

**Universal Multiple-Octet Coded Character Set
(UCS)**

ISO/IEC JTC 1/SC 2 N4563
ISO/IEC JTC 1/SC 2/WG 2 N4874
Date: 2017-09-29

Source: WG 2 meeting 66, Hohhot, China; 2017-09-25/29
Title: Recommendations from WG 2 meeting 66
Action: For approval by SC 2 and for information to WG 2
Status: Adopted at meeting 65 of WG 2
Distribution: ISO/IEC JTC 1/SC 2 and WG 2

Experts accredited (or invited) by the national bodies or liaison organizations for Canada, China, Ireland, IRG, Japan, Mongolia, SEI - UC Berkeley (Liaison), the Unicode Consortium (Liaison), TCA (Liaison), UK, and the USA were present when the following recommendations were adopted (see attached attendance list).

*Character count prior to additions to 5th edition***136411**
1178 additions in PDAM 1.2 (end of meeting 65)
Character count **137589***(total allocated till end of meeting 65)*

Observation M66.01 (Additions in Amendment 1 to 5th edition since meeting 65):

WG2 notes that document N4824 (PDAM 1.3) lists **1392** character additions in Amendment 1. This is an increase in the count from **1178** noted as part of PDAM 1.2 at the end of meeting 65, an increase of **214** characters.

Count: 1178+214=1392 in Amd. 1 to 5th edition

Observation M66.02 (Additions in Amendment 2 to 5th edition since meeting 65):

WG2 notes that document N4825 lists **341** character additions in Amendment 2, which was prepared and sent for ballot after M65.

Count: 341 in Amd. 2 to 5th edition

Recommendation M66.03 (Disposition of ballot comments of PDAM-1.3 to 5th Edition):

WG2 recommends that SC2 accept the disposition of PDAM-1.3 ballot comments in document N4870. The following significant changes are noted:

- a. 058B ARMENIAN SMALL LETTER TURNED AYB is moved to 0560, and 058C ARMENIAN SMALL LETTER YI WITH STROKE is moved to 0588.
- b. Removed 12 characters -- 18B69 (Radical-03), 18BD2 (Radical-06), 18C02 (Radical-07), 18C15 (Radical-08), 18C32 (Radical-10), 18C3B (Radical-11), 18C57 (Radical-13), 18C6A (Radical-14), 18C86 (Radical-15), 18C94 (Radical-16), 18C9E (Radical-17), 18CDD (Radical-20), and shifting of the remaining code positions up to fill the vacated code positions.
- c. 18CFD KHITAN SMALL SCRIPT ITERATION MARK is moved to 18B00 and 18B00..18CE0 are moved down by 1 position.
- d. Renamed 1FA60 XIANGQI RED GENERAL, 1FA61 XIANGQI RED MANDARIN, 1FA62 XIANGQI RED ELEPHANT, 1FA63 XIANGQI RED HORSE, 1FA64 XIANGQI RED CHARIOT, 1FA65 XIANGQI RED CANNON, 1FA66 XIANGQI RED SOLDIER, 1FA67 XIANGQI BLACK GENERAL, 1FA68 XIANGQI BLACK MANDARIN, 1FA69 XIANGQI BLACK ELEPHANT, 1FA6A XIANGQI BLACK HORSE, 1FA6B XIANGQI BLACK CHARIOT, 1FA6C XIANGQI BLACK CANNON, 1FA6D XIANGQI BLACK SOLDIER, by changing 'RED XIANGQI' and 'BLACK XIANGQI' as they appeared in PDAM 1.3, to 'XIANGQI RED' and 'XIANGQI BLACK'.
- e. Renamed 2BBA OVERLAPPING WHITE SQUARES, 2BBB OVERLAPPING WHITE AND BLACK SQUARES and 2BBC OVERLAPPING BLACK SQUARES by replacing 'INTERLOCKING' as it appeared in PDAM 1.3, with 'OVERLAPPING'.
- f. In addition to changes to Khitan Small script mentioned in items b and c above, the entire script is moved out of Amendment 1 to Amendment 2. *Count in Amd. 1: 1392-482 = 910*

Count in Amd.2: 341+482-12=811
UNANIMOUS

Recommendation M66.04 (Dogra addition):

WG2 recommends that SC2 accepts the proposal to insert the Dogra combining character VOWEL SIGN VOCALIC RR in document N4862 at code position 11832 in Amd. 1, and move the characters 11832..1183A down by one to 11833..1183B in the Dogra block.

