

## **Carrier Selection (CS) - Document for implementation by 1<sup>st</sup> October 1999**

Guidance for implementation of  
call-by-call selection and carrier pre-selection  
in the FL network by 1<sup>st</sup> October 1999

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# **1 Introduction**

According to the telecommunications policy adopted and actively pursued by the Liechtenstein Government, it is compulsory for all licensed network providers to implement call-by-call selection and carrier pre-selection for all of the subscribers by 1<sup>st</sup> October 1999. This obligation in particular concerns the LTN Liechtenstein TeleNet AG, Vaduz.

Having regard to this policy, this document fixes the technical and operational requirements to start implementation of carrier call-by-call selection and carrier pre-selection in the FL network. Some open issues shall be considered by the operators in the implementation phase and are listed at the end of the document.

All licensed operators interested in supplying call-by-call or pre-selection services to the Liechtenstein public are invited to base their technical and operational procedures on the information contained in this document. Deviations from the guidance provided for in this document shall be deemed binding upon the parties concerned as far as they have been agreed upon by consensus.

## **1.1 Scope**

This document covers technical and operational aspects of free choice of carrier for implementation of pre-selection by 1<sup>st</sup> October 1999.

The mechanism required in the network in order to ensure the availability of call-by-call selection and above all carrier pre-selection is briefly described, but the focus has been put on the implementation of the free choice of carrier in the fixed network. Due to lack of international standards the implementation of carrier selection in mobile networks can not be provided with the same functionality and

in the same time frame as for the fixed network. Mobile related aspects have therefore been compiled in a separate chapter in this document

The most important complement to the existing definitions is related to the calling scope of carrier pre-selection, which is a key to success for the launch of this service.

Clear, simple and precise operational processes for provisioning carrier pre-selection are also crucial for avoiding customer confusions and ensuring fair competition. The second part of this document establishes basic rules to be considered as framework for the interconnection agreement between network services providers.

## **1.2 References**

- [1] Telekommunikationsgesetz (Telecommunications Law) vom 20. Juni 1996, LGBI. (Liechtenstein Legal Gazette) 1996 Nr. 132
- [2] Technische und administrative Vorschriften betreffend die freie Wahl der Dienstanbieterin für nationale und internationale Verbindungen
- [3] ITU-T Recommendation E.164 - The international public numbering plan - 30.05.97
- [4] Liechtensteinischer Nummerierungsplan gemäss ITU-T E.164 (Kundmachung vom 23. Februar 1999, LGBI. 1999 Nr. 66); hereinafter referred to as "FL numbering plan"
- [5] Konzessionen:

- Infrastrukturkonzession der LTN Liechtenstein TeleNet AG vom 1. Dezember 1998
- Verbundene Konzession ITT/GVD/LSP/1 & ITT/GVD/ISP/1 vom 30. Juni 1998/31. August 1999

### **1.3 Abbreviations**

AK	Amt für Kommunikation
AoC	Advice of Charge
BRI	Basic Rate Interface
CAC	Carrier Access Code
CIC	Carrier Identification Code
CS	Carrier Selection
CSC	Carrier Selection Code
DDI	Direct Dialling In
DN	Directory Number
DQ	Directory Enquiries (111)
GST	Geschäftsstelle
ISDN	Integrated Service Digital Network
LAC	Local Area Code
LCR	Least Cost Router
LLC	Local Loop Carrier (in FL: LTN Liechtenstein TeleNet AG and Telecom FL AG together, co-operation procedures have to be defined)
NSN	National Significant Number
OCB	Outgoing Call Barring
PABX	Private Automatic Branch eXchange
PSC	Pre-Selection Choice/Pre-Selected Carrier
PoA	Power of Attorney
POTS	Plain Old Telephony Service

PRI	Primary Rate Interface
PFD	PreFix Dialler
QoS	Quality of Service

## **1.4 Definitions**

The following definitions apply for implementation by 1<sup>st</sup> October 1999 and only for the purpose of this document.

### **Call-by-call selection or Easy access:**

Call-by-call selection allows the caller to choose a carrier network for a single call by dialling the accurate carrier selection code (CSC) in front of the required number.

Call-by-call selection may be performed by mean of a smart box like PreFix Dialler (PFD) or Least Cost Router (LCR) inserted at the user-network interface.

