**3GPP TSG-SA WG1 Meeting #111 S1-253xxxx**

**25-29 August 2025, Goteborg, Sweden (revision of S1-253198r1)**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  |  | **CR** | **0373** | **rev** | **2** | **Current version:** |  |  |
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| *For* [***HELP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps | **X** | ME | **X** | Radio Access Network |  | Core Network |  |

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| ***Title:*** |  | | | | | | | | | |
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| ***Source to WG:*** | Vodafone, Qualcomm, Deutsche Telekom, Verizon, KDDI, Interdigital, BT, T-Mobile USA, KPN, Rakuten Mobile, Apple | | | | | | | | | |
| ***Source to TSG:*** | SA1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | LoSePLMN-REQ | | | | |  | ***Date:*** | | | 2025-08-29 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | B |  | | | | | ***Release:*** | | | Rel-19 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change 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](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  | T | | | | | | | | | |
| ***Reason for change:*** | | Some networks may offer very limited capacity or service capability and it may be beneficial to assign them to a lower PLMN selection priority than other PLMNs with higher-capacity or service capability identified during PLMN selection.  This would avoid UEs attempting to select and register on such networks when other PLMNs are available. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Adding some priority rules for automatic and manual selection to consider Operator Controlled Lower Selection-priority PLMNs. | | | | | | | | |
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| ***Consequences if not approved:*** | | It would not be possible to configure a certain PLMN with selection priority lower than other PLMNs identified during PLMN selection, e.g. roaming UEs might suffer worse service on that PLMN, compared to other PLMNs serving that area. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 1.2.1, 3.2.2.1, 3.2.2.2, 3.2.2.5 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | | None | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* First Change \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

## 1.2 Definitions and abbreviations

### 1.2.1 Definitions

In addition to those below, the definitions and abbreviations listed in 3GPP TR 21.905 [2] are applicable.

**3GPP PS Data Off:** A feature which when configured by the HPLMN and activated by the user prevents transport via PDN connections or PDU sessions in 3GPP access of all IP packets except IP packets required by 3GPP PS Data Off Exempt Services.

**3GPP PS Data Off Exempt Services:** A set of operator services that are allowed even if the 3GPP PS Data Off feature has been activated in the UE by the user.

**Disaster Condition:** This is the condition that a government decides whether applicable or not based on, e.g. a natural disaster or a man-made disaster. When this condition applies service interruptions and failures will be mitigated.

**PLMN:** A Public Land Mobile Network (PLMN) is a network established and operated by an Administration or RPOA for the specific purpose of providing land mobile communication services to the public. It provides communication possibilities for mobile users. For communications between mobile and fixed users, interworking with a fixed network is necessary.

A PLMN may provide service in one, or a combination, of frequency bands.

As a rule, a PLMN is limited by the borders of a country. Depending on national regulations there may be more than one PLMN per country.

A relationship exists between each subscriber and his home PLMN (HPLMN). If communications are handled over another PLMN, this PLMN is referred to as the visited PLMN (VPLMN).

A PLMN is considered lower priority for network selection if it is listed in the Operator Controlled Lower Selection-priority PLMN Selector list.

**PLMN Area:** The PLMN area is the geographical area in which a PLMN provides communication services according to the specifications to mobile users. In the PLMN area, the mobile user can set up calls to a user of a terminating network. The terminating network may be a fixed network, the same PLMN, another PLMN or other types of PLMN.

Terminating network users can also set up calls to the PLMN.

The PLMN area is allocated to a PLMN. It is determined by the service and network provider in accordance with any provisions laid down under national law. In general, the PLMN area is restricted to one country. It can also be determined differently, depending on the different telecommunication services, or type of UE.

If there are several PLMNs in one country, their PLMN areas may overlap. In border areas, the PLMN areas of different countries may overlap. Administrations will have to take precautions to ensure that cross border coverage is minimized in adjacent countries unless otherwise agreed.

NOTE 1: ITU-T Recommendation Q.1001 [4] does not contain a definition of the PLMN area.

**System Area:** The System Area is defined as the group of PLMN areas accessible by UEs.

Interworking of several PLMNs and interworking between PLMNs and fixed network(s) permit public land mobile communication services at international level.

NOTE 2: The System Area according to [4] Recommendation Q.1001 corresponds to the System Area.

**Service Area:** The Service Area is defined in the same way as the Service Area according to ITU-T Recommendation Q.1001 [4]. In contrast to the PLMN area it is not based on the coverage of a PLMN. Instead it is based on the area in which a fixed network user can call a mobile user without knowing his location. The Service Area can therefore change when the signalling system is being extended, for example.

