the code tables of:

The original (1963) version of ASCII

The first revision (1965)

Two predecessor versions of the present revision, which were widely referenced in BTL documents as "Proposed Revised (1966) ASCII" and "Proposed Revised (June 1966) ASCII"

The new (1967) Standard

The standard itself contains a key to the control character designations, definitions of the control characters, and a considerable amount of material on the properties of the standard code and on its application. Copies may be obtained from the USA Standards Institute, 10 E. 40th Street, New York, New York, 10016, as "USA Standard X3.4-1967." The single copy price is \$2.00. Copies will also be available in BTL libraries at most locations.

A number of Bell System people have been active in the development of the present revision as well as the previous versions.

Present plans are that future Bell System data communication systems will use this code wherever applicable, and present systems using earlier versions of the code will be converted wherever and whenever practical. Such a program of conversion is already underway for the TWX service.



D. A. KERR

HO-3142-DAK-GL

Att.
As above

USA STANDARD CODE FOR
 INFORMATION INTERCHANGE
 X3.4 - 1963

Bits					0 0 0 1				0 1 0 1				1 0 0 1				1 1 0 1				1 1 1 1											
b7	b6	b5	b4	b3	b2	b1	Column	Row	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7
0	0	0	0	0	0	0	0	0	NULL	DCO	SPT	0	@	P	Q	UNASSIGNED	UNASSIGNED	UNASSIGNED	UNASSIGNED	UNASSIGNED	UNASSIGNED	UNASSIGNED	UNASSIGNED	UNASSIGNED	UNASSIGNED	UNASSIGNED	UNASSIGNED	UNASSIGNED	UNASSIGNED	UNASSIGNED		
0	0	0	0	1	0	0	1	1	SOM	DC1	!	1	A	Q	Q																	
0	0	0	1	0	0	0	1	0	EOA	DC2	"	2	B	R	R																	
0	0	0	1	1	0	0	1	1	EOM	DC3	#	3	C	S	S																	
0	1	0	0	0	0	1	0	0	EOT	DC4 (STOP)	\$	4	D	T	T																	
0	1	0	0	1	0	1	0	1	WRU	ERR	%	5	E	U	U																	
0	1	0	1	0	0	1	0	1	RU	SYNC	&	6	F	V	V																	
0	1	1	1	1	0	1	1	1	BELL	LEM	▼	7	G	W	W																	
1	0	0	0	0	1	0	0	0	BS	S0	(8	H	X	X																	
1	0	0	0	1	1	0	0	1	HT SK	S1)	9	I	Y	Y																	
1	0	1	0	0	1	0	1	0	LF	S2	*	10	. J	Z	Z																	
1	0	1	1	1	1	0	1	1	VT	S3	+	11	. K	[[
1	1	0	0	0	1	1	0	0	FF	S4	,	12	L	\	\																	
1	1	0	0	1	1	1	0	1	CR	S5	-	13	M]] ①																	
1	1	1	0	0	1	1	1	0	S0	S6	.	14	N	^	^																	
1	1	1	1	1	1	1	1	1	SI	S7	/	15	O	␣	␣																	

① UNASSIGNED CONTROL

† SHOWN IN PUBLISHED TABLE AS "b"

USA STANDARD CODE FOR
 INFORMATION INTERCHANGE X3.4-1965
 (NOT RELEASED)

Bits					Column					Row				
b7	b6	b5	b4	b3	b2	b1	0	1	2	3	4	5	6	7
0	0	0	0	0	0	0	NUL	DLE	SP	0	1	0	0	1
0	0	0	0	0	0	1	SOH	DC1	!	"	#	\$	%	&
0	0	0	0	1	0	0	STX	DC2	"	#	\$	%	&	^
0	0	0	1	0	0	0	ETX	DC3	#	\$	%	&	^	(
0	0	1	0	0	0	0	EOT	DC4	\$	%	&	^	()
0	1	0	0	0	0	0	ENQ	NAK	%	&	^	()	*
0	1	0	1	0	0	0	ACK	SYN	&	^	()	*	+
0	1	1	0	0	0	0	BEL	ETB	^	()	*	+	,
1	0	0	0	0	0	0	BS	CAN	()	*	+	,	-
1	0	0	0	1	0	0	HT	EM)	*	+	,	-	.
1	0	1	0	0	0	0	LF	SS	*	:	;	<	=	>
1	0	1	1	0	0	0	VT	ESC	+	:	;	<	=	>
1	1	0	0	0	0	0	FF	FS	,	:	;	<	=	>
1	1	0	1	0	0	0	CR	GS	-	:	;	<	=	>
1	1	1	0	0	0	0	SO	RS	.	:	;	<	=	>
1	1	1	1	0	0	0	SI	US	/	:	;	<	=	>
1	1	1	1	1	0	0				:	;	<	=	>
1	1	1	1	1	1	0				:	;	<	=	>
1	1	1	1	1	1	1				:	;	<	=	>


BELL TELEPHONE LABORATORIES
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SUBJECT: ERRATA - Final Approval of ASCII
Revision - Case 39065

DATE: AUG 28 1967

FROM: D. A. Kerr

In the Memorandum for File entitled "Final Approval of ASCII Revision - Case 39065, dated August 15, 1967, there is an error in Proposed Revised (June 1966) code table. Position 1/10 should show SUB rather than SS. A corrected code table is attached.



D. A. KERR

HO-3142-DAK-MR

Att.
Code Table

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