Count in Amd. 1 to 5th edition: 910+1=911
UNANIMOUS

Recommendation M66.05 (Mongolian script):

WG2 accepts the meeting summary of Mongolian ad hoc meeting held on Monday 2017-09-25 (in document [N4893](#)) and encourages the experts to continue the dialog towards making progress on the different issues identified in the report. WG2 also accepts the revised chart prepared by the project editor (document [N4900](#)) correcting editorial errors for Mongolian inclusion in Amendment 1.

UNANIMOUS

Recommendation M66.06 (Progression of Amendment 1 to the 5th edition):

WG2 recommends that its project editor prepares the final text of Amendment 1 to the 5th edition of the standard, which will include the changes arising from recommendations M66.03 to M66.05 above, along with the final disposition of comments (document N4870), and forward it to the SC2 secretariat for processing as a DAM ballot. The draft code charts are in document N4872. The target starting date is modified to DAM 1 2017-11.

**Count: 911 additions in Amendment 1
UNANIMOUS**

Recommendation M66.07 (Disposition of ballot comments of PDAM-2 to 5th Edition):

WG2 recommends that SC2 accept the disposition of PDAM-2 ballot comments in document [N4871](#). The following significant changes are noted:

- a. Changed the names for the Egyptian Hieroglyph control characters -- 13432 EGYPTIAN HIEROGLYPH START AT TOP, 13433 EGYPTIAN HIEROGLYPH START AT BOTTOM, 13434 EGYPTIAN HIEROGLYPH END AT TOP, 13435 EGYPTIAN HIEROGLYPH END AT BOTTOM, 13437 EGYPTIAN HIEROGLYPH BEGIN SEGMENT, and 13438 EGYPTIAN HIEROGLYPH END SEGMENT
- b. Changed 'Hieroglyphs' to 'Hieroglyph' in the block name resulting in 'Egyptian Hieroglyph Format Controls'.
- c. Removed the **two** small KOs (from the 9 Small Kanas) at code positions 1B132 and 1B155.
- d. Corrected the name for 1FA08 to NEUTRAL CHESS KNIGHT ROTATED FORTY-FIVE DEGREES.
- e. Added 1 character 13436 EGYPTIAN HIEROGLYPH OVERLAY MIDDLE (based on document [N4818](#)).
- f. Khitan Small Script after changes under items b and c in recommendation M66.03 is moved into Amendment 2 (a net addition of **470** Khitan Small Script characters).

**Count in Amd.2: 811-1=810
UNANIMOUS**

Recommendation M66.08 (Urgently needed CJK ideographs):

WG2 recommends that SC2 accepts encoding the following urgently needed ideographs in the standard:

- a. 9FEB (GCE-118), 9FEC (GCE-117) and 9FED (GCE-113, UTC-01119) with their glyphs, source reference and attribute data from document N4830.
- b. 9FEE (JMJ-057449) and 9FEF (JMJ-060040) with their glyphs, source references and attribute data from document N4831.
- c. Glyphs, source references and attribute for horizontal extensions for 9FEB (T5-7C54) and 9FEC (T4-6E5D) from document N4832.

**Count 5
UNANIMOUS**

Recommendation M66.09 (Wancho script)

WG2 recommends to SC2 to accept for encoding in the standard the Wancho script, in a new block 1E2C0...1E2FF named 'Wancho' and populate it with **59** characters with their names, code positions and glyphs based on document [N4787R](#). There are 4 combining characters in the set.

**Count 59
UNANIMOUS**

Recommendation M66.10 (Shuishu script)

WG2 accepts the Shuishu ad hoc report in document [N4894R](#) and recommends to SC2 to accept for encoding in the standard the Shuishu script in two blocks as follows:

- a. A new block named 'Shuishu Logograms' in the range 1B300..1B4FF, and populate it with 486 characters
- b. A new block named 'Shuishu Radicals' in the range 1B500..1B52F, and populate it with 47 characters with their names, code positions and glyphs from document N4894R.

Count 486+47=533
UNANIMOUS

Recommendation M66.11 (Symbols Set 1):

WG2 recommends to SC2 to accept for encoding in the standard, with reference to document [N4888](#), and in response to Irish and UK comments to PDAM 1.3 (see document [N4870](#)) the following 7 symbols:

- 1F93F BILLIARD GAMES (glyph from Irish comment in document [N4870](#)), with annotation CUE SPORTS
<Animals>:
 - 1F9A1 MAMMOTH
 - 1F9A2 DODO
 - 1F9A3 BADGER
 - 1F9A4 SQUIRREL
 - 1F9A5 SWAN
- 1F97B TROLL
<new header – Fantasy Being>:

Count 7
UNANIMOUS

Recommendation M66.12 (Symbols Set 2):

WG2 recommends to SC2 to accept for encoding in the standard, 67 symbols with their code positions, names and glyphs from document N4846 (revised).