**Shared MCC:** MCC assigned by ITU-T as shared MCC according to ITU-T E.212 [19], except within this specification for PLMN selection purposes the MCC of value 999 is not considered a shared MCC.

**Regionally Provided Service:** Regionally Provided Service is defined as a service entitlement to only certain geographical part(s) of a PLMN, as controlled by the network operator.

**Localised Service Area (LSA):** The localised service area concept shall give the operator a basis to offer subscribers different services (e.g. tariffs or access rights) depending on the location of the subscriber. An LSA consists of a cell or a number of cells within a PLMN. (3GPP TS 22.043 [5]).

**Tracking Area:** E-UTRAN utilises Tracking Areas (TA) for UE access control, location registration, paging and mobility management. The TA is independent of Location Areas (LA) and Routing Areas (RA). A TA comprises one or more E-UTRA cells Service requirements for E-UTRAN are specified in 3GPP TS 22.278 [8].

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Next Change \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

## 3.2 Network selection

### 3.2.2 Procedures

#### 3.2.2.1 General

In the following procedures the UE selects and attempts registration on PLMNs.

In this TS, the term "PLMN Selection" defines a UE based procedure, whereby candidate PLMNs are chosen, one at a time, for attempted registration.

A User Controlled PLMN Selector data field exists on the USIM to allow the user to indicate a preference for network selection. It shall be possible for the user to update the User Controlled PLMN Selector data field, but it shall not be possible to update this data field over the radio interface, e.g. using SIM Application Toolkit.

It shall be possible to have an Operator Controlled PLMN Selector list and a User Controlled PLMN Selector list stored on the SIM/USIM card. Both PLMN Selector lists may contain a list of preferred PLMNs in priority order. It shall be possible to have an associated Access Technology identifier e.g., NG-RAN, satellite NG-RAN, E-UTRAN (WB-S1 mode, NB-S1 mode), satellite E-UTRAN (WB-S1 mode, NB-S1 mode), UTRAN, GERAN or GERAN EC-GSM-IoT associated with each entry in the PLMN Selector lists.

Optionally, it may be possible to have a Operator Controlled Lower Selection-priority PLMN Selector list for PLMN selection. This list may be stored either in the USIM or provisioned in the ME or both. If the list is both stored in the USIM and provisioned in the ME, only the list stored in the USIM shall be used by the UE. This list contains a list of PLMN IDs and may include associated Access Technology identifiers, in priority order. The support of Operator Controlled Lower Selection-priority PLMN Selector list in the network selection procedure is optional for the UE.

For UEs supporting any, or a combination, of NB-IoT, GERAN EC-GSM-IoT [18] and Category M1 or M2 of E-UTRA [17], the 5G system shall support a mechanism to have an Operator controlled signal threshold per access technology on the USIM to be used for network selection. The signal threshold is specific for a certain Access Technology and shall apply to all PLMNs with the corresponding access technology combinations.

NOTE 1: The use of the Operator controlled signal threshold per access technology is intended for IoT stationary devices, without user interaction.

NOTE 2: The allowed range of the Operator controlled signal threshold per access technology is between the cell selection criterion and the high quality signal as defined in TS 23.122 [3].

The UE shall utilise the following information stored in the USIM related to network selection, e.g. HPLMN, Operator controlled PLMN Selector list, User Controlled PLMN Selector list, Forbidden PLMN list, Operator controlled signal threshold, and if supported by the UE, Operator Controlled Lower Selection-priority PLMN Selector list.

NOTE 3: A PLMN in a Selector list, including HPLMN, may have multiple occurrences, with different access technology identifiers.

The UE shall ignore those PLMN + access technology entries in the User Controlled PLMN selector and Operator Controlled PLMN selector lists where the associated Access Technology is not supported by the UE. In the case that there are multiple associated Access Technology identifiers in an entry the UE shall not ignore the entry if it includes any associated Access Technology that is supported by the UE.

It shall be possible to handle cases where one network operator accepts access from access networks with different network IDs. It shall also be possible to indicate to the UE that a group of PLMNs are equivalent to the registered PLMN regarding PLMN selection, cell selection/re-selection and handover.

