

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 to encode the Tai Lue script in the BMP of the UCS****Source: Michael Everson****Status: Expert Contribution****Action: For consideration by JTC1/SC2/WG2 and UTC****Date: 2003-09-29**

This document requests the Tai Lue script to be added to the UCS and contains the proposal summary form.

**A. Administrative****1. Title**

Proposal for encoding the Tai Lue script in the BMP of the UCS.

**2. Requester's name**

Michael Everson

**3. Requester type (Member body/Liaison/Individual contribution)**

Individual contribution.

**4. Submission date**

2003-09-29

**5. Requester's reference (if applicable)**

N967, N2044, N2242R

**6. Choose one of the following:****6a. This is a complete proposal**

Yes.

**6b. More information will be provided later**

No.

**B. Technical – General****1. Choose one of the following:****1a. This proposal is for a new script (set of characters)**

Yes.

**Proposed name of script**

Tai Lue.

**1b. The proposal is for addition of character(s) to an existing block**

No.

**1b. Name of the existing block****2. Number of characters in proposal**

80

**3. Proposed category (see section II, Character Categories)**

Category A.

**4a. Proposed Level of Implementation (1, 2 or 3) (see clause 14, ISO/IEC 10646-1: 2000)**

Level 2

**4b. Is a rationale provided for the choice?**

Yes.

**4c. If YES, reference**

Tai Lue requires Level 2 implementation as other Brahmic scripts do.

**5a. Is a repertoire including character names provided?**

Yes.

**5b. If YES, are the names in accordance with the character naming guidelines in Annex L of ISO/IEC 10646-1: 2000?**

Yes.

**5c. Are the character shapes attached in a legible form suitable for review?**

Yes.

**6a. Who will provide the appropriate computerized font (ordered preference: True Type, or PostScript format) for publishing the standard?**

SIL International via Michael Everson.

**6b. If available now, identify source(s) for the font (include address, e-mail, ftp-site, etc.) and indicate the tools used:**

Michael Everson, Fontographer.

**7a. Are references (to other character sets, dictionaries, descriptive texts etc.) provided?**

Yes. See the bibliography below.

**7b. Are published examples of use (such as samples from newspapers, magazines, or other sources) of proposed characters attached?**

Yes.

**8. Does the proposal address other aspects of character data processing (if applicable) such as input, presentation, sorting, searching, indexing, transliteration etc. (if yes please enclose information)?**

Yes; specification for surroundant vowels is explained below.

**9. 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 behaviour information such as line breaks, widths etc., Combining behaviour, Spacing behaviour, Directional behaviour, Default Collation behaviour, 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 Unicode Character Database <http://www.unicode.org/Public/UNIDATA/UnicodeCharacterDatabase.html> and associated Unicode Technical Reports for information needed for consideration by the Unicode Technical Committee for inclusion in the Unicode Standard.**

Character properties given below.

## C. Technical – Justification

**1. Has this proposal for addition of character(s) been submitted before? If YES, explain.**

Yes. This is a revised proposal.

**2a. Has contact been made to members of the user community (for example: National Body, user groups of the script or characters, other experts, etc.)?**

Yes.

**2b. If YES, with whom?**

Yes. Zhang Gongjin (Professor of Linguistics, Director of Institute for Kam-Tai Studies, Central University for Nationalities, Beijing), Xi Weining (Yunan Minority Languages Commission).

**2c. If YES, available relevant documents**

WG2 meetings in Beijing and Dublin.

**3. Information on the user community for the proposed characters (for example: size, demographics, information technology use, or publishing use) is included?**

Tai Lue is used by about 500,000 people in the Xishuangbanna Dai Nationality Autonomous Prefecture and Menglian County in China.

**4a. The context of use for the proposed characters (type of use; common or rare)**

Used to write the Tai Lue language.

**4b. Reference**

**5a. Are the proposed characters in current use by the user community?**

Yes.

**5b. If YES, where?**

In China.

**6a. After giving due considerations to the principles in Principles and Procedures document (a WG 2 standing document) must the proposed characters be entirely in the BMP?**

Yes. Positions 1980-19DF are proposed.

**6b. If YES, is a rationale provided?**

Yes.

**6c. If YES, reference**

Contemporary use and accordance with the Roadmap.

**7. Should the proposed characters be kept together in a contiguous range (rather than being scattered)?**

Yes.

**8a. Can any of the proposed characters be considered a presentation form of an existing character or character sequence?**

No.

**8b. If YES, is a rationale for its inclusion provided?**

**8c. If YES, reference**

**9a. Can any of the proposed characters be encoded using a composed character sequence of either existing characters or other proposed characters?**

No.

**9b. If YES, is a rationale for its inclusion provided?**

**9c. If YES, reference**

**10a. Can any of the proposed character(s) be considered to be similar (in appearance or function) to an existing character?**

No.

**10b. If YES, is a rationale for its inclusion provided?**

**10c. If YES, reference**

**11a. Does the proposal include use of combining characters and/or use of composite sequences (see clauses 4.12 and 4.14 in ISO/IEC 10646-1: 2000)?**

Yes.

**11b. If YES, is a rationale for such use provided?**

Yes.

**11c. If YES, reference**

Brahmic vowels.

**12a. Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided?**

Yes.

**12b. If YES, reference**

Annex A below.

**13a. Does the proposal contain characters with any special properties such as control function or similar semantics?**

No.

**13b. If YES, describe in detail (include attachment if necessary)**

**14a. Does the proposal contain any Ideographic compatibility character(s)?**

No.

