

Universal Multiple-Octet Coded Character Set
International Organization for Standardization
Organisation Internationale de Normalisation
Международная организация по стандартизации

Doc Type: Working Group Document

Title: Toward a proposal for encoding the Miao script in the SMP of the UCS

Source: Michael Everson, Erich Fickle, and Martin Hosken

Status: Individual Contribution

Action: For consideration by JTC1/SC2/WG2 and UTC

Replaces: N3669

Date: 2010-01-28

This is not a complete proposal, but is offered to get feedback while a complete proposal is being developed.

1. Introduction. Miao is the short name of the Lao Miaowen script. There are many Miao orthographies, but most use Latin letters and do not pose any character encoding concerns. The Miao script was created by the Englishman Samuel Pollard, Miao people Wang Mingji, John Zhang, and James Yang, as well as Han intellectual Stephen Lee during 1904 at Stone Gateway, Weining County, western Guizhou Province, China. It adopted some Cree graphemes, some Latin letter variants, some English shorthand characters, as well as some Miao pictographs. The main principle is to represent initials (usually consonants) with larger letters, finals (mostly vowels) with smaller letters, and with tones represented by various placement of the small letters relative to the big letter. This system is simple to use, but many Chinese scholars thought that the few phonological tone positions cannot completely express the many phonetic tones of the Miao language. Also, it was a challenge to set lead type with these letters. Therefore, in the early 1950s Yang Rongxin and other Miao people from Weining in Guizhou attempted a reform by designing tone marks and designating the bottom-right position of the big letter as the only tone mark position. This reform did not see much support from the Miao people. Later Miao people from Kunming City and Chuxiong Prefecture adopted Yang Rongxin's approach and devised what they called the Normalised writing system. Therefore, the Miao script is comprised of two orthographic styles. Since both systems are in current use, this encoding proposal covers both tone marking systems of the Miao script.

Originally, this script was mainly used by the Northeastern Yunnan Miao. Later, various other Miao dialects began to use it as well. In addition, some people from the Yi, and the Lisu nationalities in Luquan, Yunnan also use this script to write their languages. The estimated user population of the multiple language groups is between 200,000 and 500,000. Extensive literature, bilingual education materials and elementary textbooks have been published in the Miao Script.

2. Structure. The Miao script is written from right to left. Used for tonal languages, Miao divides each syllable into an initial and a final. The initial is usually the initial consonant (or consonant cluster) and the final consists of the vowel cluster and the tone. Nasalization and voicing can be considered as qualities of the whole syllable and are marked on the initial rather than the final. Nasalization is marked by a non-combining letter; aspiration is a combining mark. In Chuxiong style Ahmao orthography, a vowel is written on the baseline, followed by a tone mark; in most orthographies, the vowel is written at different heights and positions (above, top-right, right, bottom-right, below) indication the tone.

The syllable structure is: (N)C(M)V(V(V))(S/T), where N is the nasalizer, C is the obligatory consonant, M is a modifier (there is an aspiration mark in current use and two archaic voicing marks), V is one obligatory vowel mark which may be followed by two more, S is a “shifting” character which controls the height of the vowel (all vowels being moved to the same height and position), and T is a tone mark; S and T do not co-occur on a syllable.

3. Punctuation and digits. Users of the Miao script freely employ punctuation marks from both Chinese and Latin scripts. No new encodings for punctuation are required. European digits are used.

4. Line breaking and word breaking. Line breaks occur in place of spaces or after punctuation. A line break may not be inserted within a Miao syllable, or before punctuation immediately following a Miao syllable. There is no line breaking hyphenation. Word breaking occurs only before an initial consonant (N)C. Polysyllabic words are common.