Count 67
UNANIMOUS

Recommendation M66.13 (Miao additions):

WG2 recommends to SC2 to accept for encoding in the standard, 16 characters in the Miao block with glyphs, code positions and names from document [N4845](#), with name of 16F4F changed to MIAO SIGN NUKTA.

Count 16
UNANIMOUS

Recommendation M66.14 (Lao additions):

WG2 recommends to SC2 to accept for encoding in the standard, 14 letters and 1 combining character for Pali, in the Lao block, with their names, code positions and glyphs from page 5 in document [N4861](#).

Count 15
UNANIMOUS

Recommendation M66.15 (Latin character additions):

WG2 recommends to SC2 to accept for encoding in the standard the following Latin characters:

- a. 3 characters for early Pinyin from document N4782:
 - A7C4 LATIN CAPITAL LETTER C WITH PALATAL HOOK
 - A7C5 LATIN CAPITAL LETTER S WITH HOOK, and
 - A7C6 LATIN CAPITAL LETTER Z WITH PALATAL HOOK.
- b. 2 Thorn characters with Stroke from document N4836:
 - A7C0 LATIN CAPITAL LETTER THORN WITH DIAGONAL STROKE, and
 - A7C1 LATIN SMALL LETTER THORN WITH DIAGONAL STROKE.
- c. 2 Anglicana letters from document N 4838:
 - A7C2 LATIN CAPITAL LETTER ANGLICANA W, and
 - A7C3 LATIN SMALL LETTER ANGLICANA W.
- d. 2 Sinological Latin letters based on document N4842:
 - AB66 LATIN SMALL LETTER DZ DIGRAPH WITH RETROFLEX HOOK, and
 - AB67 LATIN SMALL LETTER TS DIGRAPH WITH RETROFLEX HOOK.

Count 9
UNANIMOUS

Recommendation M66.16 (Miscellaneous character additions):

WG2 recommends to SC2 to accept for encoding in the standard the following Latin characters:

- a. 1 character 0C77 TELUGU SIGN SIDDHAM from document N4860.
- b. 1 character 2BC9 NEPTUNE FORM TWO. Glyph is based on what is shown on page 3 of N4863.
- c. 1 character 2BFF HELLSCHREIBER PAUSE SYMBOL with glyph based on what is shown on Page 2 of N4864.
- d. 1 character 1145F NEWA LETTER VEDIC ANUSVARA from document N4865.
- e. 1 character 2E4F DOUBLE OBLIQUE HYPHEN WITH FALLING DOTS from document N4902.
- f. 1 character 116B8 TAKRI LETTER ARCHAIC KHA with glyph and annotation from document N4866.
- g. 2 control characters
11A84 SOYOMBO SIGN JIHVAMULIYA, and
11A85 SOYOMBO SIGN UPADHMANIYA with their glyphs based on document N4867.
(National bodies and experts who participated in Soyombo ad hoc please take a note of this addition.)
- h. 2 marks for use with Old Chinese from document N4847:
16FE3 OLD CHINESE ITERATION MARK
16FE2 OLD CHINESE HOOK MARK

Count 10
UNANIMOUS

Recommendation M66.17 (Progression of Amendment 2):

WG2 recommends that its project editor prepares the final text of Amendment 2 to the 5th edition of the standard, which will include the changes arising from recommendations M66.07 to M66.16 above, along with the final disposition of comments (document N4871), and forward it to the SC2 secretariat for processing as a PDAM-2.2. The draft code charts are in document N4904. The target starting dates are modified to PDAM-2.2 2017-11, PDAM-2.3 2018-03, DAM-2: 2018-08.

Count in Amd.2: 810+721=1531
UNANIMOUS

Recommendation M66.18 (Naxi Dongba script):

WG2 accepts the Naxi Dongba ad hoc report in document N4895, and invites the author of the script to provide a revised version with the characters reordered according to the type of classification used in the source dictionaries, based on the revised chart in document N4898. WG2 recommends to SC2 to accept the revised version of the script, consisting of 1188 characters in a new block Naxi Dongba in the range 1A800..1ACFF for encoding in the standard.

UNANIMOUS

Recommendation M66.19 (Additions to Amendment 2 before next WG2 meeting):

WG2 recognizes that some scripts and additional characters which are under preparation as potential additions to the standard could become mature and will have consensus among WG2 experts to include in the standard. The project editor should be able to add these to the current PDAM 2.2 text or to a future PDAM 2.x text, after exercising due diligence. Candidates include, but are not limited to:

- 'CJK Extension G' being prepared by IRG,
- Five Latin Tironian letters (from document N4841) if clarified and consensus is reached,
- Five Counting Rod characters (from document N4868) at code positions 1D379..1D37D if revised and a consensus is reached,
- Six Tangut ideographs at 18F72..18F77 with the glyphs, source reference information, and glyph corrections from document N4896, when additional relevant information is available, and,
- Naxi Dongba script (see recommendation M66.10 above).