**14b. If YES, is the equivalent corresponding unified ideographic character(s) identified?**

## E. Proposal

The Tai Lue script was developed as a simplification of the Lanna script. It differs from Lanna in that it regularizes the consonant repertoire, and in that it makes use of spacing vowel signs which appear before or after the consonants they modify, where Lanna makes use of both spacing vowel signs and non-spacing vowel signs which appear above or below the consonants they modify. Vowel signs in Tai Lue are considered combining characters, and follow their base consonants in the text stream. Where a syllable is composed of a vowel sign to the left and a vowel or tone mark on the right of the consonant, sequence of characters is used:  $\text{ᨧᩢ᩠ᨦ ke}^2$  is  $\text{ᨧ ka} + \text{ᩢ e} + \text{᩠ TL}$ ,  $\text{ᨧᩢ᩠ᨦ kə}^1$  is  $\text{ᨧ ka} + \text{ᩢ e} + \text{᩠᩠ i}$ ,  $\text{ᨧᩢ᩠ᨦ kəi}^1$  is  $\text{ᨧ ka} + \text{ᩢ e} + \text{᩠᩠ iy}$ ,  $\text{ᨧᩢ᩠ᨦ kəi}^3$  is  $\text{ᨧ ka} + \text{ᩢ e} + \text{᩠᩠ iy} + \text{᩠ TL}$ , and  $\text{ᨧᩢ᩠ᨦ kəi}^3$  is  $\text{ᨧ ka} + \text{ᩢ e} + \text{᩠᩠ iy} + \text{᩠᩠ T2}$ .

VIRAMA is not used to create conjunct consonants in Tai Lue; clustering is not productive. Tai Lue makes use of a limited set of final consonants, which are modified with a hook showing that the inherent vowel is killed.

Tai Lue consonants denote two tonal registers. The tone marks are used to indicate additional tones. Thus,  $\text{ᨧ KA}^1$  is  $ka^1$ ,  $\text{ᨧᩢ KA}^{11}$  is  $ka^2$ ,  $\text{ᨧ᩠ KA}^{12}$  is  $ka^3$ , and  $\text{ᨧ᩠ KA}^1$  is  $ka^4$ ,  $\text{ᨧᩢ KA}^{11}$  is  $ka^5$ ,  $\text{ᨧ᩠ KA}^{12}$  is  $ka^6$ .

## Unicode Character Properties

1980;TAI LUE LETTER HIGH QA;Lo;0;L;;;;N;;;;;  
 1981;TAI LUE LETTER LOW QA;Lo;0;L;;;;N;;;;;  
 1982;TAI LUE LETTER HIGH KA;Lo;0;L;;;;N;;;;;  
 1983;TAI LUE LETTER LOW KA;Lo;0;L;;;;N;;;;;  
 1984;TAI LUE LETTER HIGH XA;Lo;0;L;;;;N;;;;;  
 1985;TAI LUE LETTER LOW XA;Lo;0;L;;;;N;;;;;  
 1986;TAI LUE LETTER HIGH NGA;Lo;0;L;;;;N;;;;;  
 1987;TAI LUE LETTER LOW NGA;Lo;0;L;;;;N;;;;;  
 1988;TAI LUE LETTER HIGH TSA;Lo;0;L;;;;N;;;;;  
 1989;TAI LUE LETTER LOW CA;Lo;0;L;;;;N;;;;;  
 198A;TAI LUE LETTER HIGH SA;Lo;0;L;;;;N;;;;;  
 198B;TAI LUE LETTER LOW SA;Lo;0;L;;;;N;;;;;  
 198C;TAI LUE LETTER HIGH YA;Lo;0;L;;;;N;;;;;  
 198D;TAI LUE LETTER LOW YA;Lo;0;L;;;;N;;;;;  
 198E;TAI LUE LETTER HIGH TA;Lo;0;L;;;;N;;;;;  
 198F;TAI LUE LETTER LOW TA;Lo;0;L;;;;N;;;;;  
 1990;TAI LUE LETTER HIGH THA;Lo;0;L;;;;N;;;;;  
 1991;TAI LUE LETTER LOW THA;Lo;0;L;;;;N;;;;;  
 1992;TAI LUE LETTER HIGH NA;Lo;0;L;;;;N;;;;;  
 1993;TAI LUE LETTER LOW NA;Lo;0;L;;;;N;;;;;  
 1994;TAI LUE LETTER HIGH PA;Lo;0;L;;;;N;;;;;  
 1995;TAI LUE LETTER LOW PA;Lo;0;L;;;;N;;;;;  
 1996;TAI LUE LETTER HIGH PHA;Lo;0;L;;;;N;;;;;  
 1997;TAI LUE LETTER LOW PHA;Lo;0;L;;;;N;;;;;  
 1998;TAI LUE LETTER HIGH MA;Lo;0;L;;;;N;;;;;  
 1999;TAI LUE LETTER LOW MA;Lo;0;L;;;;N;;;;;  
 199A;TAI LUE LETTER HIGH FA;Lo;0;L;;;;N;;;;;  
 199B;TAI LUE LETTER LOW FA;Lo;0;L;;;;N;;;;;  
 199C;TAI LUE LETTER HIGH VA;Lo;0;L;;;;N;;;;;  
 199D;TAI LUE LETTER LOW VA;Lo;0;L;;;;N;;;;;  
 199E;TAI LUE LETTER HIGH LA;Lo;0;L;;;;N;;;;;  
 199F;TAI LUE LETTER LOW LA;Lo;0;L;;;;N;;;;;  
 19A0;TAI LUE LETTER HIGH HA;Lo;0;L;;;;N;;;;;  
 19A1;TAI LUE LETTER LOW HA;Lo;0;L;;;;N;;;;;  
 19A2;TAI LUE LETTER HIGH DA;Lo;0;L;;;;N;;;;;  
 19A3;TAI LUE LETTER LOW DA;Lo;0;L;;;;N;;;;;  
 19A4;TAI LUE LETTER HIGH BA;Lo;0;L;;;;N;;;;;  
 19A5;TAI LUE LETTER LOW BA;Lo;0;L;;;;N;;;;;  
 19A6;TAI LUE LETTER HIGH KVA;Lo;0;L;;;;N;;;;;