5. Rendering: the “wart”. A number of characters in the code charts are drawn with a half-ring fused into the glyph. This “wart” represents a pronunciation which may be voicing or half voicing or lenition or some other sort of “reduced tension”. The wart is often drawn on the left side of a character, but if the base grapheme is hollow on the right side, the “wart” sometimes is applied to the right to reduce space used in printing. In the Chuxiong style of writing, the wart is not written, but instead a dot is drawn immediately after the character. Some Yi users do the same thing with a vertical stroke mark resembling a serif on the letters. A given word in a particular dialect can be written with a wart, a dot, or (rather more rarely and with little standardization) the serif-like mark, or without being considered a spelling change. Some documents have been published in both “wart” and “dot-like” forms for different user communities. In any case, because the users claim that these are simply different ways to write the same characters, the warted characters have been encoded, with the proviso that their glyph shapes may vary in implementation.

6. Rendering: the rimes. In Chuxiong orthography, the letters representing vowels and final nasals rest on the baseline (indicating Tone 3), and an additional tone mark is used following the vowel sign(s) to indicate other tones. In Ahmao and other orthographies, a special formatting character (“S” for “shifter” as described above) is used, following the last of the vowel letters when it is to be rendered above the base letter, or to the top left of the base letter, or to the right of the base letter, or below the base letter. When more than one rime character precedes the shifter, all of the glyphs are shifted together to the appropriate position.

7. Collating order: the onsets. Wide variation between user groups occurs in the collating order, and so it has been decided to devise a default ordering, reflected in the code table, which is based on an ordering widely used in China and reflected in the order of the Bopomofo phonetic characters. Nasalization and aspiration is taken into account in ordering the initials; the ordering of *attested* consonants is as follows:

ɿ p > ɿ b > ɿ^{YI}p > ɿ^{YI}p^h > ɿ mp > ɿ mb > ɿ mp^h > ɿ pl > ɿ p^hl > ɿ m >> ɿ^{ARCH}m > ɿ m^h > ɿ m̃ > ɿ f >
 V v > V y > T t > T d > T^{YI}t > T^{YI}t^h > CT nt > CT nd > CT^{YI}nt^h > T t̃ > T d̃ > T^{YI}t̃ > CT nt̃ > CT nd̃ > CT^{YI}nt̃^h >
 C n >> ɿ^An > C n^h > C^{YI}ñ > C^{YI}ñ^h > L l > L^{YI}l̃ > L^{YI}l̃^h > ɿ t̃ > ɿ t̃^h >
 Δ t̃ > Δ d̃z̃ > Δ^{YI}t̃^h > CA nt̃ > CA nd̃z̃ > CA^{YI}nt̃^h > Δ t̃^{YI} > Δ d̃z̃^{YI} > Δ^{YI}t̃^h > CA nt̃^{YI} > CA nd̃z̃^{YI} > CA^{YI}nt̃^h >
 ɿ k > ɿ g > ɿ^{YI}k > ɿ^{YI}k^h > ɿ nk > ɿ ng > ɿ^{YI}nk^h > ɿ q > ɿ g > ɿ^{YI}q^h > ɿ Nq > ɿ NG > ɿ^{YI}Nq^h >
 ɿ η >> ɿ^{ARCH}η > ɿ η^h > ɿ η̃ > ɿ h > ɿ x > ɿ h > ɿ y > ɿ y^h > ɿ x >
 ɿ t̃ > ɿ d̃z̃ > ɿ^{YI}t̃ > ɿ^{YI}t̃^h > ɿ nt̃ > ɿ nd̃z̃ > ɿ^{YI}nt̃^h > ɿ ñ > ɿ ñ^h > ɿ ñ >
 ɿ t̃s̃ > ɿ d̃z̃s̃ > ɿ^{YI}t̃s̃ > ɿ^{YI}t̃s̃^h > ɿ nt̃s̃ > ɿ nd̃z̃s̃ > ɿ^{YI}nt̃s̃^h >
 ɿ s̃ > ɿ ɛ > R z̃ > R z̃ > ɿ ts̃ > ɿ dz̃ > ɿ^{YI}ts̃ > ɿ^{YI}ts̃^h > ɿ ts̃ > ɿ ndz̃ > ɿ^{YI}nts̃ >
 S s > ɿ z̃ > ɿ^{ARCH}z̃ > ɿ z̃ > A z̃ > A z̃ > U w > Y ? > Y^{YI}h̃ > Y^{YI}? > CY ?̃ > CY^{YI}h̃ > CY^{YI}?̃

