

3GPP TSG-CN Meeting #26
8th – 10th December 2004. Athens, Greece.

NP-040516

Source: TSG CN WG1
Title: CRs to Rel-7 WI “TEI7” for TS 23.122
Agenda item: 10.1
Document for: APPROVAL

This document contains **1 CR on Rel-7 Work Item “TEI7”**, that has been agreed by TSG CN WG1 CN#36 meeting and forwarded to TSG CN Plenary meeting #26 for approval.

TDoc #	Tdoc Title	Spec	CR #	Rev	CAT	C_Ver	WI	Rel
N1-042123	Support of multiple HPLMN codes	23.122	082	7	C	6.2.0	TEI7	Rel-7

CR-Form-v7

CHANGE REQUEST

⌘ **23.122 CR 082** ⌘ rev **7** ⌘ Current version: **6.2.0** ⌘

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 ME Radio Access Network Core Network

Title:	⌘ Support of multiple HPLMN codes		
Source:	⌘ China Mobile, Motorola, RIM		
Work item code:	⌘ TEI7	Date:	⌘ 19/11/2004
Category:	⌘ C	Release:	⌘ Rel-7
	Use <u>one</u> 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 <u>one</u> 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:	⌘ The currently defined IMSI does not provide a large enough range of numbers to cover all (future) customers and TSG SA#24 approved a CR to introduce the concept of the Equivalent HPLMN list to deal with this problem (CR#63 to TS 22.011). There is a need to allow a mobile to consider a network as part of the HPLMN, even in cases where the broadcasted MCC+MNC is different from the MCC+MNC part of the IMSI. SA1 has introduced the concept of a list of Equivalent HPLMNs which is permanently stored on the (U)SIM. The PLMN selection procedures need to be modified correspondingly.
Summary of change:	⌘ The procedures for PLMN selection are modified
Consequences if not approved:	⌘ There will be no means for allowing a mobile to consider a network broadcasting a different MCC+MNC than the MCC+MNC part of the IMSI as its HPLMN

Clauses affected:	⌘ 1.2, 4.4.3, Annex A										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="text-align: center;">Y</td> <td style="text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">X</td> <td style="text-align: center;"></td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">X</td> </tr> </table> Other core specifications Test specifications O&M Specifications	Y	N	X			X		X	⌘ TS 31.102, CR 249	
Y	N										
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	X										
	X										
Other comments:	⌘										

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <http://www.3gpp.org/specs/CR.htm>. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

=====~~First Change~~=====

1.2 Definitions and abbreviations

For the purposes of the present document, the abbreviations defined in 3GPP TR 21.905 [36] apply.

(A/Gb mode only): Indicates this clause applies only to GSM system. For multi system case this is determined by the current serving radio access network.

(Iu mode only): Indicates this clause applies only to UMTS system. For multi system case this is determined by the current serving radio access network.

Acceptable Cell: This is a cell that the MS may camp on to make emergency calls. It must satisfy criteria which is defined for A/Gb mode in 3GPP TS 43.022 and for Iu mode in 3GPP TS 25.304.

Access Technology: The access technology associated with a PLMN. The MS uses this information to determine what type of radio carrier to search for when attempting to select a specific PLMN (e.g., GSM, UMTS or GSM COMPACT). A PLMN may support more than one access technology.

Allowable PLMN: In the case of a MS operating in MS operation mode A or B, this is a PLMN which is not in the list of "forbidden PLMNs" in the MS. In the case of a MS operating in MS operation mode C, this is a PLMN which is not in the list of "forbidden PLMNs" or in the list of "forbidden PLMNs for GPRS service" in the MS

Available PLMN: For GERAN A/Gb mode see 3GPP TS 43.022. For UMTS see 3GPP TS 25.304.

Available PLMN/access technology combination: This is an available PLMN in a specific access technology.

Camped on a cell: The MS (ME if there is no SIM) has completed the cell selection/reselection process and has chosen a cell from which it plans to receive all available services. Note that the services may be limited, and that the PLMN may not be aware of the existence of the MS (ME) within the chosen cell.

