

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

Doc Type: Working Group Document**Title: Proposal for encoding the Miao script****Author: China****Status: Member Contribution****Action: For consideration by JTC1/SC2/WG2 and UTC****Date: 2009-10-01, minor revision of L2/09-253**

Script Background

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.

Script Description

Syllable Component Order

The Miao script is used for tonal languages. Each syllable is divided into an initial and a final. The initial is usually the initial consonant 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 cluster rather than the final.

Marking of the linguistic qualities of syllable initials

It is possible to know linguistic characteristics of the consonant by some of the marks contained within the initials. The people who use the script view the entire combination of marks in the syllable initial as a single character, but it is possible to break the initial characters apart into grapheme clusters. In contrast the users of the script view the separate vowel sounds and tone characters of the syllable finals as separate characters.

Character storage order

Variation in the visual placement of grapheme marks within initial clusters is common for reading clarity. The storage order should have the core consonant before any modifying marks for consistency. Each character must contain a single Initial and a sequence of one or more vowels. The Tone letters are only used in the Chuxiong style Ahmao orthography, and even then are optional since one tone value is unmarked. There are no known examples of mixing tone categories in vowel sequences, but it is up to the implementor to determine if these are considered spelling errors or script errors.

Initial (MIAO MARK NASALAZATION) (MIAO MARK ASPIRATED) (MIAO MARK VOICED) Vowels (Tone letter)

Tone marking – tone categories or tone values

Most users position the vowels around the initial to express tone categories. These positions are named as if the initial character was a body which would be in English head, shoulder, waist, and foot. See illustration 1 below.

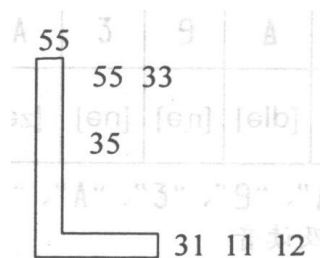


Illustration 1: Showing a typical relationship between absolute tone values and A-hmao tone positions (Wang Shi Wei 2005).

规范苗文声母符号																	
基础字母:	ɟ	t	ʈ	ʈ̥	l	ʌ	ʌ̥	ʈ	ʈ̥	ɟ	ɣ	v	ʌ	ʌ̥	l	ʌ̥	
派生字母:	ɟ̣	ṭ	ʈ̣	ʈ̣̥	ḷ	ʌ̣	ʌ̣̥	ʈ̣	ʈ̣̥	ɟ̣	ɣ̣	ṿ	ʌ̣	ʌ̣̥	ḷ	ʌ̣̥	
	ɟ̣̥	ṭ̥	ʈ̣̥	ʈ̣̥̥	ḷ̥	ʌ̣̥	ʌ̣̥̥	ʈ̣̥	ʈ̣̥̥	ɟ̣̥	ɣ̣̥	ṿ̥	ʌ̣̥	ʌ̣̥̥	ḷ̥	ʌ̣̥̥	
	ɟ̣̥̥	ṭ̥̥	ʈ̣̥̥	ʈ̣̥̥̥	ḷ̥̥	ʌ̣̥̥	ʌ̣̥̥̥	ʈ̣̥̥	ʈ̣̥̥̥	ɟ̣̥̥	ɣ̣̥̥	ṿ̥̥	ʌ̣̥̥	ʌ̣̥̥̥	ḷ̥̥	ʌ̣̥̥̥	
	ɟ̣̥̥̥	ṭ̥̥̥	ʈ̣̥̥̥	ʈ̣̥̥̥̥	ḷ̥̥̥	ʌ̣̥̥̥	ʌ̣̥̥̥̥	ʈ̣̥̥̥	ʈ̣̥̥̥̥	ɟ̣̥̥̥	ɣ̣̥̥̥	ṿ̥̥̥	ʌ̣̥̥̥	ʌ̣̥̥̥̥	ḷ̥̥̥	ʌ̣̥̥̥̥	
基础字母:	ɟ	ʈ	ʈ̥	e	ɛ	ɟ	ɟ̥	s	ɣ	ɣ̥	r	u					
派生字母:	ɟ̣	ʈ̣	ʈ̣̥	ẹ	ɛ̣	ɟ̣	ɟ̣̥										
	ɟ̣̥	ʈ̣̥	ʈ̣̥̥	ẹ̥	ɛ̣̥	ɟ̣̥	ɟ̣̥̥										
	ɟ̣̥̥	ʈ̣̥̥	ʈ̣̥̥̥	ẹ̥̥	ɛ̣̥̥	ɟ̣̥̥	ɟ̣̥̥̥										

韵母符号																				
单韵母:	—	o	ɔ	o	u	ɔ	i	ɛ	ii	ɛ	ɔ	ɛ	o	ɟ	ɣ	ɟ̥	u	ɛ	ɛ	
复韵母:	ou	oɛ	oo	oɟ	ou	oɟ	oɟ	oo	oo	oo	oo	oo	oo	oo	oo	oo	oo	oo	oo	oo

声调标写方法									
调序	1	2	3	4	5	6	7	8	
调号		T	3	M	ɣ	S	L	t	(1 调不标)
调值	55	35	53	23	33	31	22	11	
字例	ɟu	ɟ-T	ʈn3	liM	ɟir	ʈos	ʈnL	eüt	
清音	1	3	5	7	调				
浊音	2	4	6	8	调				

Illustration 2: Chart of complete Chuxiong style Lao Miaowen system. (Wang Yangcai, 2005).

The Reformed, New Miao and Chuxiong 1988 orthographies strive to mark actual phonetic tone values, not phonological tone categories. These tone values are numbered for naming purposes. Tone values have graphical representation (except for one which is unmarked), but the representation used is not consistent across the different reformed orthographies. While the graphical shape is not completely consistent, the tone number and values do map across all versions. Therefore the graphical variations in the various reformed and 1988 versions should be treated as alloglyphs or font presentation issues.