### **Pre-selection:**

Pre-selection is a fixed set-up procedure installed in the access network, allowing the caller to choose carrier network automatically without dialling supplementary digit.

### **Free choice of carrier:**

This is the generic term used in this document for call-by-call selection and pre-selection.

### **Default selection:**

This is the selection of the carrier chosen by access network provider if neither call-by-call selection nor pre-selection is used by the caller.

### **Default carrier:**

This is the carrier network chosen by the access network provider to route calls

when the customer expresses no preference.

**Pre-selected carrier:**

This is the carrier network determined by the pre-selection.

**Local carrier, Local Loop Carrier, Access provider:**

This is the carrier to whose network the subscribers are directly connected.

**New selected carrier:**

This is the newly pre-selected carrier as opposed to the old pre-selected carrier or default carrier.

**Local call:**

Please see the FL numbering plan, section 9.

**International call:**

Call to destinations outside FL. The number dialed by the caller includes the international prefix 00. Please see the FL numbering plan, section 9.

**Value added services numbers:**

Please see the FL numbering plan, section 9.

**Routing dependent on Type of Carrier Selection:**

"Routing dependent on Type of Carrier Selection" is the terminology used when the calls are not handled the same way for call-by-call selection and pre-selection.

**Routing dependent on Carrier :**

"Routing dependent on Carrier" is the terminology used when the type of calls



concerned by call-by-call selection and pre-selection differs depending on the selected carrier.

## **2 General technical requirements and specifications**

### **2.1 Foreword**

Unless otherwise specified, the requirements are valid for call-by-call selection in the fixed and mobile networks and pre-selection only in the fixed network.

### **2.2 Format and structure of carrier selection code**

The CSC is the sequence of 4 digits to be inserted before the E.164 subscriber number for selecting an indirect carrier. The exact structure, usage and attribution of CSC are defined in [2], chapter 4.1.

### **2.3 Digits sequence length minimum to be supported**

Fixed network switches must support at least a sequence of 22 digits dialled by the subscribers for call-by-call selection method in order to be able to deal with the CSC, the international prefix (00) and the maximum length of an E.164 number (15 digits according to [3]).

Mobile networks: ETSI specified number length in the GSM mobile access protocol is limited to 20 digits.

### **2.4 Transport of carrier selection code in the network**

As defined in [2], chapter 8.

## **2.5 Routing of traffic**

As defined in [2], chapter 9.

## **2.6 Quality of service**

As defined in interconnection agreement.

## **2.7 Service transparency**

### **2.7.1 Basic services**

As defined in [2], chapter 6.1.

### **2.7.2 Supplementary services**

- Call forwarding services:  
Pre-selection must operate when forwarding or diverting a call.
- Other supplementary services, as defined in [2], chapter 6.2.

Mobile networks: As mentioned in [2], the transparency of supplementary services from mobile networks may not fully correspond to those in the fixed network and the service-set is somewhat different.

As mentioned in [2], there are no standards to support Advice of Charge for carrier selection calls. It is therefore not possible to support carrier selection for prepaid applications in mobile networks.

### **2.7.3 Impact of Outgoing Call Barring on CS**

#### **2.7.3.1 Call-by-call selection**

The selected carrier is responsible for providing the service.

Mobile networks: The number of barring sets is limited in GSM system. Needs further investigation.

#### **2.7.3.2 Pre-selection**

The scope of barred calls for the pre-selected carrier must be exactly the same as the scope would be for the default carrier and must not exclude, limit or otherwise impede free choice of carrier.

## **2.8 Assignment of pre-selection to subscriber access and directory numbers**

### **2.8.1 Single access**

Pre-selection may be assigned to individual directory numbers (DN) for single lines.

This applies to plain old telephony systems (POTS) as well as to multiple subscriber number (MSN) of ISDN BRI.

Mobile networks: Not relevant (no MSN supported).

### **2.8.2 PABX access**

Pre-selection can be assigned only to an entire PABX plan. It is not possible to assign pre-selection to individual extensions among a DDI range of a POTS, BRI or PRI PABX plan.

## **3 Technical implementation**

### **3.1 Implementation in the fixed network**

#### **3.1.1 Call filtering for call-by-call selection**

Emergency calls only are filtered.

See table 1.