Note that the archaic characters sort secondarily, as $\text{C } n \gg \cup n > \text{C } nh$. Note too that not all combinations have been attested, so for instance $V' v^h$ is not listed above. As all of the aspirated characters (and those with archaic ' and ,) are composed this should not be problematic; the significant thing to handle is the treatment of the nasalizing C, which is different from the consonant C *na*. In principle, sorting even for consonants which are unattested with the nasalizing C should be implemented; *the nasalizer has otherwise no sorting position of its own*. Symbolically, it can be said that $C > G > CM > GM > NC > NG > NCM > NGM$ (where G is a wanted consonant) should be accounted for in ordering for each consonant class. So while only $L > \text{L} > L' > \text{L} > \text{L}'$ are attested, the sort table should also handle the nasalized forms $L > \text{L} > L' > \text{L}' > \text{CL} > \text{CL} > \text{CL}' > \text{CL}' > \text{L} > \text{L} > \text{L}' > \text{L}' > \text{CL} > \text{CL} > \text{CL}' > \text{CL}'$.

7. Collating order: the rimes. Wide variation between user groups occurs in the collating order here as well, and again the order of the Bopomofo phonetic characters has been broadly followed; the exception is that the finals -an, en, ang, and -eng have been shifted forward, because this makes better sense in terms of the structure of Miao itself. The basic order is *a o u e æ y i u y ə ɿ ai ei au ou n ŋ*. Since some vowels are fused as ligatures and some vowels are multipart, the fused characters are ordered as though they were separate, with the ligatures preceding or following their unfused counterparts (it does not matter which so long as it is done consistently). Many of the ligatures are no longer used and are encoded for historical purposes; ligation is not productive. Here are the base characters:

| | | |
|---|------|-----------------------|
| - | A | |
| ㄨ | AA | (as - A + ㄨ U) |
| ㄣ | AN | (as - A + ㄣ N) |
| ㄜ | ANG | (as - A + ㄜ NG) |
| ㄛ | O | |
| ㄜ | ONG | (as ㄛ O + - A) |
| ㄨ | W | |
| ㄝ | E | |
| ㄞ | EN | (as ㄝ E + ㄣ N) |
| ㄟ | ENG | (as ㄝ E + ㄜ NG) |
| ㄩ | OEY | |
| ㄨ | I | |
| ㄨ | IA | (as ㄨ I + - A) |
| ㄨ | IAN | (as ㄨ I + - A + ㄣ N) |
| ㄨ | IANG | (as ㄨ I + - A + ㄜ NG) |
| ㄨ | IO | (as ㄨ I + ㄛ O) |
| ㄨ | IE | |
| ㄨ | II | (as ㄨ I + ㄨ I) |
| ㄨ | IU | (as ㄨ I + ㄨ U) |
| ㄨ | ING | (as ㄨ I + ㄜ NG) |
| ㄨ | U | |
| ㄨ | UA | (as ㄨ U + - A) |
| ㄨ | UAN | (as ㄨ U + - A + ㄣ N) |
| ㄨ | UANG | (as ㄨ U + - A + ㄜ NG) |
| ㄨ | UU | (as ㄨ U + ㄨ U) |
| ㄨ | UEI | (as ㄨ U + ㄣ EI) |
| ㄨ | UNG | (as ㄨ U + ㄜ NG) |
| ㄨ | Y | |