It shall be possible for the home network operator to identify alternative Network IDs as the HPLMN. It shall be possible for the home network operator to store in the USIM an indication to the UE that a group of PLMNs are treated as the HPLMN regarding PLMN selection. Any PLMN to be declared as an equivalent to the HPLMN shall be present within the EHPLMN list and is called an EHPLMN. The EHPLMN list replaces the HPLMN derived from the IMSI. When the EHPLMN list is present, any PLMN in this list shall be treated as the HPLMN in all the network and cell selection procedures.

If registration on a PLMN is successful, the UE shall indicate this PLMN (the "registered PLMN") and be capable of making and receiving calls on it. The identity of the registered PLMN shall be stored on the SIM/USIM. However, if registration is unsuccessful, the UE shall ensure that there is no registered PLMN stored in the SIM/USIM.

If a registration is unsuccessful because the IMSI is unknown in the home network, or the UE is illegal, then the UE shall not allow any further registration attempts on any network, until the UE is next powered‑up or a SIM/USIM is inserted.

If the registration is unsuccessful due to the lack to service entitlement, specific behaviour by the UE may be required, see clause 3.2.2.4.

To avoid unnecessary registration attempts, lists of forbidden PLMNs, TAs and LAs are maintained in the UE, see clause 3.2.2.4 and 3GPP TS 23.122 [3].

Registration attempts shall not be made by UEs without a SIM/USIM inserted.

An UE/ME which has not successfully registered shall nevertheless be able to make emergency call attempts on an available PLMN (which supports the emergency call teleservice), without the need for the user to select a PLMN. An available PLMN is determined by radio characteristics (3GPP TS 23.122 [3]).

#### 3.2.2.2 At switch-on or recovery from lack of coverage

If the Operator controlled signal threshold per access technology is set on the USIM, it shall be used for the selection of the last registered PLMN (and/or EHPLMN/HPLMN) and for the automatic mode network selection steps described in this clause. In particular, if the Operator controlled signal threshold per access technology is set on the USIM the UE shall only select a network if

- the network selection conditions as described below are met and

- the received signal quality of the candidate PLMN/access technology combination is equal to or higher than the Operator controlled signal threshold per access technology.

At switch on, when in coverage of the last registered PLMN as stored in the SIM/USIM, the UE will attach to that network.

As an option, in automatic selection mode, when no EHPLMN list is present, the UE may select the HPLMN. When the EHPLMN list is present, the UE may select the highest priority EHPLMN among the available EHPLMNs. The operator shall be able to control the UE behaviour by USIM configuration.

As an option, if the UE is in manual network selection mode at switch-on

- if the last registered PLMN is unavailable and no equivalent PLMN is available,

- and the UE finds it is in coverage of either the HPLMN or an EHPLMN

then the UE should register on the corresponding HPLMN or EHPLMN. The UE remains in manual mode.

As an option, if the UE is in automatic network selection mode at switch-on, and if the last registered PLMN is identified as Operator Controlled Lower Selection-priority, the UE may skip RPLMN selection and move to the Automatic network selection mode specified below.

If the UE returns to coverage of the PLMN on which it is already registered (as indicated by the registered PLMN stored in the SIM/USIM), the UE shall perform a location update to a new location area if necessary. As an alternative option to this, if the UE is in automatic network selection mode and it finds coverage of the HPLMN or any EHPLMN, the UE may register on the HPLMN (if the EHPLMN list is not present) or the highest priority EHPLMN of the available EHPLMNs (if the EHPLMN list is present) and not return to the last registered PLMN. If the EHPLMN list is present and not empty, it shall be used. The operator shall be able to control by USIM configuration whether an UE that supports this option shall follow this alternative behaviour.

NOTE: At switch-on and at recovery from lack of coverage, a UE in automatic network selection mode can attempt registration once the RPLMN or, if the above option is applicable, the HPLMN or EHPLMN is found on an access technology.

The default behaviour for a UE is to select the last registered PLMN.

If there is no registered PLMN stored in the SIM/USIM, or if this PLMN is unavailable and no equivalent PLMN is available, or the attempted registration fails, the UE shall follow one of the following procedures for network selection:

