AUDIT & ASSESSMENT
OF
QUALITY OF SERVICE

NORTH ZONE – DELHI CIRCLE
CELLULAR MOBILE TELEPHONE SERVICE
(CMTS)
(OCTOBER TO DECEMBER 2015)

PREPARED BY:

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1. INTRODUCTION

1.1. ABOUT TRAI

TRAI's mission is to create and nurture conditions for growth of telecommunications in the country in a manner and at a pace that will enable India to play a leading role in the emerging global information society. One of the main objectives of TRAI is to provide a fair and transparent policy environment which promotes a level playing field and facilitates fair competition.

In pursuance of above objective, TRAI has been issuing regulations, order and directives to deal with the issues or complaints raised by the operators as well as the consumers. These regulations, order and directives have helped to nurture the growth of multi operator multi service - an open competitive market from a government owned monopoly. Also, the directions, orders and regulations issued cover a wide range of subjects including tariff, interconnection and quality of service as well as governance of the Authority.

TRAI initiated a regulation - The Standard of Quality of Service of Basic Telephone Service (Wireline) and Cellular Mobile Telephone Service regulations, 2009 (7 of 2009) dated June 20, 2009 and Quality of Service of Broadband Service Regulations, 2006 (11 of 2006) dated April 6, 2006 that provide the benchmarks for the parameters on customer perception of service to be achieved by service provider.

In order to assess the above regulations, TRAI has commissioned a third party agency to conduct the audit of the service providers and check the performance of the operators on the various benchmarks set by Telecom Regulatory Authority of India (TRAI).

1.2. ABOUT PHISTREAM CONSULTING PRIVATE LIMITED

Phistream Consulting Private Limited is an ISO: 9001 certified company who are one of the pioneers in the field of technical audit, quality assurance and third party inspection services. Established more than a decade ago in 2004, we aspire to provide longer term savings based on year-on-year productivity. With our size, we are nimble and aspire to being a full service partner for providing consultancy services.

We have been helping our clients by determining the best solutions and enabling businesses to enjoy the benefits of top-notch support without distracting their team from the main business focus. Our business analysts have enough experience to get involved at the requirements gather stage through consulting work handing off a detailed requirements document to our operations staff who in turn can train our support and maintenance resources for ongoing engagement.

In keeping with our goal of being a one stop quality assurance and consulting partner, our specialists employ a strategy and consulting-based implementation methodology and capitalize on strong program governance to offer a wide range of services for various industry verticals.

1.3. OBJECTIVES

The primary objective of the Audit module is to:

- Audit and Assess the Quality of Services being rendered by Basic (Wireline), Cellular Mobile (Wireless), and Broadband service against the parameters notified by TRAI. (The parameters of Quality of Services (QoS) have been specified by in the respective regulations published by TRAI).
- This report covers the audit results of the audit conducted for Cellular Mobile (Wireless) services in Delhi circle.

1.4. COVERAGE

The audit was conducted in Delhi Circle covering all SSAs (Secondary Switching Areas).
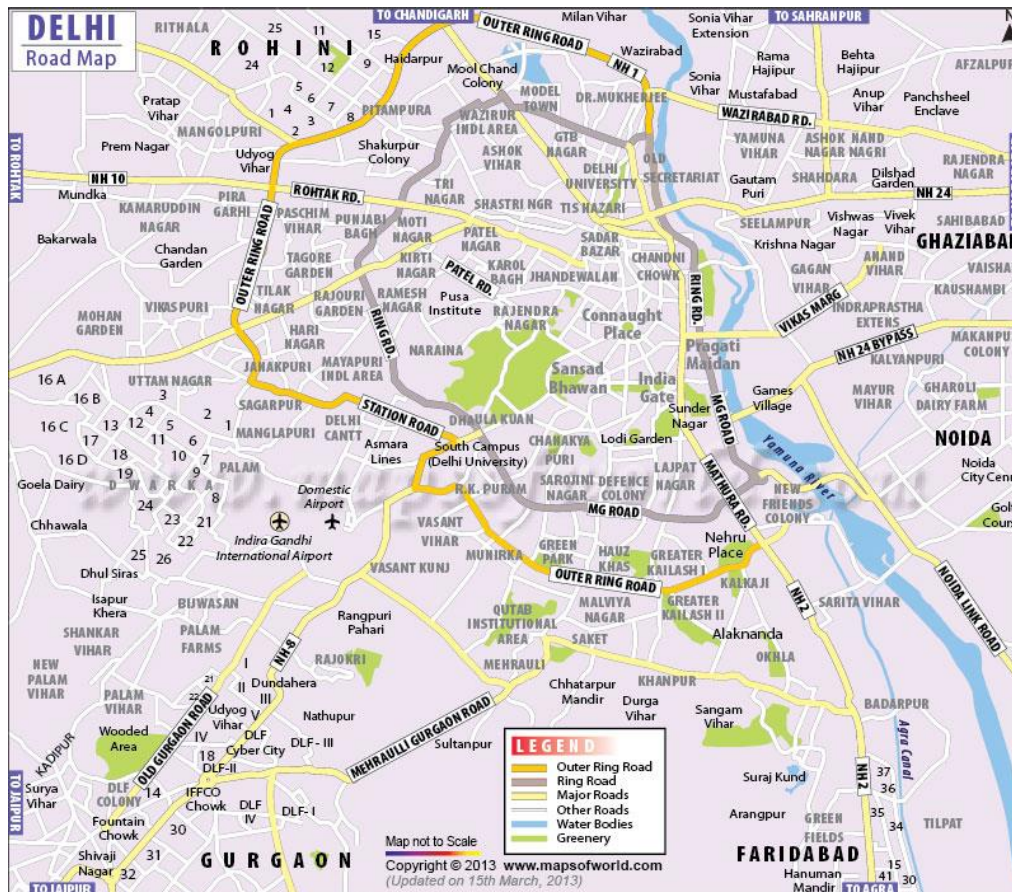
Image Source: Wikipedia

1.5. SSA LIST

S. No.	Circle	SSA Name	SDCA Name
1	New Delhi	NEW DELHI	NEW DELHI

Audit Activities

PMR Reports	Drive Test	CSD Audit	Wireline & Broadband	Inter Operator Call Assessment
Monthly PMR	Operator Assisted	Billing Complain	Billing Complain	
3 Days Live Data	Independent	Service request	Service Request	
Customer Service	Level 1 Service	Customer Service	Level 1 Service	
			Customer Service	

2. PMR REPORTS

Significance and methodology: PMR or Performance Monitoring Reports are generated to assess the various Quality of Service parameters involved in the mobile telephony service, which indicate the overall health of service for an operator.

The TSP is intimated about the audit schedule in advance and accordingly the auditor visits the TSP premises to conduct the audit

Raw Data is extracted from the operator's NOC/OMCR/call centre/billing centre etc. by the auditor with assistance from the operator personnel in order to generate PMR reports (Network/ Billing/ Customer Service etc.)

Calculations are done to generate new PMR from the RAW data

Hard copy of the PMR is duly signed by the auditor and competent authority from operator end.

The PMR report for network parameters is taken for each month of the audit quarter and is extracted and verified in the first week of the subsequent month of the audit month. For example, October 2015 audit data was collected in the month of November 2015.

The PMR report for customer service parameters is extracted from Customer Service Centre and verified once every quarter in the subsequent month of the last month of the quarter. For example, data for quarter ending December 2015 was collected in the month of December 2015.

The raw data extracted from operator's systems is used to create PMR in the following three formats:

- Monthly PMR (Network Parameters)
- 3 Day Live Measurement Data (Network Parameters)
- Customer Service Data

Let us understand these formats in details.

2.1. MONTHLY PMR

This involved calculation of the various Quality of Service network parameters through monthly Performance Monitoring Reports (PMR). The PMR reports were generated from the data extracted from operator's systems by the auditor with the assistance of the operator at the operator's premises for the month of October, November and December 2015. The performance of operators on various parameters was assessed against the benchmarks.

Parameters includes:

Network Availability

- BTS accumulated downtime
- Worst affected BTS due to downtime

Connection Establishment (Accessibility)

- Call Set Up success Rate (CSSR)

Network Congestion Parameters

- SDCCH/Paging Channel Congestion
- TCH Congestion
- Point of Interconnection

Connection Maintenance

- Call Drop rate
- Worst affected cells having more than 3% TCH drop

Voice Quality

- % Connections with good voice quality

2.2. AUDIT PARAMETER: NETWORK

Let us now look at the various parameters involved in the audit reports.

Network Availability	
BTSs Accumulated downtime (not available for service)	≤ 2%
Worst affected BTSs due to downtime	≤ 2%
Connection Establishment (Accessibility)	
Call Set-up Success Rate (within licensee's own network)	≥ 95%
SDCCH/ Paging Channel Congestion	≤ 1 %
TCH Congestion	≤ 2%
Connection Maintenance (Retainability)	
Call Drop Rate	≤ 2%
Worst affected cells having more than 3% TCH drop (call drop) rate	≤ 3%
Connections with good voice quality	≥ 95%
Point of Interconnection	
(POI) Congestion (on individual POI)	≤ 0.5%

2.3. DATA EXTRACTION POINTS

The data is extracted from a terminal/computer connected to OMCR & OSS on the operator network.
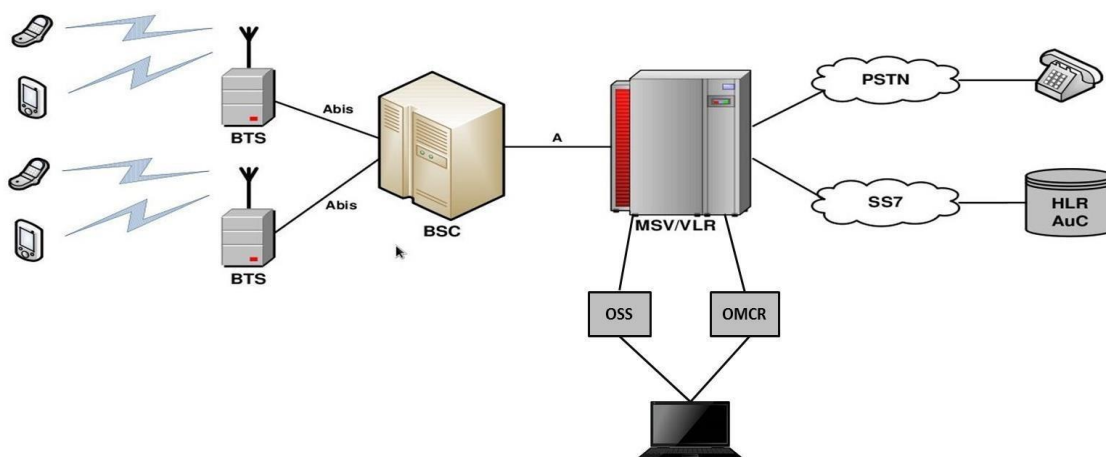
2.4. AUDIT PROCEDURE

Tender document and latest list of licencees as per TRAI is taken as a reference document for assimilating the presence of operators. All the wireless operators are then informed about the audit schedule

Audit formats and schedule is shared with the operators in advance. Details include day of the visit and date of 3 day data collection and other requirements.

Auditors visit the operator's server/exchange/central NOC to extract data from operator's systems. Operator personnel assist the auditor in extraction process.

The extracted data is validated and verfied by the Auditors.

Auditors then prepare a PMR report from the extracted data with assistance from the operator.

Extracted data is calculated as per the counter details provided by the operators. The details of counters have been provided in the report. The calculation methodology for each parameter has been stated in the table given below:

2.5. NETWORK CALCULATION METHODOLOGY

Parameter	Calculation Methodology
BTS Accumulated Downtime	Sum of downtime of BTSs in a month in hours i.e. total outage time of all BTSs in hours during a month / (24 x Number of days in a month x Number of BTSs in the network in licensed service area) x 100
Worst Affected BTS Due to Downtime	(Number of BTSs having accumulated downtime greater than 24 hours in a month / Number of BTS in Licensed Service Area) * 100
Call Setup Success Rate	(Calls Established / Total Call Attempts) * 100

SDCCH/ Paging Channel Congestion	SDCCH / TCH Congestion% = [(A1 x C1) + (A2 x C2) +…….+ (An x Cn)] / (A1 + A2 +…+ An) Where: A1 = Number of attempts to establish SDCCH / TCH made on day 1 C1 = Average SDCCH / TCH Congestion % on day 1 A2 = Number of attempts to establish SDCCH / TCH made on day 2
TCH Congestion	C2 = Average SDCCH / TCH Congestion % on day 2 An = Number of attempts to establish SDCCH / TCH made on day n Cn = Average SDCCH / TCH Congestion % on day n
POI Congestion	POI Congestion% = [(A1 x C1) + (A2 x C2) +…….+ (An x Cn)] / (A1 + A2 +…+ An) Where: A1 = POI traffic offered on all POIs (no. of calls) on day 1 C1 = Average POI Congestion % on day 1 A2 = POI traffic offered on all POIs (no. of calls) on day 2 C2 = Average POI Congestion % on day 2 An = POI traffic offered on all POIs (no. of calls) on day n Cn = Average POI Congestion % on day n
Call Drop Rate	Total Calls Dropped / Total Calls Established x 100
Worst Affected Cells having more than 3% TCH drop	Total number of cells having more than 3% TCH drop during CBBH/ Total number of cells in the LSA x 100
Connections with good voice quality	No. of voice samples with good voice quality / Total number of samples x 100

2.6. 3G VOICE

S. No.	Name of Parameter	Definition	Formula	Benchmark
1	Network Availability			
a.	Total no. of Node B's in LSA	Total no. of Node B's Licensed in LSA		
b.	Total downtime of all Node B's	When all the sector(s) of a Node B's are down for > 60 minutes at an instant in a whole day		
c.	No. of Worst Affected Node B's	Node B'ss having more than 24 hours of Downtime in 3 Days	No. of Node B's having accumulated downtime of >24 hours in a month	<=2%
			((No. of Node B's having Accumulated Downtime of > 24 hrs in a month) / Total no. of BTSs in the licensed service area)*100	
d.	Node B's accumulated downtime	Node B's downtime more than 24 hr in 3 days	Total no. of Node B's in the Licensed Service Area	<=2%
			Sum of downtime of Node B's in a month in hours i.e. total outage time of all Node B's in hours in a month	
			[(Sum of downtime of Node B's in a month in hrs)/(24* no. of days in the month*no. of Node B's in the licensed service area)]*100	
2	Connection Establishment (Accessibility)			
a.	Call Setup Success Rate:	It is the % of total no. of call established to the total no. of call attempt	Total No. of Voice Call Attempts	>=95%
			Total No. of Voice Call Establishment	
			CSSR (Call Setup Success Rate = (Total No. of Voice Call Attempts/ Total No. of Voice Call Establishment)*100)	
b.	RRC Congestion:	RRC Congestion rate is the % of Total No. of RRC Failed Calls to the Total no. of RRC Assigned Calls	RRC Attempts (RRC Connection Access) (A)	<=1%
			RRC Failed (RRC Connection Access Failed) (B)	
			RRC Congestion (%) [B/A]*100	
c.	RAB Congestion:	RAB Congestion rate is the % of Total No. of RAB Failed Calls to the Total no. of RAB Assigned Calls	RAB Attempts (RAB Setup Access) (C)	<=2%
			RAB Failed (RAB Setup Access Failed) (D)	
			RAB Congestion (%) [D/C]*100	
3	Connection Maintenance (Retainability)			
a.	Circuit Switched Voice Drop Rate	It is the % of total no. of Dropped Calls to the total no. of Calls Established	Total Established Calls (A)	<=2%
			Calls Dropped after Establishment (B)	
			Call Drop Rate [B/A]*100	

			Total No. of Cells (Sector)	
b.	Worst affected cells having more than 3% Circuit Switched Voice Drop Rate:	It is the % of total no. of Cells having > 3% Circuit Switched Voice drop to the total no. cells	Total No. of Cells exceeding 3% Circuit Switched Voice Drop Rate in CBBH (Cell Bouncing Busy Hour)	<=3%
			% of cells having more than 3% Circuit Switched Voice Drop Rate [(No. of cells having Circuit Switched Voice Drop Rate > 3% during CBBH in 31 days*100) / Total no. of cells in the licensed service area]	
c.	Percentage of connections with Good Circuit Switched Voice Quality	It can be defined as the % of Good Voice Quality Samples to the total No. of Quality Samples	Percentage of connection with Good Circuit Switched Voice Quality	>=95%
4	Total No. of POI's in Month having >=0.5% POI congestion	Total no. Of POI's which are exceeding the POI congestion more than 0.5 %.	Total No. of call attempts on POI	<=0.5%
			Total traffic served on all POIs (Erlang)	
			Total No. of circuits on all individual POIs	
			Total number of working POI Service Area wise	
			Capacity of all POIs	
			No. of all POI's having >=0.5% POI congestion	
			Name of POI not meeting the benchmark (having >=0.5% POI congestion)	

2.7.   2G & 3G WIRELESS

S. No.	Name of Parameter	Definition	Formula	Benchmark
1	Service Activation/ Provisioning	This refers to the activation of services after activation of the SIM. This involves programming the various databases with the customer's information and any gateways to standard Internet chat or mail services or any data services.	Total No. of Subscribers for Service Activation (A)	Within 4 Hours with 95% Success Rate
			Total Service Activations provided within 4 Hours (B)	
			Service Activation / Provisioning = (B/A) * 100	
2	PDP Context Activation Success Rate	PDP Context Activation Success Rate is the ratio of total number of successfully completed PDP context activations to the total attempts of context activation	Total No. of PDP Context Activation Requests (from SGSN to GGSN) (A)	>=95%
			Total No. of PDP Context Activation Success (path created b/w SGSN and GGSN) (B)	
			PDP Context Activation Success Rate =(B/A) *100	
3	Drop Rate	It measures the inability of Network to maintain a connection and is defined as the ratio of abnormal disconnects w.r.t. all disconnects.	RNC originated PS Domain Iu Connection Setup Success (A)	<=5%
			RNC originated PS Domain Iu Connection Release (B)	
			Drop Rate = (B/A) * 100	

3. 3 DAYS LIVE DATA

The main purpose of 3 day live measurement is to evaluate the network parameters on intraday basis. While the monthly PMR report provides an overall view of the performance of QoS parameters, the 3 day live data helps looking at intraday performance on the network parameters discussed earlier. All the calculations are done on the basis of that raw data of 3 days.

The 3 day live data provides a sample of 9 days in a quarter (3 days each month of a quarter) with hourly performance, which enables the auditor to identify and validate intraday issues for an operator on the Q0S network parameters. For example, network congestion being faced by an operator during busy/peak hours.

Network related parameters were evaluated for a period of 3 days in each month. 3 day live audit was conducted for 3 consecutive weekdays for each month. The data was extracted from each operator's server/ NOC etc. at the end of the 3rd day. The extracted data is then used to create a report (similar to PMR report) to assess the various QoS parameters.

3.1. TCBH: SIGNIFICANCE AND SELECTION METHODOLOGY

As per QoS regulations 2009 (7 of 2009), Time Consistent Busy Hour" or "TCBH" means the one hour period starting at the same time each day for which the average traffic of the resource group concerned is greatest over the days under consideration and such Time Consistent Busy Hour shall be established on the basis of analysis of traffic data for a period of ninety days.

Daywise RAW Data is fetched from the operator's OMCR and kept in readable format (preferably in MS- Excel). Data for a period of 90 days is used to identify TCBH.

90 Days period is decided upon the basis of month of audit. For example, for the audit of December 2015, the 90 day period data used to identify TCBH would be the data of October, November & December 2015.

For each day, the hour in which average traffic of the resource group concerned is greatest for the day will be the 'Busy Hour' for the operator.

The model frequency of te busy hour is calculated for 90 days period and the hour with highest model frequency will beconsidered as TCBH for the operator.

During audit, the auditors identified from the raw data that the TCBH for the operators in Oct – Nov – Dec 2015 was the time period as given below:

Aircel	Airtel	MTNL	Idea	RCOM GSM	RCOM CDMA	MTS	TTSL CDMA	Vodafone
19:00-20:00	19:00-20:00	19:00-20:00	19:00-20:00	19:00-20:00	19:00-20:00	19:00-20:00	19:00-20:00	19:00-20:00

3.2. CBBH: SIGNIFICANCE AND SELECTION METHODOLOGY

As per QoS regulations 2009 (7 of 2009), Cell Bouncing Busy Hour (CBBH) means the one hour period in a day during which a cell in cellular mobile telephone network experiences the maximum traffic.

Step by step procedure to identify CBBH for an operator:

Daywise RAW Data is fetched from the operator's OMCR and kept in readable format (preferably in MS- Excel). Data for a period of 90 days is used to identify CBBH.

For each day the hour in which a cell in cellular mobile telephone network experiences maximum traffic for the day will be the 'Busy Hour' for the operator.

The model frequency of the busy hour is calculated for 90 days period and the hour with highest model frequency will be considered as CBBH for the operator.

4. CUSTOMER SERVICE PARAMETERS

The data to generate PMR report for customer service parameters is extracted at the operator premises and verified once every quarter in the subsequent month of the last month of the quarter. For example, data for quarter ending December 2015 was collected in the month of December 2015. To extract the data for customer service parameters for the purpose of audit, auditors primarily visit the following locations/ departments/ offices at the operator's end.

- Central Billing Center
- Central Customer Service Center

The operators are duly informed in advance about the audit schedule.

The Customer Service Quality Parameters include the following:

- Metering and billing credibility (post-paid and prepaid)
- Resolution of billing/charging complaints
- Period of applying credit/waiver/adjustment to customer's account
- Response time to the customer for assistance
- Termination/closure of service
- Time taken for refund of security deposit after closures.

Most of the customer service parameters were calculated by averaging over the quarter; however billing parameters were calculated by averaging over one billing cycle for a quarter. All the parameters have been described in detail along with key findings of the parameter in the report.

The benchmark values for each parameter have been given in the table below.

4.1. AUDIT PARAMETERS: CUSTOMER SERVICE

Metering and Billing Credibility	Benchmark
No of billing complaints received - Post paid	≤ 0.1%
No. of billing complaints received- Prepaid	≤ 0.1%
Resolution of billing/ charging complaints within 4 weeks	98%
Resolution of billing/ charging complaints within 6 weeks	100%
Period of applying credit/ waiver within 1 week of resolution of complaint	100%
Response Time to the Customer form Assistance	
Accessibility of call centre/customer care	≥ 95%
Percentage of calls answered by the operators (voice to voice) within 90 seconds	≥ 95%
Termination/ closure of service	≤ 7 days
Time taken for refund of deposits after closures within 60 days	100%

1.1. CALCULATION METHODOLOGY: CUSTOMER SERVICE PARAMETER

Parameter	Calculation Methodology
Metering and billing credibility : Post-paid	Total billing complaints received during the relevant billing cycle / Total bills generated during the relevant billing cycle *100
Metering and billing credibility : Pre-paid	Total charging complaints received during the quarter/ Total number of subscribers reported by the operator at the end of the quarter * 100
Resolution of billing/ charging complaints (Post-paid + Pre-paid)	There are two benchmarks involved here: Billing or Charging Complaints resolved in 4 weeks from date of receipt / Total billing or charging complaints received during the quarter) x 100 Billing or Charging Complaints resolved in 6 weeks from date of receipt / Total billing or charging complaints received during the quarter) x 100
Period of applying credit waiver	Number of cases where credit waiver is applied within 7 days/ total number of cases eligible for credit waiver * 100
Call centre performance IVR (Calling getting connected and answered by IVR)	Number of calls connected and answered by IVR/ All calls attempted to IVR * 100
Call centre performance (Voice to Voice)	Call centre performance Voice to Voice = (Number of calls answered by operator within 90 seconds/ All calls attempted to connect to the operator) * 100 The calculation excludes the calls dropped before 90 seconds
Time taken for termination/ closure of service	Number of closures done within 7 days/ total number of closure requests * 100
Time taken for refund for deposit after closures	Number of cases of refund after closure done within 60 days/ total number of cases of refund after closure * 100

1.2. LIVE CALLING: SIGNIFICANCE AND METHODOLOGY

The auditor visits the operator premises for Live Calling. The operators provide the RAW data of customer complaints (billing and services) and also the list of customer service numbers to be verified through live calling

The auditor makes the live calls using operator SIM to a random sample of subscribers from the RAW data provided to verify the resolution of complaints

The auditor verifies the performance of call centre, level 1 services by calling the numbers using operator SIM. The list of call centre numbersis provided by the operator.

The auditors also make test calls to subscribers of other operators to assess the inter-operator call connectivity in the same licensed service area

Live calling activity was carried out during the period of December 2015. The data considered for live calling was for the month prior to the month in which the live calling activity was being conducted. In this case, data of October 2015 was considered for live calling activity conducted in November 2015.

