SCOPE QUALITY ASSURANCE MOBILE NUMBER PORTABILITY SEVENTH AMMENDMENT 2018

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1. Introduction

About MegThink: MegThink Solutions has been formed by Telecom veterans having joint experience of 50 years in Mobile Number Portability. We are well versed with India MNP Regulation, Use-Cases which provide end to end support, Quality assurances services for new feature implementation in India

This document describes Quality Assurance Procedures and scope for a successful rollout of Mobile Number Portability – Seventh Amendment. These Quality Assurance Procedures and scope covers all activities carried between MNPSP's and Telecom Service Providers.

The Quality Assurance Procedure is developed to assure all MNP new features to be tested and bug free, increase subscriber satisfaction by providing new MNP features.

Our Team has experience of conducting IVT (Internal Verification Testing), IOT (Inter Operator Testing) and A/T of MNP Systems. We would like to present QA activities in a manner, which meets or exceeds the expectations of our Telecom Industry and a successful implementation of Mobile Number Portability – Seventh Amendment.

1.1 Benefits of Mobile Number Portability – Seventh Amendment

The MNP Seventh amendment suggested by TRAI will be very helpful to the end subscriber. We appreciate the measures taken by TRAI to help the end subscriber.

- Fastening Port duration

- SMS based cancellation

- Higher success rate of port completion

- Unique Porting Code Management by MNPO's

- Re-Connection of subscriber under Non Payment Disconnect request

- SMS notification to subscriber upon Port Submission

1.2 Recommendation on MNP - Seventh Amendment

- Interface for subscriber to check Port status – SMS & Web based

- Old generated UPC should work in port in request flow till given time frame

2. Acceptance Testing

Target Audience – TERMCELL, TEC, TSP & MNPSP

2.1 Objectives

Acceptance testing broader objectives are to test the end to end flow of the proposed changes as per seventh Amendment. Key objectives that are to be met as part of the scope of Acceptance testing are as follows:

1. **Successful Porting –** Intra Circle with new timers
2. **Successful Porting –** Inter Circle with existing timers
3. **Corporate Porting successful flow**
4. **Port Request Cancellation before 24 hours**
5. **Port Rejection by Donor during UPC check**
6. **Port Suspension Scenario -** Date Of Bill addition, Last Date of Payment, Date Of Notice & Period of Notice, new field addition to be checked
7. **Number Port Order Subscriber reconnection scenario post Number return successful performed**
8. **MNPSP Validation cases -:**
   a. Mobile number has been ported earlier and, if so, a period of ninety days has not elapsed from the date of its last porting.
   b. Porting request is already in process for the same mobile number.
   c. If the Mobile Number Portability Service Provider is not able to check the information from the database of the Donor Operator, as provided in the sub-regulation (3), for any technical reason, it shall send an SMS to the subscriber acknowledging his request for Unique Porting Code and informing him that delivery of Unique Porting Code is delayed due to technical reason and the same shall be delivered shortly.
   d. Porting request is not in process for the same mobile number.
   e. Unique Porting Code received along with the porting request matches with the Unique Porting Code generated from its database for the mobile number under porting

9. **UPC negative scenarios with following reasons -:**
   a. Request for change of ownership of mobile number is under process
   b. The mobile number sought to be ported is sub-judice
   c. Porting of the mobile number has been prohibited by a Court of Law
   d. Bill Outstanding
   e. The porting request has been made before the expiry of a period of ninety days from the date of activation of a new connection
   f. Contractual Obligation

10. **MIS report features -:** Request received for UPC generation, successful UPC allocation report, missed UPC allocation requests reports etc.

2.2   Acceptance Testing Deliverables

The Acceptance Testing deliverables will give a fair idea about the readiness of the overall system, the metrics collected as part of the Acceptance testing is captured in the test annexure.

2.2.1   Test Metrics

As per our analysis of the changes suggested and taking into consideration the objectives of the Acceptance testing, the base metrics for total number of **Test cases to be executed are 413,364 (approximately) per MNP Zone.**

The base metrics is derived from the TSP pairing and the different scenarios to be tested as part of the Acceptance Testing. Please refer to Annexure -A for detailed TSP pairing.

2.2.2 Test Documentation

Documents that are prepared during or post Acceptance Testing per Zone to capture the metrics are:

1. **Test Case Report Validation (21,756 worksheet)**

2. **Logs submission to Term-Cell for 22 LSA**

Annexure –A

Customer Name	Bharti Airtel (GSM)	BSNL (GSM)	Idea / Spice (GSM)	MTNL (GSM)	Reliance JIO	Tata Teleservices (CDMA)	Tata Teleservices (GSM)	Vodafone (GSM)	Total	Customer Name	Total
Bharti Airtel (GSM)	8,797	8,360	9,196	836	9,196	7,942	7,942	9,177	61,446	Bharti Airtel (GSM)	8,797
BSNL (GSM)	8,360	7,239	8,360	760	8,341	7,220	7,220	8,360	55,860	BSNL (GSM)	7,239
Idea / Spice (GSM)	9,196	8,341	8,797	836	9,196	7,942	7,942	9,196	61,446	Idea / Spice (GSM)	8,797
MTNL (GSM)	836	760	836	38	836	722	722	836	5,586	MTNL (GSM)	38
Reliance JIO	9,196	8,360	9,196	836	8,797	7,923	7,942	9,196	61,446	Reliance JIO	8,797
Tata Teleservices (CDMA)	7,942	7,220	7,942	722	7,942	6,517	6,840	7,942	53,067	Tata Teleservices (CDMA)	6,517
Tata Teleservices (GSM)	7,923	7,220	7,942	722	7,942	6,859	6,517	7,942	53,067	Tata Teleservices (GSM)	6,517
Vodafone (GSM)	9,196	8,360	9,177	836	9,196	7,942	7,942	8,797	61,446	Vodafone (GSM)	8,797
Total	61,446	55,860	61,446	5,586	61,446	53,067	53,067	61,446	413364	**Cross Sum**	55,499