3. 声调表 *

小字母的位置	调值	调类	苗文例字	国际音标	意义
在大字母的上方	7	3	ɣ(ɣ)ɣ̄	ʃeɣ ⁵⁵ ntso ⁵⁵ ntsa ⁵⁵ ʒɔi ⁵⁵	早上刷牙
在大字母的右上角	4	1	(ɣ)ɣ̄ɣ̄	ŋqu ⁵⁵ ntsa ⁵⁵ mi ⁵⁵ sie ⁵⁵	绿草青青
	4 _I		ɣ T	a ³³ dau ³³	墙壁
	5		ɣ(ɣ)ɣ̄	ʒau ³³ ntsi ³³ ntɕo ³³ tɕie ³³	美名永记
	6 _I		ɣ̄	la ⁵³ bie ⁵³⁻³¹	别人的
在大字母的右侧	8 _I		V T	va ⁵³ dau ⁵³⁻³¹	豆饭
	1	2	(ɣ)ɣ̄ɣ̄	ɣghau ⁵⁵ dzheɣ ⁵⁵ mdi ⁵⁵ hɔu ⁵⁵	姑娘会绣花
在大字母的右下角	7		ɣ.ɣ.ɣ.ɣ	ma ¹¹ ma ¹¹ seɣ ¹¹ kau ¹¹	阿妹缝帽
	4 _{II}		ɣ.ɣ.ɣ.ɣ	ni ¹¹ mɔu ¹¹ ni ¹¹ dzɔu ¹¹ dɔu ¹¹	他能走到
	6 _{II}		L T	la ³¹ die ³¹	真高兴
	8 _{II}		ɣ.ɣ.ɣ	ghau ³¹ zhi ³¹	十八

* 4_I, 6_I, 8_I调是4, 6, 8调名词(包括量词), 有个别虚词(包括副词)的调类。

Illustration 3: A mapping in Ahmao between Chao-style tone markers, Chuxiong style Tone Values, Miao Tone Categories and IPA tone numbers (Wang 1991).

Fifth tone position

Originally, five locations were used for the tone categories. As the script was refined the fifth position underneath the initial, called the “floor” position, was dropped in most areas. But in some Miao and Yi dialects the fifth tone position still exists. See illustrations 4 and 5 below.

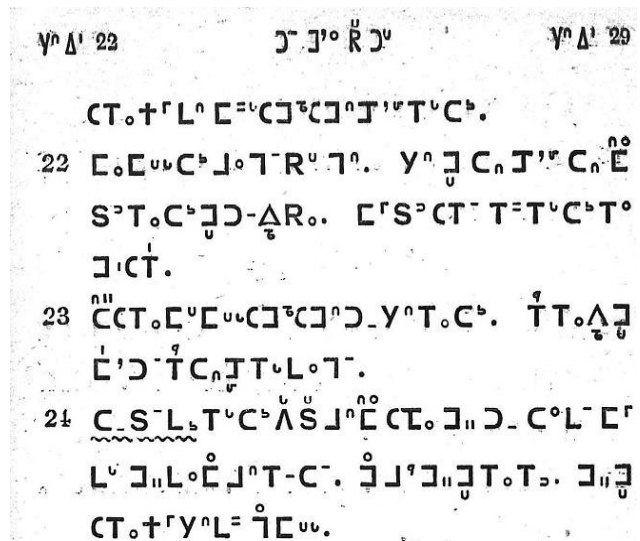
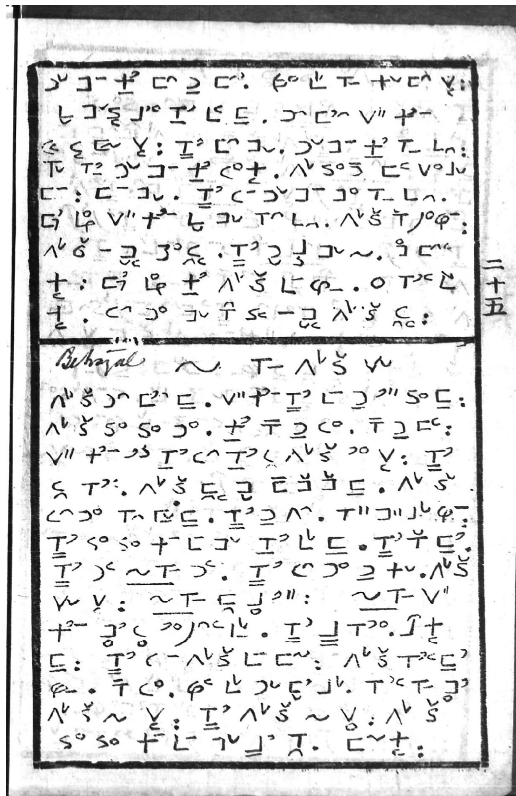


Illustration 4: (Left) “Hymnbook is Lakkia” [sic, likely Laka] from Cambridge University Library showing the “floor” fifth tone position. Illustration 5: (Right) “John in Laka” from Cambridge University Library showing the “floor” fifth tone category.