| | |
|----|----------------|
| p | AE |
| ɸ | AEE |
| ɿ | ER |
| ʀ | R-ER |
| r | ERR |
| ʁ | R-ERR |
| ɪ | AI |
| ɥ | EI |
| ɯ | AU |
| ɤ | OU |
| ɮ | N |
| ɳ | NG |
| ᵹ | TONE RIGHT |
| ᵹ̈ | TONE TOP RIGHT |
| ᵹ̇ | TONE ABOVE |
| ᵹ̋ | TONE BELOW |
| ɿ̈ | TONE-2 |
| ɿ̇ | TONE-3 |
| ɿ̋ | TONE-4 |
| ɿ̌ | TONE-5 |
| ɿ̍ | TONE-6 |
| ɿ̎ | TONE-7 |
| ɿ̏ | TONE-8 |
| ʀ̈ | R-TONE-1 |
| ʀ̇ | R-TONE-2 |
| ʀ̋ | R-TONE-4 |
| ʀ̌ | R-TONE-5 |
| ʀ̍ | R-TONE-6 |
| ʀ̎ | R-TONE-7 |

9. Character names. The transcription of character names follows the usual UCS conventions for rendering IPA characters in ASCII.

10. Unicode Character Properties.

```

16F00;MIAO LETTER PA;Lo;0;L;;;;;N;;;;;
..
16F41;MIAO LETTER HHA;Lo;0;L;;;;;N;;;;;
16F42;MIAO LETTER NASALIZATION;Lo;0;L;;;;;N;;;;;
16F43;MIAO LETTER ASPIRATION;Mc;0;L;;;;;N;;;;;
16F44;MIAO LETTER REFORMED VOICING;Mc;0;L;;;;;N;;;;;
16F45;MIAO LETTER REFORMED ASPIRATION;Mc;0;L;;;;;N;;;;;
16F46;MIAO LETTER A;Lm;0;L;;;;;N;;;;;
..
16F6E;MIAO LETTER A;Lm;0;L;;;;;N;;;;;
16F6F;MIAO MODIFIER TONE ABOVE;Mn;0;L;;;;;N;;;;;
16F70;MIAO MODIFIER TONE TOP RIGHT;Mn;0;L;;;;;N;;;;;
16F71;MIAO MODIFIER TONE RIGHT;Mn;0;L;;;;;N;;;;;
16F72;MIAO MODIFIER TONE BELOW;Mn;0;L;;;;;N;;;;;
16F73;MIAO LETTER TONE-2;Lm;0;L;;;;;N;;;;;
..
16F7F;MIAO LETTER REFORMED TONE-7;Lm;0;L;;;;;N;;;;;

```

11. Bibliography.

Anonymous. 1948. *Miao hymnal*, China Inland Mission republished by Zhongguo Jidujiao Xiehui 中国基督教协会 “Chinese Christian Association” in 1988.

- Anonymous. 1984. *Black Yi songbook*. Yunnan Sheng Jidujiao Xiehui 云南省基督教协会 “Yunnan Province Christian Association”.
- Anonymous. s.d. “White [sic] Yi songbook”, Yunnan Sheng Jidujiao Xiehui 云南省基督教协会 “Yunnan Province Christian Association”.
- Enwall, Joakim (1994). “In search of the Entering Tone: The importance of the Sichuanese tones for understanding the tone marking system of the Sichuan Hmong Pollard Script”, in Joakim Enwall (ed.), *Outstretched leaves on his bamboo staff: Studies in honour of Göran Malmqvist on his 70th birthday*. Stockholm: The Association of Oriental Studies. pp 70-74.
- Enwall, Joakim (1994, 1995), *A myth become reality: History and development of the Miao written language*. Volumes 1 and 2. Stockholm East Asian monographs no. 5-6., Institute of Oriental Languages, Stockholm University, Sweden.
- Johnson, Michael (1998). *Farwestern Hmongic*. Unknown publisher.
- Wang, Chunde 王春德, et al., eds. 1991. 中国少数民族?wen2zi4? “Chinese Minority writing”. Zhongguo Zang Xue chubanshe 中国藏学出版社 “Chinese Tibetology Publishing House”.
- Wang, Fushi (王辅世). 1985. “Miao Language Simple Book” 《苗语简志》北京: 民族出版社. “Beijing China: People's Press.”
- Wang, Shengying 王盛英, et al., Eds. (1996). 苗汉简明词典 “Miao-Han concise dictionary”, 云南民族出版社 “Yunnan Nationalities Press”. Kunming, Yunnan, China.
- Wang, Shiwei 王时炜 (2005). *Ad hmaob lul ad got ndeued: diand dongd beis shangb lul*. 苗语理论基础 Series “Miao language theory foundation”. 云南民族出版社 “Yunnan Nationalities Press”.
- Wang, Yangcai 王阳才, et al. (2005). 楚雄苗族使略 *Chuxiong Miao zu Shilue* “Chuxiong Miao People History”, 云南民族出版社 “Yunnan Nationalities Press”. Kunming, Yunnan, China.
- Xiong, Yuyou 熊玉有 (2003). 苗族文化史 “A cultural history of the Miao nationality”, 云南民族出版社 “Yunnan Nationalities Press”, Yunnan Institute for Nationality Research. Kunming, Yunnan, China.

