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भारत संचार निगम लिमिटेड  
(भारत सरकार का उपक्रम)  
BHARAT SANCHAR NIGAM LIMITED  
(A Govt. of India Enterprise)

No. MOB-7/Mtce-2011/31

Dated October 7, 2011

To

1. All CGMs Telecom Circles / Metro Districts, BSNL
2. CGM Inspection Circle, Jabalpur.

**Subject :- Root Cause Analysis on failure of O/G calls from Prepaid Customers while Roaming**

It was found that Inter MSC O/G calls from Prepaid customers of Haryana Circle were not maturing while they were roaming in Uttaranchal Circle while O/G Intra MSC and Call towards TAX were maturing for the same subscriber.

2. On analysis it was found that INOPER parameter and B No. Type were not correctly defined in the MSC for that particular IMSI Series. INOPER is to be defined for each IMSI series which is to be allowed to use the network. Different INOPER parameters point to different tables in the MSC and B No. Type is to be read by the MSC from the said table. In the present case INOPER value was defined as 2 and B No. Type was not defined in the corresponding table No. 46. Inter MSC calls were failing as B No. Type was unknown. The detailed root cause analysis in this regard done by M/s Ericsson is enclosed for information and taking preventive measures please. The IMSI series for which wrong definitions were there are as follows :-

- (i) Haryana IMSI of BSNL having MCC MNC as 40434
- (ii) J&K IMSI of BSNL having MCC MNC as 40462

Details of the case may be taken from SDE MSC Uttaranchal circle Mr. Vishal Bhatia Mobile No. 09412000580. Inspection Circle and Uttaranchal circle are requested to check if the above was checked during A/T for Phase V MSS in Uttaranchal Circle. In case it was ok at that time, then Uttaranchal circle is required to investigate how the parameters got changed subsequently.

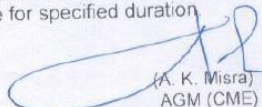
3. On checking it was found that the said definition was wrong in all Phase V MSS of Uttaranchal circle. Since, Ericsson has installed Phase V switches in North and East Zone, the likely hood of this error repeating in North and East Zone circles is more.

4. In view of above, each of the Circles / Metro Districts of BSNL are requested as follows :-

- (i) The above definitions and call scenarios may be checked in each MSC to ensure that the same is not happening in any other MSC.
- (ii) While carrying out A/T of MSC in future Intra MSC calls, Inter MSC calls, STD and ISD calls for each IMSI series may be tested.

(iii) It may be ensured that all passwords of logging in the network are with BSNL and access may be given to vendors in case required with specific permission of GM (NWO-CM) of the circle for specified duration.

5. This issues with the approval of GM (NWO-CM), BSNL Corporate Office.

  
(A. K. Misra)  
AGM (CME)  
Telephone No. 011- 23037566

**Copy to :**

- (1) Dir. (CM) BSNL
- (2) PGM (NWP-GSM I) / Sr. GM (NWP-GSM II) BSNL CO
- (3) M/s Ericsson ( Kind attention Mr. Nitin Bansal ) to kindly explain how there was wrong configuration in all the 4 MSS of Uttaranchal circle and to coordinate with BSNL staff to ensure correct configurations definitions in all North and East Zone circles.

Prepared (also subject responsible if other) Vineeta Singh		No. : BSNL GSM/UTT/RCA/SEP-11		
Approved Ramesh Dimri	Checked Rakesh Verma V	Date 2011-09-28	Rev A	Reference

## RCA for Pre-paid Haryana Inroamer O/G issue in BSNL – Uttaranchal Network

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The RCA is for Pre-paid Haryana inroamer outgoing call issue on following levels i.e. 0135 & 9458, 9868.

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### Table of Contents

1	EVENT DETAIL	2
2	FAULT DESCRIPTION	2
3	STEPS TO ANALYSE THE FAULT	3
4	Contrebutory factor Explanation	4
5	Immediated Action required	4

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Prepared (also subject responsible if other) Vineeta Singh		No. : BSNL GSMUTT/RCA/SEP-11		
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**1. Event Detail**

Report of Root Cause Analysis	
Event Under Analysis	<b>RCA for the Pre-paid Haryana In Roamer outgoing calls Problem on certain levels</b>
Events Reference	15 <sup>th</sup> Aug'2011 Pre-paid Haryana Inroamer call issue
Location of Event	BSNL - Dehradun ( UAL )
Customer Name	BSNL GSM UAL
RCA Completion Date	15.09.2011
Date RCA Locally Approved	20.09.2011
Date Submitted to Customer	29.09.2011
Date Accepted by Customer	

**2. Fault Description**

Description of Event Under Analysis	
<b>Contributory Factors</b>	Problem reported that pre-paid Haryana in roamer was not able to make O/G calls on 0135 & 9458, 9868 levels.