19A7;TAI LUE LETTER LOW KVA;Lo;0;L;;;;N;;;;;  
 19A8;TAI LUE LETTER HIGH XVA;Lo;0;L;;;;N;;;;;  
 19A9;TAI LUE LETTER LOW XVA;Lo;0;L;;;;N;;;;;  
 19B0;TAI LUE LETTER FINAL V;Lo;0;L;;;;N;;;;;  
 19B1;TAI LUE LETTER FINAL NG;Lo;0;L;;;;N;;;;;  
 19B2;TAI LUE LETTER FINAL N;Lo;0;L;;;;N;;;;;  
 19B3;TAI LUE LETTER FINAL M;Lo;0;L;;;;N;;;;;  
 19B4;TAI LUE LETTER FINAL K;Lo;0;L;;;;N;;;;;  
 19B5;TAI LUE LETTER FINAL D;Lo;0;L;;;;N;;;;;  
 19B6;TAI LUE LETTER FINAL B;Lo;0;L;;;;N;;;;;  
 19BC;TAI LUE VOWEL SIGN VOWEL SHORTENER;Mc;0;L;;;;N;;;;;  
 19BD;TAI LUE VOWEL SIGN AA;Mc;0;L;;;;N;;;;;  
 19BE;TAI LUE VOWEL SIGN II;Mc;0;L;;;;N;;;;;  
 19BF;TAI LUE VOWEL SIGN U;Mc;0;L;;;;N;;;;;  
 19C0;TAI LUE VOWEL SIGN UU;Mc;0;L;;;;N;;;;;  
 19C1;TAI LUE VOWEL SIGN EE;Mc;0;L;;;;N;;;;;  
 19C2;TAI LUE VOWEL SIGN E;Mc;0;L;;;;N;;;;;  
 19C3;TAI LUE VOWEL SIGN OO;Mc;0;L;;;;N;;;;;  
 19C4;TAI LUE VOWEL SIGN O;Mc;0;L;;;;N;;;;;  
 19C5;TAI LUE VOWEL SIGN UE;Mc;0;L;;;;N;;;;;  
 19C6;TAI LUE VOWEL SIGN AY;Mc;0;L;;;;N;;;;;  
 19C7;TAI LUE VOWEL SIGN AAY;Mc;0;L;;;;N;;;;;  
 19C8;TAI LUE VOWEL SIGN IY;Mc;0;L;;;;N;;;;;  
 19C9;TAI LUE VOWEL SIGN UY;Mc;0;L;;;;N;;;;;  
 19CA;TAI LUE VOWEL SIGN OY;Mc;0;L;;;;N;;;;;  
 19CB;TAI LUE VOWEL SIGN OY;Mc;0;L;;;;N;;;;;  
 19CC;TAI LUE VOWEL SIGN UEY;Mc;0;L;;;;N;;;;;  
 19CE;TAI LUE TONE MARK-1;Mc;0;L;;;;N;;;;;  
 19CF;TAI LUE TONE MARK-2;Mc;0;L;;;;N;;;;;  
 19D0;TAI LUE DIGIT ZERO;Nd;0;L;0;0;0;N;;;;;  
 19D1;TAI LUE DIGIT ONE;Nd;0;L;1;1;1;N;;;;;  
 19D2;TAI LUE DIGIT TWO;Nd;0;L;2;2;2;N;;;;;  
 19D3;TAI LUE DIGIT THREE;Nd;0;L;3;3;3;N;;;;;  
 19D4;TAI LUE DIGIT FOUR;Nd;0;L;4;4;4;N;;;;;  
 19D5;TAI LUE DIGIT FIVE;Nd;0;L;5;5;5;N;;;;;  
 19D6;TAI LUE DIGIT SIX;Nd;0;L;6;6;6;N;;;;;  
 19D7;TAI LUE DIGIT SEVEN;Nd;0;L;7;7;7;N;;;;;  
 19D8;TAI LUE DIGIT EIGHT;Nd;0;L;8;8;8;N;;;;;  
 19D9;TAI LUE DIGIT NINE;Nd;0;L;9;9;9;N;;;;;  
 19DE;TAI LUE SIGN AND;Po;0;ON;;;;N;;;;;  
 19DF;TAI LUE SIGN RESULTATIVE;Po;0;ON;;;;N;;;;;

**Table A. Tai Lue Combining Sequences**

I.P.A transcription follows Wū & Zhāng 1981. The letter ɕ KA is used here as a placeholder; not all of the examples are valid syllables in Tai Lue.

ɕ	ka <sup>1</sup>	ɕ + ɕ in final position
ɕ	ka <sup>1</sup>	ɕ before another syllable
ɕᵇ	ka <sup>2</sup>	ɕ + ɕᵇ
ɕᵉ	ka <sup>3</sup>	ɕ + ɕᵉ
ɕᵇ	ka: <sup>1</sup>	ɕ + ɕᵇ
ɕᵇᵇ	ka: <sup>2</sup>	ɕ + ɕᵇ + ɕᵇ
ɕᵇᵉ	ka: <sup>3</sup>	ɕ + ɕᵇ + ɕᵉ
ɕᵇᵇ	ki <sup>1</sup>	ɕ + ɕᵇ + ɕᵇ
ɕᵇᵇ	ki: <sup>1</sup>	ɕ + ɕᵇ
ɕᵇᵇᵇ	ki: <sup>2</sup>	ɕ + ɕᵇ + ɕᵇ
ɕᵇᵇᵉ	ki: <sup>3</sup>	ɕ + ɕᵇ + ɕᵉ
ɕᵇᵇ	ku <sup>1</sup>	ɕ + ɕᵇ
ɕᵇᵇᵇ	ku <sup>2</sup>	ɕ + ɕᵇ + ɕᵇ
ɕᵇᵇᵉ	ku <sup>3</sup>	ɕ + ɕᵇ + ɕᵉ
ɕᵇᵇ	ku: <sup>1</sup>	ɕ + ɕᵇ
ɕᵇᵇᵇ	ku: <sup>2</sup>	ɕ + ɕᵇ + ɕᵇ
ɕᵇᵇᵉ	ku: <sup>3</sup>	ɕ + ɕᵇ + ɕᵉ
ɕᵇᵇᵇ	ke <sup>1</sup>	ɕ + ɕᵇ + ɕᵇ
ɕᵇᵇ	ke: <sup>1</sup>	ɕ + ɕᵇ