Current serving cell: This is the cell on which the MS is camped.

CTS MS: An MS capable of CTS services is a CTS MS.

EHPLMN: Any PLMN declared as equivalent to the HPLMN, the HPLMN included, is called an EHPLMN

Equivalent HPLMN list: To allow provision for multiple HPLMN codes, PLMN codes equivalent to the HPLMN code derived from the IMSI are stored on the SIM. This is known as the EHPLMN list.

GPRS MS: An MS capable of GPRS services is a GPRS MS.

MS operation mode: See 3GPP TS 23.060 [27].

High quality signal: The high quality signal limit is used in the PLMN selection procedure. It is defined in the appropriate AS specification: 3GPP TS 43.022 for the GSM radio access technology, 3GPP TS 25.304 for the UMTS radio access technology (FDD or TDD mode).

Home PLMN: This is a PLMN where the MCC and MNC of the PLMN identity match the MCC and MNC of the IMSI. Matching criteria are defined in Annex A.

In A/Gb mode,....: Indicates this clause applies only to GSM System. For multi system case this is determined by the current serving radio access network.

In Iu mode,....: Indicates this clause applies only to UMTS System. For multi system case this is determined by the current serving radio access network.

Localised Service Area (LSA): A localised service area consists of a cell or a number of cells. The cells constituting a LSA may not necessarily provide contiguous coverage.

Location Registration (LR): An MS which is IMSI attached to non-GPRS services only performs location registration by the Location Updating procedure. A GPRS MS which is IMSI attached to GPRS services or to GPRS and non-GPRS services performs location registration by the Routing Area Update procedure only when in a network of network operation mode I. Both procedures are performed independently by the GPRS MS when it is IMSI attached to GPRS and non-GPRS services in a network of network operation mode II or III (see 3GPP TS 23.060).

MS: Mobile Station. The present document makes no distinction between MS and UE.

Network Type: The network type associated with HPLMN or a PLMN on the PLMN selector (see 3GPP TS 31.102). The MS uses this information to determine what type of radio carrier to search for when attempting to select a specific PLMN. A PLMN may support more than one network type.

Registered PLMN (RPLMN): This is the PLMN on which certain LR outcomes have occurred (see table 1). In a shared network the RPLMN is the PLMN defined by the PLMN identity of the CN operator that has accepted the LR.

Registration: This is the process of camping on a cell of the PLMN and doing any necessary LRs.

Registration Area: A registration area is an area in which mobile stations may roam without a need to perform location registration. The registration area corresponds to location area (LA) for performing location updating procedure and it corresponds to routing area for performing the routing area update procedure.

The PLMN to which a cell belongs (PLMN identity) is given in the system information transmitted on the BCCH (MCC + MNC part of LAI). In a shared network a cell belongs to all PLMNs given in the system information transmitted on the BCCH.

Selected PLMN: This is the PLMN that has been selected according to clause 3.1, either manually or automatically.

SIM: Subscriber Identity Module (see 3GPP TS 21.111). The present document makes no distinction between SIM and USIM.

SoLSA exclusive access: Cells on which normal camping is allowed only for MS with Localised Service Area (LSA) subscription.

Suitable Cell: This is a cell on which an MS may camp. It must satisfy criteria which is defined for A/Gb mode in 3GPP TS 43.022 and for Iu mode in 3GPP TS 25.304.

Visited PLMN: This is a PLMN, different from the home PLMN.

===== Second Change =====

4.4.3 PLMN selection

The registration on the selected PLMN and the location registration are only necessary if the MS is capable of services which require registration. Otherwise, the PLMN selection procedures are performed without registration.

