Source:	**Nokia**
Title:	**Revised Rel-6 CR 004r1 to TS 22.234**
Document for:	**Approval**
Agenda Item:	**7.1.3**

CHANGE REQUEST

⌘	**22.234 CR 004**	⌘ **rev**	**1**	⌘	Current version:	**6.0.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ **X**   ME **X** Radio Access Network ☐   Core Network **X**

Title: ⌘	Selection of a PLMN accessed via an I-WLAN	
Source: ⌘	Nokia~~SA1~~	
Work item code:⌘	WLAN	***Date:*** ⌘ 01/06~~5~~/2004
Category: ⌘	**B**	***Release:*** ⌘ REL-6

Use one of the following categories: ***F*** *(correction)* ***A*** *(corresponds to a correction in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)* Detailed explanations of the above categories can be found in 3GPP TR 21.900.	*Use one of the following releases:* *2 (GSM Phase 2)* *R96 (Release 1996)* *R97 (Release 1997)* *R98 (Release 1998)* *R99 (Release 1999)* *Rel-4 (Release 4)* *Rel-5 (Release 5)* *Rel-6 (Release 6)*

Reason for change: ⌘	Description of procedure for the selection of PLMN when connected via I-WLAN
Summary of change:⌘	Reformatting of paragraph 6.1.1 in line with the PLMN selection procedure described in 22.011. The list of prefered WLANs (i.e. WLAN identities) and the possibility for WLAN manual mode selection are added.
Consequences if not approved: ⌘	No detailed requirement exist to perform a PLMN selection when connected via a I-WLAN. If multiple WLANs support the connection to HPLMN, the choice of WLAN AP will be random even if HPLMN operator's I-WLAN is available. Without manual WLAN AP selection, any available PLMN will inhibit the use of all local WLAN access points, such as 3GPP WLAN in the 3GPP meetings.

Clauses affected: ⌘	6.1.1

	Y	**N**	
Other specs affected: ⌘	**X**		Other core specifications ⌘ TS23.234, TS 24.234
		X	Test specifications
		X	O&M Specifications

Other comments: ⌘	

6.1.1   Network selection

The UE shall support both manual and automatic network selection mechanisms (modes) as standardized.

The UE shall use the last network selection mode used, as the default mode, at every switch-on.

The user shall be given the opportunity to change the network selection mode at any time.

When selecting a PLMN that is accessed via an interworked WLAN the UE shall be able to determine if the home or preferred PLMNs are available. The I-WLAN and PLMN selection shall adhere to operator and end user preferences using similar procedures as for Network Selection without WLAN interworking. This set of preferences may be different from the preferences used for direct 3GPP access. In manual network selection the user shall be able to request a list of available PLMNs via interworked WLANs. The detailed procedures are described below.

> NOTE 1: The 3GPP operator may have agreements with multiple I-WLANs in the area and has preference over which WLAN to connect to based on the services supported.

> NOTE 2: The adaptation of the Network Selection procedures to the WLAN interworking environment should take into account performance criteria (e.g. power consumption, network load).

6.1.1.1 Network~~PLMN~~ selection procedures

General

For the purpose of selecting a PLMN two lists may be present in the UICC: the "User Controlled PLMN Selector list for I-WLAN" and the "Operator Controlled PLMN Selector list for I-WLAN". It is not mandatory for the UICC to support these lists, however if the "Operator Controlled PLMN Selector list for I-WLAN" is supported then the "User Controlled PLMN Selector list for I-WLAN" shall also be present. Both the lists contain the preferred PLMNs for I-WLAN in priority order, and the User Controlled PLMN Selector list for I-WLAN has higher priority than the Operator Controlled PLMN Selector list for I-WLAN.

The purpose of the procedure is to enable the UE to find an I-WLAN that supports a direct connection to HPLMN or, as next choice, an indirect connection through a preferred VPLMN, however, in case no PLMN is found to be supported by any of the available WLANs, or if the UE cannot successfully register on any of the PLMNs found, the UE may display to the user a list of available WLANs by means of their identifier so that not interworking WLAN operations are still possible.

