

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

**IRGN 1582**

**ISO/IEC JTC 1/SC 2 N  
ISO/IEC JTC 1/SC 2/WG 2 N 3604R**

**Date: 2009-05-12**

**Source:** WG 2 meeting 54, Dublin, Ireland; 2009-04-20/24  
**Title:** Resolutions of WG 2 meeting 54  
**Action:** For approval by SC 2 and for information to WG 2  
**Status:** Adopted at meeting 54 of WG 2  
**Distribution:** ISO/IEC JTC 1/SC 2 and WG 2

*(Changes in this revision: Corrected number of characters in M54.09 to 569 (from 596) Bamum Supplement characters. Fixed errors in running counts starting with transfer of 41 (instead of 40) Canadian Syllabic characters from Amd. 7 to Amd. 6 in M54.01. Uma)*

Experts from Austria, Canada, China, Finland, Germany, Hungary, Ireland, Japan, Korea (Republic of), SEI - UC Berkeley (Liaison), Taipei Computer Association (Liaison), UK and USA were present when the following resolutions were adopted (see attached attendance list).

*Character count 106255 (till end of Amd. 5)  
Addition of 992 in FPDAM6; and addition of 6177 in PDAM7  
Total count: 113424 (after meeting M53)*

**RESOLUTION M54.01 (Canadian Aboriginal Syllabics Extended):**

**Unanimous**

With reference to ballot comments regarding Canadian Aboriginal Syllabic characters in FPDAM6 (in document N3609) and in PDAM7 (in document N3610) WG2 resolves to combine, reorder and consolidate the set of 29 characters encoded in 18E0 to 18FC in Amd. 6 and the set of 41 characters encoded in 18B0 to 18D1, 18D3 to 18D7, 18D9 and 18DA in Amd. 7, and include the combined set in Amd. 6. The new code positions, the corresponding character glyphs and names are as shown in pages 2 and 3 of document N3533.

*count: 41+992 = 1033 in Amd. 6  
count: 41 + 6177 = 6136 in Amd. 7*

**RESOLUTION M54.02 (Note re: KS X 1026-1):**

**Unanimous**

With reference to document N3611 from Korea (republic of) regarding KS X 1026-1, WG2 accepts to add the following note in clause 26.1 of the standard and include it in Amendment 6.

"NOTE 3 - Hangul text can be represented in several different ways in this standard. Korean Standard KS X 1026-1: Information Technology - Universal Multiple-Octet Coded Character set (UCS) - Hangul - Part 1, Hangul processing guide for information interchange, provides guidelines on how to ensure interoperability in information interchange."

**RESOLUTION M54.03 (Disposition of FPDAM6 ballot comments):**

**Unanimous**

WG2 accepts the disposition of ballot comments on FPDAM6 in document N3631 and instructs its editor to prepare the final text of Amendment 6 incorporating the dispositions, including all the changes accepted in resolutions M54.01 and M54.02 above. The editor is to take note of additional glyph changes per section 2, items a through f in document N3623. The significant accepted changes are noted below:

- a. 14 name changes:
  - 1CD4 to VEDIC SIGN YAJURVEDIC MIDLINE SVARITA
  - A9C0 to JAVANESE PANGKON
  - 10A6A to OLD SOUTH ARABIAN LETTER SAT
  - 10A6F to OLD SOUTH ARABIAN LETTER SAMEKH
  - 1F157 to NEGATIVE CIRCLED LATIN CAPITAL LETTER H
  - 1F15F to NEGATIVE CIRCLED LATIN CAPITAL LETTER P
  - 1F179 to NEGATIVE SQUARED LATIN CAPITAL LETTER J
  - 1F17B to NEGATIVE SQUARED LATIN CAPITAL LETTER L
  - 1F17C to NEGATIVE SQUARED LATIN CAPITAL LETTER M
  - 1F17F to NEGATIVE SQUARED LATIN CAPITAL LETTER P
  - 1F18A to CROSSED NEGATIVE SQUARED LATIN CAPITAL LETTER P

