

## BRIEF HISTORY

The adoption of ECMA-6 (ISO 646) as the agreed international 7-bit code for information interchange had led to the development of many national, international and application-oriented versions of this code which are in wide use today.

These versions have a number of limitations generally inherent to the size of the code:

- they do not provide all graphic characters which may be needed,
- for some characters, specially for accented letters, it is necessary to resort to BACKSPACE sequences, which creates problems when processing data containing such composite characters,
- interchange among different versions is practically limited to the 82 common graphic characters.

With the advent of 8-bit coding it was possible to increase the number of graphic characters. ISO 6937/2, for example, provides a character set covering the requirements of most languages based on the Latin alphabet. This character set, although well suited for text communication, is difficult to use for processing as some graphic characters are represented by one and others by two bit combinations.

Thus the need was recognized for coded graphic character sets, each of which:

- is the same for all users of a given area,
- provides single-byte coding of all graphic characters thus permitting easy processing,
- takes into account character sets used in the industry.

Since 1982 the urgency of the need for an 8-bit single-byte coded character set was recognized in ECMA as well as in ANSI/X3L2 and numerous working papers were exchanged between the two groups. In February 1984 ECMA TC1 submitted to ISO/TC97/SC2 a proposal for such a coded character set. At its meeting of April 1984 SC2 decided to submit to TC97 a proposal for a new item of work for this topic. Technical discussions during and after this meeting let TC1 to adopt the coding scheme proposed by X3L2. International Standard ISO 8859/1 is based on this joint ANSI/ECMA proposal. ECMA published its corresponding Standard ECMA-94 in March 1985.

After this first publication, the work of ECMA TC1 on further coded graphic character sets has led to the following results:

- i) A first Edition, dated June 1986 of the present Standard for a Latin/Cyrillic coded graphic character set.
- ii) The second Edition of Standard ECMA-94, dated June 1986, comprising four coded graphic character sets for the Latin script, identified as Latin Alphabet No 1 to No 4. These alphabets have a number of characters in common, in particular those allocated to columns 02 to 07. They have all been submitted to ISO and are the subject of ISO 8859, Parts 1 to 4.

- iii) A series of ECMA Standards for coded graphic character sets comprising those characters of the Latin Alphabets allocated to columns 02 to 07 and characters of another script for multiple-language applications. These Standards ECMA-114, ECMA-118 and ECMA-121 cover the Arabic, Greek and Hebrew scripts, respectively. They have been submitted to ISO for further processing as ISO standards and published as Part 6, Part 7 and Part 8, respectively, of ISO 8859.

The present 2nd Edition of Standard ECMA-113 **supersedes** the first edition. Indeed, the latter was based on the 1974 version of GOST Standard 19768. In 1987 this standard was revised. As a consequence this 2nd Edition was prepared in co-operation with the Soviet Union experts and is in complete agreement with the corresponding GOST standard. The corresponding International Standard, ISO 8859-5 is technically identical with this 2nd Edition of ECMA-113.

Adopted as an ECMA Standard by the General Assembly of 30th June 1988.

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## 1. SCOPE

This Standard specifies a set of 191 graphic characters identified as Latin/Cyrillic Alphabet, and specifies the coded representation of each of these characters by means of a single 8-bit byte. None of these characters are "non-spacing".

The use of control functions, such as BACKSPACE or CARRIAGE RETURN for the coded representation of composite characters is prohibited by this Standard.

## 2. FIELD OF APPLICATION

This set of graphic characters, the Latin/Cyrillic Alphabet intended for use in data and text processing applications and may also be used for information interchange.

This set is suited for multiple-language applications involving the Latin and the Cyrillic scripts. It allows handling of data and text expressed in Bulgarian, Bielorrussian, English, Macedonian, Russian, Serbocroatian and Ukrainian.

This set of graphic characters is suitable for use in a version of an 8-bit code according to ECMA-35 or ECMA-43.

## 3. CONFORMANCE

A set of graphic characters is in conformance with this Standard if it comprises all graphic characters specified herein to the exclusion of any other and if their coded representations are those specified by this Standard.