#### **3.1.2 Call filtering for pre-selection**

##### **3.1.2.1 Filtering of emergency calls**

Emergency calls are ignored by pre-selection mechanism and handled via the default carrier. Every access network provider must make sure that all emergency calls can be completed accurately.

See table 1.

##### **3.1.2.2 Filtering of value added services calls**

Value added services calls are ignored by the pre-selection mechanism and handled via the default carrier. See table 1.

##### **3.1.2.3 Filtering of short codes calls**

Short codes calls are ignored by the pre-selection mechanism and handled via the default carrier.

See table 1.

##### **3.1.2.4 Filtering of local calls**

For 1<sup>st</sup> October 1999, it has been agreed that calls within the same local area are filtered only if dialed without the LAC.

See table 1.

### 3.1.3 Call handling for call-by-call selection and pre-selection

Call handling for free choice of carrier to be implemented by 1<sup>st</sup> October 1999 is the following:

Traffic	Profile of call-by-call selection	Profile of pre-selection
Emergency calls (112, 117, 118, 143, 144)	Call-by-call selection ignored (routed via default carrier)	Pre-selection ignored (routed via default carrier)
Short codes calls (apart from emergency calls)	Routed to selected carrier	Pre-selection ignored (routed via default carrier)
International calls (00)	Routed to selected carrier	Routed to pre-selected carrier
Value added services calls (8xx,9xx)	Routed to selected carrier	Pre-selection ignored (routed via default carrier)
Local calls (2,3)	Routed to selected carrier	Pre-selection ignored (routed via default carrier)

**Table 1**

### 3.1.4 Pre-selection variants

Only pre-selection by administrative subscription as defined in [2], chapter 3.2 is required by 1<sup>st</sup> October 1999.

Introduction of pre-selection on-line controlled by subscriber input will be studied later.

### 3.1.5 Priority among the different carrier selection methods

As defined in [2], chapter 3.1 and chapter 3.3.

### 3.1.6 Impact of number portability on free choice of carrier

Needs further study.

### 3.2 Implementation in mobile networks

Due to technical complexity and lack of international standard, implementation of pre-selection in mobile networks needs further investigation.

Carrier selection is not required for roamers in the mobile networks.

Call handling for call-by-call selection from mobile networks is as follows:

<b>Traffic</b>	<b>Profile of call-by-call selection</b>
Emergency calls (112, 117, 118, 143, 144)	Carrier selection ignored (routed via default carrier)
Short codes calls (apart from emergency calls)	Carrier selection ignored (routed via default carrier or apply announcement)
International calls (00)	Routed to selected carrier
Value added services calls (8xx,9xx)	Carrier selection ignored (routed via default carrier or apply announcement)
Mobile-Mobile calls (2...9)	Carrier selection ignored (routed via default carrier or apply announcement)

**Table 2**

## 4 Operational Procedures for Pre-selection

### 4.1 Introduction

The universal experience in liberalized telecom markets is that the introduction of choice consistently produces benefits for consumers in the way of lower

prices, a greater variety of services and more responsive customer care. Choice also has the potential to introduce customer confusion.

Implementation of a small number of key guidelines can minimize potential confusion and allow customers easy access to new, and existing, service providers.

Pre-selection requires establishment of operational procedures defining how carriers communicate with each other regarding a customer's choice of carrier and, most importantly, how the carriers communicate with the customer so that the process is easy, convenient and secure from the customer's point of view. The issue analysis here examines operational requirements for pre-selection.

#### **4.2 Pre-selection Information Flow from Customer Decision to Ready for Service**

The end to end information flow from customer decision to ready for service is simple in content and relatively simple in form, the primary complication being the fact that it necessarily involves at least two competing service providers.

Paragraph 0 of this paper shows in flow charts how pre-selection will be initiated for the phase of October the 1<sup>st</sup> from the first step of a customer's call and processed until pre-selection is fully implemented. For pragmatic reasons a compromise solution for this flow process was proposed. For the next phase of pre-selection the pre-selection process will be further discussed between involved carriers.

##### **4.2.1 The customer's contact to initiate his pre-selection choice (PSC)**

To initiate his or her pre-selection choice (PSC), the customer has to go through only one single contact with the desired carrier. This is typically a phone call followed by an exchange of correspondence. The customer is not required to

make direct contact with any other carrier. The chosen carrier has the power to act for the customer in completing the PSC process.

