STANDARD 48

FORMAT OF THE IBAN ISSUED IN THE UK (International Bank Account Number)

June 2007

CONTENTS

1   INTRODUCTION AND REFERENCES

1.1   Introduction

This standard is designed to support use of the International Bank Account Number (IBAN) within the United Kingdom of Great Britain & Northern Ireland, including the Channel Islands and the Isle of Man.

The standard defines the national account number structure to be used to identify the bank, branch and account number within the IBAN. This is called the Basic Bank Account Number (BBAN).

The standard defines the international envelope placed around the BBAN. Envelope and BBAN together form the IBAN.

The complete IBAN provides an account number for international use that is capable of validation irrespective of the national account number format contained within. It is thus intended to facilitate Straight Through Processing and to improve confidence in the accuracy of the information provided in cross-border payments.

The standard also defines both the generation and validation of the IBAN.

1.2   Scope

The standard specifies the format of the UK Basic Bank Account Number (BBAN), and the format of the UK International Bank Account Number (IBAN), which incorporates the BBAN. The standard specifies how the IBAN is generated and validated.

The standard specifies who may generate and issue IBANs. It also specifies the way in which the IBAN must be presented in printed form. It does not specifically identify the field(s) in the various standards for payment transactions in which the IBAN will be quoted.

The standard specifies the technique of validating an IBAN and the point at which this validation must be carried out. The standard illustrates validation of an IBAN of the form likely to be quoted by UK customers on outgoing cross-border payments. It does not provide a comprehensive catalogue of the IBAN formats of other countries as this is beyond the scope of Standard 48 as well as being irrelevant to the validation technique.

The standard does not prescribe the means by which the validation is actually performed.

1.3   Summary of Usage

The IBAN is used as follows:

- UK bank generates and issues IBAN to customers
- Beneficiary customer notifies ordering customer of their IBAN
- IBAN is received in the UK as beneficiary accounting details on inward payments
- UK paying bank validates and uses the data to process payment

1.3   **References**

1.3.1   Normative References

This standard incorporates a number of dated or undated references, as indicated below. These normative references are cited at the appropriate places in the text. For undated references, it is the latest edition of the publication referred to which applies.

Reference..	Dated...	For...
ISO 3166	Latest version publish by ISO	Codes for the representation of countries
ISO 9362	Latest version publish by ISO	Bank Identifier Codes (BIC)
ISO 13616	Latest version publish by ISO	Financial services – International bank account number (IBAN)

1.3.2   Informative References

Informative references do not form a part of the standard. However they are referenced in the standard and have been used in the preparation of the standard.

Reference..	Dated...	For...
S.W.I.F.T.	Latest version publish by ISO13616 Registration Authority	IBAN Registry – Information about ISO13616 compliant national IBAN formats

1.4   **Definitions**

For the purpose of this standard, the following definitions apply:

Account Holding Institution

Any financial institution carrying on the business of banking through one or more branches situated within the United Kingdom. This therefore includes all banks of other countries which establish one or more branches within the UK and which provide services to one or more customers domiciled within the UK or to the UK-operational units of multi-national customers.

For the purposes of this specification, the United Kingdom of Great Britain & Northern Ireland includes the Channel Islands, and the Isle of Man.

Basic Bank Account Number (BBAN)

The BBAN (Account Number) is the identifier used by financial institutions in individual countries as part of a National Account Numbering Scheme(s) which uniquely identifies an account of a customer at a financial institution (ISO 13616). The BBAN shall include an explicit bank identifier. In the UK, the BBAN will include the first 4 characters of the bank BIC as the explicit bank identifier.

Capture of IBAN

The process of converting an IBAN from paper to electronic format.

Generation of IBAN

The one time process of creating an IBAN for an account.

International Bank Account Number (IBAN)

An expanded version of the Basic Bank Account Number (BBAN) used internationally to uniquely identify the account of a customer at a financial institution. (ISO 13616)

Notification of IBAN

The one time operation of notifying the account owning customer of the IBAN generated for the account.