The "HPLMN Selector with Access Technology", "User Controlled PLMN Selector with Access Technology" and "Operator Controlled PLMN Selector with Access Technology" data files in the SIM include associated access technologies for each PLMN entry, see 3GPP TS 31.102. The PLMN/access technology combinations are listed in priority order. If an entry indicates more than one access technology, then no priority is defined for the access technologies within this entry and the priority applied to each access technology within this entry is an implementation issue. If no particular access technology is indicated in an entry, it shall be assumed that all access technologies supported by the ME apply to the entry. If an entry only indicates access technologies not supported by the ME, the entry shall be ignored. If an entry indicates at least one access technology supported by the ME, the entry shall be used in the PLMN selection procedures if the other criteria defined for the specific PLMN selection procedures are fulfilled.

The Mobile Equipment stores a list of "equivalent PLMNs". This list is replaced or deleted at the end of each location update procedure, routing area update procedure and GPRS attach procedure. The stored list consists of a list of equivalent PLMNs as downloaded by the network plus the PLMN code of the registered PLMN that downloaded the list. All PLMNs in the stored list, in all access technologies supported by the PLMN, are regarded as equivalent to each other for PLMN selection, cell selection/re-selection and handover.

The MS shall not use the PLMN codes contained in the "HPLMN Selector with Access Technology" data file.

It is possible for the home network operator to identify alternative Network IDs as the HPLMN. If the EHPLMN list is present, and not empty, the entries in the EHPLMN list along with the HPLMN derived from the IMSI are used in the network selection procedures. When attempting to select a network the HPLMN derived from the IMSI has the highest priority and the EHPLMN entries are subsequently used in priority order. If the EHPLMN list is present and is empty or if the EHPLMN list is not present, the HPLMN derived from the IMSI is used for network selection procedures

NOTE 1: ~~To allow provision for multiple HPLMN codes, the HPLMN access technologies are stored on the SIM together with PLMN codes. This version of the specification does not support multiple HPLMN codes and the~~The "HPLMN Selector with Access Technology" data file is only used by the MS to get the HPLMN access technologies related to the~~The~~ HPLMN code which corresponds to~~is~~ the PLMN code included in the IMSI.

NOTE 2: Different GSM frequency bands (e.g. 900, 1800, 1900, 400) are all considered GSM access technology. An MS supporting more than one band should scan all the bands it's supports when scanning for GSM frequencies. However GSM COMPACT systems which use GSM frequency bands but with the CBPCCH broadcast channel are considered as a separate access technology from GSM.

NOTE 3: The inclusion of the HPLMN derived from the IMSI in the EHPLMN list is allowed.

4.4.3.1 At switch-on or recovery from lack of coverage

At switch on, or following recovery from lack of coverage, the MS selects the registered PLMN or equivalent PLMN (if it is available) using all access technologies that the MS is capable of and if necessary (in the case of recovery from lack of coverage, see clause 4.5.2) attempts to perform a Location Registration.

EXCEPTION: In A/Gb mode an MS with voice capability, shall not search for CPBCCH carriers. In A/Gb mode an MS not supporting packet services shall not search for CPBCCH carriers.

If successful registration is achieved, the MS indicates the selected PLMN.

If there is no registered PLMN, or if registration is not possible due to the PLMN being unavailable or registration failure, the MS follows one of the following two procedures depending on its operating mode.

EXCEPTION: If registration is not possible on recovery from lack of coverage due to the registered PLMN being unavailable, a MS attached to GPRS services may, optionally, continue looking for the registered PLMN for an implementation dependent time.

NOTE: A MS attached to GPRS services should use the above exception only if one or more PDP contexts are currently active.

4.4.3.1.1 Automatic Network Selection Mode Procedure

The MS selects and attempts registration on other PLMN/access technology combinations, if available and allowable, in the following order:

- i) EHPLMN (if not previously selected);
- ii) each PLMN/access technology combination in the "User Controlled PLMN Selector with Access Technology" data file in the SIM (in priority order);
- iii) each PLMN/access technology combination in the "Operator Controlled PLMN Selector with Access Technology" data file in the SIM (in priority order);
- iv) other PLMN/access technology combinations with received high quality signal in random order;
- v) other PLMN/access technology combinations in order of decreasing signal quality.