| | 16F0 | 16F1 | 16F2 | 16F3 | 16F4 | 16F5 | 16F6 | 16F7 | 16F8 |
|---|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| 0 | 𐌀 16F00 | 𐌁 16F10 | 𐌂 16F20 | 𐌃 16F30 | 𐌄 16F40 | 𐌅 16F50 | 𐌆 16F60 | 𐌇 16F70 | 𐌈 16F80 |
| 1 | 𐌉 16F01 | 𐌊 16F11 | 𐌋 16F21 | 𐌌 16F31 | 𐌍 16F41 | 𐌎 16F51 | 𐌏 16F61 | 𐌐 16F71 | 𐌑 16F81 |
| 2 | 𐌒 16F02 | 𐌓 16F12 | 𐌔 16F22 | 𐌕 16F32 | | 𐌖 16F52 | 𐌗 16F62 | 𐌘 16F72 | 𐌙 16F82 |
| 3 | 𐌚 16F03 | 𐌛 16F13 | 𐌜 16F23 | 𐌝 16F33 | | 𐌞 16F53 | 𐌟 16F63 | 𐌠 16F73 | 𐌡 16F83 |
| 4 | 𐌣 16F04 | 𐌤 16F14 | 𐌥 16F24 | 𐌦 16F34 | | 𐌧 16F54 | 𐌨 16F64 | 𐌩 16F74 | 𐌪 16F84 |
| 5 | 𐌫 16F05 | 𐌬 16F15 | 𐌭 16F25 | 𐌮 16F35 | | 𐌯 16F55 | 𐌰 16F65 | 𐌱 16F75 | 𐌲 16F85 |
| 6 | 𐌳 16F06 | 𐌴 16F16 | 𐌵 16F26 | 𐌶 16F36 | | 𐌷 16F56 | 𐌸 16F66 | 𐌹 16F76 | 𐌺 16F86 |
| 7 | 𐌻 16F07 | 𐌼 16F17 | 𐌽 16F27 | 𐌾 16F37 | | 𐌿 16F57 | 𐍀 16F67 | 𐍁 16F77 | 𐍂 16F87 |
| 8 | 𐍃 16F08 | 𐍄 16F18 | 𐍅 16F28 | 𐍆 16F38 | | 𐍇 16F58 | 𐍈 16F68 | 𐍉 16F78 | 𐍊 16F88 |
| 9 | 𐍋 16F09 | 𐍌 16F19 | 𐍍 16F29 | 𐍎 16F39 | | 𐍏 16F59 | 𐍐 16F69 | 𐍑 16F79 | 𐍒 16F89 |
| A | 𐍓 16F0A | 𐍔 16F1A | 𐍕 16F2A | 𐍖 16F3A | | 𐍗 16F5A | 𐍘 16F6A | 𐍙 16F7A | 𐍚 16F8A |
| B | 𐍛 16F0B | 𐍜 16F1B | 𐍝 16F2B | 𐍞 16F3B | | 𐍟 16F5B | 𐍠 16F6B | 𐍡 16F7B | 𐍢 16F8B |
| C | 𐍣 16F0C | 𐍤 16F1C | 𐍥 16F2C | 𐍦 16F3C | | 𐍧 16F5C | 𐍨 16F6C | 𐍩 16F7C | 𐍪 16F8C |
| D | 𐍬 16F0D | 𐍭 16F1D | 𐍮 16F2D | 𐍯 16F3D | | 𐍰 16F5D | 𐍱 16F6D | 𐍲 16F7D | 𐍳 16F8D |
| E | 𐍴 16F0E | 𐍵 16F1E | 𐍶 16F2E | 𐍷 16F3E | | 𐍸 16F5E | 𐍹 16F6E | 𐍺 16F7E | |
| F | 𐍻 16F0F | 𐍼 16F1F | 𐍽 16F2F | 𐍾 16F3F | | 𐍿 16F5F | 𐎀 16F6F | 𐎁 16F7F | |