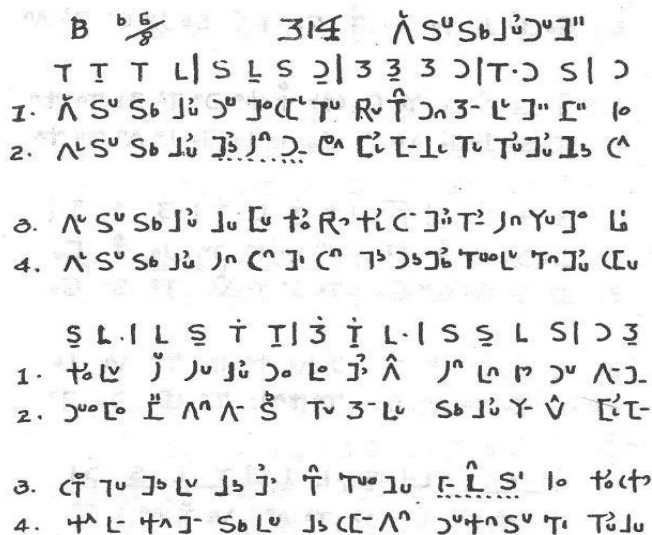


Illustration 6: Musical notation with Lao Miaowen replacing the numbers in a Yi hymnal.

Punctuation

Users of the Miao script freely use punctuation marks from both Chinese and Latin scripts. No new encodings for punctuation are required.

Line breaking

Line breaks occur in place of spaces or after punctuation. A line break may not be inserted between any Miao characters, or before punctuation. There is no line breaking hyphenation.

Word breaking

Word breaking occurs only before an initial consonant. Syllables, which consist of consonant grapheme clusters and vowels, are never split. Multiple syllable words are common.

Composites with “wart”

There is a mark called a “wart” in English. The “wart” is said to represent a “reduced stress”, exactly the same way as the dot-like mark in “half-voiced” characters of the Chuxiong style of the script. Characters with the dot-like mark and “wart” characters are never used together. Some Yi users do the same thing with a vertical stroke mark resembling a serif on the letters. For an example of this stroke variation see the last line of the Yi illustration 6 above. The same word in the same dialect is either written with a wart, a stress mark, the serif-like mark, or without any modification depending on the orthography used in the document. Some documents are published in both “wart” and “dot-like” forms for different user communities. The users claim that they are different ways to write the same characters.

The wart is only known to be extant in relatively recent Ahmao writings, and some Yi areas. There are two graphical forms of the wart, a “left” and a “right”. Both of the left and right forms represent the same function and sometimes vary predictably depending on the shape of the character it appears in, but there is a great deal of regional variation. By default, the “wart” is applied to the left side so it is not confused with a vowel. If the base grapheme is hollow on the right side, the “wart” sometimes is applied to the right to reduce space used in printing.

A separate code point is not required for the “wart” mark, since “wart” containing composites are a presentation variation of the “dot-like” mark. The “wart” and “dot-like” mark are unified because the differences are visual, that is, these differences are font implementation issues and not encoding issues. See the illustration of the “wart” below.



Illustration 7: Ahmao Tower of Babel passage excerpt from unknown source showing the “wart” (Wang Shi Wei, 2005).

MIAO VOWEL IR FOOT, MIAO LETTER FA and TONE CATEGORY 5

The MIAO VOWEL IR FOOT, MIAO LETTER FA and MIAO TONE 5 have similar shapes. They are not the same characters, however. They have different behaviors, and are different sizes. They exist in different areas of the syllable.

MIAO LETTER NA and MIAO NASALIZATION MARK

The MIAO NASALIZATION MARK and the MIAO LETTER NA look similar to some people at first glance. They are not the same. The MIAO NASALIZATION MARK is visually much narrower and occurs in different areas of the syllable. The MIAO NASALIZATION MARK is a combining mark so the behavior is different from the MIAO LETTER NA.

Collation order and encoding

There is wide variation between user groups in the collating order. Even with the more comprehensive Chuxiong 1988 style orthography where there is a definite collating order prescribed, there is frequently variation in the order where the “Y” character should be. This Chuxiong 1988 style sequence is close to the 1936 style sequence that is taught in government schools in Guizhou province. The default order is: I < V < M, where I is the set of initials, M is the set of combining marks, and V is the set of vowels, with every case of I, V, or M, the primary order is given by the encoding order. The set of tones are primary ignorable with secondary order given by the encoding order.

Need for space for additional characters

Many minority groups use the script, so the script might logically expand. Additional characters beyond the Miao sets are already in extensive use by several Yi groups, and these characters are included. There are some rare characters that were used in some of the experimental reform orthographies. Enwall (1994b) has an excellent treatment of the history of these experimental reforms. It is possible that since hundreds or as many as tens of thousands of people were taught these reformed orthographies that they may not truly be dead writing systems. These few characters are not encoded because they were experimental and no publishing has yet been found using these characters. For these reasons it is recommended that a few code points be reserved beyond the space required for this proposal. The reasonable argument for keeping the additional code points fairly low is that the 1988 Chuxiong style orthography is quite extensive, and is likely to cover most requirements from a language found in South West China.

Vowel diphthongs are commonly created in fonts for aesthetic reasons, and are sometimes taught as units. These are font issues and not script issues, so they have not been included.

Encoding

Names list

Names use the equivalent New Miao Latin orthography where possible, but there is not a one-to-one mapping between the New Miao Latin-based orthography and the Miao script. In many cases an approximation of pronunciation is used. A vowel is added to the initials to make the names pronounceable.

The code points used in this list are consistent with the Road Map.