**A) Automatic network selection mode**

The UE shall select and attempt registration on other PLMNs, if available and allowable, if the location area is not in the list of "forbidden LAs for roaming" and the tracking area is not in the list of "forbidden TAs for roaming" (see 3GPP TS 23.122 [3]), in the following order:

i) An EHPLMN if the EHPLMN list is present or the HPLMN (derived from the IMSI) if the EHPLMN list is not present for preferred access technologies in the order specified. In the case that there are multiple EHPLMNs present then the highest priority EHPLMN shall be selected. It shall be possible to configure a voice capable UE so that it shall not attempt registration on a PLMN if all cells identified as belonging to the PLMN do not support the corresponding voice service;

ii) each entry in the "User Controlled PLMN Selector with Access Technology" data field in the SIM/USIM (in priority order). It shall be possible to configure a voice capable UE so that it shall not attempt registration on a PLMN if all cells identified as belonging to the PLMN do not support the corresponding voice service;

iii) each entry in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM/USIM (in priority order). It shall be possible to configure a voice capable UE so that it shall not attempt registration on a PLMN if all cells identified as belonging to the PLMN do not support the corresponding voice service;

iv) other PLMN/access technology combinations with sufficient received signal quality (see 3GPP TS 23.122 [3]) in random order, excluding any PLMN/access technology combination listed in the “Operator Controlled Lower Selection-priority PLMN Selector with Access Technology” list. It shall be possible to configure a voice capable UE so that it shall not attempt registration on a PLMN if all cells identified as belonging to the PLMN do not support the corresponding voice service;

v) all other PLMN/access technology combinations in order of decreasing signal quality, excluding any PLMN/access technology combination listed in the “Operator Controlled Lower Selection-priority PLMN Selector with Access Technology” list. It shall be possible to configure a voice capable UE so that it shall not attempt registration on a PLMN if all cells identified as belonging to the PLMN do not support the corresponding voice service;

vi) each entry (PLMN/access technology combination) in the “Operator Controlled Lower Selection-priority PLMN Selector with Access Technology” list (in priority order);

In the case of a UE operating in UE operation mode A or B, an allowable PLMN is one which is not in the "Forbidden PLMN" data field in the SIM/USIM. This data field may be extended in the ME memory (see clause 3.2.2.4). In the case of a UE operating in UE operation mode C, an allowable PLMN is one which is not in the "Forbidden PLMN" data field in the SIM/USIM or in the list of "forbidden PLMNs for GPRS service" in the ME.

If the UE uses the Operator controlled signal threshold per access technology and no candidate PLMN/access technology combination fulfils the Operator controlled signal threshold criteria, the UE shall repeat the network selection without using the Operator controlled signal threshold per access technology.

If there is no available PLMN except for PLMNs in the "Forbidden PLMN" data field in the SIM/USIM, and the available PLMNs indicate that Disaster Condition applies, this PLMN shall be considered allowable for registration to the UE while the Disaster Condition is applicable.

If successful registration is achieved, the UE shall indicate the selected PLMN.

If registration cannot be achieved on any PLMN and at least one PLMN offering restricted local operator services has been found, the UE shall obtain user consent for restricted local operator services and the UE may use a list of preferred PLMNs for restricted local operator services stored in the ME. If none of the preferred PLMNs for restricted local operator services is available, the UE shall select any available PLMN offering restricted local operator services. If one of these PLMNs for restricted local operator service is chosen, the UE shall indicate the choice. If none are selected, the UE shall wait until a new PLMN is detected, or new location areas or tracking areas of an allowed PLMN are found which are not in the forbidden LA or TA list(s), and then repeat the procedure.

If registration cannot be achieved on any PLMN and no PLMN offering restricted local operator services has been found, the UE shall indicate "no service" to the user, wait until a new PLMN is detected, or new location areas or tracking areas of an allowed PLMN are found which are not in the forbidden LA or TA list(s), and then repeat the procedure. When registration cannot be achieved, different (discontinuous) PLMN search schemes may be used in order to minimize the access time while maintaining battery life, e.g. by prioritising the search in favour of BCCH carriers which have a high probability of belonging to an available and allowable PLMN.

**B) Manual network selection mode**

The UE shall indicate PLMNs, including "Forbidden PLMNs", which are available. If there are none, this shall also be indicated. The HPLMN of the user may provide on the USIM additional information about the available PLMNs, if this is provided then the UE shall indicate that information to the user. This information, provided as free text may include:

- Preferred partner;

- roaming agreement status;

- supported services.

Furthermore, the UE may indicate whether the available PLMNs are present on one of the PLMN selector lists (e.g. EHPLMN, User Controlled, Operator Controlled or Forbidden) as well as not being present on any of the lists.

For the purpose of presenting the names of the available PLMNs to the user, the ME shall use the USIM defined names if available or other PLMN naming rules in priority order as defined in 3GPP TS 22.101 [7] (Country/PLMN indication).