Verification of IBAN:

The process of checking the IBAN to ensure that it is a valid IBAN. This does not ensure that an account with such an IBAN still exists; it may have been closed after issuance of the IBAN.

1.5   Abbreviations

The following definitions apply:

BBAN   Basic Bank Account Number
BIC   Bank Identifier Code
EPC   European Payments Council
IBAN   International Bank Account Number
ISO   International Organization for Standardization
S.W.I.F.T. Society for Worldwide Interbank Financial Telecommunications
BPSL   BACS Payments Schemes Ltd.

2.   BBAN SPECIFICATION

2.1   Introduction

The European Committee for Banking Standards requires each member country to have an agreed domestic part of the IBAN, referred to as their BBAN (Basic Bank Account Number).

There is an obligation to identify the bank uniquely and unambiguously within the BBAN. The UK national sort code can be viewed as being ambiguous. Therefore the UK's BBAN, the domestic part of the IBAN, includes a bank code in front of the domestic sort code and account number. The first four characters of the bank's BIC are used for this purpose. This is instantly recognisable within the sphere of cross-border banking. The use of the BIC details thus enables very rapid identification of the bank to which the incoming-to-UK transaction will be ultimately directed.

2.2   Structure

The UK's BBAN Basic Bank Account Number consists of three parts:

*   The **bank code** is the first four characters of the bank's BIC code and unambiguously identifies the institution. Any branch of that institution shall also be represented by the same bank code irrespective of its geographic location. The BIC codes are registered by S.W.I.F.T. (as the Registration Authority for ISO 9362).

*   The **sort code** is a 6 numeric digit number that identifies the UK institution and branch. The sort codes are registered by BPSL. For the purposes of the BBAN, the sort code is _not_ depicted as three two digit numbers separated by hyphens.

*   The **account number** is an 8 numeric digit number that identifies the individual customer's clearing account at the UK institution/branch. For account numbers of less than 8 numeric digits, leading zeros must be added

The BBAN is presented in all printed forms in sets of four alphabetic characters/numeric digits separated by spaces as follows:

AAAA XXXX XXYY YYYY YY

where A represents the bank code, X the sort code, and Y the account number.

2.3   Principles

2.3.1   Use of BICs

The **bank code** identifies the institution by using the first four characters of the bank's BIC code. The BIC codes are registered by S.W.I.F.T. who are the Registration Authority for ISO 9362. Any Account Holding Institution that plans to issue IBANs to their customers' conformant with the proposed UK Payments Administration standard for IBANs, but which does not have a BIC code, must either:

*   apply to S.W.I.F.T. for their own BIC, or

*   make suitable correspondent/agency arrangements with another UK bank and quote the BIC of that bank.

The term 'Account Holding Institution' used here applies to all banks, building societies or institutions operating within the UK that maintain accounts for customers. It includes all financial institutions of other countries that have one or more branches within the UK and which provide such services to customers domiciled within the UK or to the UK-operational units of multi-national customers.
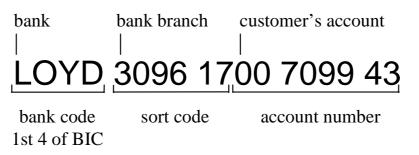
2.3.2   Account Numbers

The account number is used in the same way, as it conventionally appears externally to identify the individual customer account. It is recognised that there are a number of exceptions where this is not an 8 numeric digit number, generally these exceptions occurring in banks' individual internal systems. The following principles apply to the exceptions:

7 digit account numbers	padded with an extra leading zero
2 digit 'account type' indicators	omitted from the BBAN, as in e.g. cheques of that bank
1 character currency indicator	omitted from the BBAN

2.4   Example

The following example illustrates the form, structure and content of the BBAN:

```
       bank          bank branch      customer's account
        |                |                     |
      LOYD 3096 1700 7099 43
      bank code      sort code      account number
     1st 4 of BIC
```

It is a Lloyds-TSB 7-digit account number, 0709943, at the branch of Lloyds-TSB identified by the sort code 30-96-17.