Names list with decomposed initials and vowels in all tone category positions

Initials

Hex	Symbol	Name	Hex	Symbol	Name
16F00	ⱱ	MIAO LETTER PA	16F1A	Ɔ	MIAO LETTER FA
16F01	ⱳ	MIAO LETTER TA	16F1B	ⱱ	MIAO LETTER HA
16F02	Ⱶ	MIAO LETTER KA	16F1C	Ɔ	MIAO LETTER LOAN RA
16F03	ⱷ	MIAO LETTER TSHA	16F1D	ⱱ	MIAO LETTER WA
16F04	ⱹ	MIAO LETTER TCA	16F1E	ⱱ	MIAO LETTER PRA
16F05	ⱻ	MIAO LETTER TLA	16F1F	ⱳ	MIAO LETTER DRWE
16F06	ⱽ	MIAO LETTER PALATALIZED TLA	16F20	Ⱶ	MIAO LETTER TSRA
16F07	Ɀ	MIAO LETTER TSA	16F21	ⱷ	MIAO LETTER TZYHA
16F08	ⲁ	MIAO LETTER TRA	16F22		(Reserved for future use)
16F09	ⲃ	MIAO LETTER QA	16F23		(Reserved for future use)
16F0A	ⲅ	MIAO LETTER A	16F24		(Reserved for future use)
16F0B	ⲇ	MIAO LETTER VA	16F25		(Reserved for future use)
16F0C	ⲉ	MIAO LETTER JA			
16F0D	ⲋ	MIAO LETTER ZFLA			
16F0E	ⲍ	MIAO LETTER LA			
16F0F	ⲏ	MIAO LETTER HLA			
16F10	Ⲑ	MIAO LETTER MA			
16F11	Ⲓ	MIAO LETTER NA			
16F12	Ⲕ	MIAO LETTER ZA			
16F13	Ⲗ	MIAO LETTER NJHA			
16F14	Ⲙ	MIAO LETTER NRA			
16F15	Ⲛ	MIAO LETTER NGA			
16F16	Ⲝ	MIAO LETTER HXA			
16F17	Ⲟ	MIAO LETTER SRA			
16F18	Ⲡ	MIAO LETTER SFRA			
16F19	Ⲣ	MIAO LETTER SA			

Combining marks

16F26	◌̥	MIAO MARK NASALIZATION
16F27	◌̇	MIAO MARK ASPIRATED
16F28	◌̣	MIAO MARK VOICED

Tone value marks

16F29	ⱱ	MIAO TONE 2
16F2A	ⱳ	MIAO TONE 3
16F2B	Ⱶ	MIAO TONE 4
16F2C	ⱷ	MIAO TONE 5
16F2D	ⱹ	MIAO TONE 6
16F2E	ⱻ	MIAO TONE 7
16F2F	ⱽ	MIAO TONE 8

Vowels

16F30	◌̄	MIAO VOWEL A HEAD	16F4C	◌̄	MIAO VOWEL YU FOOT
16F31	◌̄	MIAO VOWEL A SHOULDER	16F4D	◌̄	MIAO VOWEL YU FLOOR
16F32	◌̄	MIAO VOWEL A WAIST	16F4E	◌̄	MIAO VOWEL AI HEAD
16F33	◌̄	MIAO VOWEL A FOOT	16F4F	◌̄	MIAO VOWEL AI SHOULDER
16F34	◌̄	MIAO VOWEL A FLOOR	16F50	◌̄	MIAO VOWEL AI WAIST
16F35	◌̄	MIAO VOWEL O HEAD	16F51	◌̄	MIAO VOWEL AI FOOT
16F36	◌̄	MIAO VOWEL O SHOULDER	16F52	◌̄	MIAO VOWEL AI FLOOR
16F37	◌̄	MIAO VOWEL O WAIST	16F53	◌̄	MIAO VOWEL EI HEAD
16F38	◌̄	MIAO VOWEL O FOOT	16F54	◌̄	MIAO VOWEL EI SHOULDER
16F39	◌̄	MIAO VOWEL O FLOOR	16F55	◌̄	MIAO VOWEL EI WAIST
16F3A	◌̄	MIAO VOWEL E HEAD	16F56	◌̄	MIAO VOWEL EI FOOT
16F3B	◌̄	MIAO VOWEL E SHOULDER	16F57	◌̄	MIAO VOWEL EI FLOOR
16F3C	◌̄	MIAO VOWEL E WAIST	16F58	◌̄	MIAO VOWEL AU HEAD
16F3D	◌̄	MIAO VOWEL E FOOT	16F59	◌̄	MIAO VOWEL AU SHOULDER
16F3E	◌̄	MIAO VOWEL E FLOOR	16F5A	◌̄	MIAO VOWEL AU WAIST
16F3F	◌̄	MIAO VOWEL I HEAD	16F5B	◌̄	MIAO VOWEL AU FOOT
16F40	◌̄	MIAO VOWEL I SHOULDER	16F5C	◌̄	MIAO VOWEL AU FLOOR
16F41	◌̄	MIAO VOWEL I WAIST	16F5D	◌̄	MIAO VOWEL EU HEAD
16F42	◌̄	MIAO VOWEL I FOOT	16F5E	◌̄	MIAO VOWEL EU SHOULDER
16F43	◌̄	MIAO VOWEL I FLOOR	16F5F	◌̄	MIAO VOWEL EU WAIST
16F44	◌̄	MIAO VOWEL U HEAD	16F60	◌̄	MIAO VOWEL EU FOOT
16F45	◌̄	MIAO VOWEL U SHOULDER	16F61	◌̄	MIAO VOWEL EU FLOOR
16F46	◌̄	MIAO VOWEL U WAIST	16F62	◌̄	MIAO VOWEL W HEAD
16F47	◌̄	MIAO VOWEL U FOOT	16F63	◌̄	MIAO VOWEL W SHOULDER
16F48	◌̄	MIAO VOWEL U FLOOR	16F64	◌̄	MIAO VOWEL W WAIST
16F49	◌̄	MIAO VOWEL YU HEAD	16F65	◌̄	MIAO VOWEL W FOOT
16F4A	◌̄	MIAO VOWEL YU SHOULDER	16F66	◌̄	MIAO VOWEL W FLOOR
16F4B	◌̄	MIAO VOWEL YU WAIST	16F67	◌̄	MIAO VOWEL AN HEAD
			16F68	◌̄	MIAO VOWEL AN SHOULDER
			16F69	◌̄	MIAO VOWEL AN WAIST
			16F6A	◌̄	MIAO VOWEL AN FOOT