ᵇᵇᵇ	ke: <sup>2</sup>	ɕ + ɕᵇ + ɕᵇ
ᵇᵇᵇᵉ	ke: <sup>3</sup>	ɕ + ɕᵇ + ɕᵉ
ᵇᵇᵇᵇᵇ	ke <sup>1</sup>	ɕ + ɕᵇ + ɕᵇ
ᵇᵇᵇᵇ	ke: <sup>1</sup>	ɕ + ɕᵇ
ᵇᵇᵇᵇᵇ	ke: <sup>2</sup>	ɕ + ɕᵇ + ɕᵇ
ᵇᵇᵇᵇᵉ	ke: <sup>3</sup>	ɕ + ɕᵇ + ɕᵉ
ᵇᵇᵇᵇᵇ	ko <sup>1</sup>	ɕ + ᵇᵇ + ɕᵇ
ᵇᵇᵇ	ko: <sup>1</sup>	ɕ + ᵇᵇ
ᵇᵇᵇᵇ	ko: <sup>2</sup>	ɕ + ᵇᵇ + ɕᵇ
ᵇᵇᵇᵇᵉ	ko: <sup>3</sup>	ɕ + ᵇᵇ + ɕᵉ
ᵇᵇᵇᵇᵇ	kᵇ <sup>1</sup>	ɕ + ɕᵉ + ɕᵇ
ᵇᵇᵇ	kᵇ: <sup>1</sup>	ɕ + ɕᵉ
ᵇᵇᵇᵇ	kᵇ: <sup>2</sup>	ɕ + ɕᵉ + ɕᵇ
ᵇᵇᵇᵇᵉ	kᵇ: <sup>3</sup>	ɕ + ɕᵉ + ɕᵉ
ᵇᵇᵇᵇᵇ	ky <sup>1</sup>	ɕ + ɕᵇ + ɕᵇ
ᵇᵇᵇᵇ	ky: <sup>1</sup>	ɕ + ɕᵇ
ᵇᵇᵇᵇᵇ	ky: <sup>2</sup>	ɕ + ɕᵇ + ɕᵇ
ᵇᵇᵇᵇᵉ	ky: <sup>3</sup>	ɕ + ɕᵇ + ɕᵉ
ᵇᵇᵇᵇᵇᵇ	kᵇ <sup>1</sup>	ɕ + ɕᵇ + ɕᵇ + ɕᵇ
ᵇᵇᵇᵇᵇ	kᵇ: <sup>1</sup>	ɕ + ɕᵇ + ɕᵇ
ᵇᵇᵇᵇᵇᵇᵇ	kᵇ: <sup>2</sup>	ɕ + ɕᵇ + ɕᵇ + ɕᵇ
ᵇᵇᵇᵇᵇᵇᵉ	kᵇ: <sup>3</sup>	ɕ + ɕᵇ + ɕᵇ + ɕᵉ
ᵇᵇᵇᵇᵇ	kai <sup>1</sup>	ɕ + ᵇᵇ
ᵇᵇᵇᵇᵇ	kai <sup>2</sup>	ɕ + ᵇᵇ + ɕᵇ