## 4. REFERENCES

|          |   |
|----------|---|
| ECMA-35  | Code Extension Techniques   |
| ECMA-43  | 8-bit Coded Character Set - Structure and Rules                               |
| ECMA-48  | Control Functions for Coded Character Sets                                    |
| ECMA-94  | 8-Bit Single-Byte Coded Graphic Character Sets - Latin Alphabets No 1 to No 4 |
| ECMA-114 | 8-Bit Single-Byte Coded Graphic Character Sets - Latin/Arabic Alphabet        |
| ECMA-118 | 8-Bit Single-Byte Coded Graphic Character Sets - Latin/Greek Alphabet         |
| ECMA-121 | 8-Bit Single-Byte Coded Graphic Character Sets - Latin/Hebrew Alphabet.       |
| ECMA-128 | 8-Bit Single-Byte Coded Graphic Character Sets - Latin Alphabet No. 5         |

## 5. DEFINITIONS

For the purpose of this Standard the following definitions apply:

### **5.1 Bit Combination; Byte**

An ordered set of bits that represents a character or is used as a part of the representation of a character.

### **5.2 Character**

A member of a set of elements used for the organization, control or representation of data.

### **5.3 Coded Character Set; Code**

A set of unambiguous rules that establishes a character set and the one-to-one relationship between each character of the set and its coded representation.

### **5.4 Code Table**

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

### **5.5 Graphic Character**

A character, other than a control function, that has a visual representation normally handwritten, printed or displayed, and that has a coded representation consisting of one or more bit combinations.

#### *NOTE 1*

*In this Standard a single bit combination is used to represent each character.*

### **5.6 Graphic Symbol**

A visual representation of a graphic character.

### **5.7 Position**

That part of a code table identified by its column and row co-ordinates.

## **6. NOTATION, CODE TABLE AND NAMES**

### **6.1 Notation**

The bits of the bit combinations of the 8-bit code are identified by  $b_8$ ,  $b_7$ ,  $b_6$ ,  $b_5$ ,  $b_4$ ,  $b_3$ ,  $b_2$  and  $b_1$ , where  $b_8$  is the highest-order, or most-significant bit and  $b_1$  is the lowest-order, or least-significant bit.

The bit combinations may be interpreted to represent numbers in binary notation by attributing the following weights to the individual bits:

|        |                |                |                |                |                |                |                |                |
|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Bit    | b <sub>8</sub> | b <sub>7</sub> | b <sub>6</sub> | b <sub>5</sub> | b <sub>4</sub> | b <sub>3</sub> | b <sub>2</sub> | b <sub>1</sub> |
| Weight | 128            | 64             | 32             | 16             | 8              | 4              | 2              | 1              |

Using these weights, the bit combinations of the 8-bit code represent numbers in the range 0 to 255.

In this Standard, the bit combinations are identified by notations of the form xx/yy, where xx and yy are numbers in the range 00 to 15. The correspondence between the notations of the form xx/yy and the bit combinations consisting of the bits b<sub>8</sub> to b<sub>1</sub>, is as follows:

- xx is the number represented by b<sub>8</sub>, b<sub>7</sub>, b<sub>6</sub> and b<sub>5</sub> where these bits are given the weights 8, 4, 2 and 1 respectively;
- yy is the number represented by b<sub>4</sub>, b<sub>3</sub>, b<sub>2</sub> and b<sub>1</sub> where these bits are given the weights 8, 4, 2 and 1 respectively.

## 6.2 Layout of the Code Table

An 8-bit code table consists of 256 positions arranged in 16 columns and 16 rows. The columns and the rows are numbered 00 to 15.

The code table positions are identified by notations of the form xx/yy, where xx is the column number and yy is the row number.

The positions of the code table are in one-to-one correspondence with the bit combinations of the code. The notation of a code table position, of the form xx/yy, is the same as that of the corresponding bit combination.

## 6.3 Names and Meanings

This Standard assigns at least one name to each character. In addition, it specifies a graphic symbol for each graphic character. By convention only capital letters, the graphic symbols of small letters and hyphens are used for writing the names of the characters.

The names chosen to denote graphic characters are intended to reflect their customary meaning. However, except for SPACE (SP), NO-BREAK SPACE (NBSP) and SOFT HYPHEN (SHY), this Standard does not define and does not restrict the meanings of graphic characters. Neither does it specify a particular style or font design for imaging graphic characters.

### 6.3.1 SPACE (SP)

This character may be interpreted as a graphic character, a control character or as both. As a graphic character it has the visual representation consisting of the absence of a graphic symbol.

**6.3.2 NO-BREAK SPACE (NBSP)**

A graphic character the visual representation of which consists of the absence of a graphic symbol, for use when a line break is to be prevented in the text as presented.

**6.3.3 SOFT HYPHEN (SHY)**

A graphic character that is imaged by a graphic symbol identical with, or similar to, that representing HYPHEN, for use when a line break is permitted in the text as presented.