A detailed explanation of each parameter is explained below:

1.3. BILLING COMPLAINTS

Live calling is done to verify Resolution of billing complaints within stipulated time. The process for this parameter is stated below:

- Auditors request the operator provided the database of all the subscribers who reported billing complaints in one month prior to the auditor visit. In case of BSNL, data for the complaints from the subscribers belonging to the sample exchanges is requested specifically.
- A sample of 10% or 100 complainants, whichever is less, is selected randomly from the list provided by operator.

Calls are made by auditors to the sample of subscribers to check and record whether the complaint was resolved within the timeframes as mentioned in the benchmark.

All the complaints related to billing as per clause 3.7.2 of QoS regulation of 20th June, 2015 were considered as population for selection of samples.

TRAI Benchmark: Resolution of billing/ charging complaints: 98% within 4 weeks, 100% within 6 weeks.

1.4. SERVICE COMPLAINTS REQUESTS

"Service request" means a request made to a service provider by its consumer pertaining to his account, and includes:

- A request for change of tariff plan
- A request for activation or deactivation of a value added service or a supplementary service or a special pack
- A request for activation of any service available on the service provider's network
- A request for shift or closure or termination of service or for billing details

All the complaints other than billing were covered. A total of 100 calls per service provider for each service in licensed service area were done by the auditors.

1.5. LEVEL 1

Level 1 is used for accessing special services like emergency services, supplementary services, inquiry and operator-assisted services.

Level 1 Services include services such as police, fire, ambulance (Emergency services). Test calls were made from operator SIMs. A total of 150 test calls were made per service provider in the quarter.

While most of the Level 1 services are toll free, it has been observed that some Level 1 services may not be toll free. In October, November and December'15, auditor has tried contacting the list of Level 1 services provided by TRAI as per the NNP (National Numbering Plan).

1.5.1. PROCESS TO TEST LEVEL 1 SERVICE

- During the operator assisted drive test, auditors ask the operator authorized personnel to make 5 calls in each SDCA on the Level 1 Service numbers provided by TRAI. The list contains a description of the numbers along with dialling code.
- Operators might also provide a list of L1 services. To identify emergency L1 service numbers, auditors check if there is any number that starts with code '10' in that list. If auditors find any emergency number in addition to the below list, that number is also tested during live calling.
- On receiving the list, auditors verify it if the below given list of numbers are active in the service provider's network.
- If there are any other additional numbers provided by the operator, auditors also do live calling on those numbers along with below list.
- If any of these numbers is not active, then we would write the same in our report, auditors write in the report.
- Post verifying the list, auditors do live calling by equally distributing the calls among the various numbers and update the results in the live calling sheet.

L1 Number Details
100 Police
101 Fire
102 Ambulance
104 Health Information Helpline

108 Emergency and Disaster Management Helpline
138 All India Helpine for Passangers
149 Public Road Transport Utility Service
181 Chief Minister Helpline
182 Indian Railway Security Helpline
1033 Road Accident Management Service
1037 Public Grievance Cell DoT HQ as 'Telecom Consumer Grievance Redressal Helpline'
1056 Emergency Medical Services
106X State of the Art Hospitals - AIIMS
1063 Public Grievance Cell DoT Hq
1064 Anti Corruption Helpline
1070 Relief Commission for Natural Calamities
1071 Air Accident Helpline
1072 Rail Accident Helpline
1073 Road Accident Helpline
1077 Control Room for District Collector
1090 Call Alart (Crime Branch)
1091 Women Helpline
1097 National AIDS Helpline to NACO
1099 Central Accident and Trauma Services (CATS)
10580 Educational& Vocational Guidance and Counselling
10589 Mother and Child Tracking (MCTH)
10740 Central Pollution Control Board
10741 Pollution Control Board
1511 Police Related Service for all Metro Railway Project
1512 Prevention of Crime in Railway
1514 National Career Service(NCS)
15100 Free Legal Service Helpline
155304 Municipal Corporations
155214 Labour Helpline
1903 Sashastra Seema Bal (SSB)
1909 National Do Not Call Registry
1912 Complaint of Electricity
1916 Drinking Water Supply
1950 Election Commission of India

1.6. CUSTOMER CARE

Live calling is done to verify response time for customer assistance is done to verify the performance of call centre in terms of:

- Calls getting connected and answered by operator's IVR.
- % age of calls answered by operator / voice to voice) within 90 seconds: In 95% of the cases or more

The process for this parameter is stated below:

- Overall sample size is 100 calls per service provider per circle at different points of time, evenly distributed across the selected exchanges – 50 calls between 1100 HRS to 1400 HRS and 50 calls between 1600 HRS to 1900 HRS.

- Time to answer the call by the operator was assessed from the time interviewer pressed the requisite button for being assisted by the operator.
- All the supplementary services that have any kind of human intervention are to be covered here. It also includes the IVR assisted services.

1.7. INTER OPERATOR CALL ASSESSMENT

A total of 100 calls per service provider to all the other service providers in a licensed service area were done for the purpose of audit.

Inter Operator Call Assessment	Aircel	Airtel	MTNL	Idea	RCOM GSM	RCOM CDMA	TTSL CDMA	Vodafone	MTS
Aircel	-	99%	99%	99%	99%	100%	99%	99%	100%
Airtel	99%	-	98%	99%	98%	97%	98%	100%	97%
MTNL	98%	100%	-	98%	100%	98%	97%	98%	98%
Idea	100%	100%	100%	-	100%	97%	100%	100%	99%
RCOM GSM	98%	97%	97%	98%	-	100%	99%	98%	100%
RCOM CDMA	97%	100%	99%	98%	100%	-	98%	97%	100%
TTSL CDMA	98%	96%	98%	97%	99%	97%	-	96%	97%
Vodafone	98%	96%	98%	98%	100%	99%	97%	-	100%
MTS	99%	97%	99%	98%	100%	100%	100%	100%	-

2. DRIVE TEST: SIGNIFICANCE AND METHODOLOGY

Drive test, as the name suggests, is conducted to measure the outdoor coverage in a moving vehicle in a specified network coverage area.

The main purpose of the drive test is to check the health of the mobile network of various operators in the area in terms of coverage (signal strength), voice quality, call drop rate, call set up success rate etc.

To assess the indoor coverage, the test is also conducted at two static indoor locations in each SSA, such as Malls, office buildings, shopping complexes, government buildings etc.

There are two types of drive test as mentioned below.

- Operator Assisted Drive Test
- Independent Drive Test

The main difference between the two is that in the operator assisted, operators participate in the drive test along with their hardware, software, phones etc. while in the independent drive test PhiStream conducts the drive test on solitary basis and uses its own hardware. Operators generally do not have any knowledge of the independent drive test being conducted.

2.1. OPERATOR ASSISTED DRIVE TEST

Delhi circle consist of total one SSA's and it needs to be audited in the span of 12 months.

The methodology adopted for the drive test:

- 3 consecutive days drive test in each SSA. SSA would be defined as per DOT guidelines and month wise SSA list is finalized by regional TRAI office.
- On an average, a minimum of 80 kilometres are covered each day
- Route map was designed in such a way that all the major roads, highways and all the important towns and villages were covered as part of audit.
- Special emphasis was given to those areas where the number of complaints received were on the higher side, if provided by TRAI.
- The route is defined in a way that we cover maximum area in the SSA and try to cover maximum villages and cities within the SSA. The route is designed such that there is no overlap of roads and we can start from the point from where we had left last day (if possible).
- The route was classified as – Within City, Major Roads, Highways, Shopping complex/ Mall and Office Complex/ Government Building
- There were no fixed calls which we need to do for within city, major roads and highways, but a minimum of 30 calls in each route, i.e., within city, major roads and highways on each day. For indoors, 20 calls each for shopping and office complex each day preferably in relatively bigger city.
- The drive test covered selected cities and adjoining towns/rural areas where the service provider has commenced service, including congested areas and indoor sites.
- The drive test of each mobile network was conducted between 10 am and 8 pm on weekdays.
- The Vehicle used in the drive tests was equipped with the test tool that automatically generates calls on the mobile telephone networks.
- The speed of the vehicle was kept at around 30 km/hr.
- The holding period of each test call was 120 seconds.
- A test call was generated 10 seconds after the previous test call is completed.

- Height of the antenna was kept uniform in case of all service providers.

2.2. INDEPENDENT DRIVE TEST

The number of independent drive tests to be conducted and their locations are decided basis TRAI recommendation.

- A minimum of 80 kilometres was traversed during the independent drive test in a SSA. The SSA would be defined as per BSNL and SSA list will be finalized by regional TRAI office.
- Route map was designed in such a way that all the major roads, highways and all the important towns and villages were covered as part of audit.
- Special emphasis was given to those areas where the number of complaints received were on the higher side, if provided by TRAI.
- The route is defined in a way that we cover maximum area in the SSA and try to cover maximum villages and cities within the SSA. The route is designed such that there is no overlap of roads (if possible).
- The route was classified as – Within city, Major Roads, Highways, Shopping complex / Mall and Office Complex/ Government Building
- There were no fixed calls which we need to do for within city, major roads and highways, but a minimum of 30 calls in each route, i.e., within city, major roads and highways on each day. For indoors, 20 calls each for shopping and office complex each day preferably in relatively bigger city.
- The drive test covered selected cities and adjoining towns/rural areas where the service provider has commenced service, including congested areas and indoor sites.
- The drive test of each mobile network was conducted between 10 am and 8 pm on weekdays.
- The Vehicle used in the drive tests was equipped with the test tool that automatically generates calls on the mobile telephone networks.
- The speed of the vehicle was kept at around 30 km/hr.
- The holding period of each test call was 120 seconds.
- A test call was generated 10 seconds after the previous test call is completed.
- Height of the antenna was kept uniform in case of all service providers.

2.3. PARAMETERS EVALUATED DURING DRIVE TEST

The parameters which were captured during the drive test include. Below are the parameters which are captured for the GSM and CDMA operators.

- Coverage-Signal strength (GSM)
  - Total calls made (A)
  - Number of calls with signal strength between 0 to -75 dBm
  - Number of calls with signal strength between 0 to -85 dBm
  - Number of calls with signal strength between 0 to -95 dBm
- Coverage-Signal strength (CDMA)
  - Total Ec/Io BINS (A)
  - Total Ec/Io BINS with less than –15 (B)
  - Low Interference = [1 - (B/A)] x 100
- Voice quality (GSM)
  - Total RxQual Samples– A
  - RxQual samples with 0-5 value – B
  - %age samples with good voice quality = B/A x 100

- Voice quality (CDMA)
  - Total FER BINs (forward FER) – A
  - FER BINs with 0-2 value (forward FER) – B
  - FER BINs with 0-4 value (forward FER) – C
  - %age samples with FER bins having 0-2 value (forward FER) = B/A x 100
  - %age samples with FER bins having 0-4 value (forward FER) = C/A x 100
  - No. of FER samples with value > 4 = [A-C]
- Call setup success rate
  - Total number of call attempts – A
  - Total Calls successfully established – B
  - Call success rate (%age) = (B/A) x 100
- Blocked calls
  - 100% - Call Set up Rate
- Call drop rate
  - Total Calls successfully established – A
  - Total calls dropped after being established – B
  - Call Drop Rate (%age) = (B/A) x 100

3. EXECUTIVE SUMMARY

The objective assessment of Quality of Service (QoS) carried out gives an insight into the overall performance of various operators in the Delhi Circle, with a parameter wise performance evaluation as compared to TRAI benchmark.

3.1. OPERATORS COVERED

Name of Operator	Number of Subscriber (Up to December 31, 2015)
MTNL	2316792
Airtel	10583156
Aircel	6104002
Idea	6211520
Reliance CDMA	3053784
Reliance GSM	5422773
Tata Teleservices (CDMA)	2657953
Systema Shyam Teleservices Ltd	953352
Vodafone	10049752

TSP	No. of cells	BTS	BSC	MSC+GMSC	Node B	RNC
Aircel	11702	4020	23	4+1	NA	NA
AIRTEL	16895	6451	57	23+10	6242	26
Idea	14548	5036	54	7+3	NA	NA
TTSL CDMA	5136	1476	8	4+4	NA	NA
RCOM GSM	6773	2470	14	3+1	NA	NA
RCOM CDMA	2628	892	DNA	5+2	NA	NA
VODAFONE	15493	6034	56	6+9	6067	25
MTNL	3217	1127	31	DNA	DNA	DNA
MTS	4061	1047	6	1	NA	NA

Note: Node B & RNC is marked as Not Applicable (N.A.) for the services providers who do not have 3G services licence in the circle.

3.2. AUDIT SCHEDULE

Operator	(3 Days Live) October 2015	October 2015	November 2015	December 2015
Airtel	21st Oct 2015	9th Nov 2015	10th Dec 2015	8th Jan 2016
Vodafone	23rd Oct 2015	13th Nov 2015	15th Dec 2015	13th Jan 2016
Idea	20th Oct 2015	6th Nov 2015	9th Dec 2015	11th Jan 2016
Reliance	21st Oct 2015	17th Nov 2015	11th Dec 2015	21st Jan 2016
MTNL	22nd Oct 2015	19th Nov 2015	16th Nov 2015	14th Jan 2016
Aircel	20th Oct 2015	10th Nov 2015	15th Dec 2015	16th Jan 2016
Tata Teleservices	21st Oct 2015	10th Nov 2015	7th Dec 2015	19th Jan 2016
MTS	21st Oct 2015	5th Nov 2015	8th Dec 2015	20th Jan 2016

Note: Audit schedule mentioned above is for the PMR audit for the last month. 3 day live monitoring for the current month was carried along with the PMR audit.

Colour codes to read the report:

 	Not meeting the benchmark
NA	Not Applicable
DNA	Data not available (at TSP premises)

3.3. 2G VOICE PMR DATA: OCTOBER

Name of Service Provider Month October	Network Availability		Connection Establishment (Accessibility)			Connection Maintenance (Retainability)		
	Sum of downtime of BTSs in a month in hrs in the licensed service area	No. of BTSs having accumulated downtime of >24 hours in a month	Call Set-up Success Rate (Within Licensee own network	SDDCH/Paging chl. Congestion	TCH Congestion	Call Drop Rate (%age)	Worst Affected cell having more than 3% TCH drop	%age of connection with good voice quality
Benchmark	≤ 2%	≤ 2%	≥ 95%	≤ 1%	≤ 2%	≤ 2%	≤ 3%	≥ 95%
Aircel	0.27%	0.71%	97.51%	0.48%	1.42%	1.07%	5.99%	97.30%
Airtel	0.01%	0.00%	99.83%	0.05%	0.04%	0.73%	1.26%	99.18%
MTNL	0.14%	0.27%	96.84%	0.48%	1.83%	1.86%	2.58%	97.08%
Idea	0.05%	0.00%	98.39%	0.67%	1.01%	0.66%	2.44%	98.10%
MTS	0.07%	0.10%	98.76%	NA	0.27%	0.28%	1.43%	99.20%
RCOM CDMA	0.04%	0.22%	96.66%	NA	1.27%	0.22%	1.19%	98.34%
RCOM GSM	0.14%	0.77%	97.89%	0.11%	0.77%	0.16%	0.75%	99.04%
TATA CDMA	0.04%	0.14%	99.23%	NA	0.04%	0.31%	2.05%	99.18%
Vodafone	0.13%	0.63%	98.22%	0.43%	1.08%	1.19%	2.75%	97.62%

- Aircel has parameter value of **5.99%** and failed to meet the benchmark for Worst Affected cell having more than 3% TCH drop as it is pre-defined at ≤ 3%

3.4. 2G VOICE PMR DATA: NOVEMBER

Name of Service Provider	Network Availability		Connection Establishment (Accessibility)			Connection Maintenance (Retainability)		
	Sum of downtime of BTSs in a month in hrs in the licensed service area	No. of BTSs having accumulated downtime of >24 hours in a month	Call Set-up Success Rate (Within License own network	SDDCH/Paging chl. Congestion	TCH Congestion	Call Drop Rate (%age)	Worst Affected cell having more than 3% TCH drop	%age of connection with good voice quality
Benchmark	≤ 2%	≤ 2%	≥ 95%	≤ 1%	≤ 2%	≤ 2%	≤ 3%	≥ 95%
Aircel	0.20%	0.40%	97.82%	0.46%	1.16%	0.96%	4.73%	97.06%
Airtel	0.01%	0.00%	99.85%	0.03%	0.05%	0.77%	1.27%	99.18%
MTNL	0.14%	0.62%	97.28%	0.37%	1.83%	1.85%	2.49%	97.09%
Idea	0.04%	0.00%	99.02%	0.66%	0.43%	0.67%	2.37%	98.11%
MTS	0.11%	0.00%	98.79%	NA	0.19%	0.27%	1.30%	99.20%
RCOM CDMA	0.03%	0.00%	96.75%	NA	1.26%	0.18%	0.45%	99.21%
RCOM GSM	0.17%	1.77%	96.50%	0.57%	0.79%	0.16%	0.76%	98.60%
TATA CDMA	0.03%	0.07%	99.28%	NA	0.02%	0.28%	2.09%	99.20%
Vodafone	0.13%	0.67%	98.42%	0.60%	0.95%	1.18%	2.72%	97.67%

- Aircel has parameter value of **4.73%** and failed to meet the benchmark for Worst Affected cell having more than 3% TCH drop as it is pre-defined at ≤ 3%.

3.5. 2G VOICE PMR DATA: DECEMBER

Name of Service Provider	Network Availability		Connection Establishment (Accessibility)			Connection Maintenance (Retainability)		
	No. of BTSs having accumulated downtime of >24 hours in a month	Worst Affected BTS Due to Downtime	Call Set-up Success Rate (Within License own network	SDDCH/Paging chl. Congestion	TCH Congestion	Call Drop Rate (%age)	Worst Affected cell having more than 3% TCH drop	%age of connection with good voice quality
Benchmark	≤ 2%	≤ 2%	≥ 95%	≤ 1%	≤ 2%	≤ 2%	≤ 3%	≥ 95%
Aircel	0.13%	0.22%	97.94%	0.23%	1.00%	0.86%	3.87%	96.75%
Airtel	0.01%	0.00%	99.86%	0.03%	0.06%	0.77%	1.14%	99.21%
MTNL	0.12%	0.35%	97.05%	0.46%	1.79%	1.83%	2.61%	97.09%
Idea	0.03%	0.00%	99.21%	0.45%	0.35%	0.72%	2.42%	98.14%
MTS	0.03%	0.00%	99.04%	NA	0.10%	0.25%	1.24%	99.20%
RCOM CDMA	0.03%	0.22%	96.84%	NA	1.27%	0.15%	0.84%	99.97%
RCOM GSM	0.04%	0.04%	97.57%	0.46%	1.01%	0.14%	0.75%	98.53%
TATA CDMA	0.03%	0.00%	99.27%	NA	0.04%	0.28%	2.21%	99.19%
Vodafone	0.13%	0.61%	98.77%	0.26%	0.58%	1.24%	2.73%	97.88%

- Aircel has parameter value of **3.87%** and failed to meet the benchmark for Worst Affected cell having more than 3% TCH drop as it is pre-defined at ≤ 3%.

3.6. 2G VOICE PMR DATA: CONSOLIDATED

Name of Service Provider	Network Availability		Connection Establishment (Accessibility)			Connection Maintenance (Retainability)		
	Sum of downtime of BTSs in a month in hrs in the licensed service area	No. of BTSs having accumulated downtime of >24 hours in a month	Call Set-up Success Rate (Within License own network	SDDCH/Paging chl. Congestion	TCH Congestion	Call Drop Rate (%age)	Worst Affected cell having more than 3% TCH drop	%age of connection with good voice quality
Benchmark	≤ 2%	≤ 2%	≥ 95%	≤ 1%	≤ 2%	≤ 2%	≤ 3%	≥ 95%
Aircel	0.20%	0.44%	97.76%	0.39%	1.19%	0.96%	4.87%	97.04%
Airtel	0.01%	0.00%	99.85%	0.04%	0.05%	0.76%	1.23%	99.19%
MTNL	0.13%	0.42%	97.06%	0.44%	1.81%	1.84%	2.56%	97.09%
Idea	0.04%	0.00%	98.87%	0.60%	0.60%	0.68%	2.41%	98.12%
MTS	0.07%	0.03%	98.86%	NA	0.19%	0.27%	1.33%	99.20%
RCOM CDMA	0.04%	0.15%	96.75%	NA	1.27%	0.18%	0.83%	99.17%
RCOM GSM	0.12%	0.86%	97.32%	0.38%	0.86%	0.15%	0.75%	98.72%
TATA CDMA	0.03%	0.07%	99.26%	NA	0.03%	0.29%	2.12%	99.19%
Vodafone	0.13%	0.64%	98.47%	0.15%	0.87%	1.20%	2.73%	97.72%

- Aircel has parameter value of **4.87%** and failed to meet the benchmark for Worst Affected cell having more than 3% TCH drop as it is pre-defined at ≤ 3%.

3.7. 2G VOICE 3 DAYS LIVE DATA

A three day live measurement was conducted to measure the QoS provided by the operators. It was seen from the live data collected, that the performance of the operators across all parameters more or less corroborated with the audit data collected.

3.8. 2G VOICE 3 DAYS LIVE DATA: OCTOBER

Name of Service Provider	Network Availability		Connection Establishment (Accessibility)			Connection Maintenance (Retainability)		
	Sum of downtime of BTSs in a month in hrs in the licensed service area	No. of BTSs having accumulated downtime of >24 hours in a month	Call Set-up Success Rate (Within Licensee own network	SDDCH/Paging chl. Congestion	TCH Congestion	Call Drop Rate (%age)	Wost Affected cell having more than 3% TCH drop	%age of connection with good voice quality
Benchmark	≤ 2%	≤ 2%	≥ 95%	≤ 1%	≤ 2%	≤ 2%	≤ 3%	≥ 95%
Aircel	0.18%	0.03%	97.28%	0.51%	1.78%	1.16%	6.26%	97.29%
Airtel	0.00%	0.00%	99.85%	0.03%	0.04%	0.77%	1.14%	99.15%
MTNL	0.11%	0.00%	96.74%	0.51%	1.82%	1.76%	2.66%	97.08%
Idea	0.08%	0.00%	98.50%	0.66%	0.95%	0.68%	2.62%	98.05%
MTS	0.06%	0.00%	98.93%	NA	0.23%	0.26%	1.21%	99.20%
RCOM CDMA	0.05%	0.00%	96.82%	NA	1.27%	0.18%	1.18%	98.54%
RCOM GSM	0.15%	0.00%	99.87%	0.54%	0.80%	0.17%	0.70%	98.50%
TATA CDMA	0.06%	0.00%	99.20%	NA	0.05%	0.29%	1.95%	99.17%
Vodafone	0.14%	0.03%	98.42%	0.15%	0.95%	1.20%	2.71%	97.48%

- Aircel has parameter value of **6.26%** and failed to meet the benchmark for Worst Affected cell having more than 3% TCH drop as it is pre-defined at ≤ 3%.

3.9. 2G VOICE 3 DAYS LIVE DATA: NOVEMBER

Name of Service Provider	Network Availability		Connection Establishment (Accessibility)			Connection Maintenance (Retainability)		
	Sum of downtime of BTSs in a month in hrs in the licensed service area	No. of BTSs having accumulated downtime of >24 hours in a month	Call Set-up Success Rate (Within License own network	SDDCH/Paging chl. Congestion	TCH Congestion	Call Drop Rate (%age)	Wost Affected cell having more than 3% TCH drop	%age of connection with good voice quality
Benchmark	≤ 2%	≤ 2%	≥ 95%	≤ 1%	≤ 2%	≤ 2%	≤ 3%	≥ 95%
Aircel	0.20%	0.00%	97.83%	0.26%	1.13%	0.99%	5.00%	97.09%
Airtel	0.02%	0.00%	99.84%	0.03%	0.06%	0.80%	1.17%	99.14%
MTNL	0.13%	0.00%	97.11%	0.42%	1.68%	1.80%	2.63%	97.03%
Idea	0.07%	0.00%	99.13%	0.65%	0.37%	0.70%	2.49%	98.04%
MTS	0.07%	0.00%	98.49%	NA	0.19%	0.33%	1.29%	99.18%
RCOM CDMA	0.02%	0.00%	99.35%	NA	1.26%	0.18%	0.54%	99.35%
RCOM GSM	0.18%	0.00%	97.00%	0.46%	0.82%	0.15%	0.76%	98.63%
TATA CDMA	0.04%	0.00%	99.19%	NA	0.03%	0.35%	2.24%	99.15%
Vodafone	0.07%	0.00%	98.24%	0.48%	1.19%	1.05%	2.61%	97.70%

- Aircel has parameter value of **5.00%** and failed to meet the benchmark for Worst Affected cell having more than 3% TCH drop as it is pre-defined at ≤ 3%.