ငံကေ	kai <sup>3</sup>	က + ငံ + ေ	ဂကေ	ken <sup>3</sup>	က + ဂ + ေ + ေ
ကချ	ka:i <sup>1</sup>	က + ချ	ဂကေ	ken <sup>1</sup>	က + ဂ + ေ
ကချ၆	ka:i <sup>2</sup>	က + ချ + ၆	ဂကေ၆	ken <sup>2</sup>	က + ဂ + ေ + ၆
ကချေ	ka:i <sup>3</sup>	က + ချ + ေ	ဂကေေ	ken <sup>3</sup>	က + ဂ + ေ + ေ
ကပျ	kui <sup>1</sup>	က + ပျ	ဂကေ	kon <sup>1</sup>	က + ဂ + ေ
ကပျ၆	kui <sup>2</sup>	က + ပျ + ၆	ဂကေ၆	kon <sup>2</sup>	က + ဂ + ေ + ၆
ကပျေ	kui <sup>3</sup>	က + ပျ + ေ	ဂကေေ	kon <sup>3</sup>	က + ဂ + ေ + ေ
ကဝျ	koi <sup>1</sup>	က + ဝျ	ကေ	kon <sup>1</sup>	က + ေ + ေ
ကဝျ၆	koi <sup>2</sup>	က + ဝျ + ၆	ကေ၆	kon <sup>2</sup>	က + ေ + ေ + ၆
ကဝျေ	koi <sup>3</sup>	က + ဝျ + ေ	ကေေ	kon <sup>3</sup>	က + ေ + ေ + ေ
ကမ်	kɔi <sup>1</sup>	က + မ်	ကမ	kyɔ <sup>1</sup>	က + ဝ + ေ
ကမ်၆	kɔi <sup>2</sup>	က + မ် + ၆	ကမ၆	kyɔ <sup>2</sup>	က + ဝ + ေ + ၆
ကမ်ေ	kɔi <sup>3</sup>	က + မ် + ေ	ကမေ	kyɔ <sup>3</sup>	က + ဝ + ေ + ေ
ကဗျ	kyi <sup>1</sup>	က + ဝျ	ဂကမ	kəɔ <sup>1</sup>	က + ဂ + ဝ + ေ
ကဗျ၆	kyi <sup>2</sup>	က + ဝျ + ၆	ဂကမ၆	kəɔ <sup>2</sup>	က + ဂ + ဝ + ေ + ၆
ကဗျေ	kyi <sup>3</sup>	က + ဝျ + ေ	ဂကမေ	kəɔ <sup>3</sup>	က + ဂ + ဝ + ေ + ေ
ဂကမ	kəi <sup>1</sup>	က + ဂ + ဝျ	ကေ	kan <sup>1</sup>	က + င
ဂကမ၆	kəi <sup>2</sup>	က + ဂ + ဝျ + ၆	ကေ၆	kan <sup>2</sup>	က + င + ၆
ဂကမေ	kəi <sup>3</sup>	က + ဂ + ဝျ + ေ	ကေေ	kan <sup>3</sup>	က + င + ေ
ကဂ	kau <sup>1</sup>	က + ဂ	ကေ	ka:n <sup>1</sup>	က + ဝ + င
ကဂ၆	kau <sup>2</sup>	က + ဂ + ၆	ကေ၆	ka:n <sup>2</sup>	က + ဝ + င + ၆
ကဂေ	kau <sup>3</sup>	က + ဂ + ေ	ကေေ	ka:n <sup>3</sup>	က + ဝ + င + ေ
ကဘ	ka:u <sup>1</sup>	က + ဝ + ဂ	ကေ	kin <sup>1</sup>	က + ဝ + င
ကဘ၆	ka:u <sup>2</sup>	က + ဝ + ဂ + ၆	ကေ၆	kin <sup>2</sup>	က + ဝ + င + ၆
ကဘေ	ka:u <sup>3</sup>	က + ဝ + ဂ + ေ	ကေေ	kin <sup>3</sup>	က + ဝ + င + ေ
ကမ	kiu <sup>1</sup>	က + ဝ + ဂ	ကေ	kun <sup>1</sup>	က + ဝ + င
ကမ၆	kiu <sup>2</sup>	က + ဝ + ဂ + ၆	ကေ၆	kun <sup>2</sup>	က + ဝ + င + ၆
ကမေ	kiu <sup>3</sup>	က + ဝ + ဂ + ေ	ကေေ	kun <sup>3</sup>	က + ဝ + င + ေ
ဂကေ	keu <sup>1</sup>	က + ဂ + ေ	ဂကေ	ken <sup>1</sup>	က + ဂ + င
ဂကေ၆	keu <sup>2</sup>	က + ဂ + ေ + ၆	ဂကေ၆	ken <sup>2</sup>	က + ဂ + င + ၆
ဂကေေ	keu <sup>3</sup>	က + ဂ + ေ + ေ	ဂကေေ	ken <sup>3</sup>	က + ဂ + င + ေ
ဂဂ	keu <sup>1</sup>	က + ဂ + ေ	ဂဂ	ken <sup>1</sup>	က + ဂ + င
ဂဂ၆	keu <sup>2</sup>	က + ဂ + ေ + ၆	ဂဂ၆	ken <sup>2</sup>	က + ဂ + င + ၆
ဂဂေ	keu <sup>3</sup>	က + ဂ + ေ + ေ	ဂဂေ	ken <sup>3</sup>	က + ဂ + င + ေ
ဂကမ	kəu <sup>1</sup>	က + ဂ + ဝ + ဂ	ဂကေ	kon <sup>1</sup>	က + ဂ + င
ဂကမ၆	kəu <sup>2</sup>	က + ဂ + ဝ + ဂ + ၆	ဂကေ၆	kon <sup>2</sup>	က + ဂ + င + ၆
ဂကမေ	kəu <sup>3</sup>	က + ဂ + ဝ + ဂ + ေ	ဂကေေ	kon <sup>3</sup>	က + ဂ + င + ေ
က	kaŋ <sup>1</sup>	က + ဂ	ကေ	kon <sup>1</sup>	က + ဂ + င
က၆	kaŋ <sup>2</sup>	က + ဂ + ၆	ကေ၆	kon <sup>2</sup>	က + ဂ + င + ၆
ကေ	kaŋ <sup>3</sup>	က + ဂ + ေ	ကေေ	kon <sup>3</sup>	က + ဂ + င + ေ
ကဘ	ka:ŋ <sup>1</sup>	က + ဝ + ဂ	ကေ	kon <sup>1</sup>	က + ဂ + င
ကဘ၆	ka:ŋ <sup>2</sup>	က + ဝ + ဂ + ၆	ကေ၆	kon <sup>2</sup>	က + ဂ + င + ၆
ကဘေ	ka:ŋ <sup>3</sup>	က + ဝ + ဂ + ေ	ကေေ	kon <sup>3</sup>	က + ဂ + င + ေ
ကမ	kin <sup>1</sup>	က + ဝ + ဂ	ကေ	kon <sup>1</sup>	က + ဂ + င
ကမ၆	kin <sup>2</sup>	က + ဝ + ဂ + ၆	ကေ၆	kon <sup>2</sup>	က + ဂ + င + ၆
ကမေ	kin <sup>3</sup>	က + ဝ + ဂ + ေ	ကေေ	kon <sup>3</sup>	က + ဂ + င + ေ
ကဉ	kun <sup>1</sup>	က + ဝ + ဂ	ကေ	kon <sup>1</sup>	က + ဂ + င
ကဉ၆	kun <sup>2</sup>	က + ဝ + ဂ + ၆	ကေ၆	kon <sup>2</sup>	က + ဂ + င + ၆
ကဉေ	kun <sup>3</sup>	က + ဝ + ဂ + ေ	ကေေ	kon <sup>3</sup>	က + ဂ + င + ေ
ဂကေ	ken <sup>1</sup>	က + ဂ + ေ	ဂကေ	ken <sup>1</sup>	က + ဂ + င
ဂကေ၆	ken <sup>2</sup>	က + ဂ + ေ + ၆	ဂကေ၆	ken <sup>2</sup>	က + ဂ + င + ၆
ဂကေေ	ken <sup>3</sup>	က + ဂ + ေ + ေ	ဂကေေ	ken <sup>3</sup>	က + ဂ + င + ေ
ကမ	kam <sup>1</sup>	က + မ	ကမ	kam <sup>1</sup>	က + မ
ကမ၆	kam <sup>2</sup>	က + မ + ၆	ကမ၆	kam <sup>2</sup>	က + မ + ၆
ကမေ	kam <sup>3</sup>	က + မ + ေ	ကမေ	kam <sup>3</sup>	က + မ + ေ
ကမ	ka:m <sup>1</sup>	က + ဝ + မ	ကမ	ka:m <sup>1</sup>	က + ဝ + မ
ကမ၆	ka:m <sup>2</sup>	က + ဝ + မ + ၆	ကမ၆	ka:m <sup>2</sup>	က + ဝ + မ + ၆