**7. SPECIFICATION OF THE CODED CHARACTER SET**

This Standard specifies 191 characters allocated to the bit combinations of the Code Table.

**7.1 Characters of the Set and their Coded Representation**

| Bit Combination | Name               |
|-----------------|--------------------|
| 02/00           | SPACE              |
| 02/01           | EXCLAMATION MARK   |
| 02/02           | QUOTATION MARK     |
| 02/03           | NUMBER SIGN        |
| 02/04           | DOLLAR SIGN        |
| 02/05           | PERCENT SIGN       |
| 02/06           | AMPERSAND          |
| 02/07           | APOSTROPHE         |
| 02/08           | LEFT PARENTHESIS   |
| 02/09           | RIGHT PARENTHESIS  |
| 02/10           | ASTERISK           |
| 02/11           | PLUS SIGN          |
| 02/12           | COMMA              |
| 02/13           | HYPHEN, MINUS SIGN |
| 02/14           | FULL STOP          |
| 02/15           | SOLIDUS            |
| 03/00           | DIGIT ZERO         |
| 03/01           | DIGIT ONE          |
| 03/02           | DIGIT TWO          |
| 03/03           | DIGIT THREE        |
| 03/04           | DIGIT FOUR         |

| Bit Combination | Name              |
|-----------------|-------------------|
| 03/05           | DIGIT FIVE        |
| 03/06           | DIGIT SIX         |
| 03/07           | DIGIT SEVEN       |
| 03/08           | DIGIT EIGHT       |
| 03/09           | DIGIT NINE        |
| 03/10           | COLON             |
| 03/11           | SEMICOLON         |
| 03/12           | LESS-THAN SIGN    |
| 03/13           | EQUALS SIGN       |
| 03/14           | GREATER-THAN SIGN |
| 03/15           | QUESTION MARK     |
| 04/00           | COMMERCIAL AT     |
| 04/01           | CAPITAL LETTER A  |
| 04/02           | CAPITAL LETTER B  |
| 04/03           | CAPITAL LETTER C  |
| 04/04           | CAPITAL LETTER D  |
| 04/05           | CAPITAL LETTER E  |
| 04/06           | CAPITAL LETTER F  |
| 04/07           | CAPITAL LETTER G  |
| 04/08           | CAPITAL LETTER H  |
| 04/09           | CAPITAL LETTER I  |
| 04/10           | CAPITAL LETTER J  |
| 04/11           | CAPITAL LETTER K  |
| 04/12           | CAPITAL LETTER L  |
| 04/13           | CAPITAL LETTER M  |
| 04/14           | CAPITAL LETTER N  |
| 04/15           | CAPITAL LETTER O  |
| 05/00           | CAPITAL LETTER P  |
| 05/01           | CAPITAL LETTER Q  |
| 05/02           | CAPITAL LETTER R  |
| 05/03           | CAPITAL LETTER S  |
| 05/04           | CAPITAL LETTER T  |
| 05/05           | CAPITAL LETTER U  |
| 05/06           | CAPITAL LETTER V  |
| 05/07           | CAPITAL LETTER W  |
| 05/08           | CAPITAL LETTER X  |
| 05/09           | CAPITAL LETTER Y  |
| 05/10           | CAPITAL LETTER Z  |



| Bit Combination | Name                       |
|-----------------|----------------------------|
| 05/11           | LEFT SQUARE BRACKET        |
| 05/12           | REVERSE SOLIDUS            |
| 05/13           | RIGHT SQUARE BRACKET       |
| 05/14           | CIRCUMFLEX ACCENT          |
| 05/15           | LOW LINE                   |
| 06/00           | GRAVE ACCENT               |
| 06/01           | SMALL LETTER a             |
| 06/02           | SMALL LETTER b             |
| 06/03           | SMALL LETTER c             |
| 06/04           | SMALL LETTER d             |
| 06/05           | SMALL LETTER e             |
| 06/06           | SMALL LETTER f             |
| 06/07           | SMALL LETTER g             |
| 06/08           | SMALL LETTER h             |
| 06/09           | SMALL LETTER i             |
| 06/10           | SMALL LETTER j             |
| 06/11           | SMALL LETTER k             |
| 06/12           | SMALL LETTER l             |
| 06/13           | SMALL LETTER m             |
| 06/14           | SMALL LETTER n             |
| 06/15           | SMALL LETTER o             |
| 07/00           | SMALL LETTER p             |
| 07/01           | SMALL LETTER q             |
| 07/02           | SMALL LETTER r             |
| 07/03           | SMALL LETTER s             |
| 07/04           | SMALL LETTER t             |
| 07/05           | SMALL LETTER u             |
| 07/06           | SMALL LETTER v             |
| 07/07           | SMALL LETTER w             |
| 07/08           | SMALL LETTER x             |
| 07/09           | SMALL LETTER y             |
| 07/10           | SMALL LETTER z             |
| 07/11           | LEFT CURLY BRACKET         |
| 07/12           | VERTICAL LINE              |
| 07/13           | RIGHT CURLY BRACKET        |
| 07/14           | TILDE                      |
| 10/00           | NO-BREAK SPACE             |
| 10/01           | CYRILLIC CAPITAL LETTER IO |