3.10. 2G VOICE 3 DAYS LIVE DATA: DECEMBER

Name of Service Provider	Network Availability		Connection Establishment (Accessibility)			Connection Maintenance (Retainability)		
	No. of BTSs having accumulated downtime of >24 hours in a month	Worst Affected BTS Due to Downtime	Call Set-up Success Rate (Within License own network	SDDCH/Paging chl. Congestion	TCH Congestion	Call Drop Rate (%age)	Wost Affected cell having more than 3% TCH drop	%age of connection with good voice quality
Benchmark	≤ 2%	≤ 2%	≥ 95%	≤ 1%	≤ 2%	≤ 2%	≤ 3%	≥ 95%
Aircel	0.13%	0.00%	97.99%	0.22%	0.89%	0.86%	3.72%	96.73%
Airtel	0.02%	0.00%	99.87%	0.02%	0.05%	0.81%	1.22%	99.14%
MTNL	0.10%	0.00%	97.02%	0.26%	1.74%	1.79%	2.65%	97.04%
Idea	0.04%	0.00%	99.08%	0.58%	0.44%	0.73%	2.49%	98.11%
MTS	0.11%	0.00%	98.91%	NA	0.22%	0.28%	1.17%	99.19%
RCOM CDMA	0.04%	0.00%	96.68%	NA	1.27%	0.15%	0.58%	99.22%
RCOM GSM	0.04%	0.00%	98.08%	0.40%	0.79%	0.16%	0.51%	98.58%
TATA CDMA	0.01%	0.00%	99.15%	NA	0.09%	0.37%	2.18%	99.15%
Vodafone	0.10%	0.00%	98.84%	0.39%	0.55%	1.27%	2.68%	97.70%

- Aircel has parameter value of **3.72%** and failed to meet the benchmark for Worst Affected cell having more than 3% TCH drop as it is pre-defined at ≤ 3%.

3.11. 3 DAYS LIVE DATA: CONSOLIDATED

Name of Service Provider	Network Availability		Connection Establishment (Accessibility)			Connection Maintenance (Retainability)		
	Sum of downtime of BTSs in a month in hrs in the licensed service area	No. of BTSs having accumulated downtime of >24 hours in a month	Call Set-up Success Rate (Within License own network	SDDCH/Paging chl. Congestion	TCH Congestion	Call Drop Rate (%age)	Wost Affected cell having more than 3% TCH drop	%age of connection with good voice quality
Benchmark	≤ 2%	≤ 2%	≥ 95%	≤ 1%	≤ 2%	≤ 2%	≤ 3%	≥ 95%
Aircel	0.17%	0.01%	97.70%	0.33%	1.27%	1.00%	4.99%	97.04%
Airtel	0.01%	0.00%	99.85%	0.03%	0.05%	0.79%	1.18%	99.14%
MTNL	0.11%	0.00%	96.96%	0.40%	1.74%	1.78%	2.65%	97.05%
Idea	0.06%	0.00%	98.90%	0.63%	0.59%	1.05%	2.53%	98.06%
MTS	0.08%	0.00%	98.78%	NA	0.21%	0.29%	0.62%	99.19%
RCOM CDMA	0.04%	0.00%	97.62%	NA	1.27%	0.17%	0.77%	99.04%
RCOM GSM	0.12%	0.00%	98.32%	0.47%	0.27%	0.16%	0.65%	98.57%
TATA CDMA	0.04%	0.00%	99.18%	NA	0.06%	0.34%	2.12%	99.16%
Vodafone	0.10%	0.01%	98.50%	0.34%	0.90%	1.17%	2.67%	97.63%

- Aircel has parameter value of **4.99%** and failed to meet the benchmark for Worst Affected cell having more than 3% TCH drop as it is pre-defined at ≤ 3%.

3.12. 3G Voice PMR: Consolidated

Name of Service Provider	Network Availability		Connection Establishment (Accessibility)			Connection Maintenance (Retainability)		
	Sum of downtime of Node B's in a month in hrs	No. of Node B's having Accumulated Downtime of > 24 hrs in a month	Call Set-up Success Rate (Within License own network	RRC Congestion	RAB Congestion	Circuit Switched Voice Drop Rate	Worst affected cells having more than 3% Circuit Switched Voice Drop Rate	%age of connections with Good Circuit Switched Voice Quality
Benchmark	**≤ 2%**	**≤ 2%**	**≥ 95%**	**≤ 1%**	**≤ 2%**	**≤ 2%**	**≤ 3%**	**≥ 95%**
Aircel	NA	NA	NA	NA	NA	NA	NA	NA
Airtel	0.24%	0.53%	98.81%	0.11%	0.09%	0.41%	2.20%	98.81%
MTNL	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA
Idea	NA	NA	NA	NA	NA	NA	NA	NA
MTS	NA	NA	NA	NA	NA	NA	NA	NA
RCOM CDMA	NA	NA	NA	NA	NA	NA	NA	NA
RCOM GSM	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA
TATA CDMA	NA	NA	NA	NA	NA	NA	NA	NA
Vodafone	0.18%	1.03%	99.98%	0.05%	0.04%	0.49%	2.69%	98.85%

- **For each instance of "DNA (Data Not Available)", please refer the respective hard copy of audit report(s).

3.13. 3G VOICE PMR: OCTOBER

Name of Service Provider	Network Availability		Connection Establishment (Accessibility)			Connection Maintenance (Retainability)		
	Sum of downtime of Node B's in a month in hrs	No. of Node B's having Accumulated Downtime of > 24 hrs in a month	Call Set-up Success Rate (Within Licensee own network	RRC Congestion	RAB Congestion	Circuit Switched Voice Drop Rate	Worst affected cells having more than 3% Circuit Switched Voice Drop Rate	%age of connections with Good Circuit Switched Voice Quality
Benchmark	≤ 2%	≤ 2%	≥ 95%	≤ 1%	≤ 2%	≤ 2%	≤ 3%	≥ 95%
Aircel	NA	NA	NA	NA	NA	NA	NA	NA
Airtel	0.33%	0.84%	98.74%	0.15%	0.10%	0.42%	2.29%	98.79%
MTNL	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA
Idea	NA	NA	NA	NA	NA	NA	NA	NA
MTS	NA	NA	NA	NA	NA	NA	NA	NA
RCOM CDMA	NA	NA	NA	NA	NA	NA	NA	NA
RCOM GSM	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA
TATA CDMA	NA	NA	NA	NA	NA	NA	NA	NA
Vodafone	0.21%	1.26%	99.98%	0.05%	0.04%	0.47%	2.72%	98.83%

- ****For each instance of "DNA (Data Not Available)", please refer the respective hard copy of audit report(s).

3.14. 3G VOICE PMR: NOVEMBER

Name of Service Provider	Network Availability		Connection Establishment (Accessibility)			Connection Maintenance (Retainability)		
	Sum of downtime of Node B's in a month in hrs	No. of Node B's having Accumulated Downtime of > 24 hrs in a month	Call Set-up Success Rate (Within License own network	RRC Congestion	RAB Congestion	Circuit Switched Voice Drop Rate	Worst affected cells having more than 3% Circuit Switched Voice Drop Rate	%age of connections with Good Circuit Switched Voice Quality
Benchmark	≤ 2%	≤ 2%	≥ 95%	≤ 1%	≤ 2%	≤ 2%	≤ 3%	≥ 95%
Aircel	NA	NA	NA	NA	NA	NA	NA	NA
Airtel	0.21%	0.58%	98.90%	0.08%	0.06%	0.40%	2.17%	98.85%
MTNL	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA
Idea	NA	NA	NA	NA	NA	NA	NA	NA
MTS	NA	NA	NA	NA	NA	NA	NA	NA
RCOM CDMA	NA	NA	NA	NA	NA	NA	NA	NA
RCOM GSM	NA	NA	NA	NA	NA	NA	NA	NA
TATA CDMA	NA	NA	NA	NA	NA	NA	NA	NA
Vodafone	0.17%	0.98%	99.98%	0.03%	0.02%	0.48%	2.69%	98.87%

- ▪ **For each instance of "DNA (Data Not Available)", please refer the respective hard copy of audit report(s).

3.15. 3G VOICE PMR: DECEMBER

Name of Service Provider	Network Availability		Connection Establishment (Accessibility)			Connection Maintenance (Retainability)		
	Sum of downtime of Node B's in a month in hrs	No. of Node B's having Accumulated Downtime of > 24 hrs in a month	Call Set-up Success Rate (Within License own network	RRC Congestion	RAB Congestion	Circuit Switched Voice Drop Rate	Worst affected cells having more than 3% Circuit Switched Voice Drop Rate	%age of connections with Good Circuit Switched Voice Quality
Benchmark	≤ 2%	≤ 2%	≥ 95%	≤ 1%	≤ 2%	≤ 2%	≤ 3%	≥ 95%
Aircel	NA	NA	NA	NA	NA	NA	NA	NA
Airtel	0.17%	0.18%	98.79%	0.10%	0.11%	0.41%	2.15%	98.80%
MTNL	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA
Idea	NA	NA	NA	NA	NA	NA	NA	NA
MTS	NA	NA	NA	NA	NA	NA	NA	NA
RCOM CDMA	NA	NA	NA	NA	NA	NA	NA	NA
RCOM GSM	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA
TATA CDMA	NA	NA	NA	NA	NA	NA	NA	NA
Vodafone	0.17%	0.86%	99.93%	0.06%	0.06%	0.51%	2.65%	98.84%

3.16. 3G Voice 3 Days Live Data: Consolidated

Name of Service Provider	Network Availability		Connection Establishment (Accessibility)			Connection Maintenance (Retainability)		
	Sum of downtime of Node B's in a month in hrs	No. of Node B's having Accumulated Downtime of > 24 hrs in a month	Call Set-up Success Rate (Within License own network	RRC Congestion	RAB Congestion	Circuit Switched Voice Drop Rate	Worst affected cells having more than 3% Circuit Switched Voice Drop Rate	%age of connections with Good Circuit Switched Voice Quality
Benchmark	≤ 2%	≤ 2%	≥ 95%	≤ 1%	≤ 2%	≤ 2%	≤ 3%	≥ 95%
Aircel	NA	NA	NA	NA	NA	NA	NA	NA
Airtel	0.21%	0.00%	98.80%	0.10%	0.06%	0.42%	2.30%	98.81%
MTNL	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA
Idea	NA	NA	NA	NA	NA	NA	NA	NA
MTS	NA	NA	NA	NA	NA	NA	NA	NA
RCOM CDMA	NA	NA	NA	NA	NA	NA	NA	NA
RCOM GSM	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA
TATA CDMA	NA	NA	NA	NA	NA	NA	NA	NA
Vodafone	0.14%	0.01%	99.90%	0.02%	0.02%	0.48%	2.61%	98.83%

3.17. 3G VOICE 3 DAYS LIVE DATA: OCTOBER

Name of Service Provider	Network Availability		Connection Establishment (Accessibility)			Connection Maintenance (Retainability)		
	Sum of downtime of Node B's in a month in hrs	No. of Node B's having Accumulated Downtime of > 24 hrs in a month	Call Set-up Success Rate (Within Licensee own network	RRC Congestion	RAB Congestion	Circuit Switched Voice Drop Rate	Worst affected cells having more than 3% Circuit Switched Voice Drop Rate	%age of connections with Good Circuit Switched Voice Quality
Benchmark	≤ 2%	≤ 2%	≥ 95%	≤ 1%	≤ 2%	≤ 2%	≤ 3%	≥ 95%
Aircel	NA	NA	NA	NA	NA	NA	NA	NA
Airtel	0.12%	0.00%	98.60%	0.19%	0.09%	0.45%	2.37%	98.79%
MTNL	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA
Idea	NA	NA	NA	NA	NA	NA	NA	NA
MTS	NA	NA	NA	NA	NA	NA	NA	NA
RCOM CDMA	NA	NA	NA	NA	NA	NA	NA	NA
RCOM GSM	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA
TATA CDMA	NA	NA	NA	NA	NA	NA	NA	NA
Vodafone	0.19%	0.00%	100.05%	0.04%	0.02%	0.50%	2.57%	98.82%

- ▪ **For each instance of "DNA (Data Not Available)", please refer the respective hard copy of audit report(s).

3.18. 3G VOICE 3 DAYS LIVE DATA: NOVEMBER

Name of Service Provider	Network Availability		Connection Establishment (Accessibility)			Connection Maintenance (Retainability)		
	Sum of downtime of Node B's in a month in hrs	No. of Node B's having Accumulated Downtime of > 24 hrs in a month	Call Set-up Success Rate (Within License own network	RRC Congestion	RAB Congestion	Circuit Switched Voice Drop Rate	Worst affected cells having more than 3% Circuit Switched Voice Drop Rate	%age of connections with Good Circuit Switched Voice Quality
Benchmark	≤ 2%	≤ 2%	≥ 95%	≤ 1%	≤ 2%	≤ 2%	≤ 3%	≥ 95%
Aircel	NA	NA	NA	NA	NA	NA	NA	NA
Airtel	0.27%	0.00%	98.87%	0.07%	0.05%	0.42%	2.50%	98.84%
MTNL	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA
Idea	NA	NA	NA	NA	NA	NA	NA	NA
MTS	NA	NA	NA	NA	NA	NA	NA	NA
RCOM CDMA	NA	NA	NA	NA	NA	NA	NA	NA
RCOM GSM	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA
TATA CDMA	NA	NA	NA	NA	NA	NA	NA	NA
Vodafone	0.12%	0.03%	99.94%	0.02%	0.01%	0.42%	2.62%	98.83%

- **For each instance of "DNA (Data Not Available)", please refer the respective hard copy of audit report(s).

3.19. 3G VOICE 3 DAYS LIVE DATA: DECEMBER

Name of Service Provider	Network Availability		Connection Establishment (Accessibility)			Connection Maintenance (Retainability)		
	Sum of downtime of Node B's in a month in hrs	No. of Node B's having Accumulated Downtime of > 24 hrs in a month	Call Set-up Success Rate (Within License own network	RRC Congestion	RAB Congestion	Circuit Switched Voice Drop Rate	Worst affected cells having more than 3% Circuit Switched Voice Drop Rate	%age of connections with Good Circuit Switched Voice Quality
Benchmark	≤ 2%	≤ 2%	≥ 95%	≤ 1%	≤ 2%	≤ 2%	≤ 3%	≥ 95%
Aircel	NA	NA	NA	NA	NA	NA	NA	NA
Airtel	0.23%	0.00%	98.92%	0.05%	0.04%	0.39%	2.02%	98.81%
MTNL	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA
Idea	NA	NA	NA	NA	NA	NA	NA	NA
MTS	NA	NA	NA	NA	NA	NA	NA	NA
RCOM CDMA	NA	NA	NA	NA	NA	NA	NA	NA
RCOM GSM	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA
TATA CDMA	NA	NA	NA	NA	NA	NA	NA	NA
Vodafone	0.11%	0.00%	99.94%	0.01%	0.02%	0.52%	2.64%	98.84%

- **For each instance of "DNA (Data Not Available)", please refer the respective hard copy of audit report(s).

4. CUSTOMER SERVICE DELIVERY

4.1. Billing and Customer Care

Name of Service Provider	Metering and Billing credibility		Billing Complaints			Termination & Closures	Time taken for refund of deposits after closures	Response time to customer for assistance	
	Postpaid Subscribers	Prepaid Subscribers	%age complaints resolved within 4 weeks	%age complaints resolved within 6 weeks	%age of where credit/waiver is received within one week	% of Termination/ Closure of service within 7 days (100 %)	Cleared over a period of <60 days (100%)	%age of calls answered by the IVR	%age of call answered by the operators (voice to voice) within 90 seconds
Benchmark	≤ 0.1%	≤ 0.1%	≥ 98%	= 100%	= 100%	= 100%	= 100%	≥ 95%	≥ 95%
Aircel	0.01%	0.00%	100.00%	100.00%	100.00%	100.00%	100.00%	91.50%	94.30%
Airte≥l	0.02%	0.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	94.32%
IDEA	0.07%	0.20%	100.00%	100.00%	100.00%	100.00%	100.00%	98.98%	98.62%
MTNL	0.06%	0.01%	100.00%	100.00%	100.00%	100.00%	100.00%	97.22%	98.00%
MTS	0.00%	0.01%	100.00%	100.00%	100.00%	100.00%	100.00%	99.12%	97.80%
RCOM CDMA	0.09%	0.02%	100.00%	100.00%	100.00%	100.00%	98.79%	98.24%	92.37%
RCOM GSM	0.09%	0.09%	100.00%	100.00%	100.00%	100.00%	98.88%	98.28%	86.57%
TTSL CDMA	0.00%	0.00%	100.00%	100.00%	100.00%	100.00%	100.00%	99.26%	96.44%
VODAFONE	0.15%	0.05%	100.00%	100.00%	99.85%	100.00%	100.00%	100.00%	97.16%

- Aircel has parameter value of **91.50%** and failed to meet the benchmark of ≥95% for %age of calls answered by the IVR.

- Aircel has parameter value of **94.30%** and failed to meet the benchmark of ≥95% for %age of call answered by the operators (voice to voice) within 90 seconds.

- Airtel has parameter value of **94.32%** and failed to meet the benchmark of ≥95% for %age of call answered by the operators (voice to voice) within 90 seconds.

- Idea has parameter value of **0.20%** and failed to meet the benchmark of ≤ 0.1% for Metering and Billing Credibility (Prepaid).

- RCOM CDMA has parameter value of **98.79%** and failed to meet the benchmark of = 100% for Time taken for refund of deposits after closures (Cleared over a period of <60 days).

- RCOM GSM has parameter value of **98.88%** and failed to meet the benchmark of = 100% for Time taken for refund of deposits after closures (Cleared over a period of <60 days).

- RCOM CDMA has parameter value of **92.37%** and failed to meet the benchmark of ≥95% for %age of call answered by the operators (voice to voice) within 90 seconds.

- RCOM GSM has parameter value of **86.57%** and failed to meet the benchmark of ≥95% for %age of call answered by the operators (voice to voice) within 90 seconds.

- Vodafone has parameter value of **0.15%** and failed to meet the benchmark of ≤ 0.1% for Metering and Billing credibility (Postpaid subscribers).

- Vodafone has parameter value of **99.85%** and failed to meet the benchmark of = 100% for Billing Complaints (%age of where credit/waiver is received within one week).

Name of Service Provider	Customer Care & Grievances Redressal	
	% of Complaints addressed at call center level	% of Complaints addressed by Appellate Authority
Benchmark		
Aircel	100.00%	100.00%
Airtel	95.67%	61.21%
IDEA	23.33%	100.00%
MTNL	100.00%	NIL
MTS CDMA	40.50%	100.00%
RCOM CDMA	100.00%	100.00%
RCOM GSM	100.00%	100.00%
TTSL CDMA	99.09%	96.67%
VODAFONE	92.68%	NIL

- **For each instance of "DNA (Data Not Available)", please refer the respective hard copy of audit report(s).

4.2. Live Calling Data: Consolidated

Name of Service Provider	Metering and Billing (Service Request)				Response time to customer for Assistanse	
	Total Calls Attempted	No. of Subscribers reached	Compalints/ Request attended to satisfaction	% of Complaints/ Request attended to satisfaction	Accessibility of call centre / Customer care	%age of call answered by the operators (voice to voice) within 90 seconds
Benchmark					≥ 95%	≥ 95%
Aircel	142	59	59	100.00%	100.00%	100.00%
Airtel	163	120	118	98.33%	100.00%	100.00%
MTNL	245	107	71	66.36%	100.00%	100.00%
IDEA	243	206	206	100.00%	100.00%	100.00%
RCOM CDMA	171	93	93	100.00%	100.00%	100.00%
RCOM GSM	148	100	100	100.00%	100.00%	100.00%
TTSL CDMA	1	1	1	100.00%	100.00%	97.00%
MTS CDMA	39	15	14	93.33%	100.00%	100.00%
VODAFONE	300	171	167	97.66%	100.00%	100.00%

Live calling data has been conducted by the auditor from the operator call centre(s).

4.3. 3 Days Live Call Centre Data

	Response time to customer assistance							
	% age of Accessibility of Call centre	% age calls answered by the operator within 90 seconds	% age of Accessibility of Call centre	% age calls answered by the operator within 90 seconds	% age of Accessibility of Call centre	% age calls answered by the operator within 90 seconds	% age of Accessibility of Call centre	% age calls answered by the operator within 90 seconds
	Day 1		Day 2		Day 3		Average	
TSP Name	>=95%	>=95%	>=95%	>=95%	>=95%	>=95%	>=95%	>=95%
AIRCEL	99.67%	95.33%	99.90%	92.63%	99.78%	97.63%	99.78%	95.20%
AIRTEL	100.00%	98.00%	100.00%	98.00%	100.00%	75.00%	100.00%	90.00%
IDEA	98.93%	99.60%	98.80%	90.21%	98.72%	99.74%	98.81%	96.26%
RCOM CDMA	100.00%	90.00%	100.00%	81.00%	100.00%	87.00%	100.00%	86.00%
RCOM GSM	100.00%	95.00%	100.00%	92.00%	100.00%	89.00%	100.00%	92.00%
TTSL CDMA	98.18%	97.92%	98.13%	98.17%	98.22%	98.12%	98.18%	98.07%
VODAFONE	100.00%	97.26%	100.00%	97.86%	100.00%	98.22%	100.00%	97.78%
MTNL	100.00%	99.77%	99.59%	99.59%	99.58%	99.82%	99.72%	99.70%
MTS	98.91%	95.42%	99.30%	95.02%	99.31%	98.47%	99.17%	96.30%

- Airtel has parameter value of **90.00%** and failed to meet the benchmark of ≥95% for % age calls answered by the operator within 90 seconds.

- RCOM CDMA has parameter value of **86.00%** and failed to meet the benchmark of ≥95% for % age calls answered by the operator within 90 seconds.

- RCOM GSM has parameter value of **92.00%** and failed to meet the benchmark of ≥95% for % age calls answered by the operator within 90 seconds.

5. NETWORK PARAMETER: DESCRIPTION AND DETAILED FINDINGS

5.1. BTS ACCUMULATED DOWNTIME

- Parameter Description:

    - The parameter of network availability would be measured from following sub-parameters:

        - BTSs Accumulated Downtime (not available for service)
        - Worst effected BTSs due to downtime

- Definition: BTSs (Base Transceiver Station) accumulated downtime (not available for service) shall basically measure the downtime of the BTSs, including its transmission links/circuits during the period of a month, but excludes all planned service downtime for any maintenance or software up gradation. For measuring the performance against the benchmark for this parameter the downtime of each BTS lasting more than 1 hour at a time in a day during the period of a month were considered.

    - Computation Methodology:

        - BTS accumulated downtime (not available for service) = $\frac{\text{Sum of downtime of BTSs in a month in hours i.e.total outage time of all BTSs in hours during a month}}{24 \times \text{Number of days in a month} \times \text{Number of BTSs in the network in licensed service area}} \times 100$

- TRAI Benchmark: BTSs Accumulated downtime (not available for service) ≤ 2%

- Audit Procedure:

    - The fault alarm details at the OMC (MSC) for the network outages (due to own network elements and infrastructure service provider end outages) was audited.
    - All the BTS in service area were considered. Planned outages due to network up gradation, routine maintenance were not considered.
    - Any outage as a result of force majeure were not considered at the time of calculation.
    - Data is extracted from system log of the server of the operator. This data is in raw format which is further processed to arrive at the cumulative values.
    - List of operating sites with cell details and ids are taken from the operator.
    - When there is any outage a performance report gets generated in line with that cell resulting and master base of the Accumulated downtime and worst affected BTS due to downtime.