16F6B	◌̥	MIAO VOWEL AN FLOOR	16F8B	◌̥ʷ	MIAO VOWEL UA SHOULDER
16F6C	◌̥	MIAO VOWEL AW HEAD	16F8C	◌̥ʷ	MIAO VOWEL UA WAIST
16F6D	◌̥	MIAO VOWEL AW SHOULDER	16F8D	◌̥ʷ	MIAO VOWEL UA FOOT
16F6E	◌̥	MIAO VOWEL AW WAIST	16F8E	◌̥	MIAO VOWEL UA FLOOR
16F6F	◌̥	MIAO VOWEL AW FOOT	16F8F	◌̥	MIAO VOWEL EN HEAD
16F70	◌̥	MIAO VOWEL AW FLOOR	16F90	◌̥	MIAO VOWEL EN SHOULDER
16F71	◌̥	MIAO VOWEL IE HEAD	16F91	◌̥	MIAO VOWEL EN WAIST
16F72	◌̥	MIAO VOWEL IE SHOULDER	16F92	◌̥	MIAO VOWEL EN FOOT
16F73	◌̥	MIAO VOWEL IE WAIST	16F93	◌̥	MIAO VOWEL EN FLOOR
16F74	◌̥	MIAO VOWEL IE FOOT	16F94	◌̥	MIAO VOWEL ENG HEAD
16F75	◌̥	MIAO VOWEL IE FLOOR	16F95	◌̥	MIAO VOWEL ENG SHOULDER
16F76	◌̥	MIAO VOWEL IU HEAD	16F96	◌̥	MIAO VOWEL ENG WAIST
16F77	◌̥	MIAO VOWEL IU SHOULDER	16F97	◌̥	MIAO VOWEL ENG FOOT
16F78	◌̥	MIAO VOWEL IU WAIST	16F98	◌̥	MIAO VOWEL ENG FLOOR
16F79	◌̥	MIAO VOWEL IU FOOT	16F99	◌̥	MIAO VOWEL ANG HEAD
16F7A	◌̥	MIAO VOWEL IU FLOOR	16F9A	◌̥	MIAO VOWEL ANG SHOULDER
16F7B	◌̥	MIAO VOWEL LRU HEAD	16F9B	◌̥	MIAO VOWEL ANG WAIST
16F7C	◌̥	MIAO VOWEL LRU SHOULDER	16F9C	◌̥	MIAO VOWEL ANG FOOT
16F7D	◌̥	MIAO VOWEL LRU WAIST	16F9D	◌̥	MIAO VOWEL ANG FLOOR
16F7E	◌̥	MIAO VOWEL LRU FOOT	16F9E	◌̥	MIAO VOWEL JE HEAD
16F7F	◌̥	MIAO VOWEL LRU FLOOR	16F9F	◌̥	MIAO VOWEL JE SHOULDER
16F80	◌̥	MIAO VOWEL IR HEAD	16FA0	◌̥	MIAO VOWEL JE WAIST
16F81	◌̥	MIAO VOWEL IR SHOULDER	16FA1	◌̥	MIAO VOWEL JE FOOT
16F82	◌̥	MIAO VOWEL IR WAIST	16FA2	◌̥	MIAO VOWEL JE FLOOR
16F83	◌̥	MIAO VOWEL IR FOOT	16FA3	◌̥	MIAO VOWEL AY HEAD
16F84	◌̥	MIAO VOWEL IR FLOOR	16FA4	◌̥	MIAO VOWEL AY SHOULDER
16F85	◌̥	MIAO VOWEL IA HEAD	16FA5	◌̥	MIAO VOWEL AY WAIST
16F86	◌̥	MIAO VOWEL IA SHOULDER	16FA6	◌̥	MIAO VOWEL AY FOOT
16F87	◌̥	MIAO VOWEL IA WAIST	16FA7	◌̥	MIAO VOWEL AY FLOOR
16F88	◌̥	MIAO VOWEL IA FOOT	16FA8	◌̥	MIAO VOWEL JI HEAD
16F89	◌̥	MIAO VOWEL IA FLOOR	16FA9	◌̥	MIAO VOWEL JI SHOULDER
16F8A	◌̥	MIAO VOWEL UA HEAD	16FAA	◌̥	MIAO VOWEL JI WAIST