Consonant onsets

| | | | |
|-------|---|-------------------------|---|
| 16F00 | ⱱ | MIAO LETTER PA | • used for ba in Dry Yi |
| 16F01 | Ⱳ | MIAO LETTER BA | |
| 16F02 | ⱳ | MIAO LETTER YI PA | • used for pa in Dry Yi |
| 16F03 | ⱴ | MIAO LETTER PLA | • used in Sichuan Hmong |
| 16F04 | Ⱶ | MIAO LETTER MA | |
| 16F05 | ⱶ | MIAO LETTER MHA | |
| 16F06 | ⱷ | MIAO LETTER ARCHAIC MA | • used in Pollard's early orthography |
| 16F07 | ⱸ | MIAO LETTER FA | |
| 16F08 | ⱹ | MIAO LETTER VA | |
| 16F09 | ⱺ | MIAO LETTER VFA | • used in Black Yi |
| 16F0A | ⱻ | MIAO LETTER TA | • used for da in Dry Yi |
| 16F0B | ⱼ | MIAO LETTER DA | |
| 16F0C | ⱽ | MIAO LETTER YI TA | • used for ta in Dry Yi |
| 16F0D | Ȿ | MIAO LETTER TTA | |
| 16F0E | Ɀ | MIAO LETTER DDA | |
| 16F0F | Ⳁ | MIAO LETTER NA | |
| 16F10 | ⳁ | MIAO LETTER NHA | |
| 16F11 | Ⳃ | MIAO LETTER ARCHAIC NA | • used in Pollard's early orthography |
| 16F12 | ⳃ | MIAO LETTER NNA | |
| 16F13 | Ⳅ | MIAO LETTER NNHA | |
| 16F14 | ⳅ | MIAO LETTER LA | |
| 16F15 | Ⳇ | MIAO LETTER LYA | • used in Black Yi |
| 16F16 | ⳇ | MIAO LETTER LHA | |
| 16F17 | Ⳉ | MIAO LETTER LHYA | • used in Black Yi |
| 16F18 | ⳉ | MIAO LETTER TLHA | |
| 16F19 | Ⳋ | MIAO LETTER DLHA | |
| 16F1A | ⳋ | MIAO LETTER TLHYA | |
| 16F1B | Ⳍ | MIAO LETTER DLHYA | |
| 16F1C | ⳍ | MIAO LETTER KA | • used for ga in Dry Yi |
| 16F1D | Ⳏ | MIAO LETTER GA | |
| 16F1E | ⳏ | MIAO LETTER YI KA | • used for ka in Dry Yi |
| 16F1F | Ⳑ | MIAO LETTER QA | |
| 16F20 | ⳑ | MIAO LETTER QGA | |
| 16F21 | Ⳓ | MIAO LETTER NGA | |
| 16F22 | ⳓ | MIAO LETTER NGH A | |
| 16F23 | Ⳕ | MIAO LETTER ARCHAIC NGA | • used in Pollard's early orthography |
| 16F24 | ⳕ | MIAO LETTER HA | |
| 16F25 | Ⳗ | MIAO LETTER XA | archaic character used in a 1949 reformed orthography |
| 16F26 | ⳗ | MIAO LETTER GHA | |
| 16F27 | Ⳙ | MIAO LETTER GHHA | |
| 16F28 | ⳙ | MIAO LETTER TSSA | |
| 16F29 | Ⳛ | MIAO LETTER DZZA | |
| 16F2A | ⳛ | MIAO LETTER NYA | |
| 16F2B | Ⳝ | MIAO LETTER NYHA | |
| 16F2C | ⳝ | MIAO LETTER TSHA | • used for dzha in Dry Yi |
| 16F2D | Ⳟ | MIAO LETTER DZHA | |
| 16F2E | ⳟ | MIAO LETTER YI TSHA | • used for tsha in Dry Yi |