1F18B to NEGATIVE SQUARED IC  
 1F18C to NEGATIVE SQUARED PA  
 1F18D to NEGATIVE SQUARED SA

b. 51 code position changes:

1F14F	SQUARE DJ is moved to 1F190
1F200 to 1F2FF block; and 32FF	The 43 enclosed ideographs added in Amd. 6 in this block and KATAKANA DE ENCLOSED IN SQUARE from 32FF are rearranged to follow the order in ARIB STD-B24; into two groups (see final charts in document N3625)
26CE	HEAVY EXCLAMATION MARK SYMBOL is moved to 2757
26E2	HEAVY LARGE CIRCLE is moved to 2B55
26E4	HEAVY OVAL WITH OVAL INSIDE is moved to 2B56
26E5	HEAVY CIRCLE WITH CIRCLE INSIDE is moved to 2B57
26E6	HEAVY CIRCLE is moved to 2B58
26E7	HEAVY CIRCLED SALTIRE is moved to 2B59

c. 4 character additions:

1F12E CIRCLED WZ with its glyph from document N3579  
 110BE-110BF 110BE - KAITHI SECTION MARK  
 110BF - KAITHI DOUBLE SECTION MARK, with their glyphs from document N3574  
 AA7B MYANMAR SIGN PAO KAREN TONE as shown in document N3625

*count: 4 + 1033 = 1037 in Amd. 6*

**RESOLUTION M54.04 (Progression of Amendment 6):**

**Unanimous**

WG2 instructs its project editor to forward the final text of Amendment 6 along with the disposition of comments document N3631 to the SC2 secretariat for an FDAM ballot. The final set of charts and names lists are in document N3625. The unchanged target starting date for FDAM6 is 2009-06.

*count: = 1037 additions in Amd. 6*

**RESOLUTION M54.05 (Tangut script):**

**Unanimous**

WG2 accepts the recommendation to remove Tangut script currently encoded in code positions 17000 to 18715 from Amd. 7, and accepts the action items towards further refining its repertoire, contained in the Tangut ad hoc report in document N3629.

*count: -5910 + 6136 = 226 in Amd.7*

**RESOLUTION M54.06 (Disposition of PDAM7 ballot comments):**

**Unanimous**

WG2 accepts the disposition of ballot comments on PDAM7 in document N3632 and instructs its editor to prepare the final text of Amendment 7 incorporating the dispositions, including moving of Canadian Syllabics accepted in resolution M54.01 and removal of Tangut script accepted in resolution M54.05 above. The editor is to take note of additional glyph changes per sections 1 and 3 in document N3623. The significant accepted changes are noted below:

a. 16 name changes:

FBB2 to ARABIC SYMBOL DOT ABOVE  
 FBB3 to ARABIC SYMBOL DOT BELOW  
 FBB4 to ARABIC SYMBOL TWO DOTS ABOVE  
 FBB5 to ARABIC SYMBOL TWO DOTS BELOW  
 FBB6 to ARABIC SYMBOL THREE DOTS ABOVE  
 FBB7 to ARABIC SYMBOL THREE DOTS BELOW  
 FBB8 to ARABIC SYMBOL THREE DOTS POINTING DOWNWARDS ABOVE  
 FBB9 to ARABIC SYMBOL THREE DOTS POINTING DOWNWARDS BELOW  
 FBBA to ARABIC SYMBOL FOUR DOTS ABOVE  
 FBBB to ARABIC SYMBOL FOUR DOTS BELOW  
 FBBC to ARABIC SYMBOL DOUBLE VERTICAL BAR BELOW  
 FBBD to ARABIC SYMBOL TWO DOTS VERTICALLY ABOVE  
 FBBE to ARABIC SYMBOL TWO DOTS VERTICALLY BELOW  
 FBBF to ARABIC SYMBOL RING  
 FBC0 to ARABIC SYMBOL SMALL TAH ABOVE

