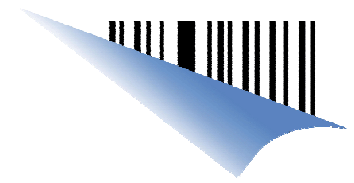# Printing Simplified Chinese characters (GB2312) from SAP to Sato Printers

User Guide

Version 061027-01

Table of Contents

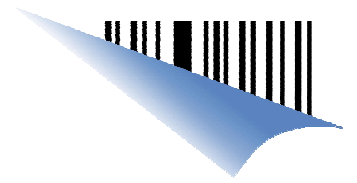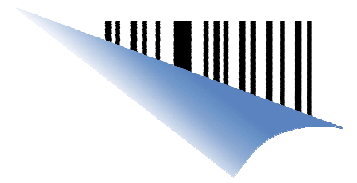# 1. Introduction

This document is to explain how to print **Simplified Chinese characters** (**GB2312**) from SAP with SAPScript (ITF file upload method) to Sato **CL4xxe** printers.

Please refer to the following document on how to use Label Gallery to create the ITF file:
http://satoworldwide.com/labelgallery/downloads/WhitePapers/SAP%20guidelines.pdf

Note:
1) It is assumed the Chinese characters are entered on the Text Editor or read from database in the SAP environment. Label Gallery is not able to create ITF file containing Chinese characters.
2) It is also assumed that the SAP system is Unicode Compliant, or at least supports inputting and displaying of Simplified Chinese.

2. Configuration at SAP environment

The SATO device type "ZLB_SAT.pri" is using codepage 1103 (IBM PC Multilingual 850). This codepage is not able to support GB2312 character set. Codepage **8400**, Simplified Chinese (based on GB2312-EUC, MS CP936) has to be used instead in order to print the Simplified Chinese characters.
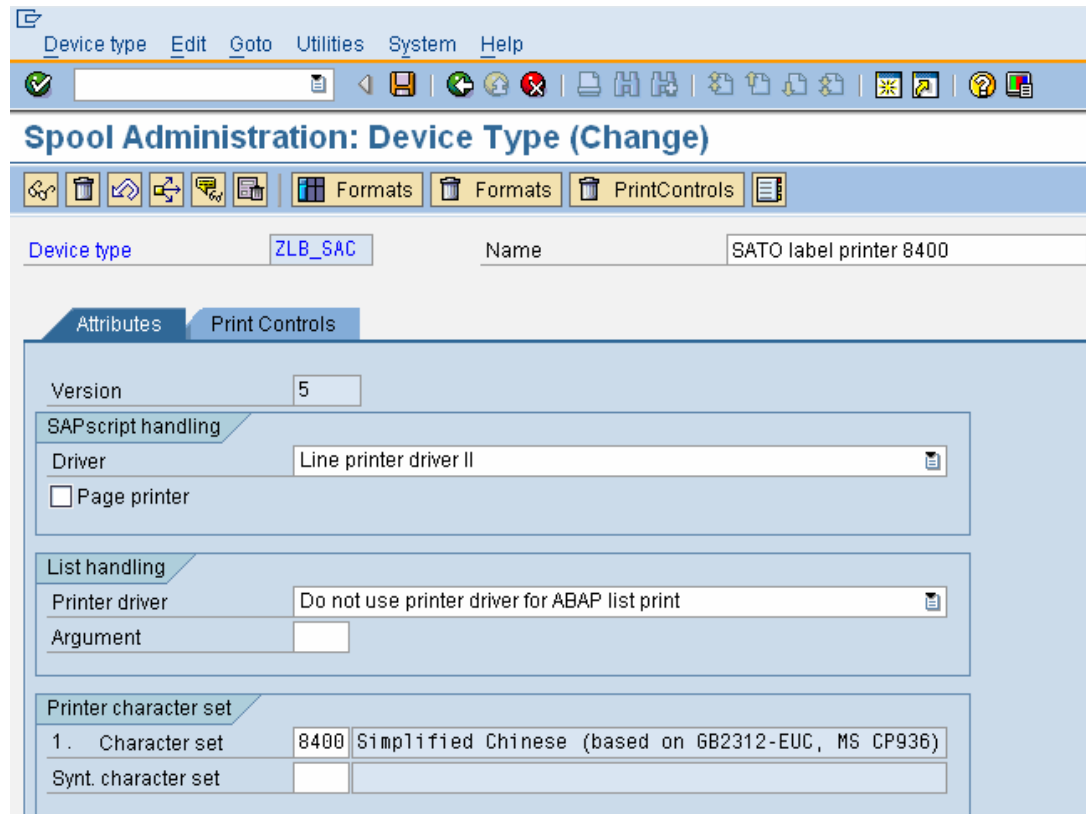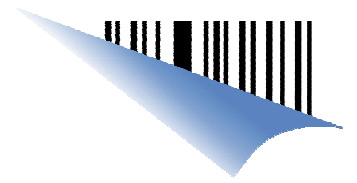