5.1.1. KEY FINDINGS: SUM OF DOWNTIME OF BTSs: CONSOLIDATED

Sum of downtime of BTSs in a month in hrs. in the licensed service area

	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR Data 3 Month Consolidated	0.20%	0.01%	0.13%	0.04%	0.07%	0.04%	0.12%	0.03%	0.13%
3 Day Live 3 Month Consolidated	0.17%	0.01%	0.11%	0.06%	0.08%	0.04%	0.12%	0.04%	0.10%
Benchmark ≤ 2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
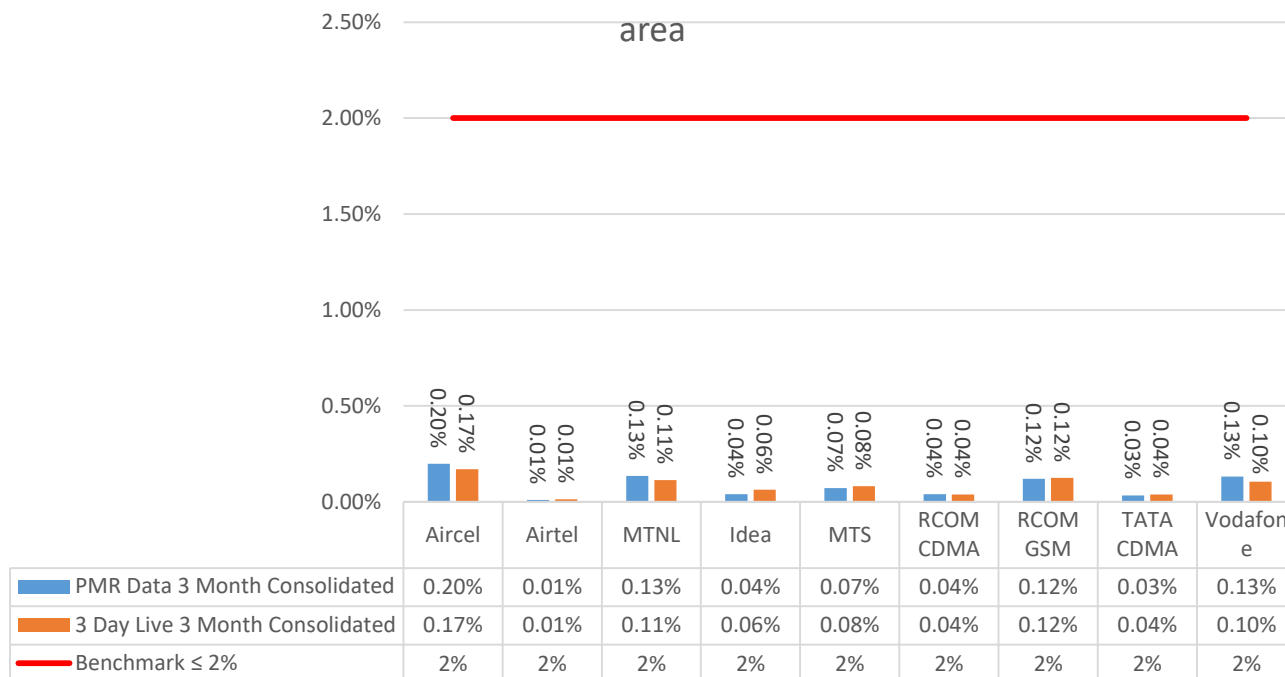
- It is clear from the analysis that all the operators are within benchmark.

5.1.2. KEY FINDINGS: SUM OF DOWNTIME OF BTSs: OCTOBER

Sum of downtime of BTSs in a month in hrs. in the licensed service area

	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR October Month	0.27%	0.01%	0.14%	0.05%	0.07%	0.04%	0.14%	0.04%	0.13%
3 Day Live October Month	0.18%	0.00%	0.11%	0.08%	0.06%	0.05%	0.15%	0.06%	0.14%
Benchmark ≤ 2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
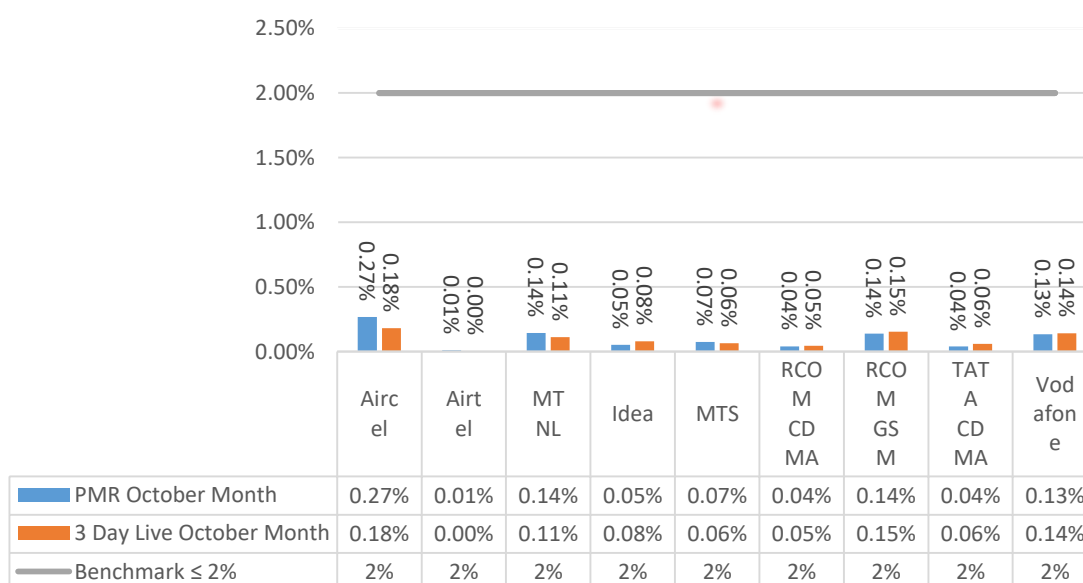
- It is clear from the analysis that all the operators are within benchmark.

5.1.3. KEY FINDINGS: SUM OF DOWNTIME OF BTSS: NOVEMBER

Sum of downtime of BTSs in a month in hrs. in the licensed service area

	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR November Month	0.20%	0.01%	0.14%	0.04%	0.11%	0.03%	0.17%	0.03%	0.13%
3 Day Live November Month	0.20%	0.02%	0.13%	0.07%	0.07%	0.02%	0.18%	0.04%	0.07%
Benchmark ≤ 2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
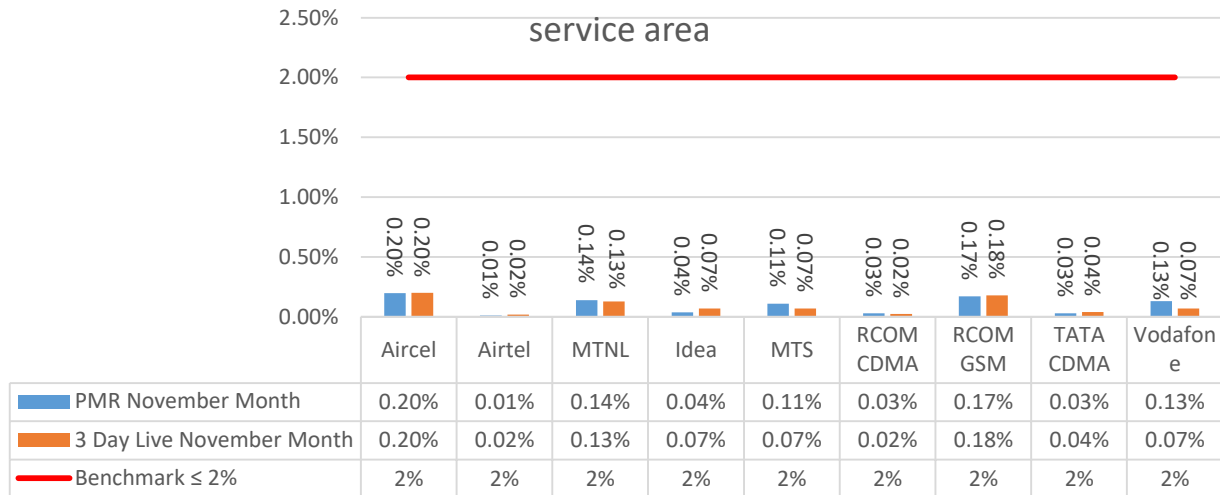
- It is clear from the analysis that all the operators are within benchmark.

5.1.4. KEY FINDINGS: SUM OF DOWNTIME OF BTSS: DECEMBER

Sum of downtime of BTSs in a month in hrs. in the licensed service area

	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR December Month	0.13%	0.01%	0.12%	0.03%	0.03%	0.03%	0.04%	0.03%	0.13%
3 Day Live December Month	0.13%	0.02%	0.10%	0.04%	0.11%	0.04%	0.04%	0.01%	0.10%
Benchmark ≤ 2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
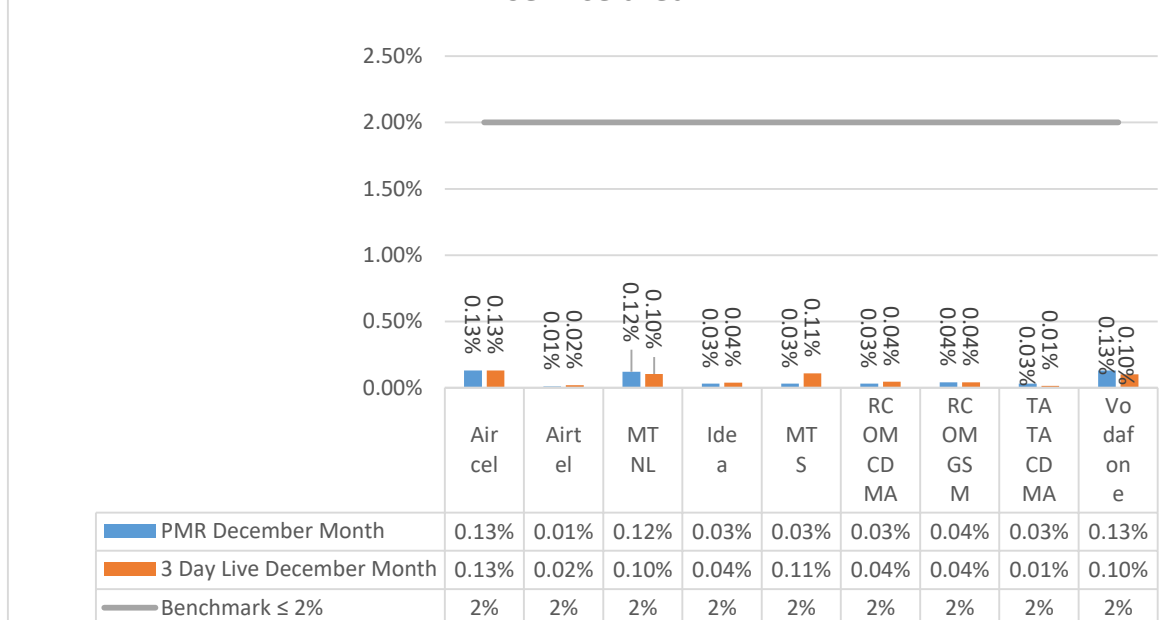
- It is clear from the analysis that all the operators are within benchmark.

5.2. WORST AFFECTED BTS DUE TO DOWNTIME

- Definition: Worst Affected BTS due to downtime shall basically measure percentage of BTS having downtime greater than 24 hours in a month. Planned outages were not considered as part while computing.

For measuring the parameter "Percentage of worst affected BTSs due to downtime" the downtime of each BTS lasting for more than 1 hour at a time in a day during the period of a month was considered.

- Computation Methodology: Worst affected BTSs due to downtime =

$$\frac{\text{Number of BTSs having accumulated downtime greater than 24 hours in a month}}{\text{Number of BTS in Licensed Service Area}} * 100$$

- TRAI Benchmark: Worst affected BTSs due to downtime ≤ 2%
- Audit Procedure:
    - The fault alarm details at the OMC (MSC) for the network outages (due to own network elements and infrastructure service provider end outages) was audited.
    - All the BTS in service area were considered. Planned outages due to network up gradation, routine maintenance were not considered.
    - Data is extracted from system log of the server of the operator. This data is in raw format which is further processed to arrive at the cumulative values.
    - Any outage as a result of force majeure was not considered at the time of calculation.
    - List of operating sites with cell details and ids are taken from the operator.
    - All the BTS having down time greater than 24 hours is assessed and values of BTS accumulated downtime is computed in accordance.

No. of BTSs having accumulated downtime of >24 hours in a month

	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR Data 3 Month Consolidated	0.44%	0.00%	0.42%	0.00%	0.03%	0.15%	0.86%	0.07%	0.64%
3 Day Live 3 Month Consolidated	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%
Benchmark ≤ 2%	2%	2%	2%	2%	2%	2%	2%	2%	2%

- It is clear from the analysis that all the operators are within benchmark.

No. of BTSs having accumulated downtime of >24 hours in a month

	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR October Month	0.71%	0.00%	0.27%	0.00%	0.10%	0.22%	0.77%	0.14%	0.64%
3 Day Live October Month	0.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.03%
Benchmark ≤ 2%	2%	2%	2%	2%	2%	2%	2%	2%	2%

No. of BTSs having accumulated downtime of >24 hours in a month

	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR November Month	0.40%	0.00%	0.62%	0.00%	0.00%	0.00%	1.77%	0.07%	0.67%
3 Day Live November Month	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Benchmark ≤ 2%	2%	2%	2%	2%	2%	2%	2%	2%	2%

- It is clear from the analysis that all the operators are within benchmark.

No. of BTSs having accumulated downtime of >24 hours in a month

	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodaf one
PMR December Month	0.22%	0.00%	0.35%	0.00%	0.00%	0.22%	0.04%	0.00%	0.61%
3 Day Live December Month	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Benchmark ≤ 2%	2%	2%	2%	2%	2%	2%	2%	2%	2%

- It is clear from the analysis that all the operators are within benchmark.

5.3. CALL SETUP SUCCESS RATE

- Definition: The ratio of successful calls established to total calls is known as Call Set-Up Success Rate (CSSR).
- Computational Methodology: $\frac{Calls\ Established}{(Total\ call\ attempts)} * 100$

  Calls established means the following events happened in call setup:
  - Call attempt is made.
  - The TCH is allocated.
  - The call is routed to the outward path of the concerned MSC.

- TRAI Benchmark ≥ 95%
- Audit Procedure:
  - The cell-wise data generated through counters/ MMC available in the switch for traffic measurements.

  - CSSR calculation should be measured using OMC generated data only.

  - Measurement should be only in Time Consistent Busy Hour (CBBH) period for all days of the week.

  - Counter data is extracted from the NOC of the operators.

- Total calls established include all calls established excluding Signaling blocking, TCH Drop and TCH blocking.

The numerator and denominator values are derived from adding the counter values from the MSC.

5.3.1. KEY FINDINGS: CALL SETUP SUCCESS RATE: CONSOLIDATED

Call Set-up Success Rate (Within Licensee own network)

	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR Data 3 Month Consolidated	97.76%	99.85%	97.06%	98.87%	98.86%	96.75%	97.32%	99.26%	98.47%
3 Day Live 3 Month Consolidated	97.83%	99.84%	97.11%	99.13%	98.49%	99.35%	97.00%	99.19%	98.24%
Benchmark ≥ 95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
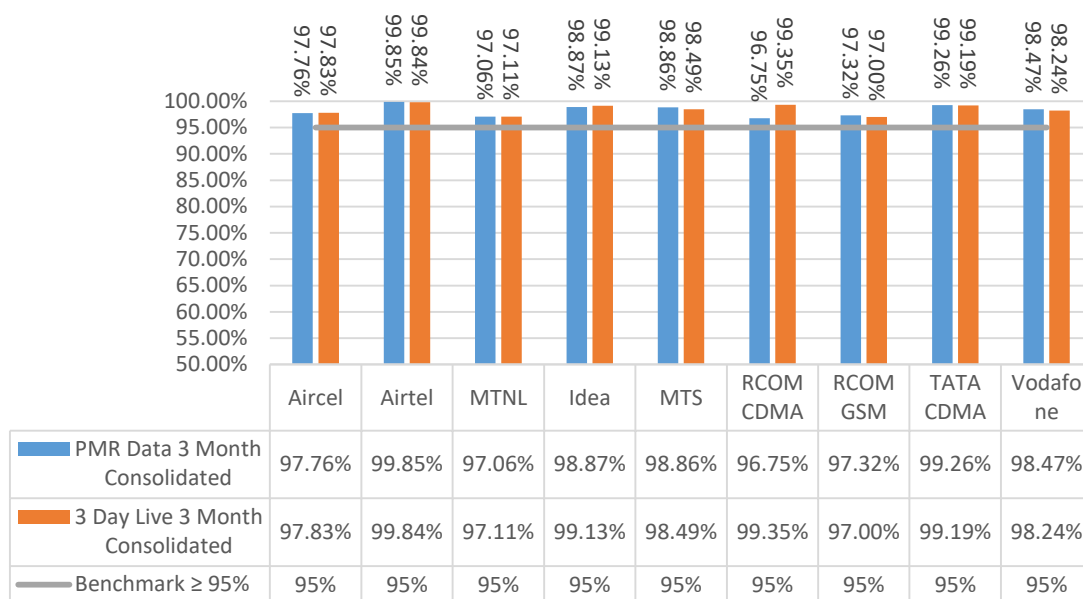
- It is clear from the analysis that all the operators are within benchmark.

5.3.2. KEY FINDINGS: CALL SETUP SUCCESS RATE: OCTOBER

Call Set-up Success Rate (Within Licensee own network)

	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR October Month	97.51%	99.83%	96.84%	98.39%	98.76%	96.66%	97.89%	99.23%	98.22%
3 Day Live October Month	97.28%	99.85%	96.74%	98.50%	98.93%	96.82%	99.87%	99.20%	98.42%
Benchmark ≥ 95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
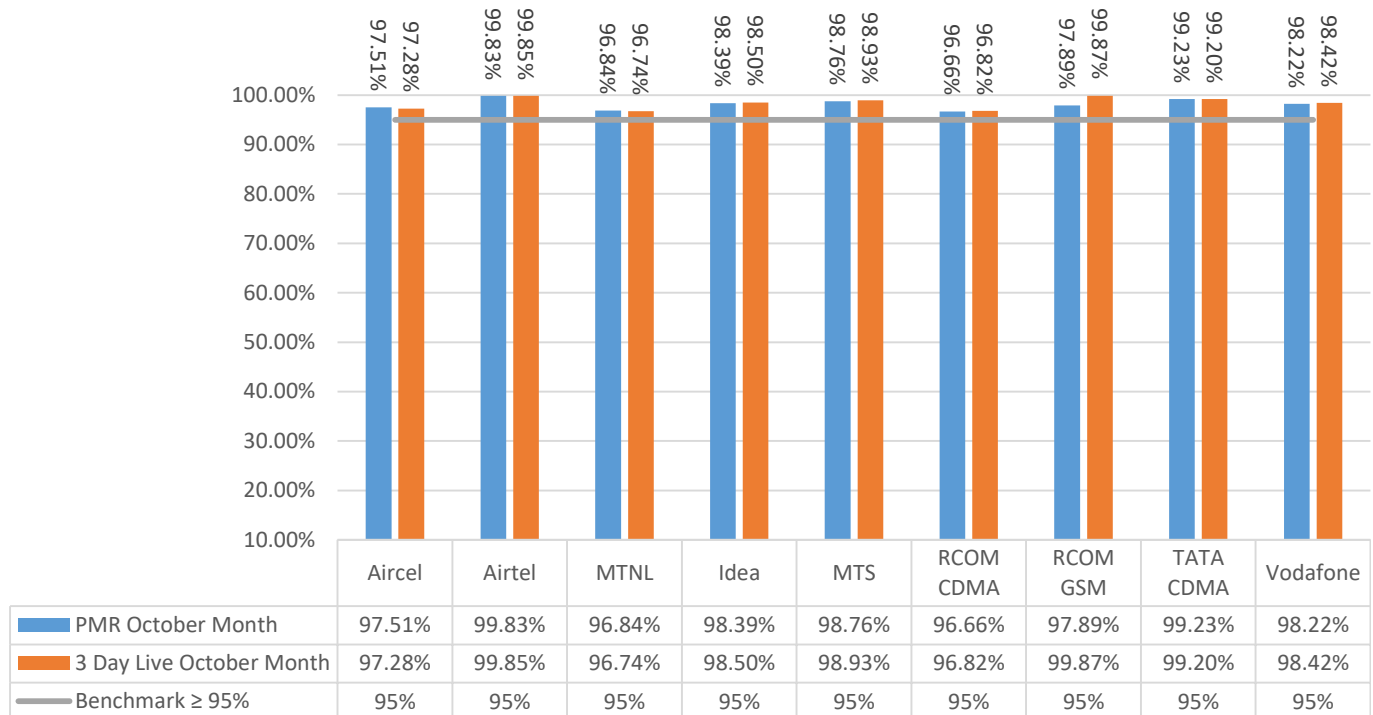
- It is clear from the analysis that all the operators are within benchmark.

5.3.3. KEY FINDINGS: CALL SETUP SUCCESS RATE: NOVEMBER

Call Set-up Success Rate (Within Licensee own network)
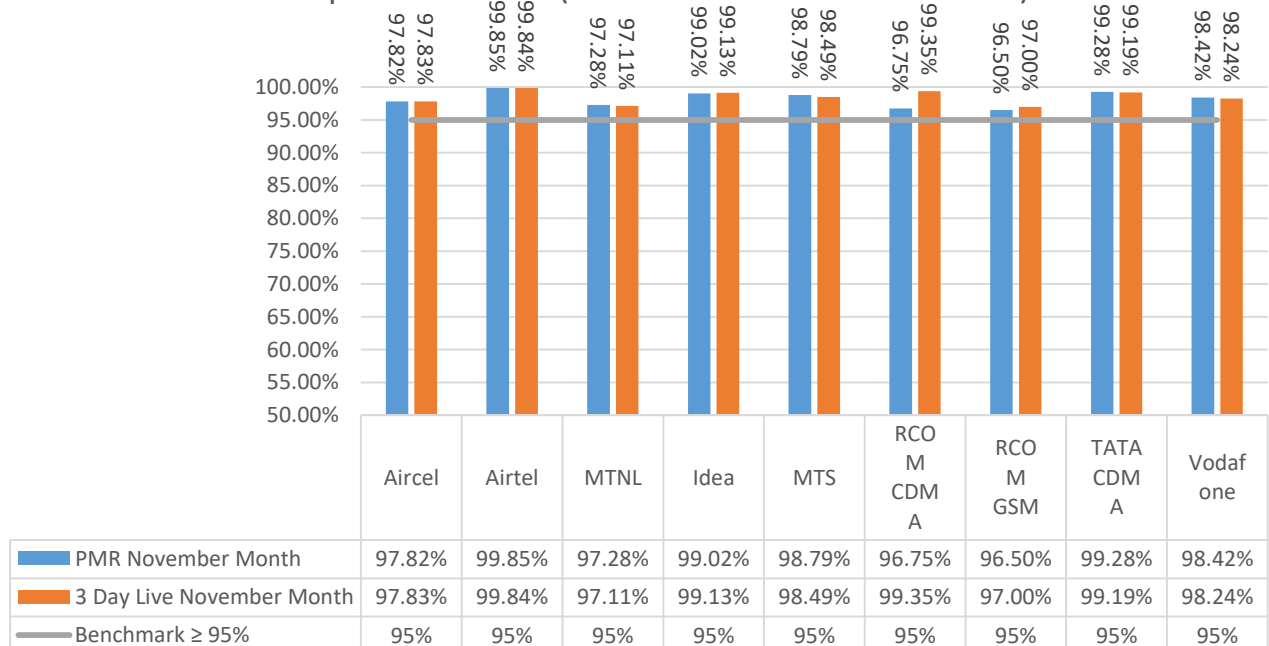
	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR November Month	97.82%	99.85%	97.28%	99.02%	98.79%	96.75%	96.50%	99.28%	98.42%
3 Day Live November Month	97.83%	99.84%	97.11%	99.13%	98.49%	99.35%	97.00%	99.19%	98.24%
Benchmark ≥ 95%	95%	95%	95%	95%	95%	95%	95%	95%	95%

- It is clear from the analysis that all the operators are within benchmark.

Call Set-up Success Rate (Within Licensee own network)

	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR December Month	97.94%	99.86%	97.05%	99.21%	99.04%	96.84%	97.57%	99.27%	98.77%
3 Day Live December Month	97.99%	99.87%	97.02%	99.08%	98.91%	96.68%	98.08%	99.15%	98.84%
Benchmark ≥ 95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
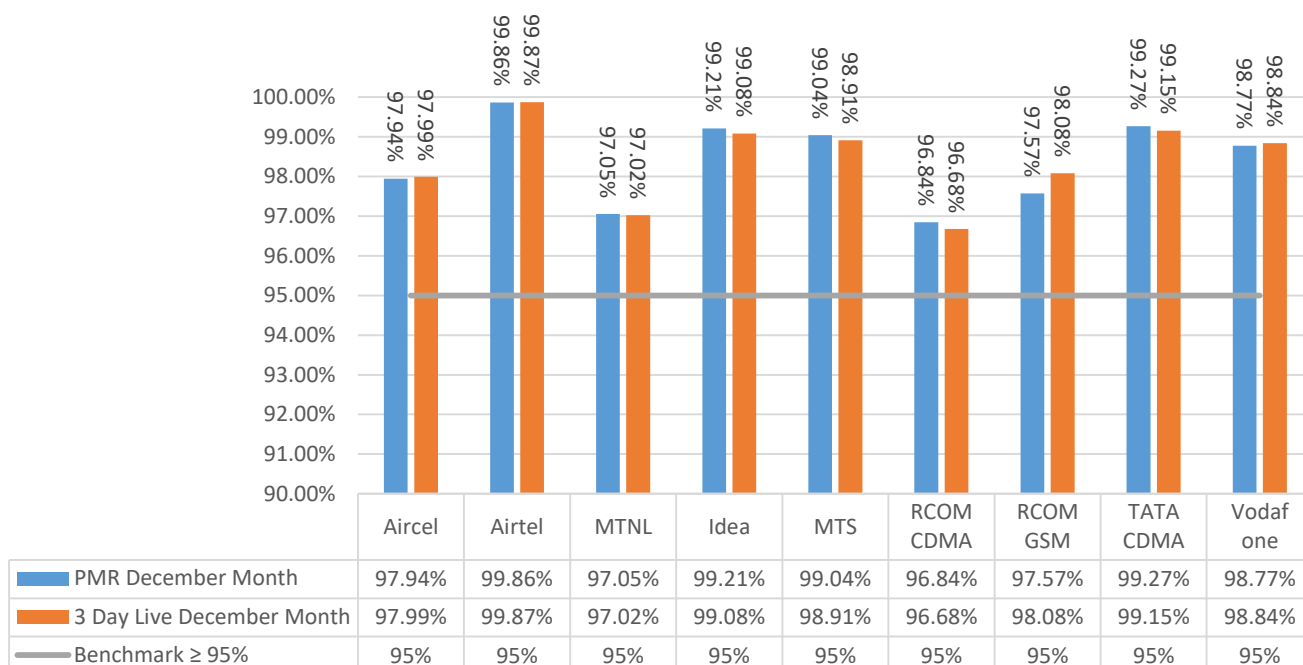
- It is clear from the analysis that all the operators are within benchmark.