- FBC1 to ARABIC SYMBOL SMALL TAH BELOW
- b. 1 character addition:
  - 1B000 KATAKANA LETTER ARCHAIC E with the glyph (of KATAKANA LETTER ORIGINAL E) from document [N3388](#) in a new block 1B000 to 1B0FFF named Historic Kana.
- c. 1 code position change with name change:
  - 3097 is moved to 1B001 with new name HIRAGANA LETTER ARCHAIC YE
- d. 2 character deletions:
  - 1BFA BATAK SYMBOL BINDU GODANG
  - 1BFB BATAK SYMBOL BINDU PINARJOLMA

*count:-1 + 226 = 225 in Amd. 7*

#### **RESOLUTION M54.07 (Progression of Amendment 7):**

**Unanimous**

WG2 instructs its project editor to forward the final text of Amendment 7 along with the disposition of comments document [N3632](#) to the SC2 secretariat for an FPDAM ballot. The final set of charts and names lists are in document [N3626](#). The unchanged target starting dates are FPDAM 2009-06, and FDAM 2009-11.

*count:-addition of 225 in Amd. 7*

#### **RESOLUTION M54.08 (CJK Extension D):**

**Unanimous**

WG2 accepts to create a new block named CJK Unified Ideographs Extension D in the range 2B740 to 2B81F in the SMP, and populate it with **223** CJK unified ideographs in code positions 2B740 to 2B81E, with their glyphs and code positions in the order presented in document [N3560](#) on 'urgently needed characters' from the IRG.

*count:223 + 0 = 223 in Amd. 8*

#### **RESOLUTION M54.09 (Bamum supplement):**

**Unanimous**

WG2 accepts to create a new block named Bamum Supplement in the range 16800 to 16A3F in the SMP, and populate it with **569** characters with their code positions, names and glyphs as shown in document [N3597](#).

*count:569 + 223 = 792 in Amd. 8*

#### **RESOLUTION M54.10 (Alchemical symbols):**

**Unanimous**

With reference to document [N3584](#), WG2 accepts to create a new block named Alchemical Symbols in the range 1F700 to 1F77F in the SMP, and populate it with **116** characters in the range 1F700 to 1F773 with their code positions, names and glyphs as shown on pages 62 to 65 in document [N3580](#).

*count:116 + 792 = 908 in Amd. 8*

#### **RESOLUTION M54.11 (Ethiopic Extended-A):**

**Unanimous**

WG2 accepts to create a new block named Ethiopic Extended-A in the range AB00 to AB2F in the BMP, and populate it with **32** characters in code positions in the ranges AB01-AB06, AB09-AB0E, AB11-AB16, AB20-AB26, and AB28-AB2E, and an additional **2** combining marks at code positions 135D and 135E in the Ethiopic block, with their code positions, names and glyphs as shown on page 3 of document [N3572](#).

*count:34 + 908 = 942 in Amd. 8*

#### **RESOLUTION M54.12 (Emoji symbols):**

**Unanimous**

WG2 accepts the ad hoc report on Emoji symbols in document [N3636](#), and its recommendation for encoding a selection of **748** characters in several existing blocks and in the four new blocks named Playing Cards in the range 1F0A0-1F0FF, Miscellaneous Pictographic Symbols in the range 1F300-1F5FF, Emoticons in the range 1F600-1F64F and Transport and Map Symbols in the range 1F680-1F6FF. The names, glyphs and code positions for these characters and the ranges for the new blocks are as shown in document [N3626](#).