If a customer contacts the local carrier to initially select or change his or her PSC to another carrier, the local carrier simply refers the caller to the requested carrier.

#### **4.2.2 Required form of pre-selection request**

After the first contact with the desired carrier, the customer has to sign a Power of Attorney (PoA) or a data capture form which contains the necessary information to be passed to the local carrier for installing pre-selection to the customer access. Whatever form is chosen by a carrier to collect its customer's signature, the signed form must be received by the local loop provider not later than 3 three working days after notice of choice has been given by the chosen carrier.

##### **4.2.2.1 The Power of Attorney (PoA) form**

The layout of the PoA form is carrier left to the free choice of the carrier, but the following data must be present:

- Customer's full name
- Address
- Telephone number(s)
- Date
- Place
- Signature
- Customer instruction to new carrier to conduct all negotiations with local loop operator
- Customer authorisation of local loop carrier to provide selected carrier with all necessary information in case of change of address



### 4.2.3 Notice of choice provided by chosen carrier to the local carrier

For the first phase and until a fully mechanized system is initiated, clear guidelines are established for the notice of choice by the chosen carrier to the local carrier, and for confirmation of receipt by the local carrier.

The chosen carrier will send pre-selection orders per e-mail. The customer signature on the PoA or data capture form can be sent by e-mail, by fax or by mail.

#### 4.2.3.1 Exchange of files, files name and format

The orders shall be stored in an Excel file enclosed as attachment in an e-mail. Carriers must agree on the version their systems support. From 1<sup>st</sup> October 1999, Excel 7.0/Windows 95 file format will be used. No later version must be used without mutual agreement.

The convention for naming files is the following:

CPS\_1xyz\_Q\_YYYYMMDD\_1xyz9999999999.XLS

where

**CPS** => Pre-Selection

1xyz=> 4 digits of CSC

**Q** => A=Activation, R=Response (Ack/Nack), S=Signature (reception), P=Order performed, C=Cancellation, M=Modification, L=Location change, D=Deactivation

**YYYYMMDD** => date in format YYYYMMDD (e.g. 19980813 for 13<sup>th</sup> August 1998)

**1xyz9999999999** => the number of the first order in the file

**XLS** => Excel file extension

Orders are sent by the PSC in Excel files named

CPS\_1xyz\_A\_YYYYMMDD\_1xyz9999999999.XLS

and containing the fields described in the following table:

Field Name	Remark	Example
Order Id	Format: XYZ+10 characters	001000000001

Field Name	Remark	Example
	where XYZ are the last 3 digits of the chosen carrier's CSC code and the 10 characters are forming a unique identifier	
Submit date	YYYY MM DD	1998 08 14
Company registered name		
Customer name		
Customer first name		
Street/No/Postbox		
Postcode		
Town		
Nat PSC name	Name of carrier for national calls Remark :for the first phase it should be Telecom FL AG.	
Nat CSC	CSC for national calls	
Internat PSC name	Name of carrier for internat. calls	
Internat CSC	CSC for international calls	
Analog/ISDN	Nature of access	ISDN
Type	PABX or blank for single lines	PABX
DN/MSN1- MSN2...MSN10	10 separate fields. PABX main number to be filled in DN/MSN1 field	
Order accepted	Field reserved for answer of LLC	
Code for rejection	Field reserved for answer of LLC	
Reason for rejection	Field reserved for answer of LLC	
Signature	Field reserved for answer of LLC	
Activation date	Field reserved for answer of LLC	
Internal	Field reserved internal use of PSC	

**Table 3**

Within one working day, the LLC must send back to the PSC the same Excel files renamed

CPS\_1xyz\_R\_YYYYMMDD\_1xyz9999999999.XLS.

The field "Order accepted" must be filled for each order with Y (yes, accepted) or

N (no, rejected). See paragraph 0 4.2.5.1 Reasons for rejection of a CPS order (page 1).

If an order is rejected (N in field "Order accepted"), one of the valid codes for rejection must be entered:

**NoMatch** : name and number don't match  
**NoLLC** : customer is not customer of this LLC  
**NoIC** : lack of interconnect agreement.  
**NoPreselect** : Number not available for pre-selection.

A supplementary information can in addition be typed in the "Reason for rejection" field.