5.4. NETWORK CHANNEL CONGESTION: PAGING CHANNEL/ TCH CONGESTION/ POI

- Definition: It means a call is not connected because there is no free channel to serve the call attempt. This parameter represents congestion in the network. It happens at three levels:

  - SDCCH Level: Stand-alone dedicated control channel

  - TCH Level: Traffic Channel

  - POI Level: Point of Interconnect.

- Computational Methodology:

  SDCCH / TCH Congestion% = $\dfrac{(A1 \times C1) + (A2 \times C2) + \cdots\ldots + (An \times Cn)}{(A1 + A2 + \cdots + An)}$

  where:
  - A1 = Number of attempts to establish SDCCH / TCH made on day 1
  - C1 = Average SDCCH / TCH Congestion % on day 1
  - A2 = Number of attempts to establish SDCCH / TCH made on day 2
  - C2 = Average SDCCH / TCH Congestion % on day 2
  - An = Number of attempts to establish SDCCH / TCH made on day n
  - Cn = Average SDCCH / TCH Congestion % on day n

POI Congestion% = $\dfrac{[(A1 \times C1) + (A2 \times C2) + \cdots \ldots + (An \times Cn)}{(A1 + A2 + \cdots + An}$

Where:

- ▪ A1 = POI traffic offered on all POIs (no. of calls) on day 1
- ▪ C1 = Average POI Congestion % on day 1
- ▪ A2 = POI traffic offered on all POIs (no. of calls) on day 2
- ▪ C2 = Average POI Congestion % on day 2
- ▪ An = POI traffic offered on all POIs (no. of calls) on day n
- ▪ Cn = Average POI Congestion % on day n

- • Benchmark: SDCCH Congestion: ≤ 1%, TCH Congestion: ≤ 2%, POI Congestion: ≤ 0.5%

- • Audit Procedure –
    - ▪ Audit of the details of SDCCH and TCH congestion percentages computed by the operator (using OMC–Switch data only) would be conducted.
    - ▪ The operator should be measuring this parameter during Time consistent busy hour (TCBH) only SDCCH.

5.4.1. KEY FINDINGS: SDCC/ PAGING CHANNEL CONGESTION: CONSOLIDATED
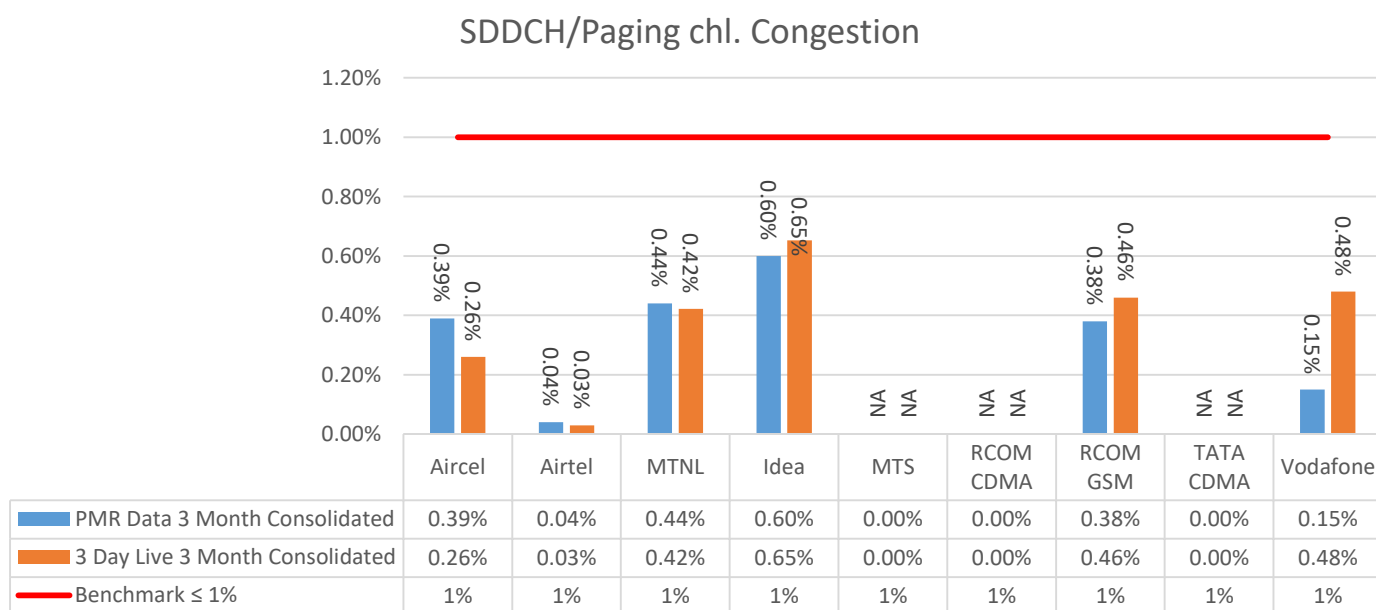
SDDCH/Paging chl. Congestion

	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR Data 3 Month Consolidated	0.39%	0.04%	0.44%	0.60%	0.00%	0.00%	0.38%	0.00%	0.15%
3 Day Live 3 Month Consolidated	0.26%	0.03%	0.42%	0.65%	0.00%	0.00%	0.46%	0.00%	0.48%
Benchmark ≤ 1%	1%	1%	1%	1%	1%	1%	1%	1%	1%

- • It is clear from the analysis that all the operators are within benchmark.

SDDCH/Paging chl. Congestion

	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR October Month	0.48%	0.05%	0.48%	0.67%	0.00%	0.00%	0.11%	0.00%	0.43%
3 Day Live October Month	0.51%	0.03%	0.51%	0.66%	0.00%	0.00%	0.54%	0.00%	0.15%
Benchmark ≤ 1%	1%	1%	1%	1%	1%	1%	1%	1%	1%

- It is clear from the analysis that all the operators are within benchmark.

SDDCH/Paging chl. Congestion

	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR November Month	0.46%	0.03%	0.37%	0.66%	0.00%	0.00%	0.57%	0.00%	0.60%
3 Day Live November Month	0.26%	0.03%	0.42%	0.65%	0.00%	0.00%	0.46%	0.00%	0.48%
Benchmark ≤ 1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
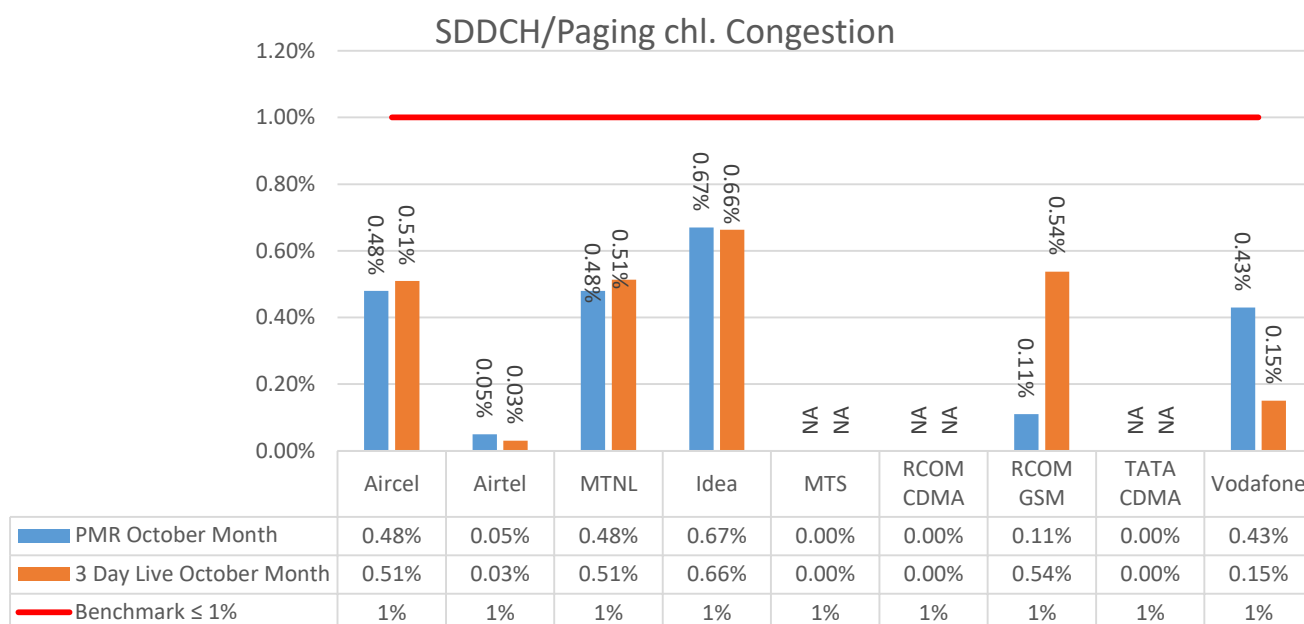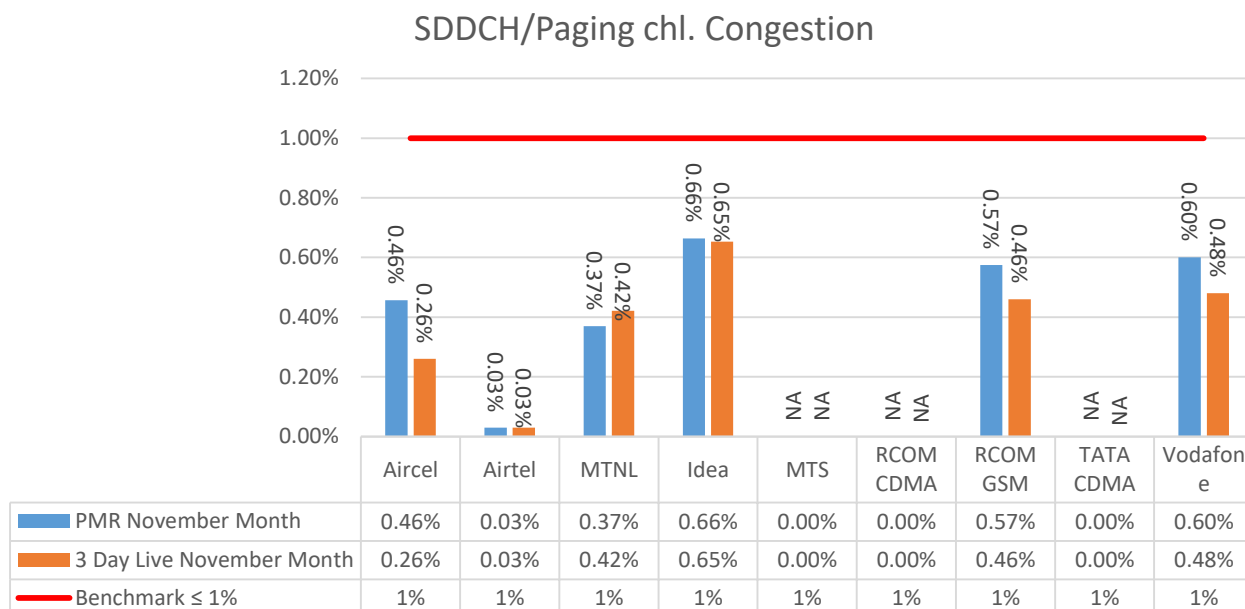
- It is clear from the analysis that all the operators are within benchmark.

5.4.4. KEY FINDINGS: SDCC/ PAGING CHANNEL CONGESTION: DECEMBER

SDDCH/Paging chl. Congestion

	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR December Month	0.23%	0.03%	0.46%	0.45%	0.00%	0.00%	0.46%	0.00%	0.26%
3 Day Live December Month	0.22%	0.02%	0.26%	0.58%	0.00%	0.00%	0.40%	0.00%	0.39%
Benchmark ≤ 1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
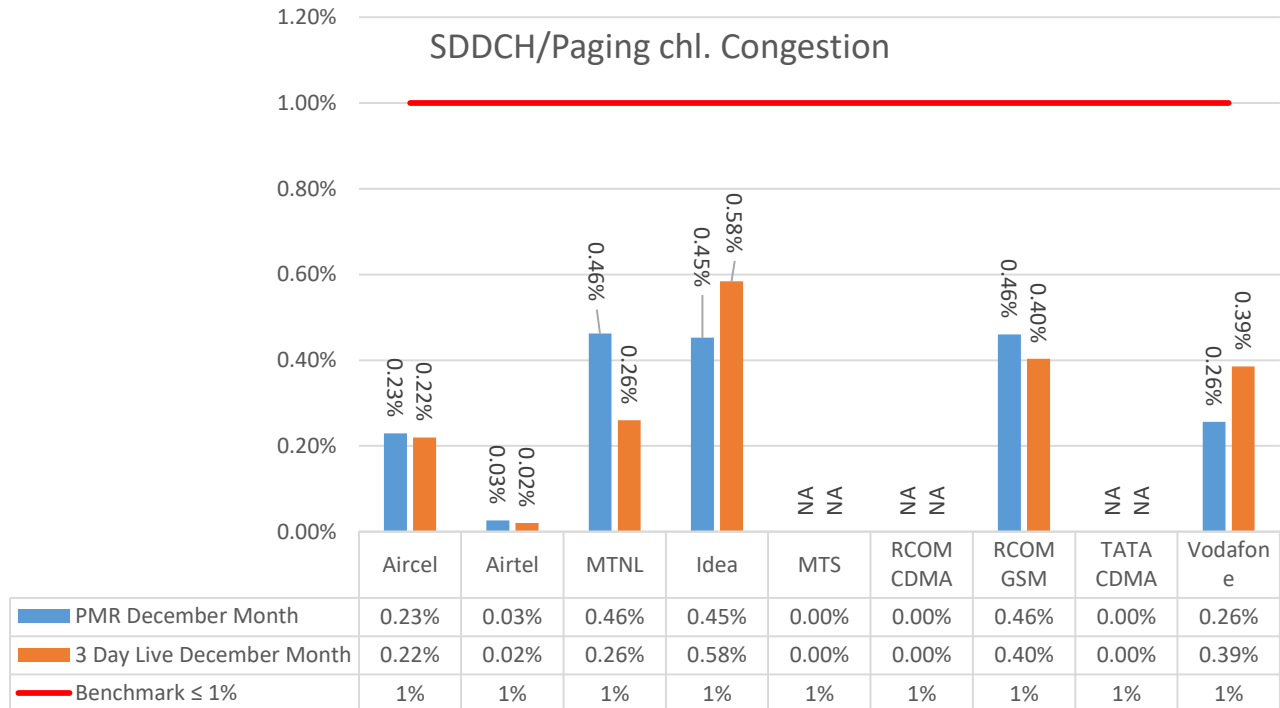
- It is clear from the analysis that all the operators are within benchmark.

5.4.5. KEY FINDINGS: TCH CONGESTION: CONSOLIDATED
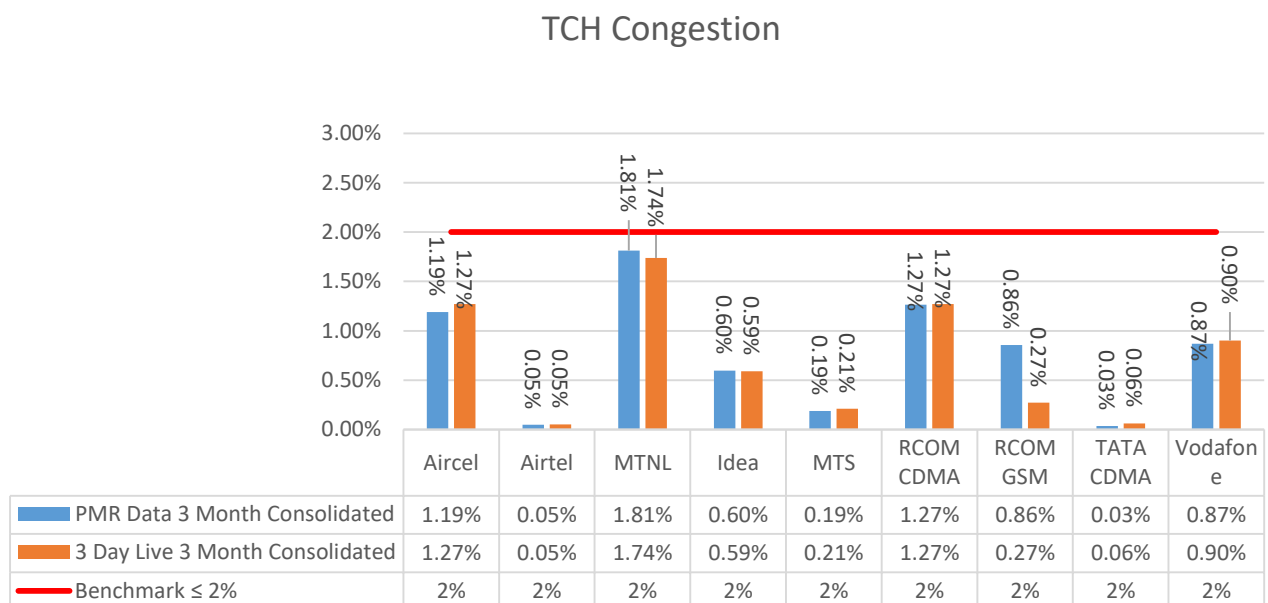
TCH Congestion

	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR Data 3 Month Consolidated	1.19%	0.05%	1.81%	0.60%	0.19%	1.27%	0.86%	0.03%	0.87%
3 Day Live 3 Month Consolidated	1.27%	0.05%	1.74%	0.59%	0.21%	1.27%	0.27%	0.06%	0.90%
Benchmark ≤ 2%	2%	2%	2%	2%	2%	2%	2%	2%	2%

- It is clear from the analysis that all the operators are within benchmark.

TCH Congestion

	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR October Month	1.42%	0.04%	1.83%	1.01%	0.27%	1.27%	0.77%	0.04%	1.08%
3 Day Live October Month	1.78%	0.04%	1.82%	0.95%	0.23%	1.27%	0.80%	0.05%	0.95%
Benchmark ≤ 2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
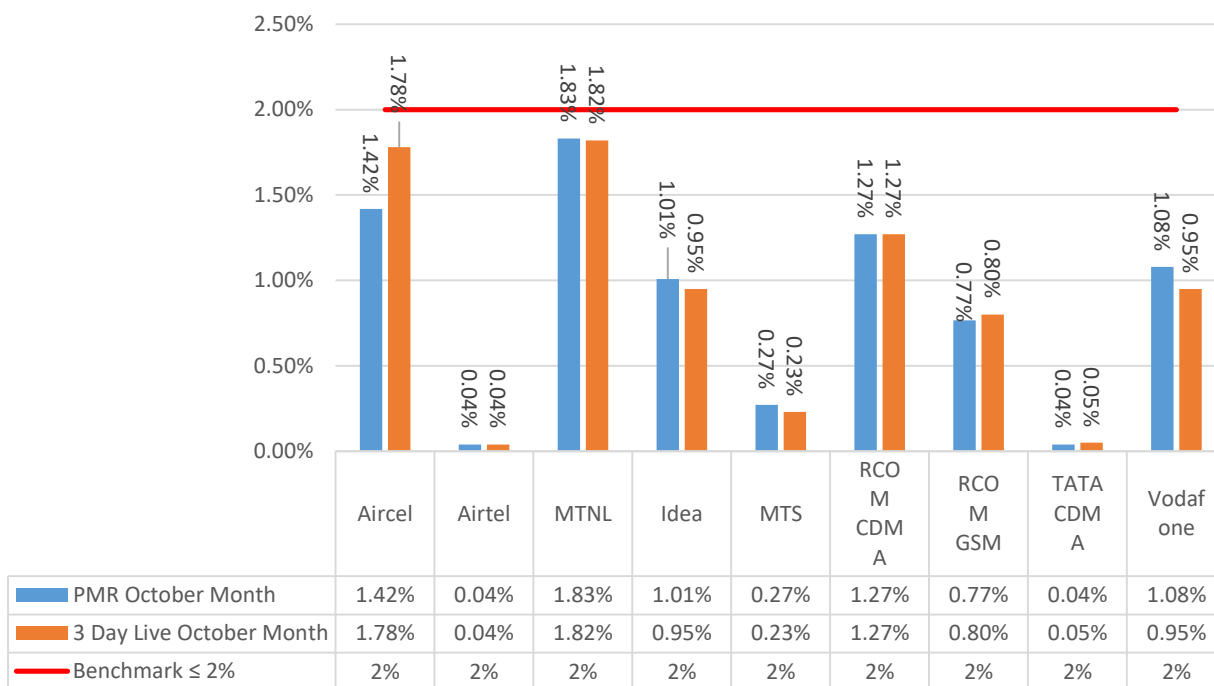
- It is clear from the analysis that all the operators are within benchmark.

5.4.7. KEY FINDINGS: TCH CONGESTION: NOVEMBER

TCH Congestion

	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR November Month	1.16%	0.05%	1.83%	0.43%	0.19%	1.26%	0.79%	0.02%	0.95%
3 Day Live November Month	1.13%	0.06%	1.68%	0.37%	0.19%	1.26%	0.82%	0.03%	1.19%
Benchmark ≤ 2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
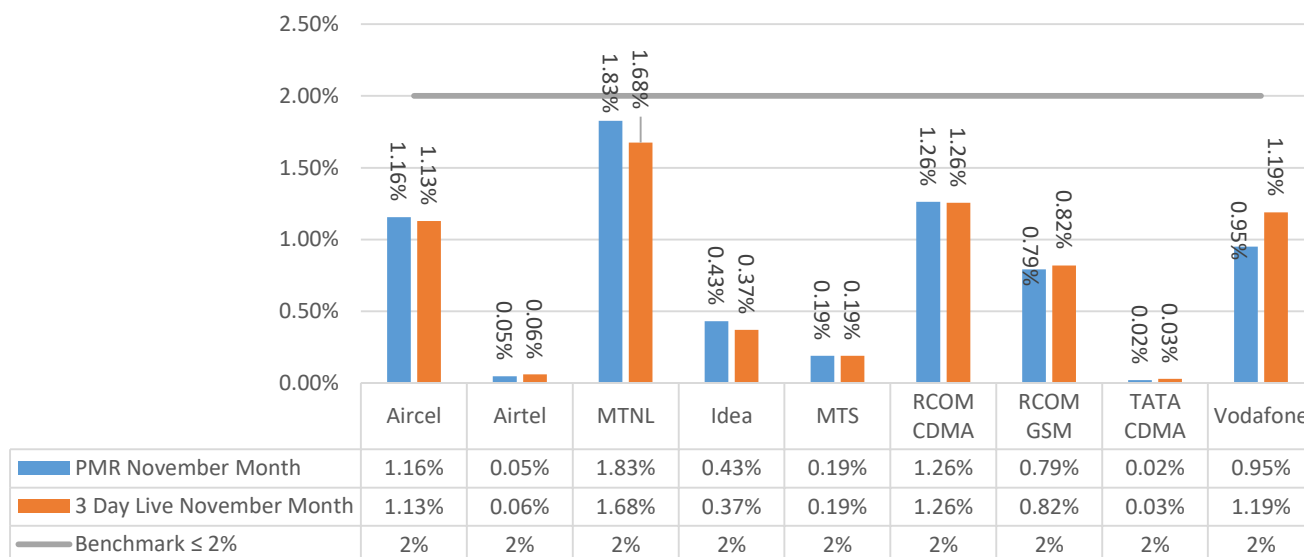
- It is clear from the analysis that all the operators are within benchmark.