Figure 1 Using 8400 character set

3. Using SATO firmware with GB2312 character set

The following firmware has to be downloaded to the CL4xxe printer in order to print the GB2312 Simplified Chinese characters:

Firmware version 05.21.06.00A (Please email printersupport@sato-int.com for more information)

The following commands are to be used to print the Simplified Chinese characters

Command	Descriptions
C2	To specify Horizontal Text Flow Chinese Character Font at width 24× height 24 dot
C9	To specify mixture of horizontal text flow of Chinese Character Font at width 24× height 24 dot and half-sized character at width12× height 24 dot
c2	To specify vertical text flow Chinese Character Font at width 24× height 24 dot.
c9	To specify mixture printing of vertical Chinese character font at width 24× height 24 dot and half-sized character at width 12× height 24 dot.

Table 1 Commands to print Simplified Chinese

Please refer to the appendix for the detail description of the commands.
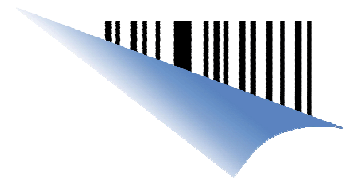
4. Example

The sample of the ITF file below can be downloaded from the appendix.

Change Standard text: ZTESTING_TEXT Language EN

```
....+....1....+....2....+....3....+....4....+....5....+....6....+....7..
/  ^H0779^V0289^L0303
/  ^XUflow of Chinese^%2
/  ^H0780^V0169^L0303
/  ^XU(c9 Command)^%2
/  ^H0787^V0733^L0303
/  ^XU(C9 Command)^%2
/  ^H0788^V0764^L0303^P02
/  ^XUhalf-sized character at 12x24 dot^%2
/  ^H0787^V0832^L0303^P02
/  ^XUMixture of horizontal text flow of Chinese^%2
/  ^H0778^V0673^L0203^P02
/  ^c2B佐藤自动^%2
/  ^H0772^V0980^L0303
/  ^XUFont at 24x24 dot. (C2 command)^%2
/  ^H0773^V1020^L0303
/  ^XUHorizontal Text Flow Chinese Character^%2
/  ^H0773^V0924^L0203^P02
/  ^C9B佐藤自动识别系统1234^%2
/  ^H0770^V1112^L0203^P02
/  ^C2B佐藤自动识别系统^<38>01NiceOvl
/  ^Z
/  }
/  {
/  ^A^/01^~A0^Q1^Z
```
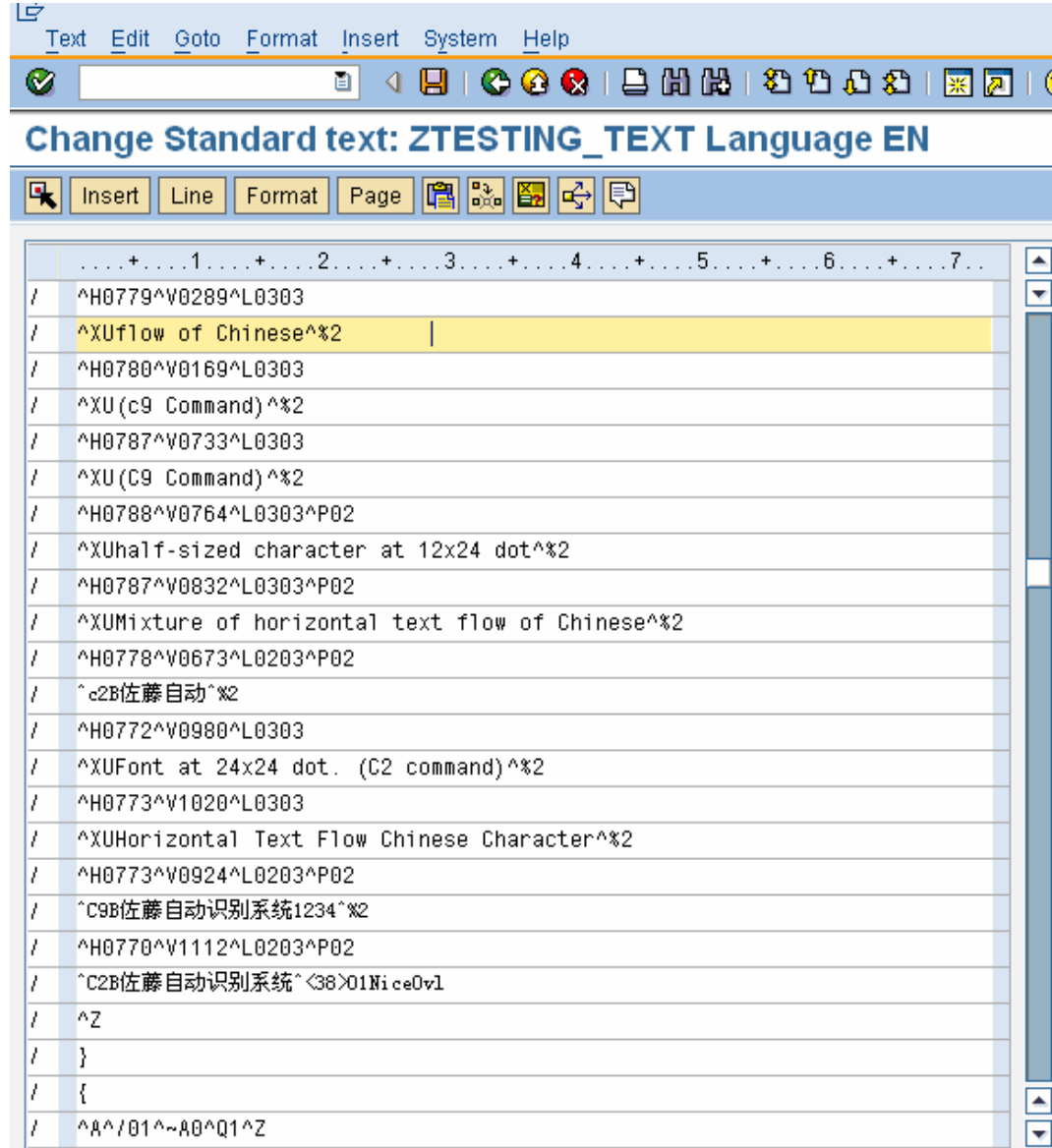
Table 2 ITF file with Simplified Chinese

Note: Parameter "**B**" has to be used if the binary code of the Simplified Chinese is specified.