2.3 Recommendations

2.3.1 IVT/ IOT

A thorough IVT (Internal Verification Testing)/IOT of the new changes need to be carried out prior to Acceptance Testing. Timely UPC generation and delivery is critical, load testing of these systems as part of IVT will ensure in real time these new systems are fault tolerant and available 24*7.

2.3.2 MNPSP Datacenter Acceptance Testing:

Since new component shall be added to support SMSC feature, it is important MNPSP datacenter's are certified before GO LIVE.

2.3.3 Business Continuity

With MNPSP being the sole provider to generate and deliver UPC, it is important these services are available to end subscriber in case of any disaster.

2.3.4 Incident Management Acceptance Testing

The MNPSP shall undergo a paradigm shift from being a B2B model to a B2C model, an end subscriber will contact Incident Management team of the TSP in case of an UPC is not delivered. Service Provider Incident Management team will reach out to the helpdesk team of MNPSP, we anticipate huge amount of customer escalations/tickets that are to be handled by both MNPSP.

Adequate resources should be available at both MNPSP Incident Management team to cater to PAN India subscriber base (24*7).

Our estimation of tickets per day for both MNPSP: 3000 or more tickets/issue per day.
350,000 UPC per day to be generated and delivered is an assumption based on which we derived the 3000 + tickets

2.3.5 TPS (Transaction Per Second) Testing

The SMS delivery capabilities of MNPSP are to be tested to ensure timely creation & delivery of UPC are met.
Load/Stress testing of these new systems are to be conducted to ensure subscribers are able to receive SMS in timely manner in case of an operator shutdown etc.

3. Internal Verification Testing (IVT) & Inter Operator Testing (IOT)

3.1   IOT OBJECTIVES

Target Audience – TERM CELL, TSP & MNPSP

IOT (Inter Operator Testing) broader objectives are to test the end to end flow of the proposed changes as per seventh Amendment prior to conducting Acceptance Testing. Key objectives that are to be met as part of the scope of Inter Operator Testing are as follows:

IOT MNPSP and Telecom Service Provide do the testing for all modules H2M and M2M IOT testing covers following Items

- Port creation (intra & inter LSA) and verify all timers
- Negative testing for Port creation
- Canceled port order within 24 hrs. –SMS verification and port cancelation response forward to **RNO & DNO**
- Canceled port order request post 24 hrs. port request should not cancel and send SMS to subscriber
- View transaction summary **(RNO & DNO)** for port created transactions with proper status
- **MNPSP & TSP** verify all the transactions in Database at their end
- **NPOS** creation with positive & negative test scenario
- **NPOT** with positive & Negative test scenario
- Post Reversal
- Port Rejection with all reasons to be tested
- **UPC creation** – All positive & negative test scenario
- **UPC Report**

3.2 IVT OBJECTIVES

Target Audience – TERMCELL & MNPSP

IVT MNPSP do the testing for all modules H2M and M2M and database records H2M/M2M testing covers following Items -:

- Port creation (intra & inter LSA) and verify all timers
- Negative testing for Port creation
- Canceled port order within 24 hrs. –SMS verification and port cancelation response forward to RNO & DNO
- Canceled port order request post 24 hrs. ,port request should not cancel and send SMS to subscriber
- View transaction summary (RNO & DNO) for port created transactions with proper status
- Verify all the transactions at Database side
- NPOS creation with positive & negative test scenario
- NPOT with positive & Negative test scenario
- Post Reversal
- Port Rejection with all reasons to be tested
- UPC creation – All positive & negative test scenario
- Stress test for UPC creation module
- UPC creation module fallback testing
- System Configuration module testing
- UPC Report

3.3 IVT/IOT TESTING DELIVERABLES

The IVT/IOT Testing deliverables will give a fair idea about the readiness of the overall system prior to initiation of Acceptance Testing.

3.3.1 Test Documentation

Documents that are prepared during or post Acceptance Testing to capture the metrics are:

1. **IVT/IOT test Case Report Validation**
2. **Logs submission to Term-Cell**

3.4   Recommendation

3.4.1 IVT/ IOT

A thorough IVT (Internal Verification Testing)/IOT of the new Systems need to be carried out prior to Acceptance Testing.

4. Summary

Mobile Number Portability Seventh Amendment truly empowers the subscriber; Seventh Amendment shall ensure transparency and reduce the rejection/failure of Porting.

MegThink has extensive experience in conducting of IVT/IOT/AT of MNP Systems. We would be more than happy to work with TRAI/TERMCELL/TSP & MNPSP for a successful implementation of Mobile Number Portability Seventh Amendment.

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