ကၢမ္မ	ka:m <sup>3</sup>	က + ဝ + မ + ဝေ	ကဗိဗ္ဗ	kyk <sup>2</sup>	က + ဝိ + ဗ္ဗ + ဝေ
ကဗိဗ္ဗ	kim <sup>1</sup>	က + ဝိ + မ	ကဗိဗ္ဗ	kyk <sup>3</sup>	က + ဝိ + ဗ္ဗ + ဝေ
ကဗိဗ္ဗ	kim <sup>2</sup>	က + ဝိ + မ + ဝေ	ကဗိဗ္ဗ	kək <sup>1</sup>	က + ဝိ + ဝိ + ဗ္ဗ
ကဗိဗ္ဗ	kim <sup>3</sup>	က + ဝိ + မ + ဝေ	ကဗိဗ္ဗ	kək <sup>2</sup>	က + ဝိ + ဝိ + ဗ္ဗ + ဝေ
ကဗ္ဗ	kum <sup>1</sup>	က + ဝု + မ	ကဗိဗ္ဗ	kək <sup>3</sup>	က + ဝိ + ဝိ + ဗ္ဗ + ဝေ
ကဗ္ဗ	kum <sup>2</sup>	က + ဝု + မ + ဝေ	ကဗ္ဗ	kat <sup>1</sup>	က + ဝု
ကဗ္ဗ	kum <sup>3</sup>	က + ဝု + မ + ဝေ	ကဗ္ဗ	kat <sup>2</sup>	က + ဝု + ဝေ
ကဗ္ဗ	kem <sup>1</sup>	က + ဝိ + မ	ကဗ္ဗ	kat <sup>3</sup>	က + ဝု + ဝေ
ကဗ္ဗ	kem <sup>2</sup>	က + ဝိ + မ + ဝေ	ကဗ္ဗ	ka:t <sup>1</sup>	က + ဝါ + ဝု
ကဗ္ဗ	kem <sup>3</sup>	က + ဝိ + မ + ဝေ	ကဗ္ဗ	ka:t <sup>2</sup>	က + ဝါ + ဝု + ဝေ
ကဗ္ဗ	kem <sup>1</sup>	က + ဝိ + မ	ကဗ္ဗ	ka:t <sup>3</sup>	က + ဝါ + ဝု + ဝေ
ကဗ္ဗ	kem <sup>2</sup>	က + ဝိ + မ + ဝေ	ကဗ္ဗ	kit <sup>1</sup>	က + ဝိ + ဝု
ကဗ္ဗ	kem <sup>3</sup>	က + ဝိ + မ + ဝေ	ကဗ္ဗ	kit <sup>2</sup>	က + ဝိ + ဝု + ဝေ
ကဗ္ဗ	kom <sup>1</sup>	က + ဝိ + မ	ကဗ္ဗ	kit <sup>3</sup>	က + ဝိ + ဝု + ဝေ
ကဗ္ဗ	kom <sup>2</sup>	က + ဝိ + မ + ဝေ	ကဗ္ဗ	kut <sup>1</sup>	က + ဝု + ဝု
ကဗ္ဗ	kom <sup>3</sup>	က + ဝိ + မ + ဝေ	ကဗ္ဗ	kut <sup>2</sup>	က + ဝု + ဝု + ဝေ
ကဗ္ဗ	kəm <sup>1</sup>	က + ဝိ + မ	ကဗ္ဗ	kut <sup>3</sup>	က + ဝု + ဝု + ဝေ
ကဗ္ဗ	kəm <sup>2</sup>	က + ဝိ + မ + ဝေ	ကဗ္ဗ	ket <sup>1</sup>	က + ဝိ + ဝု
ကဗ္ဗ	kəm <sup>3</sup>	က + ဝိ + မ + ဝေ	ကဗ္ဗ	ket <sup>2</sup>	က + ဝိ + ဝု + ဝေ
ကဗ္ဗ	kym <sup>1</sup>	က + ဝိ + မ	ကဗ္ဗ	ket <sup>3</sup>	က + ဝိ + ဝု + ဝေ
ကဗ္ဗ	kym <sup>2</sup>	က + ဝိ + မ + ဝေ	ကဗ္ဗ	ket <sup>1</sup>	က + ဝိ + ဝု
ကဗ္ဗ	kym <sup>3</sup>	က + ဝိ + မ + ဝေ	ကဗ္ဗ	ket <sup>2</sup>	က + ဝိ + ဝု + ဝေ
ကဗ္ဗ	kəm <sup>1</sup>	က + ဝိ + ဝိ + မ	ကဗ္ဗ	ket <sup>3</sup>	က + ဝိ + ဝု + ဝေ
ကဗ္ဗ	kəm <sup>2</sup>	က + ဝိ + ဝိ + မ + ဝေ	ကဗ္ဗ	kot <sup>1</sup>	က + ဝိ + ဝု
ကဗ္ဗ	kəm <sup>3</sup>	က + ဝိ + ဝိ + မ + ဝေ	ကဗ္ဗ	kot <sup>2</sup>	က + ဝိ + ဝု + ဝေ