3.   IBAN SPECIFICATION

3.1   Introduction

The IBAN enables a transaction to be routed to the correct country, as it contains the country of issue of the IBAN. UK IBANs also use the national account structured BBAN to uniquely identify the bank and the branch/account number within that bank.

3.2   Structure

IBAN has a simple four-character header placed in front of a country's BBAN. This header is a two alphabetic character country code followed by a pair of numeric check digits.

The format of the IBAN therefore consists of the following:

- The two-letter **international country code**, taken from the ISO 3166 standard. The code **GB** identifies the country of issue of the IBAN as the United Kingdom of Great Britain & Northern Ireland. ISO 3166 explicitly includes the Channel Islands and Isle of Man within the country code GB.

- The pair of **check digits**, calculated by the financial institution issuing the IBAN, using a relatively simple formula applied to the whole IBAN. There is an equally simple formula by which any party can perform an integrity check on an IBAN that has been quoted to them.

- The **BBAN**, as described in the preceding Part 2 of this standard, to identify the bank branch and customer account number.

The IBAN is presented in all printed forms in sets of four alphabetic characters/numeric digits, preceded by the word IBAN and separated by spaces as follows:

IBAN GBDD AAAA XXXX XXYY YYYY YY

where GB is the country code for the UK, D the check digits, and then the BBAN in which A represents the bank code, X the sort code, and Y the account number.

When an IBAN is communicated electronically, the separator spaces are omitted, i.e. it is transmitted as GBDDAAAAXXXXXXYYYYYYYY.

3.3   Example

The following picture shows a complete UK IBAN in the form in which it appears on paper:

It is the IBAN issued within the UK for a Lloyds-TSB 7-digit account number, 0709943, at the branch of Lloyds-TSB identified by the sort code 30-96-17. The check digit of 19 is calculated on the whole IBAN

3.4   Generation Principles

An IBAN may only be generated by the financial institution or bank responsible for the account.

The financial institution or bank issuing an IBAN to a customer account within the UK must use the country code GB to indicate that the customer's account is domiciled within the UK.

The BBAN format used must be the agreed format for UK BBANs.

Upon notification of an IBAN to a customer, the financial institution or bank should encourage the customer to quote the IBAN clearly and in full on all correspondence which is likely to trigger, or to be used to maintain system information leading to, cross-border payments, debits or credits.

The IBAN *must* be generated according to the process described in the following section **3.5 Generation of an IBAN in the UK.** How the generation process is technically achieved in practice *is not* prescribed by this standard.

3.5   Generation of an IBAN in the UK

The IBAN is derived from the BBAN. The example below is a Lloyds-TSB account:

30-96-17 00709943

The separators are removed, and the first four characters from the Lloyds-TSB BIC code are placed at the front, making up the BBAN.

LOYD 3096 1700 7099 43

Next the country, in this case GB, and the digits 00 are placed on the right hand end. The example would now look like this:

LOYD30961700709943GB00

In order to calculate the check digits, the alphabetic characters are temporarily replaced by numeric digits according to the following table:

A	10	F	15	K	20	P	25	U	30
B	11	G	16	L	21	Q	26	V	31
C	12	H	17	M	22	R	27	W	32
D	13	I	18	N	23	S	28	X	33
E	14	J	19	O	24	T	29	Y	34
								Z	35

The example would now look like this:

212434133096170070994316110 0

the number is then divided by 97 to obtain the remainder. The remainder is subtracted from 98, and the resulting two numeric digits are the check digit pair for the IBAN. If the result of subtracting the remainder from 98 is less than 10, then a leading zero is used (i.e. 01, 02, etc).

The IBAN is then constructed from the version noted just before converting alphabetic characters to numbers. For the example, this was:

LOYD30961700709943GB00

The two '00' numeric digits at the right-hand end are replaced by the check digits which have been calculated. In the example, the remainder after division by 97 was 79, giving the check digit pair 19. The country code and check digits are then moved to the front of the IBAN. The electronic example would now look like this:

GB19LOYD30961700709943

Finally it is spaced out in sets of four alphabetic characters/numeric digits, and IBAN is added at the front to identify it in this printed presentation:

IBAN GB19 LOYD 3096 1700 7099 43

4.   IBAN VERIFICATION

4.1   Circumstance

UK financial institutions will receive cross-border payment instructions from their customers quoting IBANs of foreign trading partners as destination accounts, these IBANs will have been generated by foreign banks.