For the purpose of selecting the most appropriate I-WLAN in case multiple I-WLANs can support the connection to the desired PLMN, the UICC may contain two WLAN identities' preference lists: the "User Controlled WLAN Selector List for I-WLAN" and the "Operator Controlled WLAN Selector List for I-WLAN". It is not mandatory for the UICC to support these lists, however, if the "Operator Controlled WLAN Selector List for I-WLAN" is supported, then the "User Controlled WLAN Selector List for I-WLAN" shall also be present. Both lists contain the preferred WLAN identities in priority order and the User Controlled WLAN Selector List for I-WLAN has higher priority than the Operator Controlled WLAN Selector List for I-WLAN.

A) Automatic selection mode

In the automatic mode the UE shall perform the following procedure:

1. For each of the WLANs available the UE shall attempt to discover the PLMNs available via the particular WLAN in the WLAN access network priority order according to "User Controlled WLAN Selector List for I-WLAN" and the "Operator Controlled WLAN Selector List for I-WLAN". If the UE receives a list of available PLMNs, then

   1a) If the HPLMN is found then the procedure is stopped and the HPLMN is selected.

   1b) If the HPLMN is not found, the UE creates a list of PLMNs accessible over the particular WLAN

2. Among all the PLMNs obtained in step 1b), select a PLMN following this order:

   i) PLMNs contained in the "~~[0]~~ User Controlled PLMN Selector list for ~~I-~~WLAN access" data file in the USIM in priority order, if the list is available;

ii) PLMNs contained in the "Operator Controlled PLMN Selector list for I-WLAN access" data file in the USIM in priority order, if the list is available;

iii) PLMNs contained in the "User Controlled PLMN Selector list with access technology", if available;

iv) PLMNs contained in the "Operator Controlled PLMN Selector list with access technology", if available;

v) PLMNs contained in the optional "[0]User Controlled PLMN Selector list for I-WLAN access" in the ME in priority order, if the list is available;

vi) PLMNs contained in the optional "Operator Controlled PLMN Selector list for I-WLAN access" in the ME in priority order, if the list is available;

vii) any other PLMN not included in the lists (randomly)

3. Attempt association with the WLAN AP providing connection to the PLMN selected in step 2 and attempt authentication with the selected PLMN. If more than one WLAN AP provides connection to the selected PLMN or if no PLMN was selected in step 2, then the UE shall choose the highest priority WLAN AP according to "User Controlled WLAN Selector List for I-WLAN" and the "Operator Controlled WLAN Selector List for I-WLAN"

NOTE: Some APs do not support the provision of the Supported PLMN list. This might be an issue for operators, especially in early deployment phase of I-WLAN. To solve this problem, the operator can leave the PLMN lists empty and take care of network configuration by the usage of the Operator Controlled WLAN Selector list.

B) Manual selection mode

In manual selection mode the UE shall perform the following procedure:

1. For each of the available WLANs the UE shall attempt to discover the PLMNs available via the particular WLAN.

2. TIf the UE receives a list of available PLMNs, then the UE presents the available PLMNs and WLAN APs in the following order:

i) HPLMN;

ii) PLMNs contained in the "[0]User Controlled PLMN Selector list for I-WLAN access" data file in the USIM in priority order, if the list is available;

iii) PLMNs contained in the "Operator Controlled PLMN Selector list for I-WLAN access" data file in the USIM in priority order, if the list is available;

iv) PLMNs contained in the "User Controlled PLMN Selector list with access technology", if available;

v) PLMNs contained in the "Operator Controlled PLMN Selector list with access technology", if available;

vi) PLMNs contained in the optional "[0]User Controlled PLMN Selector list for I-WLAN access" in the ME in priority order, if the list is available;

vii)PLMNs contained in the optional "Operator Controlled PLMN Selector list for I-WLAN access" in the ME in priority order, if the list is available;

viii) any other PLMN not included in the lists (in random order)

ix) Any WLAN AP identity with no connection to PLMN

In case more than one WLAN AP gives access to the same PLMN or if any WLAN AP that does not indicate connection to any PLMN was found, then, an indication of the available WLAN identity (ies) shallould also be presented to the user.

NOTE: it is possible to have repetitions of the same PLMN in the list presented to the user

3.   3. Upon user selection of the desired PLMN the UE shall attempt to register on this PLMN. If more than one WLAN access point offer connection to the selected PLMN[0], then the UE shall attempt registration via the selected WLAN access point. To do so, the UE associates with the AP supporting the PLMN selected by the user and attempt authentication.

4.   If the user selected a WLAN AP with no connection to any PLMN, then the UE shall associate with the AP.