ကဗ္ဗ	kak <sup>1</sup>	က + ဝု	ကဗ္ဗ	kot <sup>3</sup>	က + ဝိ + ဝု + ဝေ
ကဗ္ဗ	kak <sup>2</sup>	က + ဝု + ဝေ	ကဗ္ဗ	kət <sup>1</sup>	က + ဝိ + ဝု
ကဗ္ဗ	kak <sup>3</sup>	က + ဝု + ဝေ	ကဗ္ဗ	kət <sup>2</sup>	က + ဝိ + ဝု + ဝေ
ကဗ္ဗ	ka:k <sup>1</sup>	က + ဝါ + ဝု	ကဗ္ဗ	kət <sup>3</sup>	က + ဝိ + ဝု + ဝေ
ကဗ္ဗ	ka:k <sup>2</sup>	က + ဝါ + ဝု + ဝေ	ကဗ္ဗ	kyt <sup>1</sup>	က + ဝိ + ဝု
ကဗ္ဗ	ka:k <sup>3</sup>	က + ဝါ + ဝု + ဝေ	ကဗ္ဗ	kyt <sup>2</sup>	က + ဝိ + ဝု + ဝေ
ကဗ္ဗ	kik <sup>1</sup>	က + ဝိ + ဝု	ကဗ္ဗ	kyt <sup>3</sup>	က + ဝိ + ဝု + ဝေ
ကဗ္ဗ	kik <sup>2</sup>	က + ဝိ + ဝု + ဝေ	ကဗ္ဗ	kət <sup>1</sup>	က + ဝိ + ဝိ + ဝု
ကဗ္ဗ	kik <sup>3</sup>	က + ဝိ + ဝု + ဝေ	ကဗ္ဗ	kət <sup>2</sup>	က + ဝိ + ဝိ + ဝု + ဝေ
ကဗ္ဗ	kuk <sup>1</sup>	က + ဝု + ဝု	ကဗ္ဗ	kət <sup>3</sup>	က + ဝိ + ဝိ + ဝု + ဝေ
ကဗ္ဗ	kuk <sup>2</sup>	က + ဝု + ဝု + ဝေ	ကဗ္ဗ	kap <sup>1</sup>	က + ဝု
ကဗ္ဗ	kuk <sup>3</sup>	က + ဝု + ဝု + ဝေ	ကဗ္ဗ	kap <sup>2</sup>	က + ဝု + ဝေ
ကဗ္ဗ	kek <sup>1</sup>	က + ဝိ + ဝု	ကဗ္ဗ	kap <sup>3</sup>	က + ဝု + ဝေ
ကဗ္ဗ	kek <sup>2</sup>	က + ဝိ + ဝု + ဝေ	ကဗ္ဗ	ka:p <sup>1</sup>	က + ဝါ + ဝု
ကဗ္ဗ	kek <sup>3</sup>	က + ဝိ + ဝု + ဝေ	ကဗ္ဗ	ka:p <sup>2</sup>	က + ဝါ + ဝု + ဝေ
ကဗ္ဗ	kək <sup>1</sup>	က + ဝိ + ဝု	ကဗ္ဗ	ka:p <sup>3</sup>	က + ဝါ + ဝု + ဝေ
ကဗ္ဗ	kək <sup>2</sup>	က + ဝိ + ဝု + ဝေ	ကဗ္ဗ	kip <sup>1</sup>	က + ဝိ + ဝု
ကဗ္ဗ	kək <sup>3</sup>	က + ဝိ + ဝု + ဝေ	ကဗ္ဗ	kip <sup>2</sup>	က + ဝိ + ဝု + ဝေ
ကဗ္ဗ	kok <sup>1</sup>	က + ဝိ + ဝု	ကဗ္ဗ	kip <sup>3</sup>	က + ဝိ + ဝု + ဝေ
ကဗ္ဗ	kok <sup>2</sup>	က + ဝိ + ဝု + ဝေ	ကဗ္ဗ	kup <sup>1</sup>	က + ဝု + ဝု
ကဗ္ဗ	kok <sup>3</sup>	က + ဝိ + ဝု + ဝေ	ကဗ္ဗ	kup <sup>2</sup>	က + ဝု + ဝု + ဝေ
ကဗ္ဗ	kək <sup>1</sup>	က + ဝိ + ဝု	ကဗ္ဗ	kup <sup>3</sup>	က + ဝု + ဝု + ဝေ
ကဗ္ဗ	kək <sup>2</sup>	က + ဝိ + ဝု + ဝေ	ကဗ္ဗ	kep <sup>1</sup>	က + ဝိ + ဝု
ကဗ္ဗ	kək <sup>3</sup>	က + ဝိ + ဝု + ဝေ	ကဗ္ဗ	kep <sup>2</sup>	က + ဝိ + ဝု + ဝေ
ကဗ္ဗ	kyk <sup>1</sup>	က + ဝိ + ဝု	ကဗ္ဗ	kep <sup>3</sup>	က + ဝိ + ဝု + ဝေ