Any available PLMNs shall be presented in the following order:

i) HPLMN (if the EHPLMN list is not present); or if one or more of the EHPLMNs are available then based on an optional data field on the USIM either the highest priority available EHPLMN is to be presented to the user or all available EHPLMNs are presented to the user in priority order; if the data field is not present, then only the highest priority available EHPLMN is presented;

ii) PLMNs contained in the "User Controlled PLMN Selector" data field in the SIM/USIM (in priority order);

iii) PLMNs contained in the "Operator Controlled PLMN Selector" data field in the SIM/USIM (in priority order);

iv) other PLMN/access technology combinations with sufficient received signal level (see 3GPP TS 23.122 [3]) in random order, excluding any PLMN/access technology combination listed in the “Operator Controlled Lower Selection-priority PLMN Selector with Access Technology” list;

v) all other PLMN/access technology combinations in order of decreasing signal strength, excluding any PLMN/access technology combination listed in the “Operator Controlled Lower Selection-priority PLMN Selector with Access Technology” list.

vi) each entry (PLMN/access technology combination) in the “Operator Controlled Lower Selection-priority PLMN Selector with Access Technology” list (in priority order);

If a PLMN does not support voice services, then this shall be indicated to the user.

The user may select the desired PLMN and the UE shall attempt registration on this PLMN. (This may take place at any time during the presentation of PLMNs.)

If registration cannot be achieved on any PLMN and at least one PLMN offering restricted local operator services has been found, the UE shall obtain user consent for restricted local operator services and offer the user to select one of these networks. If one of these networks is selected, the UE shall indicate the selected PLMN, wait until a new PLMN is detected, or new location areas or tracking areas of an allowed PLMN are found which are not in the forbidden LA or TA list(s), and then repeat the procedure.

If the registration cannot be achieved on any PLMN and no PLMN offering restricted local operator services is selected, the UE shall indicate "No Service". The user may then select and attempt to register on another or the same PLMN following the above procedure. The UE shall not attempt to register on a PLMN which has not been selected by the user.

Once the UE has registered on a PLMN selected by the user, the UE shall not automatically register on a different PLMN unless:

i) The new PLMN is declared as an equivalent PLMN by the registered PLMN;

or,

ii) The user selects automatic mode.

If a PLMN is selected but the UE cannot register on it because registration is rejected with the cause "PLMN not allowed", the UE shall add the PLMN to the “Forbidden PLMN” list (clause 3.2.2.4.1). The UE shall not re-attempt to register on that network unless the same PLMN is selected again by the user.

If a PLMN is selected but the UE cannot register for PS services on it because registration is rejected with the cause "GPRS services not allowed in this PLMN", the UE shall not re-attempt to register for E-UTRAN or UTRAN PS or GERAN PS on that network. The PLMN is added to the list "Forbidden PLMN's for GPRS services". The UE shall not re-attempt to register for E-UTRAN or UTRAN PS or GERAN PS on that network unless the same PLMN is selected again by the user. The reception of the cause "GPRS services not allowed in this PLMN", does not affect the CS service.

For requirements to restrict the access of a UE to one or several specific RATs see section 7.1.

If a PLMN is selected but the UE cannot register on it for other reasons, the UE shall, upon detection of a new LA (not in a forbidden LA list) of the selected PLMN, attempt to register on the PLMN.

If the UE is registered on a PLMN but loses coverage, different (discontinuous) carrier search schemes may be used to minimize the time to find a new valid BCCH carrier and maintain battery life, e.g. by prioritizing the search in favour of BCCH carriers of the registered PLMN.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Next Change \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

#### 3.2.2.5 Periodic network selection attempts

If the Operator controlled signal threshold per access technology is not set on the USIM, a UE in Automatic Mode shall make periodic attempts to look for a higher priority PLMN including associated Access Technology of the same country as the currently received PLMN including associated Access Technology or for a higher priority PLMN including associated Access Technology that uses a Shared MCC (e.g. MCC=901). If the currently received PLMN including associated Access Technology uses a Shared MCC, also a higher priority PLMN including associated Access Technology using any non-Shared MCC shall be considered. For the ranking of PLMNs the UE shall use the order used in clause 3.2.2.2. In the case that there is no associated Access Technology identifier, the mobile shall assume that all Access Technologies provided by a PLMN are of equal priority. Moreover, periodic network selection shall not lead to change of access technology within the registered PLMN.

When a Disaster Condition is applicable, a UE in Automatic Mode that is registered to a PLMN in the "Forbidden PLMN" data field in the SIM/USIM may make periodic attempts to look for an allowable PLMN of the same country as the currently received PLMN.