When following the above procedure the following requirements apply:

- a) An MS with voice capability shall ignore PLMNs for which the MS has identified at least one GSM COMPACT.
- b) In A/Gb mode or GSM COMPACT, an MS with voice capability, or an MS not supporting packet services shall not search for CPBCCH carriers.

- c) In ii and iii, the MS should limit its search for the PLMN to the access technology or access technologies associated with the PLMN in the appropriate PLMN Selector with Access Technology list (User Controlled or Operator Controlled selector list). An MS using a SIM without access technology information storage (i.e. the "User Controlled PLMN Selector with Access Technology" and the "Operator Controlled PLMN Selector with Access Technology" data files are not present) shall instead use the "PLMN Selector" data file, for each PLMN in the "PLMN Selector" data file, the MS shall search for all access technologies it is capable of and shall assume GSM access technology as the highest priority radio access technology.
- d) In iv and v, the MS shall search for all access technologies it is capable of, before deciding which PLMN to select.
- e) In ii, and iii, a packet only MS which supports GSM COMPACT, but using a SIM without access technology information storage (i.e. the "User Controlled PLMN Selector with Access Technology" and the "Operator Controlled PLMN Selector with Access Technology" data files are not present) shall instead use the "PLMN Selector" data file, for each PLMN in the "PLMN Selector" data file, the MS shall search for all access technologies it is capable of and shall assume GSM COMPACT access technology as the lowest priority radio access technology.
- f) In i, the MS shall search for all access technologies it is capable of. No priority is defined for the preferred access technology and the priority is an implementation issue, but "HPLMN Selector with Access Technology" data file on the SIM may be used to optimise the procedure.
- g) In i, an MS using a SIM without access technology information storage (i.e. the "HPLMN Selector with Access Technology" data file is not present) shall search for all access technologies it is capable of and shall assume GSM access technology as the highest priority radio access technology. A packet only MS which supports GSM COMPACT using a SIM without access technology information storage shall also assume GSM COMPACT access technology as the lowest priority radio access technology.
- h) In v, the MS shall order the PLMN/access technology combinations in order of decreasing signal quality within each access technology. The order between PLMN/access technology combinations with different access technologies is an MS implementation issue.

NOTE 1: Requirements a) and b) apply also to requirement d), so a GSM voice capable MS should not search for GSM COMPACT PLMNs, even if capable of GSM COMPACT.

NOTE 2: Requirements a) and b) apply also to requirement f), so a GSM voice capable MS should not search for GSM COMPACT PLMNs, even if this is the only access technology on the "HPLMN Selector with Access Technology" data file on the SIM.

NOTE 3: High quality signal is defined in the appropriate AS specification.

If successful registration is achieved, the MS indicates the selected PLMN.

If registration cannot be achieved because no PLMNs are available and allowable, the MS indicates "no service" to the user, waits until a new PLMN is available and allowable and then repeats the procedure.

If there were one or more PLMNs which were available and allowable, but an LR failure made registration on those PLMNs unsuccessful or an entry in any of the lists "forbidden LAs for roaming", or "forbidden LAs for regional provision of service" prevented a registration attempt, the MS selects the first such PLMN again and enters a limited service state.

4.4.3.1.2 Manual Network Selection Mode Procedure

The MS indicates whether there are any PLMNs, which are available using all supported access technologies. This includes PLMNs in the "forbidden PLMNs" list and PLMNs which only offer services not supported by the MS. An MS which supports GSM COMPACT shall also indicate GSM COMPACT PLMNs (which use PBCCH).

If displayed, PLMNs meeting the criteria above are presented in the following order:

- i)- HPLMN, [if one or more of the EHPLMNs are available only the availability of the HPLMN is to be presented to the user;](#)
- ii)- PLMN/access technology combinations contained in the " User Controlled PLMN Selector with Access Technology " data file in the SIM (in priority order);

- iii)- PLMN/access technology combinations contained in the "Operator Controlled PLMN Selector with Access Technology" data file in the SIM (in priority order);
- iv)- other PLMN/access technology combinations with received high quality signal in random order;
- v)- other PLMN/access technology combinations in order of decreasing signal quality.