5.4.8. KEY FINDINGS: TCH CONGESTION: DECEMBER

TCH Congestion

	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR December Month	1.00%	0.06%	1.79%	0.35%	0.10%	1.27%	1.01%	0.04%	0.58%
3 Day Live December Month	0.89%	0.05%	1.74%	0.44%	0.22%	1.27%	0.79%	0.09%	0.55%
Benchmark ≤ 2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
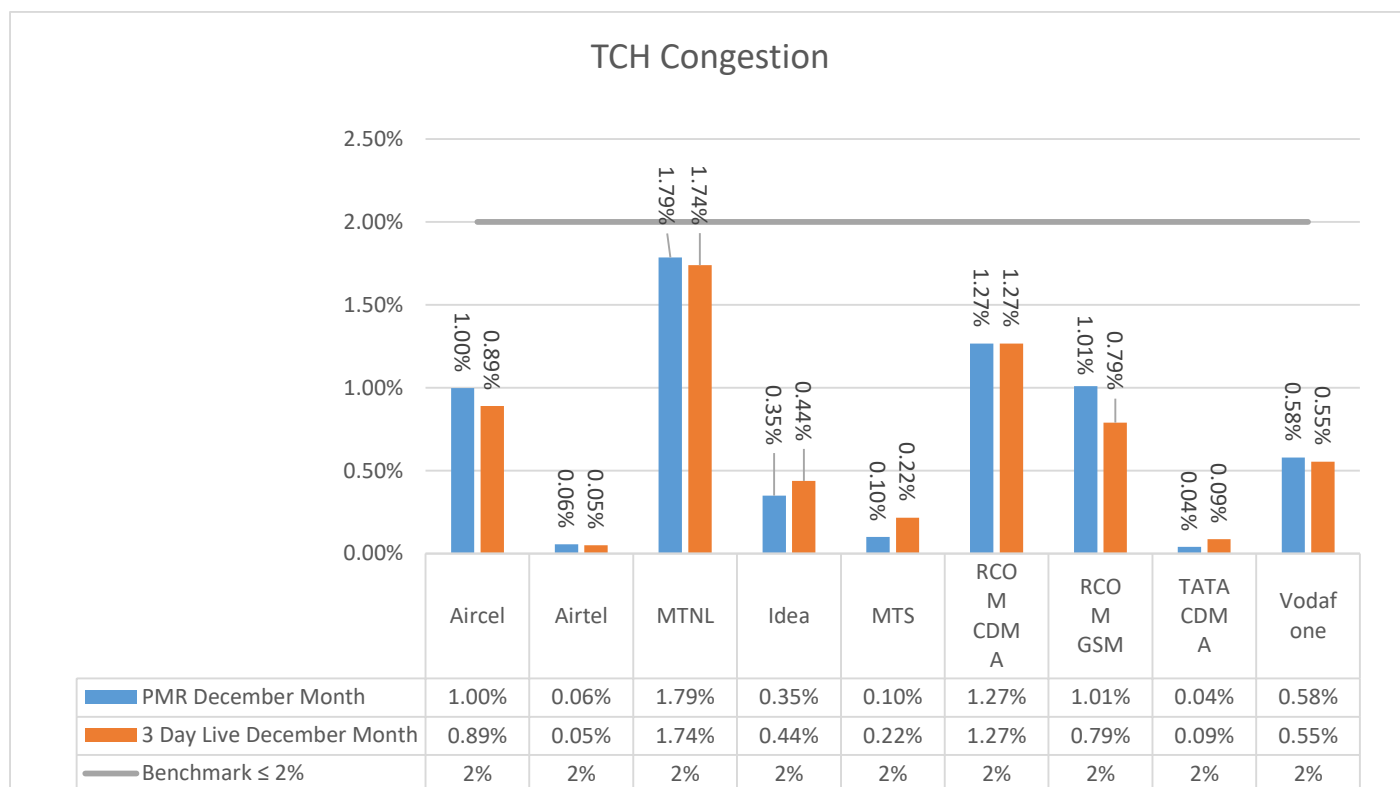
- It is clear from the analysis that all the operators are within benchmark.

5.5. CALL DROP RATE

- Definition - The dropped call rate is the ratio of successfully originated calls that were found to drop to the total number of successfully originated calls that were correctly released.
  - Total calls dropped = All calls ceasing unnaturally i.e. due to handover or due to radio loss
  - Total calls established = All calls that have TCH allocation during busy hour

- Computational Methodology: $\frac{Total\ Calls\ Dropped}{Total\ Calls\ Established} * 100$

- TRAI Benchmark: Call drop rate ≤ 2%
- Audit Procedure:
  - Audit of traffic data of the relevant quarter kept in OMC-R at MSCs and used for arriving at CDR was used.

The operator should only be considering those calls which are dropped during Time consistent busy hour (TCBH) for all days of the relevant quarter.

Call Drop Rate (%age)

	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR Data 3 Month Consolidated	0.96%	0.76%	1.84%	0.68%	0.27%	0.18%	0.15%	0.29%	1.20%
3 Day Live 3 Month Consolidated	1.00%	0.79%	1.78%	1.05%	0.29%	0.17%	0.16%	0.34%	1.17%
Benchmark ≤ 2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
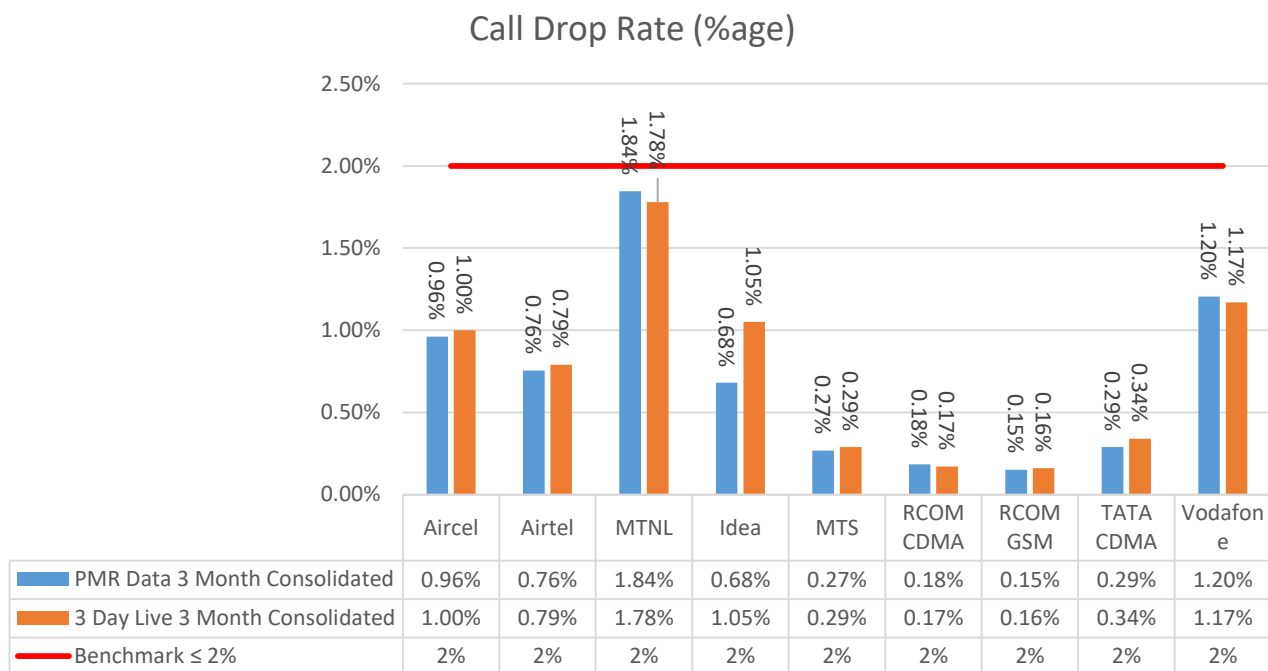
- It is clear from the analysis that all the operators are within benchmark.

5.5.2. KEY FINDINGS: CALL DROP RATE: OCTOBER

Call Drop Rate (%age)

	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR October Month	1.07%	0.73%	1.86%	0.66%	0.28%	0.22%	0.16%	0.31%	1.19%
3 Day Live October Month	1.16%	0.77%	1.76%	0.68%	0.26%	0.18%	0.17%	0.29%	1.20%
Benchmark ≤ 2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
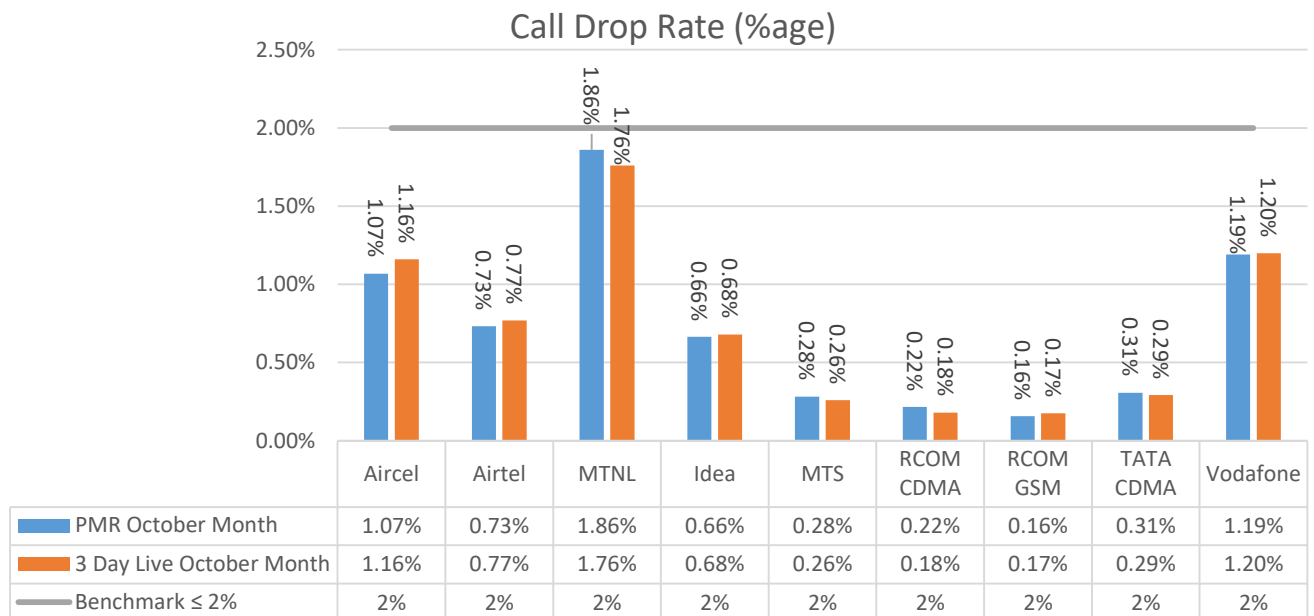
- It is clear from the analysis that all the operators are within benchmark.

5.5.3. KEY FINDINGS: CALL DROP RATE: NOVEMBER

Call Drop Rate (%age)

	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR November Month	0.96%	0.77%	1.85%	0.67%	0.27%	0.18%	0.16%	0.28%	1.18%
3 Day Live November Month	0.99%	0.80%	1.80%	0.70%	0.33%	0.18%	0.15%	0.35%	1.05%
Benchmark ≤ 2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
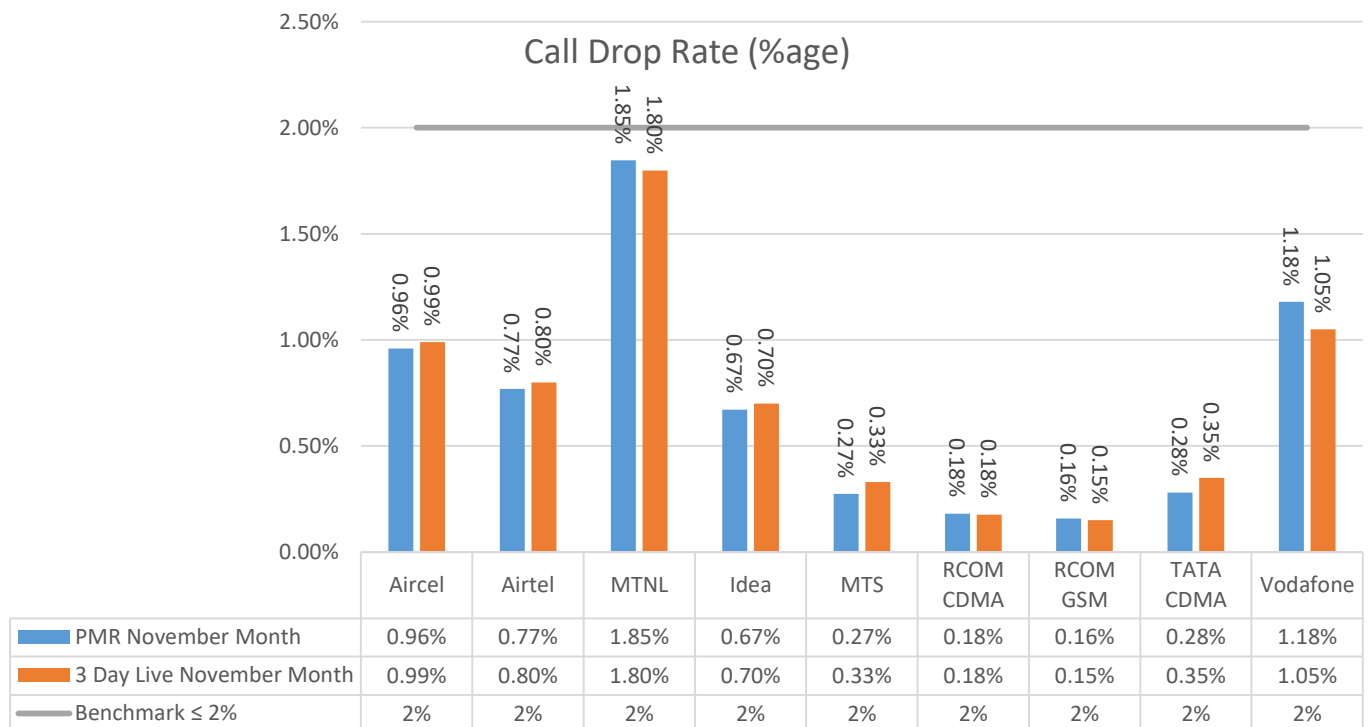
- It is clear from the analysis that all the operators are within benchmark.

5.5.4. KEY FINDINGS: CALL DROP RATE: DECEMBER

Call Drop Rate (%age)

	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR December Month	0.86%	0.77%	1.83%	0.72%	0.25%	0.15%	0.14%	0.28%	1.24%
3 Day Live December Month	0.86%	0.81%	1.79%	0.73%	0.28%	0.15%	0.16%	0.37%	1.27%
Benchmark ≤ 2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
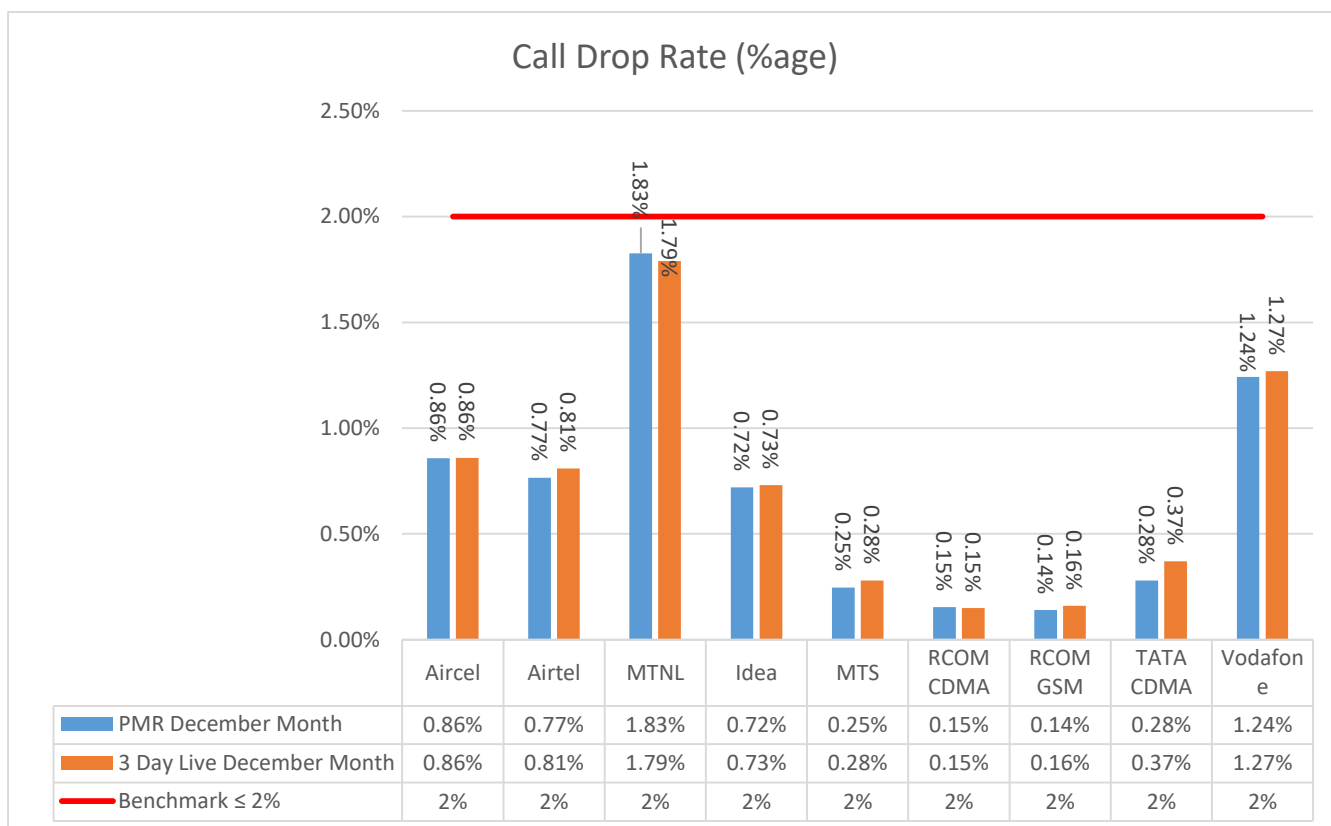
- It is clear from the analysis that all the operators are within benchmark.

5.6. CELLS HAVING GREATER THAN 3% TCH DROP

- Definition- Worst Affected Cells having more than 3% TCH drop shall measure the ratio of total number of cells in the network to the ratio of cells having more than 3% TCH drop.

- Computational Methodology: $\frac{\text{Total number of cells having more than 3\% TCH drop during CBBH}}{\text{Total number of cells in the network}} * 100$

- TRAI Benchmark: Worst affected cells having more than 3% TCH drop rate ≤ 3%

- Audit Procedure:
  - Audit of traffic data of the relevant quarter kept in OMC-R at MSCs and used for arriving at CDR would be conducted.

The operator should only be considering those calls which are dropped during Cell Bouncing Busy hour (CBBH) for all days of the relevant quarter.

Wost Affected call having more than 3% TCH drop

	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Voda fone
PMR Data 3 Month Consolidated	4.87%	1.23%	2.56%	2.41%	1.33%	0.83%	0.75%	2.12%	2.73%
3 Day Live 3 Month Consolidated	4.99%	1.18%	2.65%	2.53%	0.62%	0.77%	0.65%	2.12%	2.67%
Benchmark ≤ 3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
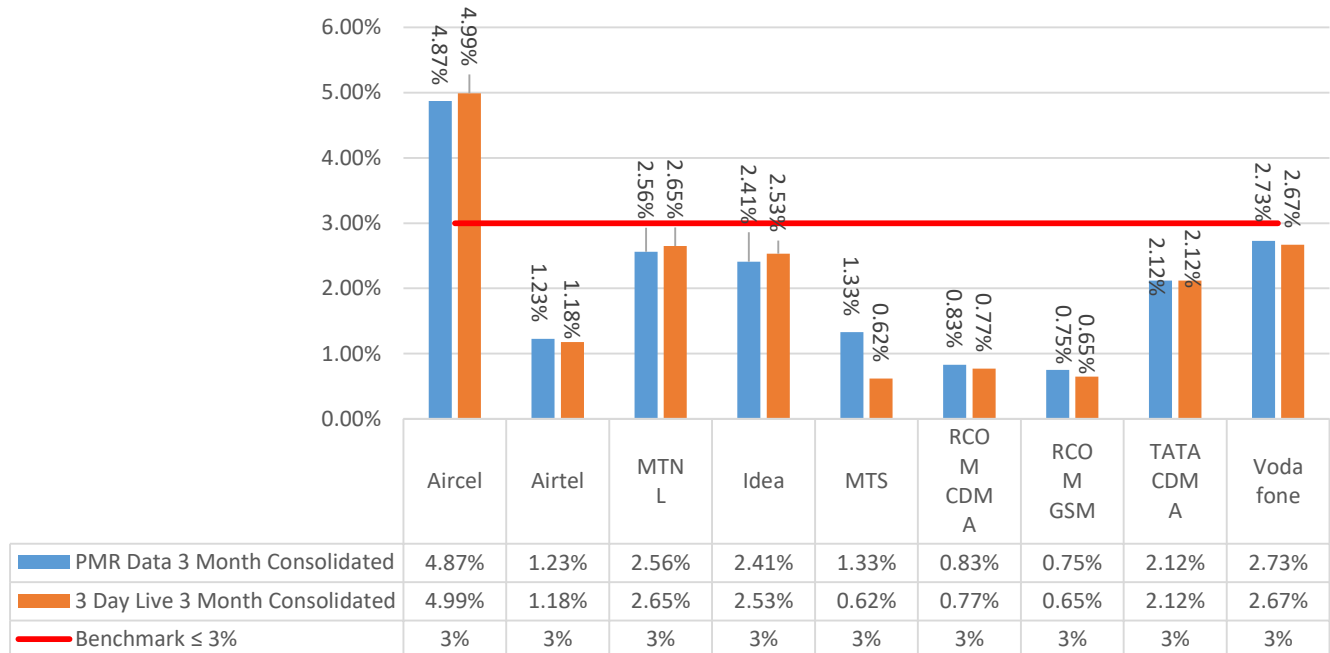
- Aircel has parameter value of **4.87%** and failed to meet the benchmark for Worst Affected cell having more than 3% TCH drop as it is pre-defined at ≤ 3%

- Aircel has parameter value of **4.99%** and failed to meet the benchmark for Worst Affected cell having more than 3% TCH drop as it is pre-defined at ≤ 3%

5.6.2. KEY FINDINGS: CELLS HAVING MORE THAN 3% TCH DROP: OCTOBER
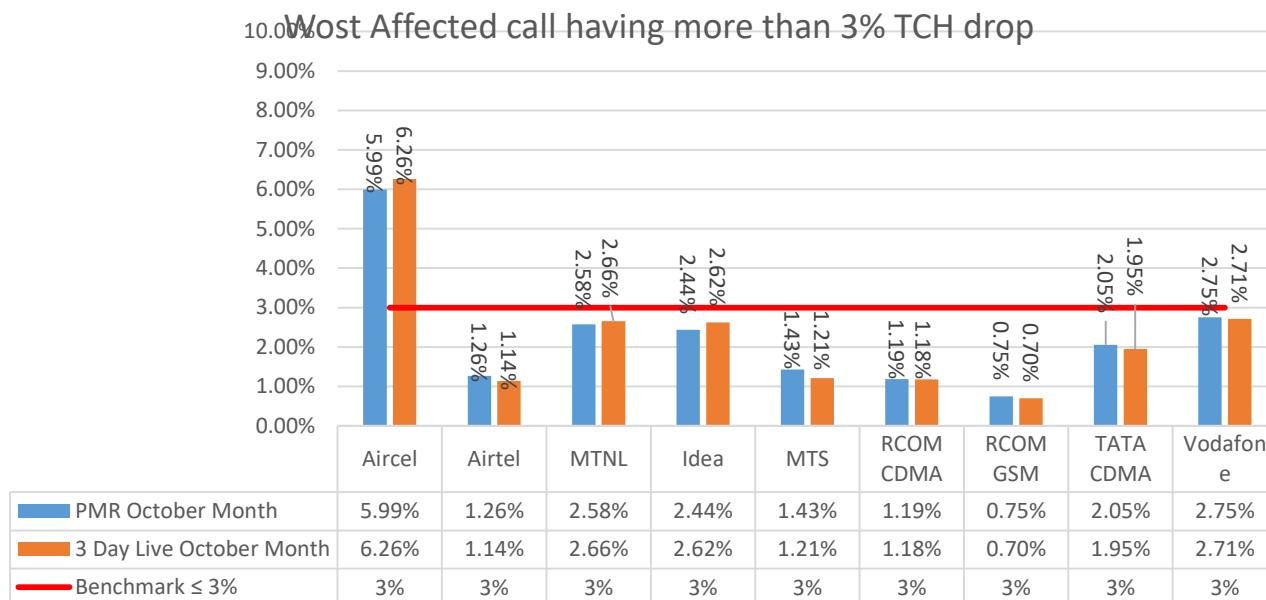
Wost Affected call having more than 3% TCH drop

	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR October Month	5.99%	1.26%	2.58%	2.44%	1.43%	1.19%	0.75%	2.05%	2.75%
3 Day Live October Month	6.26%	1.14%	2.66%	2.62%	1.21%	1.18%	0.70%	1.95%	2.71%
Benchmark ≤ 3%	3%	3%	3%	3%	3%	3%	3%	3%	3%

- Aircel has parameter value of **6.26%** and failed to meet the benchmark for Worst Affected cell having more than 3% TCH drop as it is pre-defined at ≤ 3%.