Row 19: TAI LUE

	198	199	19A	19B	19C	19D
0	ꨁ	ꨂ	ꨃ	ꨄ	ꨅ	ꨆ
1	ꨇ	ꨈ	ꨉ	ꨊ	ꨋ	ꨌ
2	ꨍ	ꨎ	ꨏ	ꨐ	ꨑ	ꨒ
3	ꨓ	ꨔ	ꨕ	ꨖ	ꨗ	ꨘ
4	ꨙ	ꨚ	ꨛ	ꨜ	ꨝ	ꨞ
5	ꨟ	ꨠ	ꨡ	ꨢ	ꨣ	ꨤ
6	ꨥ	ꨦ	ꨧ	ꨨ	ꨩ	ꨪ
7	ꨫ	ꨬ	ꨭ		ꨮ	ꨯ
8	ꨰ	ꨱ	ꨲ		ꨳ	ꨴ
9	ꨵ	ꨶ	꨷		꨸	꨹
A	꨺	꨻			꨼	
B	꨽	꨾			꨿	
C	ꩀ	ꩁ		ꩂ	ꩃ	
D	ꩄ	ꩅ		ꩆ		
E	ꩇ	ꩈ		ꩉ	ꩊ	ꩋ
F	ꩌ	ꩍ		꩎	꩏	꩐

G = 00  
P = 00



Row 19: TAI LUE

dec	hex	Name
80		TAI LUE LETTER HIGH QA
81		TAI LUE LETTER LOW QA
82		TAI LUE LETTER HIGH KA
83		TAI LUE LETTER LOW KA
84		TAI LUE LETTER HIGH XA
85		TAI LUE LETTER LOW XA
86		TAI LUE LETTER HIGH NGA
87		TAI LUE LETTER LOW NGA
88		TAI LUE LETTER HIGH TSA
89		TAI LUE LETTER LOW CA
8A		TAI LUE LETTER HIGH SA
8B		TAI LUE LETTER LOW SA
8C		TAI LUE LETTER HIGH YA
8D		TAI LUE LETTER LOW YA
8E		TAI LUE LETTER HIGH TA
8F		TAI LUE LETTER LOW TA
90		TAI LUE LETTER HIGH THA
91		TAI LUE LETTER LOW THA
92		TAI LUE LETTER HIGH NA
93		TAI LUE LETTER LOW NA
94		TAI LUE LETTER HIGH PA
95		TAI LUE LETTER LOW PA
96		TAI LUE LETTER HIGH PHA
97		TAI LUE LETTER LOW PHA
98		TAI LUE LETTER HIGH MA
99		TAI LUE LETTER LOW MA
9A		TAI LUE LETTER HIGH FA
9B		TAI LUE LETTER LOW FA
9C		TAI LUE LETTER HIGH VA
9D		TAI LUE LETTER LOW VA
9E		TAI LUE LETTER HIGH LA
9F		TAI LUE LETTER LOW LA
A0		TAI LUE LETTER HIGH HA
A1		TAI LUE LETTER LOW HA
A2		TAI LUE LETTER HIGH DA
A3		TAI LUE LETTER LOW DA
A4		TAI LUE LETTER HIGH BA
A5		TAI LUE LETTER LOW BA
A6		TAI LUE LETTER HIGH KVA
A7		TAI LUE LETTER LOW KVA
A8		TAI LUE LETTER HIGH XVA
A9		TAI LUE LETTER LOW XVA
AA		(This position shall not be used)
AB		(This position shall not be used)
AC		(This position shall not be used)
AD		(This position shall not be used)
AE		(This position shall not be used)
AF		(This position shall not be used)
B0		TAI LUE LETTER FINAL V
B1		TAI LUE LETTER FINAL NG
B2		TAI LUE LETTER FINAL N
B3		TAI LUE LETTER FINAL M
B4		TAI LUE LETTER FINAL K
B5		TAI LUE LETTER FINAL D
B6		TAI LUE LETTER FINAL B
B7		(This position shall not be used)
B8		(This position shall not be used)
B9		(This position shall not be used)
BA		(This position shall not be used)
BB		(This position shall not be used)
BC		TAI LUE VOWEL SIGN VOWEL SHORTENER
BD		TAI LUE VOWEL SIGN AA
BE		TAI LUE VOWEL SIGN II
BF		TAI LUE VOWEL SIGN U
C0		TAI LUE VOWEL SIGN UU
C1		TAI LUE VOWEL SIGN EE
C2		TAI LUE VOWEL SIGN E
C3		TAI LUE VOWEL SIGN OO
C4		TAI LUE VOWEL SIGN O
C5		TAI LUE VOWEL SIGN UE
C6		TAI LUE VOWEL SIGN AY
C7		TAI LUE VOWEL SIGN AAY
C8		TAI LUE VOWEL SIGN IY
C9		TAI LUE VOWEL SIGN UY
CA		TAI LUE VOWEL SIGN OUY

Group 00

dec	hex	Name
	CB	TAI LUE VOWEL SIGN OY
	CC	TAI LUE VOWEL SIGN UEY
	CD	(This position shall not be used)
	CE	TAI LUE TONE MARK-1
	CF	TAI LUE TONE MARK-2
	D0	TAI LUE DIGIT ZERO
	D1	TAI LUE DIGIT ONE
	D2	TAI LUE DIGIT TWO
	D3	TAI LUE DIGIT THREE
	D4	TAI LUE DIGIT FOUR
	D5	TAI LUE DIGIT FIVE
	D6	TAI LUE DIGIT SIX
	D7	TAI LUE DIGIT SEVEN
	D8	TAI LUE DIGIT EIGHT
	D9	TAI LUE DIGIT NINE
	DA	(This position shall not be used)
	DB	(This position shall not be used)
	DC	(This position shall not be used)
	DD	(This position shall not be used)
	DE	TAI LUE SIGN AND
	DF	TAI LUE SIGN RESULTATIVE

Plane 00

Row 19