For each order, Y(es) must be typed in field "Signature received" if the customer's signature has been received by the LLC, or N(o) if it is not the case.

If all customer's signatures have not been received when the first acknowledge file is sent back by the LLC to the PSC, the LLC must wait up to 3 working days (from reception of activation file of CPS) and then re-send the same file but renamed CPS\_1xyz\_**S**\_YYYYMMDD\_1xyz9999999999.XLS for notification of signature reception.

Within 5 working days, the LLC must send one more time the same file renamed CPS\_1xyz\_**P**\_YYYYMMDD\_1xyz9999999999.XLS to confirm that activation has been performed for all accepted orders. The field "Activation date" must be filled.

#### **4.2.4 Operators points of contact for CPS**

Every operator must provide to other operators the mail address, e-mail address, phone and fax numbers of their pre-selection order management desks.

#### **4.2.5 Acceptance of PSC, rejection of PSC and notice of ready for service date**

- The local carrier should process PSC orders promptly, and within a maximum of five working days as defined in [2] concerning the Free Selection of Carriers For National and International and Links.
- The local carrier must notify the chosen carrier about accepted orders within one working day.
- The local carrier must return rejected orders within one working day of receipt.

##### **4.2.5.1 Reasons for rejection of a CPS order**

Rejected requests must include the specific reason why the request was rejected.

The only admissible reasons to reject an order are the following:

- Name and telephone number do not match. However, if name does not match exactly (e.g. Gaby Scala instead of Gabriela Scala, Schaerer instead of Schärer) but no ambiguity possible, the order must not be rejected (code for rejection: NoMatch)
- The customer can not be recognized as a customer connected to that local carrier (code for rejection: NoLLC)
- No direct interconnect or pre-selection interconnect agreement between local loop carrier and PSC, or no routing of CSC through transit carrier defined in LLC network. (code for rejection: NoIC)
- Telephone number not yet ready for pr-selection. (code for rejection: NoPre-select)

#### **4.2.5.2 Notification by the local carrier to chosen carrier of delay in ready for service.**

If a ready for service date cannot be met, the local carrier must notify the new chosen carrier immediately.

#### **4.2.5.3 Rules for calculating delays**

Acceptance/Rejection of orders must be done within 1 working day.

Activation must be effective within 5 working days.

If the order is sent day x (between 00.00 and 24.00), confirmation/rejection must be received the next working day. Activation must be effective day x + 5 working days

00.00      Day x      24.00

Confirmation: day x + 1 working day	Rejection: day x + 1 working day
Signature in: day x + 3 working days	Signature not in: day x + 3 working days
Activation: day x + 5 working days	

**Figure 1**

#### **4.2.6 Cancellation of an order**

Cancellation of an order is possible until the 4<sup>th</sup> day, so long as pre-selection has not yet been activated.

A fee is charged to PSC only if the order has been positively acknowledged.

Cancellation orders must be sent separately in files named

CPS\_1xyz\_C\_YYYYMMDD\_1xyz9999999999.XLS

Cancellation orders will include:

- Order ID
- Company/Customer Name
- Phone number(s)
- Cancellation

#### **4.2.7 Change an order**

If a change is required for an order (i.e. implementation date postponed), PSC sends a changed order separate from other orders (i.e. if in the same e-mail, in a different attachment) in a file named

CPS\_1xyz\_M\_YYYYMMDD\_1xyz9999999999.XLS

Change order will include:

- Order ID
- Company/Customer name
- Phone number(s)
- Change required

#### **4.2.8 New connect service date to coincide with connection to the chosen carrier**

In the case of a new connection for local service, the date of local service connection must coincide with the date the customer is connected to the chosen carrier. Unless the completion dates are identical, the customer will not have access to a long distance provider in the interim.

#### **4.2.9 Deactivation process**

If a customer wishes to discontinue PSC and select his LLC as default carrier, the process is based on the normal CPS activation process, the customer's signature being sent by the LLC to the old PSC. The customer must contact his LLC only. If the customer contacts the currently selected carrier to order the change, the

currently selected carrier simply refers the caller to the LLC.

The LLC sends to the PSC a deactivation notification in a file named  
CPS\_1xyz\_**D**\_YYYYMMDD\_1xyz9999999999.XLS

Deactivation notification will include:

- Order ID
- Company/Customer name
- Phone number(s)
- Deactivation

Remark: the deactivation Order ID does not refer to the activation Order ID for this access.