16FAB	○ _ɿ	MIAO VOWEL JI FOOT	16FCB	△	MIAO VOWEL ZYI HEAD
16FAC	○ _ɿ	MIAO VOWEL JI FLOOR	16FCC	○ [^]	MIAO VOWEL ZYI SHOULDER
16FAD	○ _ɿ	MIAO VOWEL IEH HEAD	16FCD	○ [^]	MIAO VOWEL ZYI WAIST
16FAE	○ ^ɿ	MIAO VOWEL IEH SHOULDER	16FCE	○ [^]	MIAO VOWEL ZYI FOOT
16FAF	○ ^ɿ	MIAO VOWEL IEH WAIST	16FCF	○ _ɿ	MIAO VOWEL ZYI FLOOR
16FB0	○ _ɿ	MIAO VOWEL IEH FOOT	16FD0	○ _e	MIAO VOWEL BREATHY AW HEAD
16FB1	○ _ɿ	MIAO VOWEL IEH FLOOR	16FD1	○ _e	MIAO VOWEL BREATHY AW SHOULDER
16FB2	○ _ɿ	MIAO VOWEL ZJUH HEAD	16FD2	○ _e	MIAO VOWEL BREATHY AW WAIST
16FB3	○ _ɿ	MIAO VOWEL ZJUH SHOULDER	16FD3	○ _e	MIAO VOWEL BREATHY AW FOOT
16FB4	○ _ɿ	MIAO VOWEL ZJUH WAIST	16FD4	○ _e	MIAO VOWEL BREATHY AW FLOOR
16FB5	○ _ɿ	MIAO VOWEL ZJUH FOOT	16FD5	○ _ɿ	MIAO VOWEL CREAKY WAH HEAD
16FB6	○ _ɿ	MIAO VOWEL ZJUH FLOOR	16FD6	○ _ɿ	MIAO VOWEL CREAKY WAH SHOULDER
16FB7	○ _ɿ	MIAO VOWEL EAH HEAD	16FD7	○ _ɿ	MIAO VOWEL CREAKY WAH WAIST
16FB8	○ ^b	MIAO VOWEL EAH SHOULDER	16FD8	○ _ɿ	MIAO VOWEL CREAKY WAH FOOT
16FB9	○ ^b	MIAO VOWEL EAH WAIST	16FD9	○ _ɿ	MIAO VOWEL CREAKY WAH FLOOR
16FBA	○ ^b	MIAO VOWEL EAH FOOT	16FDA	○ _ɿ	MIAO VOWEL CREAKY WRI HEAD
16FBB	○ _ɿ	MIAO VOWEL EAH FLOOR	16FDB	○ _ɿ	MIAO VOWEL CREAKY WRI SHOULDER
16FBC	○ _ɿ	MIAO VOWEL YUE HEAD	16FDC	○ _ɿ	MIAO VOWEL CREAKY WRI WAIST
16FBD	○ _ɿ	MIAO VOWEL YUE SHOULDER	16FDD	○ _ɿ	MIAO VOWEL CREAKY WRI FOOT
16FBE	○ _ɿ	MIAO VOWEL YUE WAIST	16FDE	○ _ɿ	MIAO VOWEL CREAKY WRI FLOOR
16FBF	○ _ɿ	MIAO VOWEL YUE FOOT	16FDF	○ _ɿ	MIAO VOWEL CREAKY OW HEAD
16FC0	○ _ɿ	MIAO VOWEL YUE FLOOR	16FE0	○ _ɿ	MIAO VOWEL CREAKY OW SHOULDER
16FC1	○ _ɿ	MIAO VOWEL AO HEAD	16FE1	○ _ɿ	MIAO VOWEL CREAKY OW WAIST
16FC2	○ _ɿ	MIAO VOWEL AO SHOULDER	16FE2	○ _ɿ	MIAO VOWEL CREAKY OW FOOT
16FC3	○ _ɿ	MIAO VOWEL AO WAIST	16FE3	○ _ɿ	MIAO VOWEL CREAKY OW FLOOR
16FC4	○ _ɿ	MIAO VOWEL AO FOOT	16FE4	○ _ɿ	MIAO VOWEL CREAKY I HEAD
16FC5	○ _ɿ	MIAO VOWEL AO FLOOR	16FE5	○ _ɿ	MIAO VOWEL CREAKY I SHOULDER
16FC6	○ _ɿ	MIAO VOWEL YI HEAD	16FE6	○ _ɿ	MIAO VOWEL CREAKY I WAIST
16FC7	○ _ɿ	MIAO VOWEL YI SHOULDER	16FE7	○ _ɿ	MIAO VOWEL CREAKY I FOOT
16FC8	○ _ɿ	MIAO VOWEL YI WAIST	16FE8	○ _ɿ	MIAO VOWEL CREAKY I FLOOR
16FC9	○ _ɿ	MIAO VOWEL YI FOOT	16FE9	○ _ɿ	MIAO VOWEL UW HEAD
16FCA	○ _ɿ	MIAO VOWEL YI FLOOR	16FEA	○ _ɿ	MIAO VOWEL UW SHOULDER

16FEB	◌ ^w	MIAO VOWEL UW WAIST	16FF6	(Reserved for future use)
16FEC	◌ _w	MIAO VOWEL UW FOOT	16FF7	(Reserved for future use)
16FED	◌ _w	MIAO VOWEL UW FLOOR	16FF8	(Reserved for future use)
16FEE		(Reserved for future use)	16FF9	(Reserved for future use)
16FEF		(Reserved for future use)	16FFA	(Reserved for future use)
16FF0		(Reserved for future use)	16FFB	(Reserved for future use)
16FF1		(Reserved for future use)	16FFC	(Reserved for future use)
16FF2		(Reserved for future use)	16FFD	(Reserved for future use)
16FF3		(Reserved for future use)	16FFE	(Reserved for future use)
16FF4		(Reserved for future use)	16FFF	(Reserved for future use)
16FF5		(Reserved for future use)		

Unicode character properties

The code points used in this list are consistent with the Road Map.

16F00-16F21;MIAO LETTER x;Lo;0;L;N;
 16F26;MIAO MARK NASALIZATION;Mc;0;L;
 16F27;MIAO MARK ASPIRATED;Mc;0;L;
 16F28;MIAO MARK VOICED;Mc;0;L;
 16F29-16F2F;MIAO TONE x;Lm;0;L;N;
 16F30-16FED;MIAO VOWEL x;Mc;0;L;N; *

* **NOTE:** Vowels with HEAD or FLOOR Tone Classes are side-by-side stacking marks with General Category properties of Mn instead of Mc.

Bibliography

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.

Unknown editors (1948). "Miao hymnal", China Inland Mission republished by Zhongguo Jidujiao Xiehui 中国基督教协会 "Chinese Christian Association" reprint in 1988.

Unknown editors (1984), "Black Yi songbook". Yunnan Sheng Jidujiao Xiehui 云南省基督教协会 "Yunnan Province Christian Association".

Unknown editors (unknown date), "White [sic] Yi songbook", Yunnan Sheng Jidujiao Xiehui 云南省基督教协会 "Yunnan Province Christian Association".