The standard expects that the all IBANs will be verified on capture of the IBAN, that is, at the initial point of entry when it is entered into the UK banking system as the destination account. The purpose of this part of the standard is to describe the verification process, **which is independent of the IBAN format or origin**.

4.2   Verification Process

The IBAN is presented in all printed forms in sets of four alphabetic characters/numeric digits and may be up to 34 characters/numbers in length, preceded by the word IBAN and separated by spaces as follows:

IBAN CCDD *ZZZZ ZZZZ ZZZZ ZZZZ*

C represents the country code, D the check digits and Z the BBAN (basic bank account number) in the form appropriate to the country of issue. Z is adopted here as a foreign account number could be of any format.

It should be noted that the BBAN may contain alphabetic characters as well as numeric digits, and that it will vary in form between different countries. The verification is carried out in exactly the same manner *irrespective of the different formats* of the BBAN. It is therefore not necessary to know, or to refer to documentation of, the account number structures of other countries.

Verification must be carried out with the following steps:

*   discard the prefix IBAN if present
*   move the two alphabetic character country code and check digit pair from the front of the IBAN to back (i.e. it becomes *ZZZZ ZZZZ ZZZZ ZZZZ* CCDD)
*   convert any alphabetic characters to numeric digits according to the standard table
*   divide by 97

If the answer is 1, then the IBAN is valid.

4.3 Example Verification of an IBAN

The following picture shows an IBAN in the form in which it would appear on paper. The example is a Belgian account, quoted as a destination account for a cross border payment

Validation of the IBAN is carried out in the following way

The letters IBAN and any spaces are ignored. The country code and the check digit pair (i.e. the first four alphabetic characters/numeric digits) are then moved to the right hand end. The example would now look like this:

320034713441BE88

According to the following table the alphabetic characters are now replaced by numeric digits:

A	10	F	15	K	20	P	25	U	30
B	11	G	16	L	21	Q	26	V	31
C	12	H	17	M	22	R	27	W	32
D	13	I	18	N	23	S	28	X	33
E	14	J	19	O	24	T	29	Y	34
								Z	35

The example IBAN would now look like this:

320034713441111488

This is then divided by 97. If the remainder is 1, the IBAN is valid, as the country and domestic part tally with the check digit pair.

In the example, the result of division is 1 and the IBAN can therefore be accepted.

4.4 Practical Aspects of Verification

For reasons of precision, the use of integers instead of floating point numbers is recommended. If the number is too long for the software implementation of integers (a (signed) integer of 32 bits or 64 bits represents a maximum of 9 or 18 digits), then the calculation can be split up into consecutive remainder calculations on integers with a maximum length of 9 or 18 digits.

The following example shows the required steps:

1.   The remainder of the division of 510007547061111462 by 97 = 1.

2.   Calculate the modulo 97 of the first 9 digits of the number.

3.   modulo 97 of 510007547 = 74.

4.   Construct the next integer of 9 digits from the remainder followed by the next 7 or 8 digits of the number. Calculate the modulo 97.

5.   modulo 97 of 740611114 = 12.

6.   Repeat step 4-5 until all the digits of the number have been processed.

7.   modulo 97 of 1262 = 1.

A.1 CHARACTER NUMERIC CONVERSION TABLE

The alphabetic character to numeric digit conversion table is repeated here for convenience and easy detachment for use.

In generating or checking an IBAN a 2 numeric digit number according to the following table replaces any alphabetic character appearing within the IBAN:

A	10	F	15	K	20	P	25	U	30
B	11	G	16	L	21	Q	26	V	31
C	12	H	17	M	22	R	27	W	32
D	13	I	18	N	23	S	28	X	33
E	14	J	19	O	24	T	29	Y	34
								Z	35

End of Document