In ii and iii, an MS using a SIM without access technology information storage (i.e. the "User Controlled PLMN Selector with Access Technology" and the "Operator Controlled PLMN Selector with Access Technology" data files are not present) shall instead present the PLMNs contained in the "PLMN Selector" data file in the SIM (in priority order).

In v, requirement h) in clause 4.4.3.1.1 applies.

In GSM COMPACT, the non support of voice services shall be indicated to the user.

The user may select his desired PLMN and the MS then initiates registration on this PLMN using the access technology chosen by the user for that PLMN or using the highest priority available access technology for that PLMN, if the associated access technologies have a priority order. (This may take place at any time during the presentation of PLMNs). For such a registration, the MS shall ignore the contents of the "forbidden LAs for roaming", "forbidden LAs for regional provision of service", "forbidden PLMNs for GPRS service" and "forbidden PLMNs" lists.

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.

NOTE 1: It is an MS implementation option whether to indicate access technologies to the user. If the MS does display access technologies, then the access technology used should be the access technology chosen by the user for that PLMN. If the MS does not display access technologies, then the access technology chosen for a particular PLMN should be the highest priority available access technology for that PLMN, if the associated access technologies have a priority order.

If the user does not select a PLMN, the selected PLMN shall be the one that was selected before the PLMN selection procedure started. If no such PLMN was selected or that PLMN is no longer available, then the MS shall attempt to camp on any acceptable cell and enter the limited service state.

NOTE 2: High quality signal is defined in the appropriate AS specification.

4.4.3.2 User reselection

At any time the user may request the MS to initiate reselection and registration onto an available PLMN, according to the following procedures, dependent upon the operating mode.

4.4.3.2.1 Automatic Network Selection Mode

The MS selects and attempts registration on PLMNs, if available and allowable, in all of its bands of operation in accordance with the following order:

- i) [EHPLMN](#);
- ii) PLMN/access technology combinations contained in the " User Controlled PLMN Selector with Access Technology" data file in the SIM (in priority order) excluding the previously selected PLMN/access technology combination;
- iii) PLMN/access technology combinations contained in the "Operator Controlled PLMN Selector with Access Technology" data file in the SIM (in priority order) excluding the previously selected PLMN/access technology combination;
- iv) other PLMN/access technology combinations with the received high quality signal in random order excluding the previously selected PLMN/access technology combination;

v) other PLMN/access technology combinations, excluding the previously selected PLMN/access technology combination in order of decreasing signal quality or, alternatively, the previously selected PLMN/access technology combination may be chosen ignoring its signal quality;

vi) The previously selected PLMN/access technology combination.

The previously selected PLMN/access technology combination is the PLMN/access technology combination which the MS has selected prior to the start of the user reselection procedure.

NOTE 1: If the previously selected PLMN is chosen, and registration has not been attempted on any other PLMNs, then the MS is already registered on the PLMN, and so registration is not necessary.

The equivalent PLMNs list shall not be applied to the user reselection in Automatic Network Selection Mode.

When following the above procedure the requirements a), b), c), e), f), g), h) in clause 4.4.3.1.1 apply: Requirement d) shall apply as shown below:

d) In iv, v, and vi, the MS shall search for all access technologies it is capable of before deciding which PLMN/access technology combination to select.

NOTE 2: High quality signal is defined in the appropriate AS specification.

=====~~Third change~~=====

Annex A (normative): HPLMN Matching Criteria

With the introduction of PCS1900 with the regulatory mandate to allocate 3-digit MNC codes, additional functionality is required to identify the HPLMN.

Assumptions

An MNC code shall consist of 2 or 3 decimal digits. In NA PCS1900, all SIMs shall store 3 digit MNCs.

Any network using a 2 digit MNC code shall broadcast the hexadecimal code "F" in place of the 3rd digit.