| Bit Combination | Name   |
|-----------------|--|
| 10/02           | SERBOCROATIAN CYRILLIC CAPITAL LETTER DJE    |
| 10/03           | MACEDONIAN CYRILLIC CAPITAL LETTER GJE       |
| 10/04           | UKRANIAN CYRILLIC CAPITAL LETTER IE          |
| 10/05           | MACEDONIAN CYRILLIC CAPITAL LETTER DZE       |
| 10/06           | CYRILLIC CAPITAL LETTER I                    |
| 10/07           | UKRANIAN CYRILLIC CAPITAL LETTER YI          |
| 10/08           | CYRILLIC CAPITAL LETTER JE                   |
| 10/09           | CYRILLIC CAPITAL LETTER LJE                  |
| 10/10           | CYRILLIC CAPITAL LETTER NJE                  |
| 10/11           | SERBOCROATIAN CYRILLIC CAPITAL LETTER CHJE   |
| 10/12           | MACEDONIAN CYRILLIC CAPITAL LETTER KJE       |
| 10/13           | SOFT HYPHEN                                  |
| 10/14           | BIELORUSSIAN CYRILLIC CAPITAL LETTER SHORT U |
| 10/15           | CYRILLIC CAPITAL LETTER DZE                  |
| 11/00           | CYRILLIC CAPITAL LETTER A                    |
| 11/01           | CYRILLIC CAPITAL LETTER BE                   |
| 11/02           | CYRILLIC CAPITAL LETTER VE                   |
| 11/03           | CYRILLIC CAPITAL LETTER GHE                  |
| 11/04           | CYRILLIC CAPITAL LETTER DE                   |
| 11/05           | CYRILLIC CAPITAL LETTER IE                   |
| 11/06           | CYRILLIC CAPITAL LETTER ZHE                  |
| 11/07           | CYRILLIC CAPITAL LETTER ZE                   |
| 11/08           | CYRILLIC CAPITAL LETTER I                    |
| 11/09           | CYRILLIC CAPITAL LETTER SHORT I              |
| 11/10           | CYRILLIC CAPITAL LETTER KA                   |
| 11/11           | CYRILLIC CAPITAL LETTER EL                   |
| 11/12           | CYRILLIC CAPITAL LETTER EM                   |
| 11/13           | CYRILLIC CAPITAL LETTER EN                   |
| 11/14           | CYRILLIC CAPITAL LETTER O                    |
| 11/15           | CYRILLIC CAPITAL LETTER PE                   |
| 12/00           | CYRILLIC CAPITAL LETTER ER                   |
| 12/01           | CYRILLIC CAPITAL LETTER ES                   |
| 12/02           | CYRILLIC CAPITAL LETTER TE                   |
| 12/03           | CYRILLIC CAPITAL LETTER U                    |
| 12/04           | CYRILLIC CAPITAL LETTER EF                   |
| 12/05           | CYRILLIC CAPITAL LETTER HA                   |
| 12/06           | CYRILLIC CAPITAL LETTER TSE                  |
| 12/07           | CYRILLIC CAPITAL LETTER CHE                  |