Using the above mentioned device type (with codepage 8400) and the SATO firmware with GB2312 character set, the following printout can be produced.
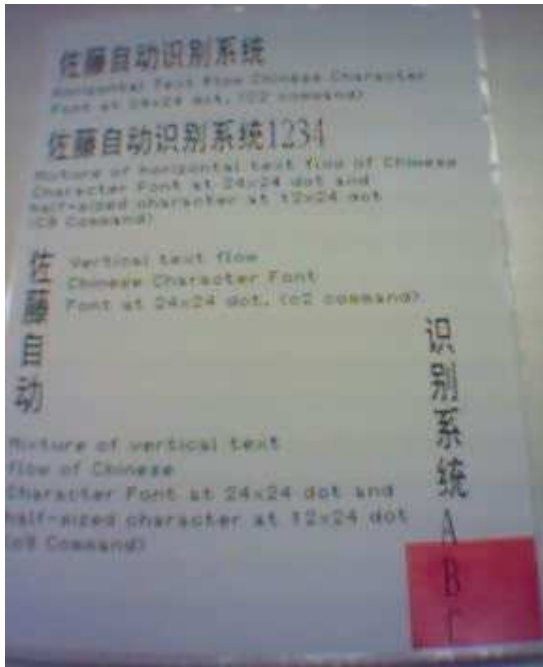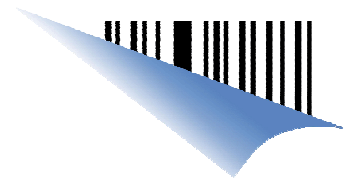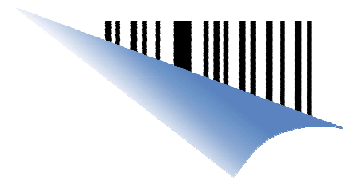
Figure 2 Printing output with Simplified Chinese

5. Appendix

24×24 dot Horizontal Text Flow Chinese Character Font Specification

Applicable Printer	CL4xxe	CL6xxe	M-8400RVe	M-5900RVe	M-84xxSe		
24×24 dot Horizontal Text Flow Chinese Character Font Specification					**ESC+C2**		

16 Hex Code	ESC	C2	Parameter
	$<1B>_{16}$	$<43>_{16}<32>_{16}$	an～n
Default Value	NO		

Valid Range & Time Frame of Command	When power is switched off	Set parameter will not be maintained.
	Valid Range within Items	Set parameter will become invalid.
	Valid Range among Items	Set parameter will become invalid.

[Function]

To specify Horizontal Text Flow Chinese Character Font at width 24× height 24 dot.

[Format]

<C2>an～n

●Parameter

a　　　[Code Specification Mode]＝　　H : 16 Hex Character Code Specification

B : Binary Code Specification

I : Specification with smoothing function based on 16 Hex Character Code

C : Specification with smoothing function based on Binary Code

J : Specification with emphasis function based on 16 Hex Character Code

D : Specification with emphasis function based on Binary Code

K : Specification with smoothing & emphasis function based on 16 Hex Character Code.

E : Specification with smoothing & emphasis function based on Binary Code.

n　　　[Data]　　　＝　　　Refer to Chinese Character Code (GB2312) Range Table

* Printing will not be executed properly when data size increase or decrease

[Coding Example]

16 Hex Character Code Specification　Horizontal Direction Ratio : 2 times　　　Vertical Direction Ratio : 3 times

<A>

<V>100<H>100<P>8<L>0203

<C2>HB0A1B0A2B0A3B0A4B0A5

<Q>1

<Z>

[Supplementary Explanation]

1. 16 Hex Character Code　　＝　　Chinese Character Code 4 byte ASCII / 1 character
2. Binary Code　　　　＝　　Chinese Character Code 2 byte / 1 character
3. Smoothing Function Valid Ratio＝　　horizontal, vertical valid range : 3～12 times
4. Emphasis Function Valid Ratio ＝　　horizontal, vertical valid range : 1～5 times

[Point]

1. Characters of Emphasis Function will increase horizontally when it follows the enlargement specification.
2. When using Emphasis Function, some characters may not be printed clearly.

[Valid Command]

Print Position	<V>	<H>						
Modifier								
	<P>	<L>	<%>	<&>	</>	<O>	<WD>	

24×24 dot Horizontal Text with Mixture of Half-sized, Fill-sized Chinese Character Font Specification

Applicable Printer	CL4xxe	CL6xxe	M-8400RVe	M-5900RVe	M-84xxSe		
24×24 dot Horizontal Text with Mixture of Half-sized, Full-sized Chinese Character Font Specification						**C+C9**	

16 Hex Code	ESC	C9		Parameter	
	<1B>16	<43>16<39>16		an～n	
Default Value	NO				

Valid Range & Time Frame of Command	When power is switched off	Set parameter will not be maintained
	Valid range within Items	Set parameter will become invalid.
	Valid range among Items	Set parameter will become invalid.