UNANIMOUS

Recommendation M66.20 (Shuowen Small Seal script):

WG2 accepts the adhoc report on Shuowen Small Seal script in document N4853, and encourages the experts to continue the work towards a contribution for encoding the script to submit to WG2. WG2 notes that another ad hoc meeting of experts is planned by TCA in May 2018 (tentatively) in Beijing, China, and invites all the interested experts to take note towards planning to attend the meeting.

UNANIMOUS

Recommendation M66.21 (Primitive Scripts of South West China):

WG2 invites the authors of documents N4856 and N4901, to revise their proposals on Muya, Namuz and Ersu scripts, taking into account the feedback received at this meeting, working with other experts interested in this script.

UNANIMOUS

Recommendation M66.22 (Rules for IVD registration):

WG2 requests the IRG rapporteur to prepare some text related to relaxing the rules for IVD registration per Unicode Technical Specification 37, along with appropriate explanation and examples.

UNANIMOUS

Recommendation M66.23 (Future meetings):

WG2 endorses the following schedule for future meetings:

WG2 Meeting 67 - 2018-06-18/22, London, UK (to be confirmed with BSI); (backup USA)

WG2 Meeting 68 – 2019-06, USA West Coast (backup Canada)

IRG Meeting 50 – 2018-05-21/25, Beijing, China

IRG Meeting 51 – 2018-10-22/26, Hanoi, Vietnam

UNANIMOUS

Appreciation M66.24 (Appreciation to DKUUG for web site support):

WG2 thanks DKUUG and its staff for its continued support of the web site for the older WG2 documents.

By Acclamation.

Appreciation M66.25 (Appreciation to Unicode Consortium for web site support):

WG2 thanks the Unicode Consortium and its staff for providing the new web site and its support for WG2.

By Acclamation

Appreciation M66.26 (Appreciation to Host):

WG2 thanks the national body of China and the University of Inner Mongolia for hosting the meeting. WG 2 expresses its appreciation to the University of Inner Mongolia and its staff, in particular to Professor Nashunwritu, Professor Wu Yingzhe, Dr. Kang Hongying and Dr. Daruohan, for arranging the meeting facilities and for the administrative support. WG2 also appreciates the University of Inner Mongolia for arranging the tour of the Museum of Inner Mongolia and for their kind hospitality.

By Acclamation

*Character count prior to additions to 5th edition***136411**

911 additions in DAM 1 (end of meeting 66)

1531 additions in PDAM 2.2 (end of meeting 66)

Character count **138853***(total allocated till end of meeting 66)*

Attendance List

JTC1/SC2/WG2 Meeting 66, Hohhot, Inner Mongolia, China; 2017-09-25/29

The following **23** experts accredited (or invited) by **7** national bodies and **3** liaison organizations were present at different times during the meeting.

Name	Accreditation	Affiliation
Adrian CHEUK	.Invited Expert (China)	Independent
Liang HAI	.Invited Expert (SEI)	Independent
Eiso CHAN	.Invited Expert (UK)	Independent
Qin LU	.IRG rapporteur	Hong Kong Polytechnic University
Shuichi TASHIRO	.SC 2 Chairman	Information-technology Promotion Agency
Toshiko KIMURA	.SC 2 Secretariat	IPSJ/ITSCJ
Lin Mei WEI	.TCA (Cat. C Liaison)	Chinese Foundation for Digitization Technology
Michel SUIGNARD	.WG 2 Convenor; USA	Unicode Inc.
Alain LABONTÉ	Canada	Independent
V.S. (Uma) UMAMAHESWARAN	Canada	IBM Canada
Liming ZHAO	China	Tsinghua University
Wang YIHUAN	China	Fudan University
Zhang YIFEI	China	Project of Chinese Character Repertoire
Zhuang CHEN	China	CESI
Michael EVERSON	Ireland	Evertype
Takada TOMOKAZU	Japan	National Institute for Japanese Language and Linguistics
Toshiya SUZUKI	Japan	Hiroshima University
Wataru TAKAGI	Japan	Hitachi Ltd.
Undraa BYAMBA	Mongolia	Mongolian Agency for Standardization and Metrology
Andrew WEST	UK	Independent
Deborah ANDERSON	USA, UC Berkeley (Cat. C Liaison)	University of California, Berkeley
Lisa MOORE	USA, Unicode (Cat. A Liaison)	Unicode Inc.
Peter CONSTABLE	USA, Unicode (Cat. A Liaison)	Microsoft Corp.