- Aircel has parameter value of **5.99%** and failed to meet the benchmark for Worst Affected cell having more than 3% TCH drop as it is pre-defined at ≤ 3%.

5.6.3. KEY FINDINGS: CELLS HAVING MORE THAN 3% TCH DROP: NOVEMBER
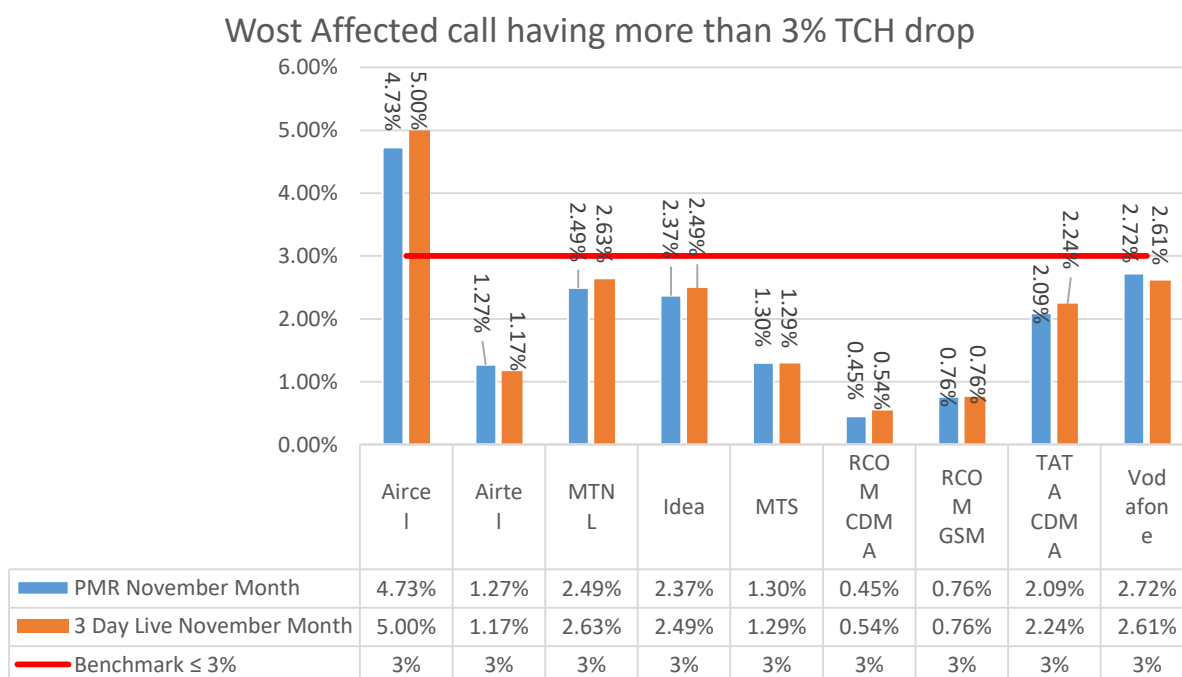
Wost Affected call having more than 3% TCH drop

	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR November Month	4.73%	1.27%	2.49%	2.37%	1.30%	0.45%	0.76%	2.09%	2.72%
3 Day Live November Month	5.00%	1.17%	2.63%	2.49%	1.29%	0.54%	0.76%	2.24%	2.61%
Benchmark ≤ 3%	3%	3%	3%	3%	3%	3%	3%	3%	3%

- Aircel has parameter value of **4.73%** and failed to meet the benchmark for Worst Affected cell having more than 3% TCH drop as it is pre-defined at ≤ 3%

- Aircel has parameter value of **5.00%** and failed to meet the benchmark for Worst Affected cell having more than 3% TCH drop as it is pre-defined at ≤ 3%

5.6.4. KEY FINDINGS: CELLS HAVING MORE THAN 3% TCH DROP: DECEMBER

Wost Affected call having more than 3% TCH drop
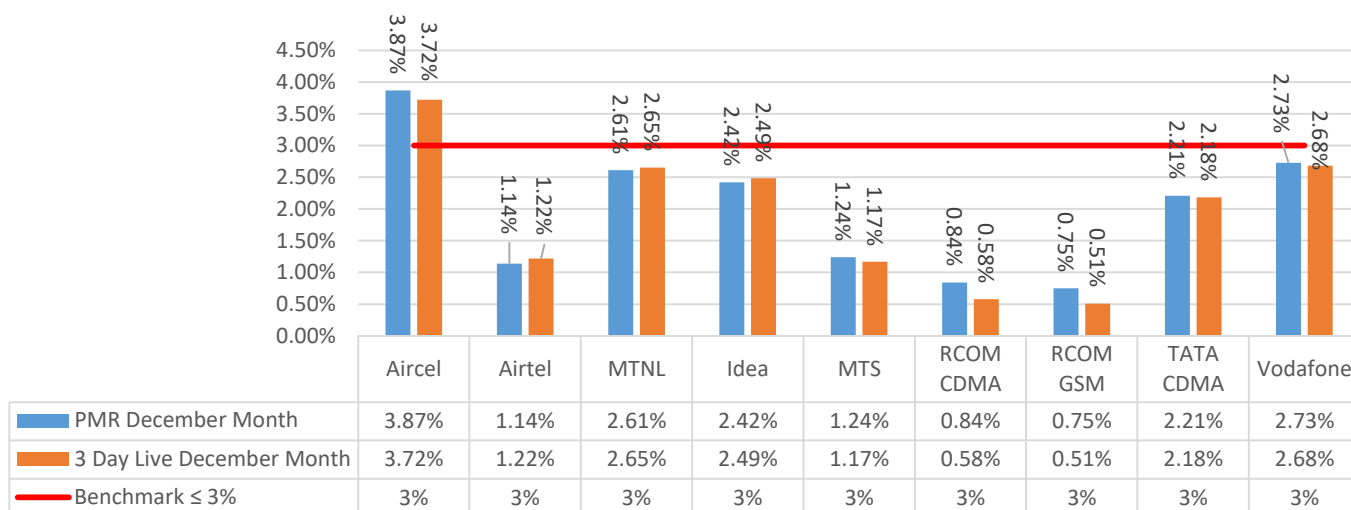
	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR December Month	3.87%	1.14%	2.61%	2.42%	1.24%	0.84%	0.75%	2.21%	2.73%
3 Day Live December Month	3.72%	1.22%	2.65%	2.49%	1.17%	0.58%	0.51%	2.18%	2.68%
Benchmark ≤ 3%	3%	3%	3%	3%	3%	3%	3%	3%	3%

- Aircel has parameter value of **3.87%** and failed to meet the benchmark for Worst Affected cell having more than 3% TCH drop as it is pre-defined at ≤ 3%
- Aircel has parameter value of **3.72%** and failed to meet the benchmark for Worst Affected cell having more than 3% TCH drop as it is pre-defined at ≤ 3%

5.7. VOICE QUALITY

- Definition:
    - For GSM service providers the calls having a value of 0 –5 are considered to be of good quality (on a seven point scale)

    - For CDMA the measure of voice quality is Frame Error Rate (FER). FER is the probability that a transmitted frame will be received incorrectly. Good voice quality of a call is considered when it FER value lies between 0 – 4 %

- Computational Methodology:

    % Connections with good voice quality $= \frac{\text{No.of voice samples with good voice quality}}{\text{Total number of samples}} * 100$

- TRAI Benchmark: ≥ 95%

- Audit Procedure –
    - A sample of calls would be taken randomly from the total calls established.
    - The operator should only be considering those calls which are meeting the desired benchmark of good voice quality.

5.7.1. KEY FINDINGS: VOICE QUALITY: CONSOLIDATED

%Age of connection with good voice quality

	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR Data 3 Month Consolidated	97.04%	99.19%	97.09%	98.12%	99.20%	99.17%	98.72%	99.19%	97.72%
3 Day Live 3 Month Consolidated	97.09%	99.14%	97.03%	98.04%	99.18%	99.35%	98.63%	99.15%	97.70%
Benchmark ≥ 95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
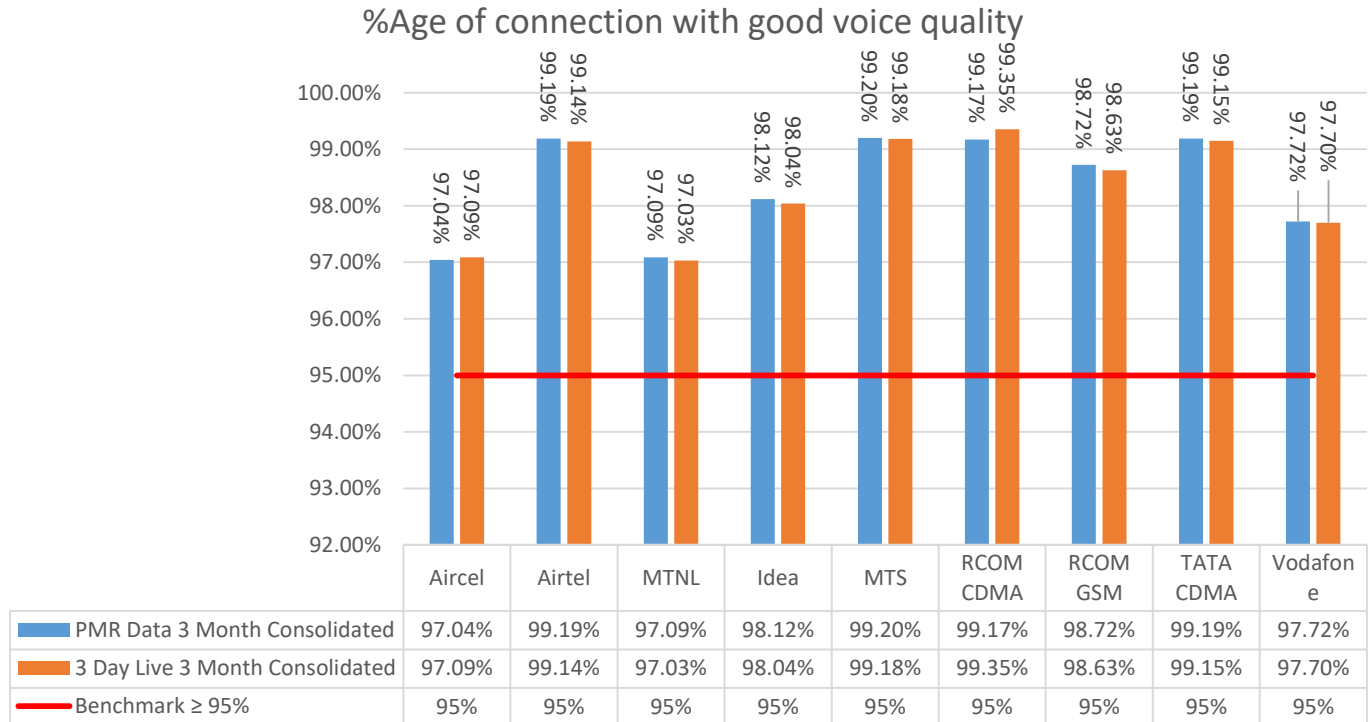
- It is clear from the analysis that all the operators are within benchmark.

5.7.2. KEY FINDINGS: VOICE QUALITY: OCTOBER

%Age of connection with good voice quality

	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR October Month	97.30%	99.18%	97.08%	98.10%	99.20%	98.34%	99.04%	99.18%	97.62%
3 Day Live October Month	97.29%	99.15%	97.08%	98.05%	99.20%	98.54%	98.50%	99.17%	97.48%
Benchmark ≥ 95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
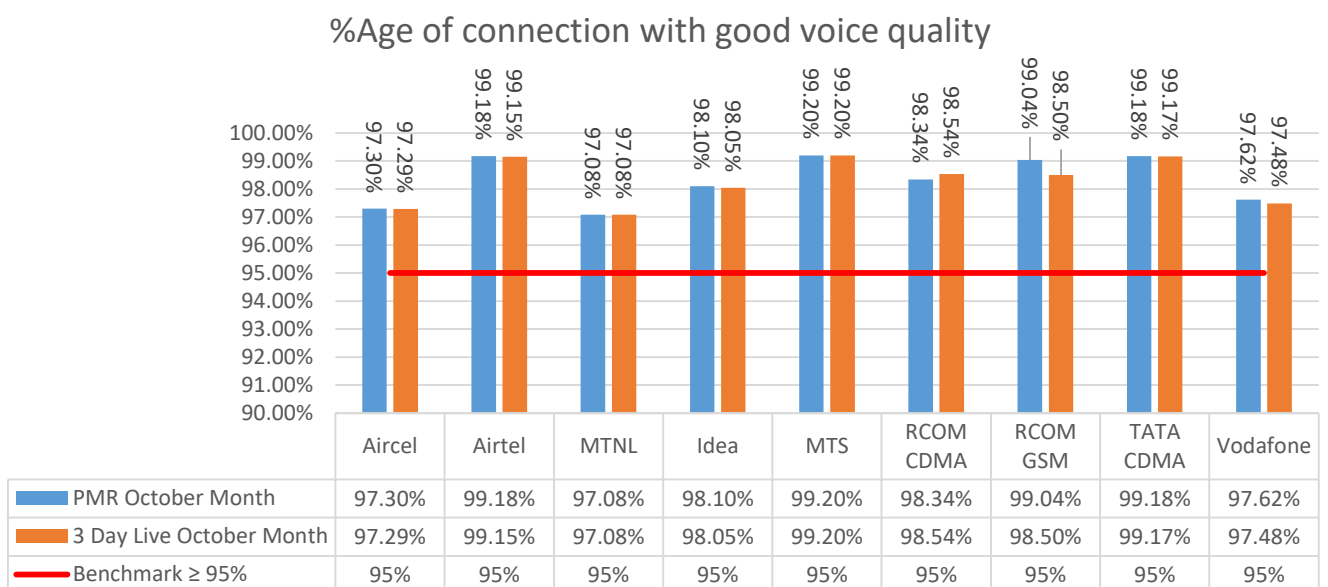
- It is clear from the analysis that all the operators are within benchmark.

5.7.3. KEY FINDINGS: VOICE QUALITY: NOVEMBER

%Age of connection with good voice quality

	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR November Month	97.06%	99.18%	97.09%	98.11%	99.20%	99.21%	98.60%	99.20%	97.67%
3 Day Live November Month	97.09%	99.14%	97.03%	98.04%	99.18%	99.35%	98.63%	99.15%	97.70%
Benchmark ≥ 95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
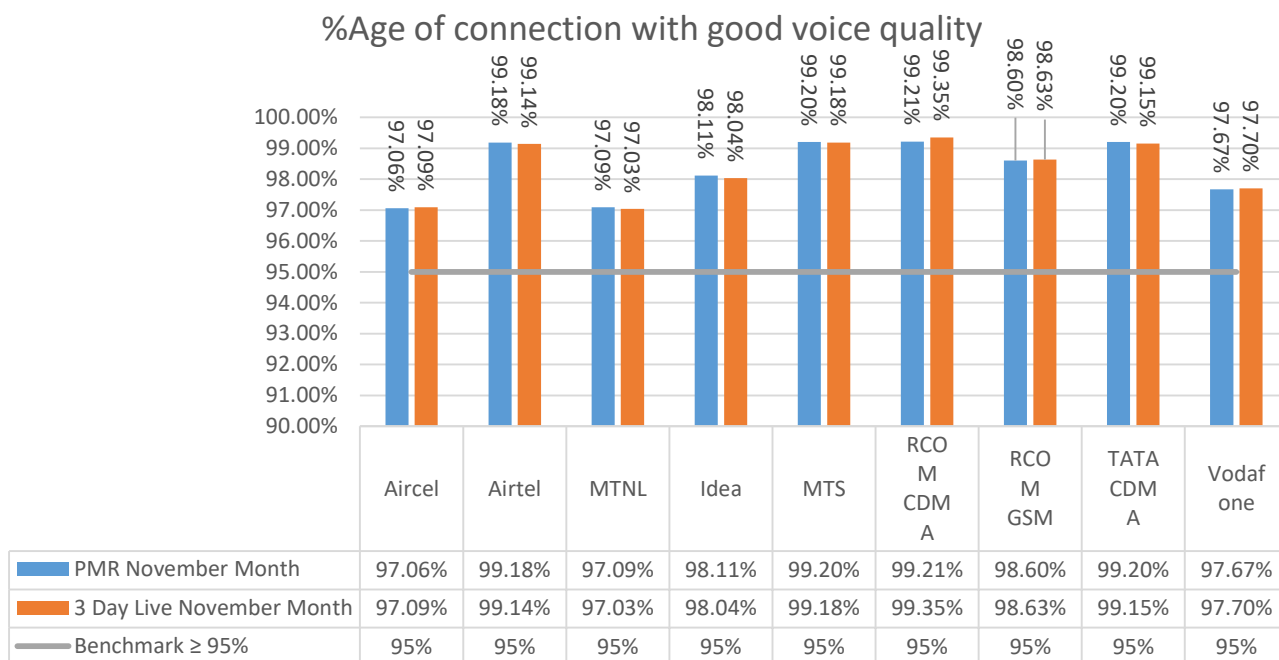
- It is clear from the analysis that all the operators are within benchmark.

5.7.4. KEY FINDINGS: VOICE QUALITY: DECEMBER

%Age of connection with good voice quality

	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR December Month	96.75%	99.21%	97.09%	98.14%	99.20%	99.97%	98.53%	99.19%	97.88%
3 Day Live December Month	96.73%	99.14%	97.04%	98.11%	99.19%	99.22%	98.58%	99.15%	97.70%
Benchmark ≥ 95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
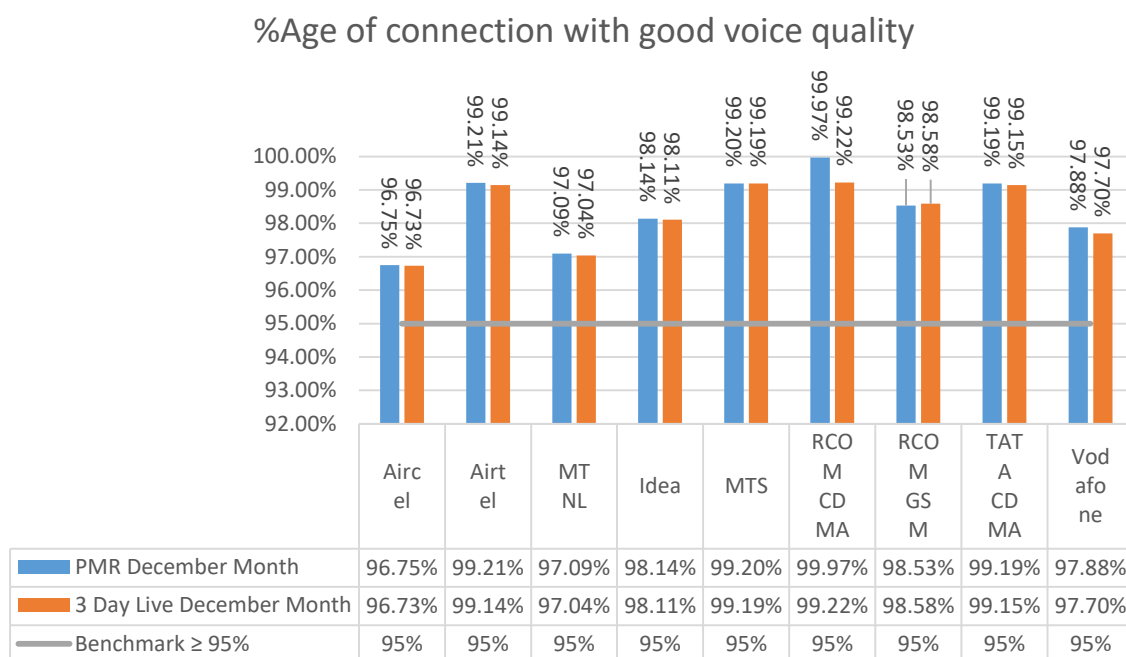
- It is clear from the analysis that all the operators are within benchmark.

5.8. POI CONGESTION: CONSOLIDATED

POI Congestion: PMR Consolidated										
POI Congestion	**Benchmark**	**Aircel**	**Airtel**	**MTNL**	**Idea**	**MTS**	**RCOM CDMA**	**RCOM GSM**	**TATA CDMA**	**Vodafone**
		2G	**2G**	**2G**	**2G**	**2G**	**2G**	**2G**	**2G**	**2G**
Total No. of call attempts on POI		3428086	10558526	10963	40430	4411	19722	27085	356870	11217284
Total traffic served on all POIs (Erlang)		76964	232767	251	1236	127	306	422	11791	242994
Total No. of circuits on all individual POIs		141673	389382	57665	217152	504	672	652	118650	400225
Total number of working POI Service Area wise		173	16	89	87	49	1	1	118	376
Capacity of all POIs		130774	376083	57665	214432	469	586	589	112319	404170
No. of all POI's having >=0.5% POI congestion	≤ 0.5%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
Name of POI not meeting the benchmark (having >=0.5% POI congestion)		NA	NA	NA	NA	NA	NA	NA	NA	NA

POI Congestion: 3 Days Live Consolidated										
POI Congestion	**Benchmark**	**Aircel**	**Airtel**	**MTNL**	**Idea**	**MTS**	**RCOM CDMA**	**RCOM GSM**	**TATA CDMA**	**Vodafone**
		2G	**2G**	**2G**	**2G**	**2G**	**2G**	**2G**	**2G**	**2G**
Total No. of call attempts on POI		3519042	11021909	11925	41041	162447	145582	158920	697372	11320860
Total traffic served on all POIs (Erlang)		78704.16111	245297.72	272	1262.262051	4709.553401	2262.319245	2469.23	24104.35855	244534.4311
Total No. of circuits on all individual POIs		141655.6667	380600	57050	216995.9444	18500.42177	4525.611111	3689	119138.0556	399888.8889
Total number of working POI Service Area wise		172.67	16	89	87.33	49	6.67	5.67	118	262.33
Capacity of all POIs		130756.77	368559.47	57050	214275.81	17734.54	3941.60	3327.61	100191.87	402688.86
No. of all POI's having >=0.5% POI congestion	≤ 0.5%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Name of POI not meeting the benchmark (having >=0.5% POI congestion)		NA	NA	NA	NA	NA	NA	NA	NA	NA

5.8.1. POI Congestion: October

POI Congestion : PMR October										
POI Congestion	**Benchmark**	**Aircel**	**Airtel**	**MTNL**	**Idea**	**MTS**	**RCOM CDMA**	**RCOM GSM**	**TATA CDMA**	**Vodafone**
		2G	**2G**	**2G**	**2G**	**2G**	**2G**	**2G**	**2G**	**2G**
Total No. of call attempts on POI		3629130	10918113	11731	40336	4466	19924	28270	1053521	11273075
Total traffic served on all POIs (Erlang)		81381	236394	266	1274	130	310.98	434	34810	243898
Total No. of circuits on all individual POIs		141586	387725	57736	215134	506	674.27	651	119233	395383
Total number of working POI Service Area wise		172	16	89	88	49	1.00	1	118	370
Capacity of all POIs		130692	373901	57736	212428	471	584.56	587	112837	399279
No. of all POI's having >=0.5% POI congestion	≤ 0.5%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Name of POI not meeting the benchmark (having >=0.5% POI congestion)		NA	NA	NA	NA	NA	NA	NA	NA	NA

POI Congestion: 3 Day Live October										
POI Congestion	**Benchmark**	**Aircel**	**Airtel**	**MTNL**	**Idea**	**MTS**	**RCOM CDMA**	**RCOM GSM**	**TATA CDMA**	**Vodafone**
		2G	**2G**	**2G**	**2G**	**2G**	**2G**	**2G**	**2G**	**2G**
Total No. of call attempts on POI		3635988	11304069	12116	41274	247444	394400	425782	1168683	11912976
Total traffic served on all POIs (Erlang)		83226.48333	252247	275	1289	7067	6129.00	6610.49	38957	255389
Total No. of circuits on all individual POIs		141574	380292.6667	57685	215483	27434	12219.00	9765.00	119258	395080
Total number of working POI Service Area wise		172	16	89	88	49	18.00	15.00	118	35
Capacity of all POIs		130684.3174	368251	57685	212759	26288	10627.00	8806.21	112866	398973
No. of all POI's having >=0.5% POI congestion	≤ 0.5%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Name of POI not meeting the benchmark (having >=0.5% POI congestion)		NA	NA	N A	NA	NA	NA	NA	NA	NA