For PCS1900 for North America, regulations mandate that a 3-digit MNC shall be used; however during a transition period, a 2 digit MNC may be broadcast by the Network and, in this case, the 3rd digit of the SIM is stored as 0 (this is the 0 suffix rule).

With the exception of North America during the transition period:

- a) Within a single country (or area identified by a MCC) all networks shall broadcast a 2 digit MNC code, or all networks shall broadcast a 3 digit MNC code. A mixture of broadcast 2 and 3 digit MNC codes is not permitted within a single country (or area identified by a MCC).
- b) A network which broadcasts a 2 digit MNC code, will issue SIMs with a 2 digit MNC code in the IMSI on the SIM. A network which broadcasts a 3 digit MNC code, will issue SIMs with a 3 digit MNC code in the IMSI on the SIM.

Definitions and abbreviations

BCCH-MCC	The MCC part of the LAI read from System Information type 3 messages broadcast on the BCCH by the network.
BCCH-MNC	The MNC part of the LAI read from System Information type 3 messages broadcast on the BCCH by the network.
SIM-MCC	The MCC part of the IMSI or of additional entries in the EHPLMN list read from the SIM.
SIM-MNC	The MNC part of the IMSI or of additional entries in the EHPLMN list read from the SIM.

HPLMN Matching Criteria in mobiles which don't support PCS1900 for NA:

Figure A.1 illustrates the logic flow described below. The text below is normative. Figure A.1 is informative.

- (1) The MS shall compare using all 3 digits of the SIM-MCC with the BCCH-MCC. If the values do not match, then the HPLMN match fails.

NOTE: If the MCC codes match, then the number of digits used for the SIM-MNC must be the same as the number of digits used for the BCCH-MNC.

- (2) The MS shall read the 3rd digit of the BCCH-MNC. If the 3rd digit is Hex F, then proceed to step (4).

- (3) The MS shall compare using all 3 digits of the SIM-MNC with the BCCH-MNC. If the values match, then the HPLMN match succeeds, otherwise the HPLMN match fails.

- (4) The MS shall compare using just the 1st 2 digits the SIM-MNC with the BCCH-MNC. If the values match, then the HPLMN match succeeds, otherwise the HPLMN match fails.

This matching procedure shall be done for the MCC/MNC of the IMSI and for all entries in the EHPLMN list, until a match is found or all matches fail.