| Bit Combination | Name                          |
|-----------------|-------------------------------|
| 12/08           | CYRILLIC CAPITAL LETTER SHA   |
| 12/09           | CYRILLIC CAPITAL LETTER SHCHA |
| 12/10           | CYRILLIC CAPITAL HARD SIGN    |
| 12/11           | CYRILLIC CAPITAL LETTER YERU  |
| 12/12           | CYRILLIC CAPITAL SOFT SIGN    |
| 12/13           | CYRILLIC CAPITAL LETTER E     |
| 12/14           | CYRILLIC CAPITAL LETTER YU    |
| 12/15           | CYRILLIC CAPITAL LETTER YA    |
| 13/00           | CYRILLIC SMALL LETTER A       |
| 13/01           | CYRILLIC SMALL LETTER BE      |
| 13/02           | CYRILLIC SMALL LETTER VE      |
| 13/03           | CYRILLIC SMALL LETTER GHE     |
| 13/04           | CYRILLIC SMALL LETTER DE      |
| 13/05           | CYRILLIC SMALL LETTER IE      |
| 13/06           | CYRILLIC SMALL LETTER ZHE     |
| 13/07           | CYRILLIC SMALL LETTER ZE      |
| 13/08           | CYRILLIC SMALL LETTER I       |
| 13/09           | CYRILLIC SMALL LETTER SHORT I |
| 13/10           | CYRILLIC SMALL LETTER KA      |
| 13/11           | CYRILLIC SMALL LETTER EL      |
| 13/12           | CYRILLIC SMALL LETTER EM      |
| 13/13           | CYRILLIC SMALL LETTER EN      |
| 13/14           | CYRILLIC SMALL LETTER O       |
| 13/15           | CYRILLIC SMALL LETTER PE      |
| 14/00           | CYRILLIC SMALL LETTER ER      |
| 14/01           | CYRILLIC SMALL LETTER ES      |
| 14/02           | CYRILLIC SMALL LETTER TE      |
| 14/03           | CYRILLIC SMALL LETTER U       |
| 14/04           | CYRILLIC SMALL LETTER EF      |
| 14/05           | CYRILLIC SMALL LETTER HA      |
| 14/06           | CYRILLIC SMALL LETTER TSE     |
| 14/07           | CYRILLIC SMALL LETTER CHE     |
| 14/08           | CYRILLIC SMALL LETTER SHA     |
| 14/09           | CYRILLIC SMALL LETTER SHCHA   |
| 14/10           | CYRILLIC SMALL HARD SIGN      |
| 14/11           | CYRILLIC SMALL LETTER YERU    |
| 14/12           | CYRILLIC SMALL SOFT SIGN      |
| 14/13           | CYRILLIC SMALL LETTER E       |

| Bit Combination | Name                                       |
|-----------------|--|
| 14/14           | CYRILLIC SMALL LETTER YU                   |
| 14/15           | CYRILLIC SMALL LETTER YA                   |
| 15/00           | NUMBER ACRONYM                             |
| 15/01           | CYRILLIC SMALL LETTER IO                   |
| 15/02           | SERBOCROATIAN CYRILLIC SMALL LETTER DJE    |
| 15/03           | MACEDONIAN CYRILLIC SMALL LETTER GJE       |
| 15/04           | UKRANIAN CYRILLIC SMALL LETTER IE          |
| 15/05           | MACEDONIAN CYRILLIC SMALL LETTER DZE       |
| 15/06           | CYRILLIC SMALL LETTER I                    |
| 15/07           | UKRANIAN CYRILLIC SMALL LETTER YI          |
| 15/08           | CYRILLIC SMALL LETTER JE                   |
| 15/09           | CYRILLIC SMALL LETTER LJE                  |
| 15/10           | CYRILLIC SMALL LETTER NJE                  |
| 15/11           | SERBOCROATIAN CYRILLIC SMALL LETTER CHJE   |
| 15/12           | MACEDONIAN CYRILLIC SMALL LETTER KJE       |
| 15/13           | PARAGRAPH SIGN                             |
| 15/14           | BEILORUSSIAN CYRILLIC SMALL LETTER SHORT U |
| 15/15           | CYRILLIC SMALL LETTER DZE                  |

## 7.2 Code Table

The Code Table shows the characters listed at the position in the code table corresponding to the specified bit combination.

The shaded positions correspond to bit combinations that do not represent graphic characters. Their use is outside the scope of this Standard, it is specified in other standards, e.g. ECMA-43.

## 8. DESIGNATION OF THE CHARACTER SET

The graphic characters of this Standard constitute a single coded character set. However, when this character set is implemented together with other coding standards such as ECMA-35 or ECMA-43, the Code Table of this Standard shall be considered to consist of the following components:

- The character SPACE represented by bit combination 02/00.
- A 94-character G0 graphic character set represented by bit combinations 02/01 to 07/14.
- A 96-character G1 graphic character set represented by bit combinations 10/00 to 15/15.