#### **4.2.10 Relocating telecom customers**

When the local carrier is processing an order for a customer who is moving from one location to another, it keeps the customers pre-selection profile, if the customer gives no other notice.

The LLC sends to the PSC a relocation notification in a file named  
CPS\_1xyz\_**L**\_YYYYMMDD\_1xyz9999999999.XLS.

Relocation notification will include:

- Order ID
- Submit date
- Company/Customer name
- Old address
- New address
- Old phone number(s)
- New phone number(s)

Remark: Technical requirements to be defined and approved.

A fee is charged to PSC.

As long as coverage of pre-selection is less than 100%, if a customer moves to a place where the LLC cannot (yet) offer pre-selection, PSC is informed by LLC and the deactivation process applies.

#### 4.2.11 Flow chart on operational process to pre-select a new carrier (solution for 1<sup>st</sup> September 1998)

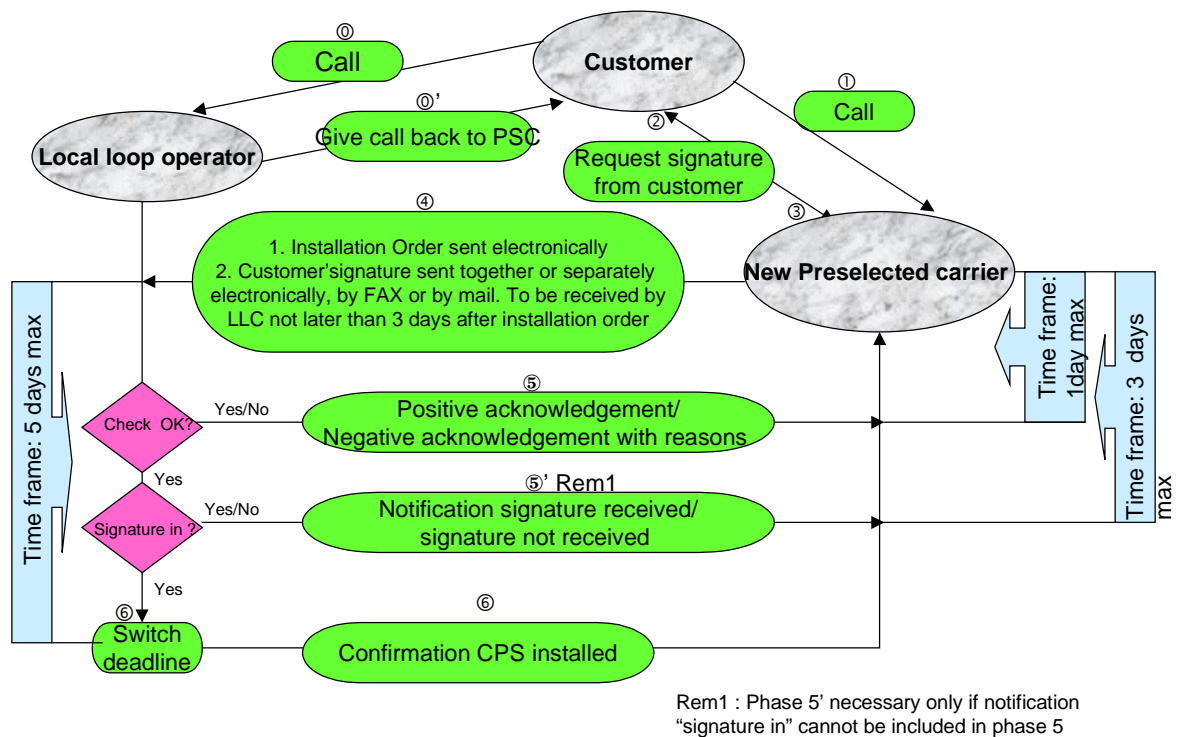


Figure 2

The different steps represented on the figure 1 above are the following:

- 0. Customer calls LLC
- 0'. LLC refer the caller to PSC



1. Customer calls PSC
2. PSC requests customer's signature by sending to him or her a data capture form or a PoA
3. Customer sends signed form
4. PSC sends activation order electronically to LLC. The customer's signed form is sent at the same or later by e-mail, by fax or by mail.
5. Within one working day, the LLC give an acknowledgement for every order, accepted or not. A reason for rejection is mandatory. If customer's signature have been received, it must be notified
- 5'. If a reception notification of the customer's signature for every order could not be sent at step 5, LLC waits up to 3 working days and send the remaining reception notifications.
6. Activation of pre-selection is performed by LLC for all the orders the LLC has received a customer's signature for.