| | | | |
|-------|---|---------------------------|---|
| 16F2F | Ⳡ | MIAO LETTER REFORMED TSHA | archaic character used in a 1949 reformed orthography |
| 16F30 | ⳡ | MIAO LETTER SHA | |
| 16F31 | Ⳣ | MIAO LETTER SSA | |
| 16F32 | ⳣ | MIAO LETTER ZHA | • used in Black Yi |
| 16F33 | ⳤ | MIAO LETTER ZSHA | • used in Black Yi |
| 16F34 | ⳥ | MIAO LETTER TSA | • used for dza in Dry Yi |
| 16F35 | ⳦ | MIAO LETTER DZA | |
| 16F36 | ⳧ | MIAO LETTER YI TSA | • used for tsa in Dry Yi |
| 16F37 | ⳨ | MIAO LETTER SA | |
| 16F38 | ⳩ | MIAO LETTER ZA | |
| 16F39 | ⳪ | MIAO LETTER ZSA | • used in Black Yi |
| 16F3A | Ⳬ | MIAO LETTER ZZA | |
| 16F3B | ⳬ | MIAO LETTER ZZSA | • used in Black Yi |
| 16F3C | Ⳮ | MIAO LETTER ARCHAIC ZZA | • used in Pollard's early orthography |
| 16F3D | ⳮ | MIAO LETTER ZZYA | • used in Black Yi |
| 16F3E | ⳯ | MIAO LETTER ZZYSA | • used in Black Yi |
| 16F3F | ⳰ | MIAO LETTER WA | |
| 16F40 | ⳱ | MIAO LETTER AH | • glottal stop |
| 16F41 | Ⳳ | MIAO LETTER HHA | • used in Black Yi |

Modifiers

| | | | |
|-------|---|---------------------------------|---|
| 16F50 | ⳳ | MIAO LETTER NASALIZATION | |
| 16F51 | ⳴ | MIAO LETTER ASPIRATION | |
| 16F52 | ⳵ | MIAO LETTER REFORMED VOICING | archaic character used in a 1949 reformed orthography |
| 16F53 | ⳶ | MIAO LETTER REFORMED ASPIRATION | archaic character used in a 1949 reformed orthography |

Vowels and finals

| | | | |
|-------|---|------------------|------------------------|
| 16F54 | ⳷ | MIAO LETTER A | |
| 16F55 | ⳸ | MIAO LETTER AA | • used in Eastern Lisu |
| 16F56 | ⳹ | MIAO LETTER AN | |
| 16F57 | ⳺ | MIAO LETTER ANG | • also used for aw |
| 16F58 | ⳻ | MIAO LETTER O | |
| 16F59 | ⳼ | MIAO LETTER OO | |
| 16F5A | ⳽ | MIAO LETTER W | |
| 16F5B | ⳾ | MIAO LETTER E | |
| 16F5C | ⳿ | MIAO LETTER EN | |
| 16F5D | Ⳡ | MIAO LETTER ENG | |
| 16F5E | ⳡ | MIAO LETTER OEY | |
| 16F5F | Ⳣ | MIAO LETTER I | |
| 16F60 | ⳣ | MIAO LETTER IA | |
| 16F61 | ⳤ | MIAO LETTER IAN | |
| 16F62 | ⳥ | MIAO LETTER IANG | • also used for iaw |
| 16F63 | ⳦ | MIAO LETTER IO | |
| 16F64 | ⳧ | MIAO LETTER IE | |
| 16F65 | ⳨ | MIAO LETTER II | • used in Eastern Lisu |