In the case that the UE has stored a list of equivalent PLMNs, the UE shall only select a PLMN if it has a higher priority than all the PLMNs, in the list of equivalent PLMNs, which are of the same country as the currently registered PLMN.

NOTE 1: In the context of this 3GPP TS, the term country is to be interpreted not as a political entity but as a single Mobile Country Code (MCC). For example the USA and India have multiple MCC. Such cases are in fact treated as exceptions in the 3GPP specifications. For all other countries, multiple MCCs may be used, however the specifications have not taken this into account and there could be adverse effects such as the UE being unable to detect that multiple MCCs are within the same country.

NOTE 2: There are some situations where one MCC represents multiple political entities or where an MCC is independent of political entities. Examples include Shared MCCs, where international satellite operations typically use the Shared MCC with value 901.

NOTE 3: For the purposes of PLMN selection, the associated Access Technology using a Shared MCC is restricted to the satellite NG-RAN.

In the case that there are multiple EHPLMNs available, the UE shall not attempt to select a higher priority EHPLMN when an EHPLMN has already been selected. The priorities of EHPLMNs are only applicable when the UE is on a VPLMN and multiple EHPLMNs are available.

The UE shall only make reselection attempts while in idle mode. In case of GPRS terminals, the UE shall only make reselection attempts while in Idle or Stand-by mode. In case of terminals operating E-UTRA and/or NR, the UE shall only make reselection attempts while in Idle or RRC-Inactive mode.

In the case of a UE receiving an eMBMS transport service when in idle mode, the UE may postpone the higher priority PLMN search and any reselection attempt until the eMBMS transport service has finished or been stopped.

The interval between attempts shall be stored in the SIM/USIM.

Only the service provider shall be able to select for which of the previous situations, periodic network selection shall be attempted and to set the interval value.

For UEs supporting only Access Technologies other than the following: NB-IoT, GERAN EC-GSM-IoT and Category M1 [17] of E-UTRAN enhanced-MTC the UE shall interpret the interval value to be between 6 minutes and 8 hours, with a step size of 6 minutes.

For UEs only supporting any of the following, or a combination of, NB-IoT, GERAN EC-GSM-IoT [18], and Category M1[13] of E-UTRAN enhanced-MTC, the UE shall interpret the interval value to be between 2 and 240 hours, with a step size of 2 hours between 2 and 80 hours and a step size of 4 hours between 80 and 240 hours.

For UEs supporting a combination of IoT and non-IoT Access Technologies the UE shall interpret the interval value to determine the timer value as above based on the Access Technology currently in use by the UE.

Different interval values shall be able to be configured for UEs performing periodic network selection when registered to a PLMN listed in the “Operator Controlled Lower Selection-priority PLMN Selector with Access Technology” list, if this list is supported by the UE.

One interval value shall be designated to indicate that no periodic attempts shall be made.

In the absence of a permitted value in the SIM/USIM, or the SIM/USIM is phase 1 and therefore does not contain the datafield, then a default value of 60 minutes, shall be used by the UE except for those UEs only supporting any of the following, or a combination of: NB-IoT, GERAN EC-GSM-IoT [18], and Category M1 [17] of E-UTRAN enhanced-MTC. For those UEs a default value of 72 hours shall be used.

NOTE 4: Use of values less than 60 minutes may result in excessive UE battery drain.

**Periodic network selection based on Operator controlled signal threshold criteria**

If the Operator controlled signal threshold per access technology is set on the USIM, the UE shall perform the periodic network selection procedure considering all PLMNs, of higher or lower priority than the current PLMN, in the same order as in clause 3.2.2.2, with the following conditions:

- the UE shall select a higher priority PLMN/access technology combination if the target PLMN’s access technology signal quality is equal to or higher than the Operator controlled signal threshold per access technology;

- the UE shall select a lower priority PLMN/access technology combination only if the RPLMN’s access technology signal quality is lower than the Operator controlled signal threshold per access technology, and the target PLMN’s access technology signal quality is equal or higher than the Operator controlled signal threshold per access technology.

NOTE 5: The UE does not perform the periodic attempts if the RPLMN is a HPLMN or EHPLMN, and the RPLMN’s access technology signal quality is equal or higher than the Operator controlled signal threshold per access technology.

If no PLMN, including the RPLMN, fulfils the Operator controlled signal threshold criteria, the UE shall perform the normal periodic network selection for higher priority PLMNs (as described above), without applying the Operator controlled signal threshold per access technology.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Changes \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*