### **4.3 Testing**

Overview of tests:

- LLC must test internally CPS feature, routing, call filtering
- End to end testing between operators
- Process testing between operators

### **4.4 Charging principles**

#### **4.4.1 Principle of charge**

2 different charges can be applied: activation fee or relocation fee.

Activation fee applies to positively acknowledged activation orders.

Rejection will not be subject to a charge.

Relocation fee applies when the LLC informs the PSC in case of move of the customer.

The charge will apply per order, but only one access per order is allowed. An access can be a single line analogue, a single line ISDN (with up to 10 MSNs), an analogue PABX with/without DDI, an ISDN PABX with/without DDI.

#### **4.4.2 Level of charge**

To be defined. For example:

Activation fee is CHF 29 (VAT excluded).

Relocation fee is CHF 10 (VAT excluded).

#### **4.4.3 Entity to be charged**

Unless otherwise agreed between carriers, the LLC charges the PSC.

### **4.5 Fault management process**

The carrier called by the customer initiates the fault management process. Details of the fault management process must be defined in the interconnection agreement.

### **4.6 The unacceptable practice of unauthorized switching of carriers.**

#### **4.6.1 ‘Slamming’**

In other telecom markets some operators have dishonestly attempted to initiate PSC changes without the permission of the customer. In the telecom industry this practice

is commonly referred to as slamming. It should be the commitment of all carriers to its customers to do all they can to prevent this kind of activity in Liechtenstein.

#### **4.6.2 Examples of misleading practices**

Misleading practices have included:

- Customers who think they are filling out a form to win a prize or subscribe to a magazine, for example, are in fact also signing up to change to another carrier. The authorization language can usually be found on the back of the form in very tiny print.
- Out bound tele-marketing firms call customers and ask if they want to change to another carrier. Sometimes customers are changed to that carrier without the customer's knowledge or agreement and the unfortunate customer is left to argue that he did not agree to such a change.
- Other carriers have been known to pretend they are the customer of record and call up the local telecommunications provider, asking to be changed to another carrier.

#### **4.6.3 Recommendations to prevent such practices**

The recommendations to prevent slamming are:

- Offers made to customers to change a PSC must be clear, concise, and not intentionally misleading. The PoA or the data capture form mentioned in this document must fulfil this requirement.
- Customers should sign an authorization to change a PSC, and that authorization of the customer's approval of the change should be kept on file by the chosen carrier, and made available in the case of a dispute. From 1<sup>st</sup> October 1999, the customer signed document will systematically be forwarded to the LLC.
- Stiff penalties should be established to deter the unacceptable practice of slamming.

## **5 Open issues**

This document consists of proposals for agreements between operators for launching pre-selection on 1<sup>st</sup> October 1999. However, the following issues should be taken in to the consideration for further discussion between the carriers.

### **5.1 Issues requiring intervention of the regulator**

#### **5.1.1 Technical issues**

1. LTN Liechtenstein TeleNet AG 100% coverage for pre-selection by 1.10.1999. This is a regulation obligation and, in the case of missing the mutual agreements by the carriers,
2. Call-by-call selection from mobile.

#### **5.1.2 Operational issues**

1. For the implementation of CS in FL it is recommended to achieve operational consent between the carriers/licensees. If it is not the case, this document will be considered as AKs obligational request to carriers/licensees.

### **5.2 Issues to be studied further**

#### **5.2.1 Technical issues**

1. Local call definition
2. Local call filtering
3. Carrier dependent routing
4. Definition of standard profiles for carrier dependent routing to be studied-

Technical limitation of the network

5. Filtering of country code +423

Filtering of calls for carrier selection when international prefix + Liechtenstein country code 423 are dialed by the customer need to be further investigated.

6. Impact on number portability

7. Pre-selection in the mobile network

### 5.2.2 Operational issues

1. Software interface and system for pre-selection information and co-ordination

## 6 Document information

### 6.1 General information

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### 6.2 Editor

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