**3. STEPS TO ANALYSE THE FAULT**

STEPS	Description								
1	<p>IMSI series of the Out-roamers —in this case it is 404-34 ( i.e. Haryana IMSI Series)</p> <p><b>MGISP:IMSI=40434;</b></p> <p>MT IMSI NUMBER SERIES ANALYSIS DATA OPERATING TABLE</p> <table border="1"> <thead> <tr> <th>IMSI</th> <th>M</th> <th>NA</th> <th>ANRES</th> </tr> </thead> <tbody> <tr> <td>40434</td> <td>5-919416</td> <td>4</td> <td>OBA-30</td> </tr> </tbody> </table> <p>BO-33 NATMS PLMN-0 STALL MAPVER-2 <b>INOPER-2</b> NRRG-0 CBA-19 CBAZ-144 CAMEL-3</p>	IMSI	M	NA	ANRES	40434	5-919416	4	OBA-30
IMSI	M	NA	ANRES						
40434	5-919416	4	OBA-30						



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2	<p>INOPER is used for triggering to correct MIN (Mobile IN) route. For Prepaid Call, INOPER value from IMSI Series analysis and FNC Value for Call Scenario will lead to correct MIN Route. In the IMSI to MGT translation for 40434, value of INOPER was '2'</p> <p>Now it is a case of Camel originating call for out roamer thus FNC=9 need to be checked along with MISC2 (MIS2 in MIN Route=INOPER Value).</p> <p>Call Scenario (Means FNC Value) and INOPER value (MIS2) will trigger correct MIN Route.</p> <p>Different Call Scenarios for Different IMSI Series trigger different MIN Routes</p> <p>This will direct call to particular BO table.</p> <p>FNC Values (Call Scenario) Examples:</p> <p>FNC=9 ---Used for Camel Originating. FNC=12---Used for Camel Terminating</p> <p><b>EXROP:DETY=MIN;</b></p> <p>ROUTE DATA R ROUTE PARAMETERS 49MIN1 DETY=MIN <b>FNC=9</b> MIS1=1 <b>MIS2=2</b> <b>BO=46</b> RO=0 CO=0 MIS5=153</p>
3	<p>From the route data we got the Pre-B-no analysis table on which call will hit i.e. BO=46.</p> <p><b>PNBSP:BO=46;</b></p> <p>PRE-ANALYSIS OF B-NUMBER INFORMATION</p> <p>OPERATING AREA BO NAPI BNT RESULT 46 <b>OBA=46</b></p> <p>Pre-B-No analysis is used to differentiate the B-no Table table through which call will reach to another intermediate node or terminating node based on BNT type used in Pre-B-no Analysis. We can use different B-no Table for National or international Format calls.</p> <p><b>BNT B-Number Type</b> 0 Reserved</p>

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4	<p>1 international number 2 unknown B-number Type 3 subscriber number 4 national significant number 5-15 Spare</p> <p>As the call comes to Pre-B-no Analysis without BNT thus all type of Called Number (As Format dialed by customer) will come on B-No table 46</p> <p><b>ANBSP:B=46;</b></p> <p>If in B-No Table- 46 BNT=2 is given, the call from the MSC for that IMSI subscriber will originate for B number in unknown B-Number type, if the receiving node does not accept the Unknown B-Number type then call will drop due to format problem &amp; if the other node accept the format call will mature. All the number series should be open in the B-No table on which you have agreement, otherwise call be drop with "Dial No does not exist" announcement</p>
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Explanation / Recommendation	
<b>Explanation of root contributory factor</b>	There was routing problem,B no was being routed to DDNMSS3 where the B no was not opened.
<b>Present status</b>	The B no is routed towards L1 Tax from DDNMSS1 and issue resolved.
<b>Immediate Corrective Action Required</b>	B no routing needs to be checked in MSCs for all levels.