When required by other coding standards, e.g. ECMA-35 or ECMA-43 the following pair of escape sequences shall be used:

ESC 02/08 04/02  
ESC 02/13 04/12

to designate the G0 and the G1 sets, respectively. According to ECMA-35 the character SPACE does not require designation.

## **9. BIT COMBINATIONS NOT TO BE USED**

Bit combination 15/13 is reserved for future standardization and shall not be used. It is cross-hatched in the code table.

Any allocation of characters to this position is incompatible with this Standard.

CODE TABLE OF THE LATIN/CYRILLIC ALPHABET

|    |    |    |    |    | b. | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 1  | 1    | 1  | 1  | 1  | 1  | 1  |   |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|------|----|----|----|----|----|---|
|    |    |    |    |    | b. | 0  | 0  | 0  | 0  | 1  | 1  | 1  | 1  | 0  | 0    | 0  | 0  | 1  | 1  | 1  | 1 |
|    |    |    |    |    | b. | 0  | 0  | 1  | 1  | 0  | 0  | 1  | 1  | 0  | 0    | 1  | 1  | 0  | 0  | 1  | 1 |
|    |    |    |    |    | b. | 0  | 1  | 0  | 1  | 0  | 1  | 0  | 1  | 0  | 1    | 0  | 1  | 0  | 1  | 0  | 1 |
|    |    |    |    |    | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10   | 11 | 12 | 13 | 14 | 15 |   |
| b. | b. | b. | b. |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |   |
| 0  | 0  | 0  | 0  | 00 |    |    | SP | 0  | а  | Р  | '  | р  |    |    | NBSP | А  | Р  | а  | р  | №  |   |
| 0  | 0  | 0  | 1  | 01 |    |    | !  | 1  | А  | Q  | а  | q  |    |    | Ё    | Б  | С  | б  | с  | ё  |   |
| 0  | 0  | 1  | 0  | 02 |    |    | "  | 2  | В  | Р  | в  | р  |    |    | Ђ    | В  | Т  | в  | т  | ђ  |   |
| 0  | 0  | 1  | 1  | 03 |    |    | #  | 3  | С  | С  | с  | с  |    |    | Ѓ    | Г  | У  | г  | у  | ѓ  |   |
| 0  | 1  | 0  | 0  | 04 |    |    | \$ | 4  | Д  | Т  | д  | т  |    |    | Є    | Д  | Ф  | д  | ф  | є  |   |
| 0  | 1  | 0  | 1  | 05 |    |    | %  | 5  | Е  | U  | е  | u  |    |    | Ѕ    | Е  | Х  | е  | х  | ѕ  |   |
| 0  | 1  | 1  | 0  | 06 |    |    | &  | 6  | Ф  | V  | ф  | v  |    |    | І    | Ж  | Ц  | ж  | ц  | і  |   |
| 0  | 1  | 1  | 1  | 07 |    |    | '  | 7  | Г  | W  | г  | w  |    |    | Ї    | З  | Ч  | з  | ч  | ї  |   |
| 1  | 0  | 0  | 0  | 08 |    |    | (  | 8  | Н  | X  | н  | x  |    |    | Ј    | И  | Ш  | и  | ш  | ј  |   |
| 1  | 0  | 0  | 1  | 09 |    |    | )  | 9  | І  | Y  | і  | y  |    |    | Љ    | Й  | Щ  | й  | щ  | љ  |   |
| 1  | 0  | 1  | 0  | 10 |    |    | *  | :  | Ј  | Z  | ј  | z  |    |    | Њ    | К  | Ъ  | к  | ъ  | њ  |   |
| 1  | 0  | 1  | 1  | 11 |    |    | +  | ;  | К  | Г  | к  | г  |    |    | Ћ    | Л  | Ы  | л  | ы  | ћ  |   |
| 1  | 1  | 0  | 0  | 12 |    |    | ,  | <  | Л  | \  | л  |    |    |    | Ќ    | М  | Ь  | м  | ь  | ќ  |   |
| 1  | 1  | 0  | 1  | 13 |    |    | -  | =  | М  | Ј  | м  | ј  |    |    | SHY  | Н  | Э  | н  | э  | š  |   |
| 1  | 1  | 1  | 0  | 14 |    |    | .  | >  | Н  | ^  | н  | ~  |    |    | Ў    | О  | Ю  | о  | ю  | ў  |   |
| 1  | 1  | 1  | 1  | 15 |    |    | /  | ?  | О  | _  | о  |    |    |    | Џ    | П  | Я  | п  | я  | џ  |   |