*count:748 + 942 = 1690 in Amd. 8*

**RESOLUTION M54.13 (Miscellaneous character additions):****Unanimous**

WG2 accepts to encode in the standard the following:

- a. Two (2) Cyrillic letters for Birch-Bark writing with their glyphs from document N3563, in the Cyrillic Extended-B block:  
A660 CYRILLIC CAPITAL LETTER REVERSED TSE  
A661 CYRILLIC SMALL LETTER REVERSED TSE
- b. Two (2) heavy low quotes for German with their glyphs from document N3565, in the Dingbats block:  
275F HEAVY LOW SINGLE COMMA QUOTATION MARK ORNAMENT  
2760 HEAVY LOW DOUBLE COMMA QUOTATION MARK ORNAMENT
- c. One (1) middle dot letter for Phags-pa transliteration with its glyph slightly larger than the one shown in document N3567:  
A78F LATIN LETTER MIDDLE DOT
- d. Four (4) Tibetan letters for Sanskrit transliteration with their glyphs from document N3568, in the Tibetan block:  
0F8C TIBETAN SIGN INVERTED MCHU CAN  
0F8D TIBETAN SUBJOINED SIGN LCE TSA CAN  
0F8E TIBETAN SUBJOINED SIGN MCHU CAN  
0F8F TIBETAN SUBJOINED SIGN INVERTED MCHU CAN  
The last three of these are combining marks.
- e. Two (2) Tibetan annotation marks with their glyphs from document N3569, in the Tibetan block:  
0FD9 TIBETAN MARK LEADING MCHAN RTAGS  
0FDA TIBETAN MARK TRAILING MCHAN RTAGS
- f. Three (3) Bopomofo letters for representing Hmu and Ge languages, with the glyphs of XX for GH, of LL for LH, and of ZZ for ZY, from document N3570 in the Bopomofo Extended block:  
31B8 BOPOMOFO LETTER GH  
31B9 BOPOMOFO LETTER LH  
31BA BOPOMOFO LETTER ZY  
(Note: the names are changed from those in document N3570)
- g. One (1) combining mark for use in Uralic Phonetic Alphabet with the glyph shown for 1DFA in document N3571 in the Combining Diacritical Marks Supplement block with its glyph from document N3571:  
1DFC COMBINING DOUBLE INVERTED BREVE BELOW
- h. Nine (9) additional Uralic Phonetic characters with their glyphs from document N3571 in the Latin Extended-D block:  
A7F2 LATIN SUBSCRIPT SMALL LETTER H  
A7F3 LATIN SUBSCRIPT SMALL LETTER K  
A7F4 LATIN SUBSCRIPT SMALL LETTER L  
A7F5 LATIN SUBSCRIPT SMALL LETTER M  
A7F6 LATIN SUBSCRIPT SMALL LETTER N  
A7F7 LATIN SUBSCRIPT SMALL LETTER P  
A7F8 LATIN SUBSCRIPT SMALL LETTER S  
A7F9 LATIN SUBSCRIPT SMALL LETTER T  
A7FA LATIN LETTER SMALL CAPITAL TURNED M
- i. Two (2) Latin letters for Janalif with their glyphs from document N3581:  
A790 LATIN CAPITAL LETTER N WITH DESCENDER  
(with an additional cross reference to Capital letter NG at 014A)  
A791 LATIN SMALL LETTER N WITH DESCENDER

*count: 26 + 1690 = 1716 in Amd. 8*

**RESOLUTION M54.14 (Amendment 8 – subdivision and PDAM text):****Unanimous**

WG2 instructs its project editor and convener to prepare a project sub division proposal (see document N3630) and PDAM text based on resolutions M54.08 to M54.13 above, and forward them to the SC2 secretariat for ballot. The proposed start dates for the progression of this work item are: PDAM 2009-06, FPDAM 2009-12, and FDAM 2010-06.

*count: 1716 additions in Amd. 8*

**RESOLUTION M54.15 (Jamo fillers):****Unanimous**

With reference to document N3638, WG2 accepts the following change in clause 22.1 in the working draft for the second edition (document N3593):

Replace the sentence:

"An incomplete syllable which starts with a Jungseong or a Jongseong shall be preceded by a CHOSEONG FILLER (0000 115F)."

with the following two sentences:

"An incomplete syllable which starts with a Jungseong shall be preceded by a CHOSEONG FILLER (0000 115F).