[Function]
　　　To specify mixture of horizontal text flow of Chinese Character Font at width 24× height 24 dot and half-sized character at
　　　width12× height 24 dot.

[Format]
　　<K9>an～n
　　●Parameter
　　a　　　[Code Specification Mode]＝　H : 16 Hex Character Code Specification
　　　　　　　　　　　　　　　　　　　B : Binary Code Specification
　　　　　　　　　　　　　　　　　　　I : Specification with smoothing function based on 16 Hex Character Code
　　　　　　　　　　　　　　　　　　　C : Specification with smoothing function based on Binary Code
　　　　　　　　　　　　　　　　　　　J : Specification with emphasis function based on 16 Hex Character Code
　　　　　　　　　　　　　　　　　　　D : Specification with emphasis function based on Binary Code
　　　　　　　　　　　　　　　　　　　K : Specification with smoothing & emphasis function based on 16 Hex Character Code.
　　　　　　　　　　　　　　　　　　　E : Specification with smoothing & emphasis function based on Binary Code.
　　　n　　　[Data]　　　＝　　　Refer to Chinese Character Code (GB2312) Range Table.

　* Printing will not be executed properly when data size increase or decrease
　* Specificable code of half-sized character is from 20h～7Fh as there is an overlap with Chinese Character Code (GB2312).

[Coding Example] 16Hex Character Code Specification　　Horizontal Direction Ratio : 2 times　　Vertical Direction Ratio : 3 times
　　　<A>
　　　<V>100<H>100<P>8<L>0203
　　　<C9>HB0A1B0A2B0A3B0A4B0A5303132
　　　<Q>1
　　　<Z>

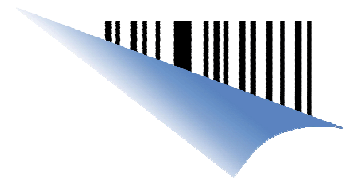[Supplementary Explanation]
　　1. 16 Hex Character Code　　　＝　　　Chinese Character Code 4 byte ASCII / 1 character
　　2. Binary Code　　　　　　　＝　　　Chinese Character Code 2 byte / 1 character
　　3. Smoothing Function Valid Ratio＝　　　horizontal, vertical valid range : 3～12 times
　　4. Emphasis Function Valid Ratio ＝　　　horizontal, vertical valid range : 1～5 times

[Point]
　　1. Characters of Emphasis Function will increase horizontally when it follows the enlargement specification.
　　2. When using Emphasis Function, some characters may not be printed clearly.

[Valid Command]

Print Position	<V>	<H>								
Modifier							<WD>			
	<P>	<L>	<%>	<&>	</>	<O>				

24×24 dot Vertical Text Flow Chinese Character Font Specification

Applicable Printer	CL4xxe	CL6xxe	M-8400RVe	M-5900RVe	M-84xxSe		
24×24 dot Vertical Text Flow Chinese Character Font Specification					**ESC+c2**		

16 Hex Code	ESC	c2	Parameter	
	<1B>16	<63>16<32>16	an～n	
Default Value	NO			

Valid Range & Time Frame of Command	When power is switched off	Set parameter will not be maintained
	Valid range within Items	Set parameter will become invalid.
	Valid range among Items	Set parameter will become invalid.

[Function]
   To specify vertical text flow Chinese Character Font at width 24× height 24 dot.

[Format]
   <c2>an～n
   ●Parameter
   a   [Code Specification Mode]＝   H : 16 Hex Character Code Specification
                                         B : Binary Code Specification
                                         I : Specification with smoothing function based on 16 Hex
                              Character Code
                                         C : Specification with smoothing function based on Binary Code
                                         J : Specification with emphasis function based on 16 Hex
                              Character Code
                                         D : Specification with emphasis function based on Binary Code
                                         K : Specification with smoothing & emphasis function based on 16
                                          Hex
                                          Character Code.
                                         E : Specification with smoothing & emphasis function based on
                              Binary Code.
   n   [Data]   ＝   Refer to Chinese Character Code (GB2312) Range Table.