Wang, Chunde 王春德, et al., Eds. (1991). 中国少数文字 "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 MiaoZu 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
0	ɟ	ɠ	ɣ
1	ʈ	ʈ	ʈ
2	ɕ	ʂ	
3	ʈ	ʂ	
4	ɭ	e	
5	ʈ	ʈ	
6	ʈ	ɭ	ʈ
7	ʈ	ɣ	ʈ
8	ʈ	ɣ	ʈ
9	ɣ	ʂ	ʈ
A	ɣ	ʈ	ʂ
B	ʈ	ʈ	M
C	ʈ	R	ʈ
D	A	U	S
E	L	ɭ	L
F	ɭ	I	t

	16F3	16F4	16F5	16F6	16F7	16F8	16F9	16FA	16FB	16FC	16FD	16FE	16FF
0	◌̄	◌̣̄	◌̥̄	◌̦̄	◌̧̄	◌̨̄	◌̩̄	◌̪̄	◌̫̄	◌̬̄	◌̭̄	◌̮̄	
1	◌̄̇	◌̄̈	◌̄̉	◌̄̊	◌̄̋	◌̄̌	◌̄̍	◌̄̎	◌̄̏	◌̄̐	◌̄̑	◌̄̒	
2	◌̣̄̇	◌̣̄̈	◌̣̄̉	◌̣̄̊	◌̣̄̋	◌̣̄̌	◌̣̄̍	◌̣̄̎	◌̣̄̏	◌̣̄̐	◌̣̄̑	◌̣̄̒	
3	◌̥̄̇	◌̥̄̈	◌̥̄̉	◌̥̄̊	◌̥̄̋	◌̥̄̌	◌̥̄̍	◌̥̄̎	◌̥̄̏	◌̥̄̐	◌̥̄̑	◌̥̄̒	
4	◌̦̄̇	◌̦̄̈	◌̦̄̉	◌̦̄̊	◌̦̄̋	◌̦̄̌	◌̦̄̍	◌̦̄̎	◌̦̄̏	◌̦̄̐	◌̦̄̑	◌̦̄̒	
5	◌̧̄̇	◌̧̄̈	◌̧̄̉	◌̧̄̊	◌̧̄̋	◌̧̄̌	◌̧̄̍	◌̧̄̎	◌̧̄̏	◌̧̄̐	◌̧̄̑	◌̧̄̒	
6	◌̨̄̇	◌̨̄̈	◌̨̄̉	◌̨̄̊	◌̨̄̋	◌̨̄̌	◌̨̄̍	◌̨̄̎	◌̨̄̏	◌̨̄̐	◌̨̄̑	◌̨̄̒	
7	◌̩̄̇	◌̩̄̈	◌̩̄̉	◌̩̄̊	◌̩̄̋	◌̩̄̌	◌̩̄̍	◌̩̄̎	◌̩̄̏	◌̩̄̐	◌̩̄̑	◌̩̄̒	
8	◌̪̄̇	◌̪̄̈	◌̪̄̉	◌̪̄̊	◌̪̄̋	◌̪̄̌	◌̪̄̍	◌̪̄̎	◌̪̄̏	◌̪̄̐	◌̪̄̑	◌̪̄̒	
9	◌̫̄̇	◌̫̄̈	◌̫̄̉	◌̫̄̊	◌̫̄̋	◌̫̄̌	◌̫̄̍	◌̫̄̎	◌̫̄̏	◌̫̄̐	◌̫̄̑	◌̫̄̒	
A	◌̬̄̇	◌̬̄̈	◌̬̄̉	◌̬̄̊	◌̬̄̋	◌̬̄̌	◌̬̄̍	◌̬̄̎	◌̬̄̏	◌̬̄̐	◌̬̄̑	◌̬̄̒	
B	◌̭̄̇	◌̭̄̈	◌̭̄̉	◌̭̄̊	◌̭̄̋	◌̭̄̌	◌̭̄̍	◌̭̄̎	◌̭̄̏	◌̭̄̐	◌̭̄̑	◌̭̄̒	
C	◌̮̄̇	◌̮̄̈	◌̮̄̉	◌̮̄̊	◌̮̄̋	◌̮̄̌	◌̮̄̍	◌̮̄̎	◌̮̄̏	◌̮̄̐	◌̮̄̑	◌̮̄̒	
D	◌̯̄̇	◌̯̄̈	◌̯̄̉	◌̯̄̊	◌̯̄̋	◌̯̄̌	◌̯̄̍	◌̯̄̎	◌̯̄̏	◌̯̄̐	◌̯̄̑	◌̯̄̒	
E	◌̰̄̇	◌̰̄̈	◌̰̄̉	◌̰̄̊	◌̰̄̋	◌̰̄̌	◌̰̄̍	◌̰̄̎	◌̰̄̏	◌̰̄̐	◌̰̄̑		
F	◌̱̄̇	◌̱̄̈	◌̱̄̉	◌̱̄̊	◌̱̄̋	◌̱̄̌	◌̱̄̍	◌̱̄̎	◌̱̄̏	◌̱̄̐	◌̱̄̑		

ISO/IEC JTC 1/SC 2/WG 2
PROPOSAL SUMMARY FORM TO ACCOMPANY SUBMISSIONS
FOR ADDITIONS TO THE REPERTOIRE OF ISO/IEC 10646¹.

Please fill all the sections A, B and C below.

Please read Principles and Procedures Document (P & P) from <http://www.dkuug.dk/JTC1/SC2/WG2/docs/principles.html> for guidelines and details before filling this form.

Please ensure you are using the latest Form from <http://www.dkuug.dk/JTC1/SC2/WG2/docs/summaryform.html>.