An incomplete syllable composed of a Jongseong alone shall be preceded by a CHOSEONG FILLER (0000 115F) and JUNGSEONG FILLER (0000 1160)."

**RESOLUTION M54.16 (CD of 2nd edition):****Unanimous**

WG2 instructs its project editor to prepare text for the next edition of the standard, based on documents N3593 and N3627 and the feedback from this meeting, and changes resulting from resolutions M54.02 on Amendment 6, M54.06 on Amendment 7, M54.15 on Jamo fillers, and other changes to glyphs and annotations requested of the names lists in the ballot feedbacks, and to forward it for processing as a CD to SC2 secretariat. The editor is to take note of additional glyph changes per sections 4 in document N3623. The updated start dates for the next edition of standard are: CD: 2009-06, FCD: 2009-12 and FDIS: 2010-06.

*count: 107517 in CD of 2nd edition (till end of FPDAM7)*

**RESOLUTION M54.17 (Hungarian Runic script):****Unanimous**

WG2 accepts the ad hoc report in document N3640 on the Hungarian Runic, with revisions made during the discussions on it, and invites the authors to provide a revised contribution including considerations for items in the ad hoc report.

**RESOLUTION M54.18 (Nüshu script):****Unanimous**

WG2 accepts the ad hoc report in document N3635 on Nüshu script and invites the Chinese national body to provide a revised contribution by 2009-07-31, including considerations for items in the ad hoc report.

**RESOLUTION M54.19 (Jurchen script):****Unanimous**

WG2 accepts the ad hoc report in document N3639 on Jurchen script and invites the Chinese national body to provide a revised contribution, including considerations for items in the ad hoc report.

**RESOLUTION M54.20 (IRG Principles and Procedures):****Unanimous**

WG2 takes note of the IRG Principles and Procedures in document N3562, and invites all national bodies and liaison organizations to review and provide feedback to the IRG rapporteur by 2009-05-15 in time for the next IRG meeting.

**RESOLUTION M54.21 (Annex S revision):****Unanimous**

The IRG is instructed to review and finalize the content of revised text for Annex S by 2009-07-17. All IRG members are requested to assist the IRG rapporteur in this effort. The outcome can be input as national body comments to the ballot on CD for the next edition of ISO/IEC 10646.

**RESOLUTION M54.22 (Fonts for DPRK ideographs):****Unanimous**

The IRG rapporteur is requested to contact the SC2 secretariat to reach DPRK for getting the fonts suitable to print the DPRK ideographs in the multi-column CJK charts in the standard. All IRG members are also requested to assist the IRG rapporteur in this effort.

**RESOLUTION M54.23 (Response on African languages):****Unanimous**

WG2 thanks Ms. Deborah Anderson for the report on African languages in document N3641, and instructs its convener to send it to the SC2 secretariat for forwarding to JTC1 in response to Resolution 34 from JTC1 plenary in November 2008.

**RESOLUTION M54.24 (Roadmap snapshot):****Unanimous**

WG2 instructs its convener to post the updated snapshot of the roadmaps (in document N3608) to the WG2 web site and communicate the same to SC2 secretariat.

**RESOLUTION M54.25 (Future meetings):****Unanimous**

WG2 endorses the following schedule for future meetings of WG2 and of IRG:

**WG 2 meetings:**

Meeting 55 - 2009-10-26/30, Tokyo, Japan (along with SC2 plenary)

Meeting 56 - 2010-04-19/23, Mountain View, CA, USA (pending confirmation); Canada and Finland (as backups).

Meeting 57 - Fall 2010, Korea (Republic of) (pending confirmation of date and location)

Meeting 58 - Spring 2011, Finland (pending confirmation) (along with SC2 plenary)

Meeting 59 - Fall 2011, Mountain View, CA, USA (pending confirmation), Germany (as backup)

**IRG meetings:**

IRG 32 - 2009-06-15/19; Hong Kong SAR

IRG 33 - 2009-11-23/27; Danang, Vietnam

**RESOLUTION M54.26 (Appreciation to DKUUG for web site support):****By Acclamation**

WG 2 thanks DKUUG and its staff for its continued support of the web site for WG 2 document distribution and the e-mail server.