            * Printing will not be executed properly when data size increase or decrease

[Coding Example] 16Hex Character Code Specification   Horizontal Direction Ratio : 2 times   Vertical Direction
Ratio : 3 times
   <A>
   <V>100<H>100<P>8<L>0203
   <c2>HB0A1B0A2B0A3B0A4B0A5
   <Q>1
   <Z>

[Supplementary Explanation]
   1. 16 Hex Character Code   ＝   Chinese Character Code 4 byte ASCII / 1 character
   2. Binary Code   ＝   Chinese Character Code 2 byte / 1 character
   3. Smoothing Function Valid Ratio＝   horizontal, vertical valid range : 3～12 times
   4. Emphasis Function Valid Ratio ＝   horizontal, vertical valid range : 1～5 times

[Point]
   1. Characters of Emphasis Function will increase horizontally when it follows the enlargement specification.
   2. When using Emphasis Function, some characters may not be printed clearly.

[Valid Command]

Print Position	<V>	<H>					<WD>		
Modifier									
	<P>	<L>	<%>	<&>	</>	<O>	<WD>		

24×24 dot Vertical Text with Mixture of Half-sized, Full-sized Chinese Character Font Specification

Applicable Printer	CL4xxe	CL6xxe	M-8400RVe	M-5900RVe	M-84xxSe		
24×24 dot Vertical Text with Mixture of Half-sized, Full-sized Chinese Character Font Specification						**ESC+c9**	

16 Hex Code	ESC	c9	Parameter
	<1B>₁₆	<63>₁₆<39>₁₆	an～n
Default Value	NO		

Valid Range & Time Frame of Command	When power is switched off	Set parameter will not be maintained.
	Valid range within Items	Set parameter will become invalid.
	Valid range among Items	Set parameter will become invalid.

[Function]
　　To specify mixture printing of vertical Chinese character font at width 24× height 24 dot and half-sized character at width 12× height 24 dot.

[Format]
　　<c9>an～n
　●Parameter
　　a　　　　　[Code Specification Mode]＝　　H : 16 Hex Character Code Specification
　　　　　　　　　　　　　　　　　　　　　　B : Binary Code Specification
　　　　　　　　　　　　　　　　　　　　　　I : Specification with smoothing function based on 16 Hex
　　　　　　　　　　　　　　Character Code
　　　　　　　　　　　　　　　　　　　　　　C : Specification with smoothing function based on Binary Code
　　　　　　　　　　　　　　　　　　　　　　J : Specification with emphasis function based on 16 Hex
　　　　　　　　　　　　　　Character Code
　　　　　　　　　　　　　　　　　　　　　　D : Specification with emphasis function based on Binary Code
　　　　　　　　　　　　　　　　　　　　　K : Specification with smoothing & emphasis function based on 16
　　　　　　　　　　　　　　　　　　　　　　 Hex
　　　　　　　　　　　　　　　　　　　　　　 Character Code.
　　　　　　　　　　　　　　　　　　　　　　E : Specification with smoothing & emphasis function based on
　　　　　　　　　　　　　　Binary Code.
　　　　n　　　　[Data]　　　　　＝　　　　Refer to Chinese Character Code (GB2312) Range Table.

* Printing will not be executed properly when data size increase or decrease
* Specificable code of half-sized character is from 20h～7Fh as there is an overlap with Chinese Character Code (GB2312).