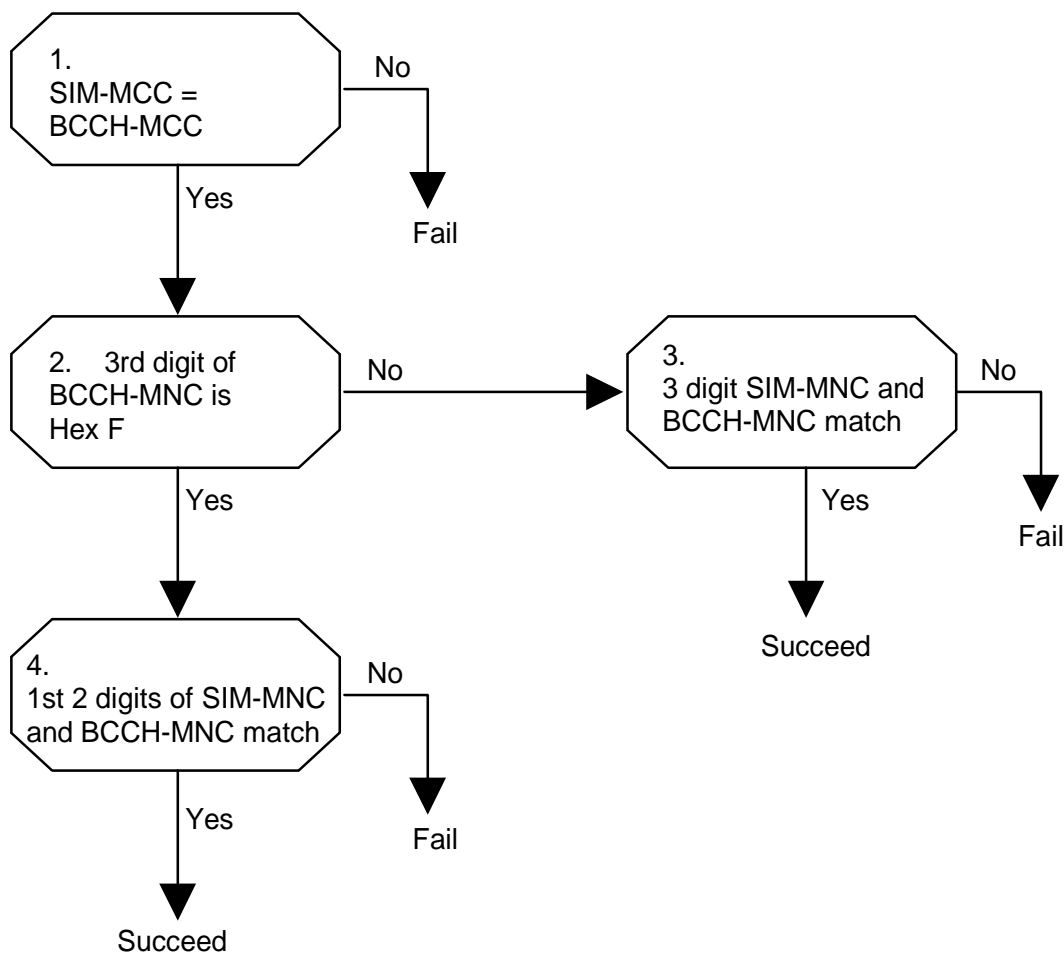


Figure A.1: HPLMN Matching Criteria Logic Flow for mobiles which support GSM and DCS1800 (informative)

HPLMN Matching Criteria for mobiles which support PCS1900 for NA:

Figure A.2 illustrates the logic flow described below. The text below is normative. Figure A.2 is informative.

- (1) The MS shall compare using all 3 digits the SIM-MCC with the BCCH-MCC. If the values do not match, then the HPLMN match fails.

(2) The MS shall read the 3rd digit of the BCCH-MNC. If the 3rd digit is Hex F, then proceed to step (4).

(3) The MS shall compare using all 3 digits the SIM-MNC with the BCCH-MNC. If the values match, then the HPLMN match succeeds, otherwise the HPLMN match fails.

NOTE: These rules (1) – (3) are the same as for mobiles which don't support PCS1900 for NA, except step (4) is different.

(4) The MS shall determine if the BCCH-MCC lies in the range 310-316 (i.e., whether this network is a PCS1900 for NA network). If the BCCH-MCC lies outside the range 310-316, then proceed to step (6).

(5) The MS shall compare the 3rd digit of the SIM-MNC with '0'. If the 3rd digit is not '0' then the HPLMN match fails.

NOTE: This is the '0' suffix rule.

(6) The MS shall compare using just the 1st 2 digits of the SIM-MNC with the BCCH-MNC. If the values match, then the HPLMN match succeeds, otherwise the HPLMN match fails.

NOTE: When PCS1900 for NA switches over to broadcasting 3 digit MNCs in **all** networks, then the additional requirements for PCS1900 for NA can be deleted.

[This matching procedure shall be done for the MCC/MNC of the IMSI and for all entries in the EHPLMN list, until a match is found or all matches fail.](#)

Guidance for Networks in PCS1900 for NA

There may be some problems in the transition period from broadcasting 2 MNC digits to broadcasting 3 MNC digits. Here are some guidelines to avoid these problems.

(1) Existing network codes. Operators who currently use a 2 digit BCCH-MNC **xy** should use the new code **xy0**.

(2) New operators allocated 3 digit MNC codes with the same 1st 2 digits as an existing operator shall not use a 3rd digit of 0.