See also <http://www.dkuug.dk/JTC1/SC2/WG2/docs/roadmaps.html> for latest Roadmaps.

A. Administrative

1. Title:	Proposal for encoding the Miao script
2. Requester's name:	<i>China</i>
3. Requester type (Member body/Liaison/Individual contribution):	<i>Member body</i>
4. Submission date:	<i>2009-09-25</i>
5. Requester's reference (if applicable):	
6. Choose one of the following:	
This is a complete proposal:	<i>Yes</i>
(or) More information will be provided later:	<i>No</i>

B. Technical – General

1. Choose one of the following:	
a. This proposal is for a new script (set of characters):	<i>Yes</i>
Proposed name of script:	<i>Miao</i>
b. The proposal is for addition of character(s) to an existing block:	
Name of the existing block:	
2. Number of characters in proposal:	<i>234</i>
3. Proposed category (select one from below - see section 2.2 of P&P document):	
A-Contemporary <input checked="" type="checkbox"/>	B.1-Specialized (small collection) <input type="checkbox"/>
B.2-Specialized (large collection) <input type="checkbox"/>	C-Major extinct <input type="checkbox"/>
D-Attested extinct <input type="checkbox"/>	E-Minor extinct <input type="checkbox"/>
F-Archaic Hieroglyphic or Ideographic <input type="checkbox"/>	G-Obscure or questionable usage symbols <input type="checkbox"/>
4. Is a repertoire including character names provided?	<i>Yes</i>
a. If YES, are the names in accordance with the "character naming guidelines" in Annex L of P&P document?	<i>Yes</i>
b. Are the character shapes attached in a legible form suitable for review?	<i>Yes</i>
5. Who will provide the appropriate computerized font (ordered preference: True Type, or PostScript format) for publishing the standard?	<i>David Morse</i>
If available now, identify source(s) for the font (include address, e-mail, ftp-site, etc.) and indicate the tools used:	<i>ntcm0@yahoo.com</i>
6. References:	
a. Are references (to other character sets, dictionaries, descriptive texts etc.) provided?	<i>Yes</i>
b. Are published examples of use (such as samples from newspapers, magazines, or other sources) of proposed characters attached?	<i>Yes</i>
7. Special encoding issues:	
Does the proposal address other aspects of character data processing (if applicable) such as input, presentation, sorting, indexing, transliteration etc. (if yes please enclose information)?	<i>Yes</i>
	<i>Addressed throughout proposal.</i>

8. Additional Information:

Submitters are invited to provide any additional information about Properties of the proposed Character(s) or Script that will assist in correct understanding of and correct linguistic processing of the proposed character(s) or script. Examples of such properties are: Casing information, Numeric information, Currency information, Display behavior information such as line breaks, widths etc., Combining behavior, Spacing behavior, Directional behavior, Default Collation behavior, relevance in Mark Up contexts, Compatibility equivalence and other Unicode normalization related information. See the Unicode standard at <http://www.unicode.org> for such information on other scripts. Also see <http://www.unicode.org/Public/UNIDATA/UCD.html> and associated Unicode Technical Reports for information needed for consideration by the Unicode Technical Committee for inclusion in the Unicode Standard.

¹ Form number: N3102-F (Original 1994-10-14; Revised 1995-01, 1995-04, 1996-04, 1996-08, 1999-03, 2001-05, 2001-09, 2003-11, 2005-01, 2005-09, 2005-10, 2007-03)

C. Technical - Justification

1. Has this proposal for addition of character(s) been submitted before? If YES explain	<i>Preliminary proposals (L2/97-104) and N3335; this is a revision of L2/09-253</i>	Yes
2. Has contact been made to members of the user community (for example: National Body, user groups of the script or characters, other experts, etc.)? If YES, with whom? If YES, available relevant documents:	<i>Yunnan Minority Language Commission, David Morse, Joakim Enwall, Michael Everson, Ireland National Body</i> <i>Pollard mailing list</i>	Yes
3. Information on the user community for the proposed characters (for example: size, demographics, information technology use, or publishing use) is included? Reference:		Yes
4. The context of use for the proposed characters (type of use; common or rare) Reference:	<i>Scriptures, dictionaries, song books, textbooks, signs</i>	common
5. Are the proposed characters in current use by the user community? If YES, where? Reference:	<i>Northeastern Yunnan, China</i>	Yes
6. After giving due considerations to the principles in the P&P document must the proposed characters be entirely in the BMP? If YES, is a rationale provided? If YES, reference:	<i>Vibrancy and size of user community. However it is acknowledged that there is insufficient space in the BMP. Encoding in the SMP is acceptable to all parties involved.</i>	Yes Yes
7. Should the proposed characters be kept together in a contiguous range (rather than being scattered)?		Yes
8. Can any of the proposed characters be considered a presentation form of an existing character or character sequence? If YES, is a rationale for its inclusion provided? If YES, reference:		No
9. Can any of the proposed characters be encoded using a composed character sequence of either existing characters or other proposed characters? If YES, is a rationale for its inclusion provided? If YES, reference:		No
10. Can any of the proposed character(s) be considered to be similar (in appearance or function) to an existing character? If YES, is a rationale for its inclusion provided? If YES, reference:	<i>Some letters appear similar to Cree or Latin, but this is a different script with different behaviors. They should be encoded as a block.</i>	Yes Yes
11. Does the proposal include use of combining characters and/or use of composite sequences? If YES, is a rationale for such use provided? If YES, reference: Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided? If YES, reference:	<i>To avoid invisible control characters</i>	Yes Yes No
12. Does the proposal contain characters with any special properties such as control function or similar semantics? If YES, describe in detail (include attachment if necessary)		No
13. Does the proposal contain any Ideographic compatibility character(s)? If YES, is the equivalent corresponding unified ideographic character(s) identified? If YES, reference:		No