[Coding Example]
16Hex Character Code Specification Horizontal Direction Ratio : 2 times　　　　Vertical Direction Ratio : 3 times
　　<A>
　　<V>100<H>100<P>8<L>0203
　　<c9>HB0A1B0A2B0A3B0A4B0A5303132
　　<Q>1
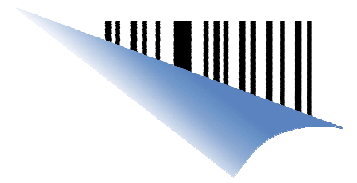　　<Z>

[Supplementary Explanation]
　1. 16 Hex Character Code　　　＝　　　Chinese Character Code 4 byte ASCII / 1 character
　2. Binary Code　　　　　　　＝　　　Chinese Character Code 2 byte / 1 character
　3. Smoothing Function Valid Ratio＝　　horizontal, vertical valid range : 3～12 times
　4. Emphasis Function Valid Ratio ＝　　horizontal, vertical valid range : 1～5 times

[Point]
　1. Characters of Emphasis Function will increase horizontally when it follows the enlargement specification.
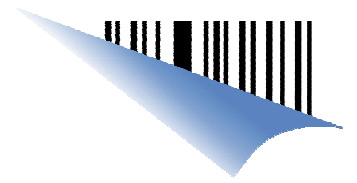　2. When using Emphasis Function, some characters may not be printed clearly.

[Valid Command]

Print Position	<V>	<H>							
Modifier		<L>	<%>	<&>	</>	<O>	<WD>		

5.1. ITF file sample with Simplified Chinese

```
/HTEXT
/:OBJECT TEXT
/:NAME ZTESTING_TEXT
/:ID ST
/:LANGUAGE E
/:FORM SYSTEM
/:STYLE
/:FIRST-USER A01ADM
/:FIRST-DATE 07 09 2000
/:FIRST-TIME 09 10 43
/:LAST-USER A01ADM
/:LAST-DATE 27 10 2000
/:LAST-TIME 15 30 41
/:TITLE '                              '
/:TITLE1 '           '
/:TITLE2 '           '
/MTEXT
* {
/ ^A^EX0
/ ^AR^A3H001V001
/ ^CS3^#E4
/ ^A111590799^Z
/ }
/ {
/ ^A^PS^WKchinese.lbl^%2
/ ^H0700^V0570^L0303
/ ^XUFont at 24x24 dot. (c2 command)^%2
/ ^H0700^V0651^L0303
/ ^XUVertical text flow
/ ^H0700^V0611^L0303
/ ^XUChinese Character Font^%2
/ ^H0100^V0525^L0203^P02
/ ^c9Bè¯†åˆ«ç³»ç»ŸABC^%2
/ ^H0779^V0249^L0303^P02
/ ^XUCharacter Font at 24x24 dot and^%2
/ ^H0786^V0797^L0303
/ ^XUCharacter Font at 24x24 dot and^%2
/ ^H0781^V0209^L0303^P02
/ ^XUhalf-sized character at 12x24 dot^%2
/ ^H0779^V0329^L0303
/ ^XUMixture of vertical text
/ ^H0779^V0289^L0303
/ ^XUflow of Chinese^%2
/ ^H0780^V0169^L0303
/ ^XU(c9 Command)^%2
/ ^H0787^V0733^L0303
/ ^XU(C9 Command)^%2
/ ^H0788^V0764^L0303^P02
/ ^XUhalf-sized character at 12x24 dot^%2
/ ^H0787^V0832^L0303^P02
/ ^XUMixture of horizontal text flow of Chinese^%2
/ ^H0778^V0673^L0203^P02
/ ^c2Bä½ è—¤è‡ªåŠ¨^%2
/ ^H0772^V0980^L0303
/ ^XUFont at 24x24 dot. (C2 command)^%2
/ ^H0773^V1020^L0303
```

```
/ ^XUHorizontal Text Flow Chinese Character^%2
/ ^H0773^V0924^L0203^P02
/ ^C9Bä½  è—¤è‡ªåŠ¨è¯ †åˆ«ç³»ç»Ÿ1234^%2
/ ^H0770^V1112^L0203^P02
/ ^C2Bä½  è—¤è‡ªåŠ¨è¯ †åˆ«ç³»ç»Ÿ^<38>01NiceOvl
/ ^Z
/ }
/ {
/ ^A^/01^~A0^Q1^Z
/ }
```

** END **