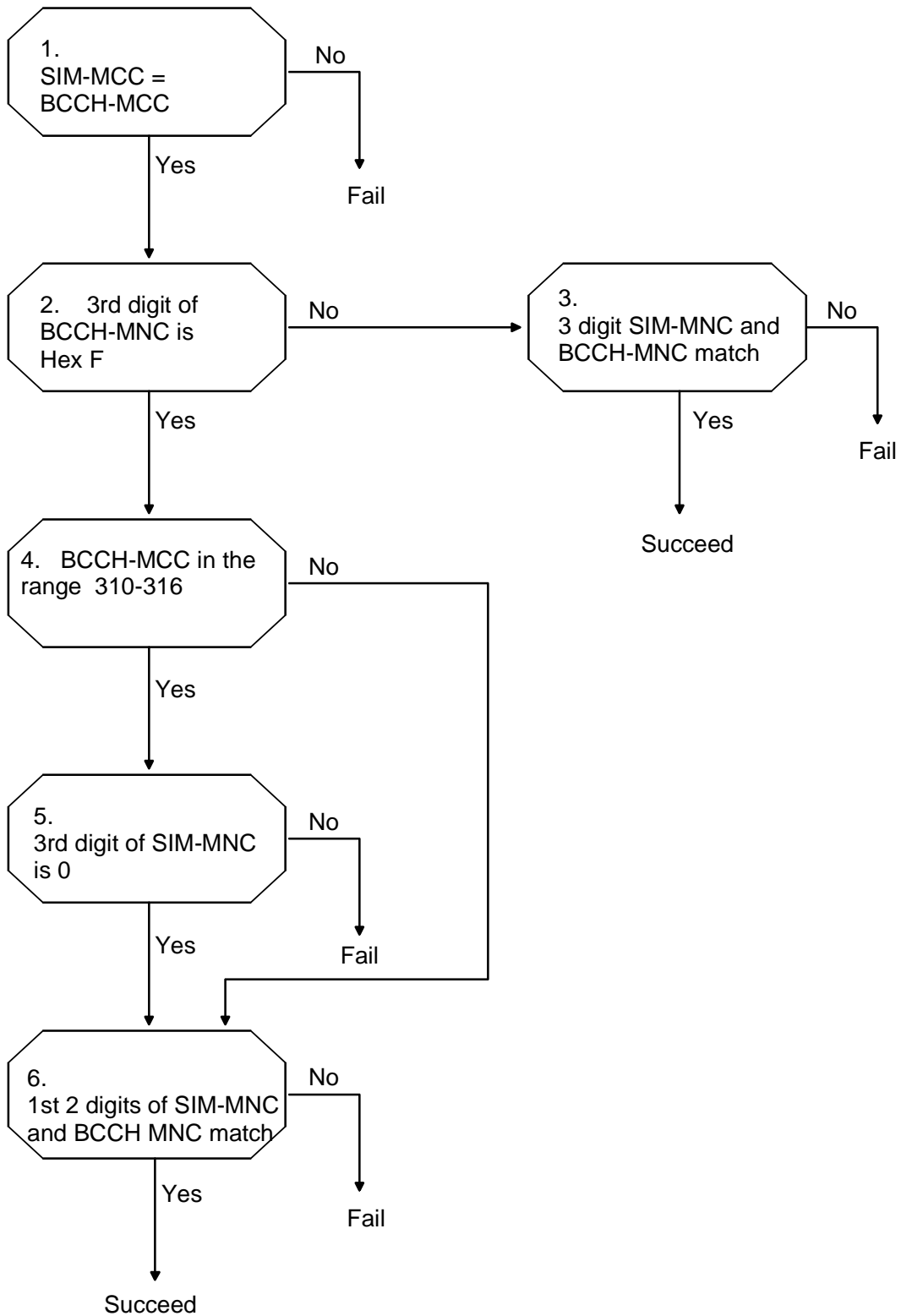


Figure A.2: HPLMN Matching Criteria Logic Flow for mobiles which support PCS1900 for NA (informative)