**RESOLUTION M54.27 (Appreciation to Host):****By Acclamation**

WG 2 thanks the Irish national body, NSAI, and the Centre for Next Generation Localization and its staff, in particular Professor Josef van Genabith, Ms. Cara Greene and Ms. Eithne McCann, and Mr. Michael Everson, for hosting the meeting and for providing excellent meeting facilities.

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*Character count 106255 (till end of Amd. 5)*

*Addition of 1037 in FDAM6; and addition of 225 in FPDAM7*

*Character count 107517 in CD of 2nd edition (till end of FPDAM7)*

*Addition of 1716 in PDAM8*

***Total count: 109233 (after meeting M54)***

### Attendance List

The following 37 attendees representing 11 national bodies, 3 liaison organizations, including 1 invited expert were present at different times during the meeting.

Name	Representing	Affiliation
Mike KSAR	.Convener, USA	Independent
Josef van GENABITH	.Host, Ireland	Centre for Next Generation Localisation, Dublin Centre University
Cara GREENE	.Host, Ireland	Centre for Next Generation Localisation, Dublin Centre University
Eithne McCANN	.Host, Ireland	Centre for Next Generation Localisation, Dublin Centre University
Ian COWAN	.Host, Ireland	NSAI
Tamara LOPEZ	.Invited Expert, UK	Centre for Computing in the Humanities, King's College, London, UK
LU Qin	.IRG Rapporteur	Hong Kong Polytechnic University
Tatsuo KOBAYASHI	.SC2 Chair	Justsystems Corporation
Bear S. TSENG	.TCA – Liaison	Academia Sinica
Lin-Mei WEI	.TCA – Liaison	Chinese Foundation for Digitization Technology
André Szabolcs SZELP	Austria	Matrixware Information Services GmbH
Alain LABONTE	Canada; Editor 14651	Independent
V. S. (Uma) UMAMAHESWARAN	Canada; Recording Secretary	IBM Canada Ltd.
CHEN Zhuang	China	Chinese Electronics Standardization Institute
DAI Hong	China	Chinese Electronics Standardization Institute
JING Yongshi	China	North University of Ethnicity
NIE Hongyin	China	Institute of Ethnology and Anthropology, Academy of Social Sciences
SUN Bojun	China	Institute of Ethnology and Anthropology, Academy of Social Sciences
WANG Xiaoming	China	Institute of Applied Linguistics, Ministry of Education
Wushour SILAMU	China	Xinjiang University
ZHAO Liming	China	Tsinghua University
Tero AALTO	Finland	CSC – IT Center for Science
Andreas STÖTZNER	Germany	Signography
Karl PENTZLIN	Germany	AC&S Analysis GmbH
Gábor HOSSZU	Hungary	Budapest University of Technology and Electronics
Michael EVERSON	Ireland; Contributing Editor	Everttype
Masahiro SEKIGUCHI	Japan	Fujitsu Limited
Satoshi YAMAMOTO	Japan	Hitachi Ltd.
Yoshiki MIKAMI	Japan	Nagaoka University of Technology
Dae Hyuk AHN	Korea (Republic of)	Microsoft Korea
KANG Mi-Young	Korea (Republic of)	National Institute of the Korean Language
KIM Kyongsok	Korea (Republic of)	Busan National University
Andrew WEST	UK	Independent
Ken WHISTLER	USA; Contributing Editor	Sybase Inc.
Michel SUIGNARD	USA; Project Editor	Unicode Consortium
Deborah ANDERSON	USA; SEI, UC Berkeley – Liaison	Dept. of Linguistics, UC Berkeley
Peter CONSTABLE	USA; Unicode Consortium – Liaison	Microsoft Corp.