| | | |
|-------|----------------|---|
| 16F66 | ◌ _o | MIAO LETTER IU |
| 16F67 | ◌ _o | MIAO LETTER ING • also used for in |
| 16F68 | ◌ _u | MIAO LETTER U |
| 16F69 | ◌ _u | MIAO LETTER UA |
| 16F6A | ◌ _u | MIAO LETTER UAN |
| 16F6B | ◌ _u | MIAO LETTER UANG • also used for uaw |
| 16F6C | ◌ _w | MIAO LETTER UU • used in Eastern Lisu |
| 16F6D | ◌ _w | MIAO LETTER UEI |
| 16F6E | ◌ _w | MIAO LETTER UNG |
| 16F6F | ◌ _o | MIAO LETTER Y |
| 16F70 | ◌ _o | MIAO LETTER YI |
| 16F71 | ◌ _p | MIAO LETTER AE |
| 16F72 | ◌ _d | MIAO LETTER AEE • used in Eastern Lisu |
| 16F73 | ◌ _r | MIAO LETTER ERR |
| 16F74 | ◌ _r | MIAO LETTER ROUNDED ERR • used in Eastern Lisu |
| 16F75 | ◌ _r | MIAO LETTER ER |
| 16F76 | ◌ _r | MIAO LETTER ROUNDED ER • used in Eastern Lisu |
| 16F77 | ◌ _i | MIAO LETTER AI |
| 16F78 | ◌ _i | MIAO LETTER EI |
| 16F79 | ◌ _i | MIAO LETTER AU |
| 16F7A | ◌ _q | MIAO LETTER OU |
| 16F7B | ◌ _c | MIAO LETTER N |
| 16F7C | ◌ _b | MIAO LETTER NG |

Positioning tone marks

These are used to position the vowel off of the baseline position to indicate a changed tone.

| | | |
|-------|----------------|----------------------------|
| 16F7D | ◌ [◌] | MIAO LETTER TONE ABOVE |
| 16F7E | ◌ [◌] | MIAO LETTER TONE TOP RIGHT |
| 16F7F | ◌ [◌] | MIAO LETTER TONE RIGHT |
| 16F80 | ◌ _◌ | MIAO LETTER TONE BELOW |

Baseline tone marks

These are used in Chuxiong Ahmao instead of the four above

| | | |
|-------|----------------|--------------------|
| 16F81 | ◌ _r | MIAO LETTER TONE-2 |
| 16F82 | ◌ _s | MIAO LETTER TONE-3 |
| 16F83 | ◌ _n | MIAO LETTER TONE-4 |
| 16F84 | ◌ _r | MIAO LETTER TONE-5 |
| 16F85 | ◌ _s | MIAO LETTER TONE-6 |
| 16F86 | ◌ _i | MIAO LETTER TONE-7 |
| 16F87 | ◌ _t | MIAO LETTER TONE-8 |

Archaic baseline tone marks

These are archaic characters used in a 1949 reformed orthography

| | | |
|-------|----------------|--|
| 16F88 | ◌ _o | MIAO LETTER REFORMED TONE-1 • tone 2? |
| 16F89 | ◌ _m | MIAO LETTER REFORMED TONE-2 • tone 3? |
| 16F8A | ◌ _b | MIAO LETTER REFORMED TONE-4 |
| 16F8B | ◌ _e | MIAO LETTER REFORMED TONE-5 |
| 16F8C | ◌ _d | MIAO LETTER REFORMED TONE-6 |
| 16F8D | ◌ _w | MIAO LETTER REFORMED TONE-7 |