5.8.2. POI Congestion: November

POI Congestion : PMR November										
POI Congestion	Benchmark	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
		2G	2G	2G	2G	2G	2G	2G	2G	2G
Total No. of call attempts on POI		3346878	10407120	10386	40756	4506	18701	26044	8428	11168003
Total traffic served on all POIs (Erlang)		75524	228609	241	1228	132	288.00	406	279	243177
Total No. of circuits on all individual POIs		141675	388750	57679	217260	505	667.00	651	118868	400157
Total number of working POI Service Area wise		173	16	89	87	49	1.00	1	118	375
Capacity of all POIs		130779	374864	57679	214542	469	582.00	588	112521	404101
No. of all POI's having >=0.5% POI congestion	≤ 0.5%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Name of POI not meeting the benchmark (having >=0.5% POI congestion)		NA	NA	NA	NA	NA	NA	NA	NA	NA

POI Congestion: 3 Day Live November										
POI Congestion	Benchmark	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
		2G	2G	2G	2G	2G	2G	2G	2G	2G
Total No. of call attempts on POI		3498281	10775226	11672	40111	235473	21173	24470	915792	10365743
Total traffic served on all POIs (Erlang)		77728	242130	270	1275	6934	329	375	33074	227680
Total No. of circuits on all individual POIs		141635	385412	57632	216741	27566	679	651	119252	400046
Total number of working POI Service Area wise		173	16	89	87	49	1	1	118	374
Capacity of all POIs		130735	373310	57632	214039	26449	599	588	112853	402278
No. of all POI's having >=0.5% POI congestion	≤ 0.5%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Name of POI not meeting the benchmark (having >=0.5% POI congestion)		NA	NA	NA	NA	NA	NA	NA	NA	NA

5.8.3. POI Congestion: December

POI Congestion: December										
POI Congestion	Benchmark	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
		2G	2G	2G	2G	2G	2G	2G	2G	2G
Total No. of call attempts on POI		3308251	10350344	10773	40198	4262	20541	26941	8660	11210773
Total traffic served on all POIs (Erlang)		73986	233298	247	1207	120	320	427	283	241906.9506
Total No. of circuits on all individual POIs		141758	391671	57581	219063	500	674	653	117849	405137.0968
Total number of working POI Service Area wise		173	16	89	87	49	1	1	118	383
Capacity of all POIs		130851	379484	57581	216326	465	591	590	111600	409131.6288
No. of all POI's having >=0.5% POI congestion	≤ 0.5%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
Name of POI not meeting the benchmark (having >=0.5% POI congestion)		NA	NA	NA	NA	NA	NA	NA	NA	NA

POI Congestion: 3 Day Live December										
POI Congestion	Benchmark	Aircel	Airtel	MTNL	Idea	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
		2G	2G	2G	2G	2G	2G	2G	2G	2G
Total No. of call attempts on POI		3422858	10986433	11988	41737	4422	21173	26509	7642	11683860
Total traffic served on all POIs (Erlang)		75158	241516	271	1223	128	329	422	282	250534
Total No. of circuits on all individual POIs		141758	376095	55833	218764	502	679	651	118904	404540
Total number of working POI Service Area wise		173	16	89	87	49	1	1	118	378
Capacity of all POIs		130851	364118	55833	216029	466	599	589	74857	406816
No. of all POI's having >=0.5% POI congestion	≤ 0.5%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Name of POI not meeting the benchmark (having >=0.5% POI congestion)		NA	NA	NA	NA	NA	NA	NA	NA	NA

6. L1 CALLING DATA

L1 Calling data covers all the SDCA covered across the two operator assisted drive tests:

- Noida & Ghaziabad: 23rd Nov to 25th Nov 2015
- Gurgaon / Faridabad: 2nd Dec 2015 to 4th Dec 2015

6.1.1. Aircel

SR. NO.	EMERGENCY NUMBER	NOIDA	GHAZIABAD	GREATER NOIDA	Gurgoan
1	100	✓	✓	✓	✓
2	101	✓	✓	✓	⊠
3	102	✓	✓	✓	✓
4	104	⊠	⊠	⊠	⊠
5	108	⊠	⊠	⊠	⊠
6	138	✓	✓	✓	⊠
7	149	⊠	⊠	⊠	✓
8	181	✓	✓	✓	✓
9	182	✓	✓	✓	✓
10	1033	✓	✓	✓	✓
11	1037	⊠	⊠	⊠	⊠
12	1056	⊠	⊠	⊠	✓
13	1060	⊠	⊠	⊠	⊠
14	1063	✓	✓	✓	✓
15	1064	✓	✓	✓	✓
16	1070	✓	✓	✓	✓
17	1071	⊠	⊠	⊠	⊠
18	1072	⊠	✓	⊠	⊠
19	1073	⊠	⊠	⊠	⊠
20	1077	✓	✓	✓	✓
21	1090	⊠	✓	⊠	⊠
22	1091	⊠	✓	⊠	⊠
23	1097	⊠	⊠	⊠	✓
24	1099	⊠	⊠	⊠	⊠
25	1511	⊠	⊠	⊠	✓
26	1512	⊠	⊠	⊠	✓
27	1514	⊠	⊠	⊠	⊠
28	1903	⊠	⊠	⊠	⊠
29	1909	✓	✓	✓	✓
30	1912	✓	✓	✓	⊠
31	1916	⊠	⊠	⊠	✓
32	1950	✓	✓	✓	✓
33	10580	⊠	⊠	⊠	⊠
34	10589	✓	✓	✓	⊠

35	10740	✓	✓		✓	✓
36	10741	✓	✓		✓	☒
37	15100	☒	☒		☒	✓
38	155214	✓	✓		✓	✓
39	155304	✓	✓		✓	☒

6.1.2. Airtel

SR. NO.	EMERGENCY NUMBER	NOIDA	GHAZIABAD	GREATER NOIDA	GURGAON	FARIDABAD
1	100	✓	✓	✓	✓	✓
2	101	✓	✓	✓	✓	✓
3	102	✓	✓	✓	✓	✓
4	104	☒	☒	☒	☒	☒
5	108	✓	✓	✓	☒	☒
6	138	✓	✓	✓	✓	✓
7	149	☒	☒	☒	☒	☒
8	181	✓	✓	✓	✓	✓
9	182	✓	✓	✓	✓	✓
10	1033	✓	✓	✓	✓	✓
11	1037	✓	☒	☒	☒	☒
12	1056	☒	☒	☒	☒	☒
13	1060	☒	☒	☒	☒	☒
14	1063	✓	✓	✓	✓	✓
15	1064	✓	✓	✓	✓	☒
16	1070	✓	✓	✓	✓	☒
17	1071	☒	☒	☒	☒	☒
18	1072	✓	✓	✓	✓	✓
19	1073	☒	✓	☒	☒	✓
20	1077	✓	✓	✓	✓	✓
21	1090	✓	✓	✓	✓	✓
22	1091	✓	✓	✓	✓	✓
23	1097	✓	✓	✓	✓	✓
24	1099	☒	☒	☒	☒	☒
25	1511	✓	✓	✓	✓	✓
26	1512	☒	☒	☒	✓	✓
27	1514	☒	☒	☒	☒	☒
28	1903	☒	☒	☒	✓	✓
29	1909	✓	✓	✓	✓	✓
30	1912	✓	✓	✓	☒	☒
31	1916	☒	☒	☒	✓	✓
32	1950	✓	✓	✓	✓	✓
33	10580	☒	☒	☒	✓	✓
34	10589	✓	✓	✓	☒	☒
35	10740	✓	✓	✓	☒	☒

36	10741	✓	✓	✓	☒	☒
37	15100	☒	☒	☒	✓	✓
38	155214	✓	✓	✓	☒	✓
39	155304	✓	✓	✓	☒	☒

6.1.3. Idea

SR. NO.	EMERGENCY NUMBER	NOIDA	GHAZIABAD	GREATER NOIDA	Gurgaon(Day1)	Gurgaon(Day2)	Faridabad(Day3)
1	100	☒	☒	☒	✓	☒	✓
2	101	☒	☒	☒	✓	☒	✓
3	102	☒	☒	☒	✓	☒	✓
4	104	☒	☒	☒	☒	☒	☒
5	108	☒	☒	☒	✓	☒	☒
6	138	☒	☒	☒	✓	☒	✓
7	149	☒	☒	☒	☒	☒	☒
8	181	☒	☒	☒	✓	☒	✓
9	182	☒	☒	☒	✓	☒	✓
10	1033	☒	☒	☒	✓	☒	✓
11	1037	☒	☒	☒	☒	☒	☒
12	1056	☒	☒	☒	☒	☒	☒
13	1060	☒	☒	☒	☒	☒	☒
14	1063	☒	☒	☒	✓	☒	✓
15	1064	☒	☒	☒	✓	☒	✓
16	1070	☒	☒	☒	✓	☒	✓
17	1071	☒	☒	☒	☒	☒	☒
18	1072	☒	☒	☒	✓	☒	✓
19	1073	☒	☒	☒	☒	☒	☒
20	1077	☒	☒	☒	☒	☒	☒
21	1090	☒	☒	☒	✓	☒	✓
22	1091	☒	☒	☒	✓	☒	✓
23	1097	☒	☒	☒	✓	☒	✓
24	1099	☒	☒	☒	✓	☒	✓
25	1511	☒	☒	☒	✓	☒	✓
26	1512	☒	☒	☒	✓	☒	✓
27	1514	☒	☒	☒	☒	☒	☒
28	1903	☒	☒	☒	✓	☒	✓
29	1909	☒	☒	☒	✓	☒	✓
30	1912	☒	☒	☒	☒	☒	☒
31	1916	☒	☒	☒	✓	☒	✓
32	1950	☒	☒	☒	✓	☒	✓
33	10580	☒	☒	☒	✓	☒	✓
34	10589	☒	☒	☒	☒	☒	☒

35	10740	☒	☒	☒	☒	☒	☒
36	10741	☒	☒	☒	☒	☒	☒
37	15100	☒	☒	☒	✓	☒	✓
38	155214	☒	☒	☒	✓	☒	✓
39	155304	☒	☒	☒	☒	☒	☒

6.1.4. MTNL

SR. NO.	EMERGENCY NUMBER	NOIDA	GHAZIABAD	GREATER NOIDA	Gurgaon	Faridabad
1	100	✓	✓	✓	✓	✓
2	101	✓	✓	✓	✓	✓
3	102	✓	✓	✓	✓	✓
4	104	☒	☒	☒	☒	☒
5	108	✓	✓	✓	✓	✓
6	138	✓	✓	✓	✓	✓
7	149	☒	☒	☒	☒	☒
8	181	✓	☒	☒	✓	✓
9	182	✓	✓	✓	✓	✓
10	1033	✓	✓	✓	✓	✓
11	1037	☒	☒	☒	☒	☒
12	1056	☒	☒	☒	☒	☒
13	1060	☒	☒	☒	✓	✓
14	1063	✓	✓	☒	✓	✓
15	1064	✓	✓	✓	✓	✓
16	1070	✓	✓	✓	✓	✓
17	1071	☒	☒	☒	☒	☒
18	1072	✓	✓	✓	✓	✓
19	1073	✓	✓	☒	✓	✓
20	1077	✓	✓	✓	✓	☒
21	1090	✓	✓	✓	✓	✓
22	1091	✓	✓	✓	✓	✓
23	1097	✓	✓	✓	✓	✓
24	1099	✓	✓	✓	✓	✓
25	1511	☒	☒	☒	✓	✓
26	1512	☒	☒	☒	✓	✓
27	1514	☒	☒	☒	✓	✓
28	1903	☒	☒	☒	✓	✓
29	1909	✓	✓	✓	✓	✓
30	1912	✓	✓	✓	☒	☒
31	1916	✓	✓	☒	✓	✓
32	1950	✓	✓	☒	✓	✓
33	10580	☒	☒	☒	✓	✓
34	10589	☒	☒	☒	☒	☒

35	10740	✓	✓	✓	☒	☒
36	10741	✓	✓	✓	☒	☒
37	15100	☒	☒	☒	✓	✓
38	155214	✓	✓	☒	✓	✓
39	155304	✓	✓	✓	☒	☒

6.1.5. MTS

SR. NO.	EMERGENCY NUMBER	NOIDA	GHAZIABAD	GREATER NOIDA	GURGAON	GURGAON	FARIDABAD
1	100	✓	✓	✓	✓	✓	✓
2	101	✓	✓	✓	✓	✓	✓
3	102	✓	✓	✓	✓	✓	✓
4	104	☒	☒	☒	☒	☒	☒
5	108	✓	✓	✓	✓	✓	✓
6	138	✓	✓	✓	✓	✓	✓
7	149	☒	☒	☒	☒	☒	☒
8	181	✓	✓	✓	✓	✓	✓
9	182	✓	✓	✓	✓	✓	✓
10	1033	✓	✓	✓	✓	✓	✓
11	1037	☒	☒	☒	☒	☒	☒
12	1056	☒	☒	☒	☒	☒	☒
13	1060	☒	☒	☒	☒	☒	☒
14	1063	✓	✓	✓	✓	✓	✓
15	1064	☒	☒	☒	☒	☒	☒
16	1070	✓	✓	✓	✓	✓	✓
17	1071	☒	☒	☒	☒	☒	☒
18	1072	✓	✓	✓	✓	✓	✓
19	1073	✓	✓	✓	✓	✓	✓
20	1077	✓	✓	✓	✓	✓	✓
21	1090	✓	✓	✓	✓	✓	✓
22	1091	✓	✓	✓	✓	✓	✓
23	1097	✓	✓	✓	✓	✓	✓
24	1099	✓	✓	✓	✓	✓	✓
25	1511	☒	☒	☒	✓	✓	✓
26	1512	☒	☒	☒	✓	✓	✓
27	1514	☒	☒	☒	☒	☒	☒
28	1903	☒	☒	☒	✓	✓	✓
29	1909	✓	✓	✓	✓	✓	✓
30	1912	✓	✓	✓	☒	☒	☒
31	1916	☒	☒	☒	✓	✓	✓
32	1950	✓	✓	✓	☒	☒	☒
33	10580	☒	☒	☒	✓	✓	✓
34	10589	✓	✓	✓	☒	☒	☒

35	10740	✓	✓	✓	☒	☒	☒
36	10741	✓	✓	✓	☒	☒	☒
37	15100	☒	☒	☒	🔲	🔲	🔲
38	155214	✓	✓	✓	☒	☒	☒
39	155304	✓	✓	✓	☒	☒	☒

6.1.6. RCOM CDMA

SR. NO.	EMERGENCY NUMBER	NOIDA	GHAZIABAD	GREATER NOIDA	NOIDA	GHAZIABAD	GREATER NOIDA
1	100		✓	✓	✓	✓	✓
2	101	✓	✓	✓	✓	✓	✓
3	102	✓	✓	✓	✓	✓	✓
4	104	☒	☒	☒	☒	☒	☒
5	108	✓	✓	✓	✓	✓	✓
6	138	✓	✓	✓	✓	✓	✓
7	149	☒	☒	☒	☒	☒	☒
8	181	✓	✓	✓	✓	✓	✓
9	182	☒	☒	☒	☒	☒	☒
10	1033	✓	✓	✓	✓	✓	✓
11	1037	☒	☒	☒	☒	☒	☒
12	1056	☒	☒	☒	☒	☒	☒
13	1060	✓	✓	✓	✓	✓	✓
14	1063	✓	✓	✓	✓	✓	✓
15	1064	✓	✓	✓	✓	✓	✓
16	1070	☒	☒	☒	☒	☒	☒
17	1071	☒	☒	☒	☒	☒	☒
18	1072	✓	✓	✓	✓	✓	✓
19	1073	✓	✓	✓	✓	✓	✓
20	1077	✓	✓	✓	✓	✓	✓
21	1090	☒	☒	✓	☒	☒	✓
22	1091	✓	✓	✓	✓	✓	✓
23	1097	✓	✓	✓	✓	✓	✓
24	1099	☒	☒	☒	☒	☒	☒
25	1511	☒	☒	☒	☒	☒	☒
26	1512	☒	☒	☒	✓	✓	✓
27	1514	☒	☒	☒	☒	☒	✓
28	1903	☒	☒	☒	✓	✓	✓
29	1909	☒	☒	☒	✓	✓	✓
30	1912	✓	✓	✓	☒	☒	☒
31	1916	☒	☒	✓	✓	✓	✓
32	1950	☒	☒	☒	☒	☒	☒
33	10580	☒	☒	☒	☒	☒	☒
34	10589	✓	✓	✓	☒	☒	☒

35	10740	✓	✓	✓	☒	☒	☒
36	10741	✓	✓	✓	☒	☒	☒
37	15100	☒	☒	☒	☒	☒	☒
38	155214	✓	✓	✓	✓	✓	✓
39	155304	☒	☒	☒	☒	☒	☒

6.1.7. RCOM GSM

SR. NO.	EMERGENCY NUMBER	NOIDA	GHAZIABAD	GREATER NOIDA	GURGAON	GURGAON	FARIDABAD
1	100	✓	✓	✓	✓	✓	✓
2	101	✓	✓	✓	✓	✓	✓
3	102	✓	✓	✓	✓	✓	✓
4	104	☒	☒	☒	☒	☒	☒
5	108	☒	☒	☒	☒	☒	☒
6	138	✓	✓	✓	✓	✓	✓
7	149	☒	☒	☒	☒	☒	☒
8	181	✓	✓	✓	✓	✓	✓
9	182	✓	✓	✓	✓	✓	✓
10	1033	✓	✓	✓	✓	✓	✓
11	1037	☒	☒	☒	☒	☒	☒
12	1056	☒	☒	☒	☒	☒	☒
13	1060	✓	✓	✓	✓	✓	✓
14	1063	✓	✓	✓	✓	✓	✓
15	1064	✓	✓	✓	✓	✓	✓
16	1070	☒	☒	☒	☒	☒	☒
17	1071	☒	☒	☒	☒	☒	☒
18	1072	✓	✓	✓	✓	✓	✓
19	1073	✓	✓	✓	☒	☒	☒
20	1077	☒	☒	☒	☒	☒	☒
21	1090	☒	☒	☒	✓	✓	✓
22	1091	✓	✓	✓	✓	✓	✓
23	1097	✓	✓	✓	✓	✓	✓
24	1099	☒	☒	☒	☒	☒	☒
25	1511	☒	☒	☒	✓	✓	✓
26	1512	☒	☒	☒	✓	✓	✓
27	1514	☒	☒	☒	✓	✓	✓
28	1903	☒	☒	☒	✓	✓	✓
29	1909	✓	✓	✓	✓	✓	✓
30	1912	✓	✓	✓	☒	☒	☒
31	1916	✓	✓	✓	✓	✓	✓
32	1950	✓	✓	✓	✓	✓	✓
33	10580	☒	☒	☒	☒	☒	☒
34	10589	✓	✓	✓	☒	☒	☒

35	10740	✓	✓	✓	☒	☒	☒
36	10741	✓	✓	✓	☒	☒	☒
37	15100	☒	☒	☒	✓	✓	✓
38	155214	✓	✓	✓	✓	✓	✓
39	155304	✓	✓	✓	☒	☒	☒

6.1.8. TTSL CDMA

SR. NO.	EMERGENCY NUMBER	NOIDA	GHAZIABAD	GREATER NOIDA	GURGAON	FARIDABAD
1	100	✓	✓	✓	☒	☒
2	101	✓	✓	✓	☒	☒
3	102	✓	✓	✓	☒	☒
4	104	☒	☒	☒	☒	☒
5	106	✓	✓	✓	☒	☒
6	108	☒	☒	☒	☒	☒
7	138	☒	☒	☒	☒	☒
8	149	✓	✓	✓	☒	☒
9	181	☒	☒	☒	☒	☒
10	182	✓	✓	✓	☒	☒
11	1033	☒	☒	☒	☒	☒
12	1037	☒	☒	☒	☒	☒
13	1056	☒	☒	☒	☒	☒
14	1063	✓	✓	✓	☒	☒
15	1064	✓	✓	✓	☒	☒
16	1070	✓	✓	✓	☒	☒
17	1071	☒	☒	☒	☒	☒
18	1072	✓	✓	✓	☒	☒
19	1073	✓	✓	✓	☒	☒
20	1077	✓	✓	✓	☒	☒
21	1090	✓	✓	✓	☒	☒
22	1091	✓	✓	✓	☒	☒
23	1097	✓	✓	✓	☒	☒
24	1099	✓	✓	✓	☒	☒
25	1511	☒	☒	☒	☒	☒
26	1512	☒	☒	☒	☒	☒
27	1514	☒	☒	☒	☒	☒
28	1903	☒	☒	☒	☒	☒
29	1909	✓	✓	✓	☒	☒
30	1912	☒	☒	☒	☒	☒
31	1916	☒	☒	☒	☒	☒
32	1950	✓	✓	✓	☒	☒
33	10580	☒	☒	☒	☒	☒
34	10589	✓	✓	✓	☒	☒

35	10740	✓	✓	✓	☒	☒
36	10741	✓	✓	✓	☒	☒
37	15100	☒	☒	☒	☒	☒
38	155214	✓	✓	✓	☒	☒
39	155304	✓	✓	✓	☒	☒

6.1.9. Vodafone

SR. NO.	EMERGENCY NUMBER	NOIDA	GHAZIABAD	GREATER NOIDA	Gurgoan	Faridabad
1	100	✓	✓	✓	✓	✓
2	101	✓	✓	✓	✓	✓
3	102	✓	✓	✓	✓	☒
4	104	☒	☒	☒	☒	☒
5	108	✓	✓	✓	☒	☒
6	138	✓	✓	✓	☒	☒
7	149	☒	☒	☒	☒	☒
8	181	✓	✓	✓	✓	✓
9	182	☒	☒	☒	☒	☒
10	1033	✓	✓	✓	✓	✓
11	1037	☒	☒	☒	☒	☒
12	1056	☒	☒	☒	☒	☒
13	1060	☒	☒	☒	☒	☒
14	1063	✓	✓	✓	☒	✓
15	1064	✓	✓	✓	✓	✓
16	1070	✓	✓	✓	✓	✓
17	1071	☒	☒	☒	☒	☒
18	1072	✓	✓	✓	✓	✓
19	1073	✓	✓	✓	✓	✓
20	1077	✓	✓	✓	✓	✓
21	1090	☒	☒	☒	✓	✓
22	1091	✓	✓	✓	☒	☒
23	1097	✓	✓	✓	☒	☒
24	1099	☒	☒	☒	☒	☒
25	1511	✓	✓	✓	✓	✓
26	1512	✓	✓	✓	☒	☒
27	1514	☒	☒	☒	☒	☒
28	1903	☒	☒	☒	✓	✓
29	1909	✓	✓	✓	✓	✓
30	1912	✓	✓	✓	☒	☒
31	1916	☒	☒	☒	✓	✓
32	1950	✓	☒	☒	✓	✓
33	10580	✓	☒	☒	✓	✓
34	10589	✓	✓	✓	☒	☒

35	10740	✓	✓	✓	☒	☒
36	10741	✓	✓	✓	☒	☒
37	15100	✓	☒	☒	✓	✓
38	155214	✓	✓	✓	✓	✓
39	155304	✓	✓	✓	☒	☒

7. NON NETWORK PARAMETERS: DESCRIPTION AND DETAILED FINDINGS

7.1. METERING AND BILLING CREDIBILITY

The billing complaints for post-paid are calculated by averaging over one billing cycle in a quarter. For example, there are three billing cycles in a quarter, the data for each billing cycle is calculated separately and then averaged over.

The charging complaints for prepaid are calculated by taking all complaints in a quarter.

Parameter Description

All the complaints related to billing/ charging as per clause 3.7.2 of QoS regulation of 20th June, 2009 were covered. The types of billing complaints covered are listed below.

1. Payments made and not credited to the subscriber account
2. Payment made on time but late payment charge levied wrongly
3. Wrong roaming charges
4. Double charges
5. Charging for toll free services
6. Local calls charged/billed as STD/ISD or vice versa
7. Calls or messages made disputed
8. Validity related complaints
9. Credit agreed to be given in resolution of complaint, but not accounted in the bill
10. Charging for services provided without consent
11. Charging not as per tariff plans or top up vouchers/ special packs etc.
12. Overcharging or undercharging

In addition to the above, any billing complaint which leads to billing error, waiver, refund, credit, or any adjustment is also considered as valid billing complaint for calculating the number of disputed bills.

- Computational Methodology:
    - Metering and billing credibility (Post-paid)
    $$= \frac{\text{Total billing complaints} * \text{received during the relevant billing cycle}}{\text{Total bills generated} * \text{during the relevant billing cycle}} * 100$$

    - Operator to include all types of bills generated for customers. This would include printed bills, online bills and any other forms of bills generated
    - Billing complaints here shall include only dispute related issues (including those that may arise because of a lack of awareness at the subscribers' end). It does not include any provisional issues (such as delayed dispatch of billing statements, etc.) in which the operator has opened a ticket internally.
    - Metering and billing credibility (Prepaid)
    $$= \frac{\text{Total charging complaints received during the quarter}}{\text{Total number of subscribers reported by the operator at the end of the quarter}} * 100$$

- TRAI Benchmark: <= 0.1%

- Audit Procedure:

    - Audit of billing complaint details for the complaints received during the quarter and used for arriving at the benchmark reported to TRAI would be conducted

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- For Post-paid, the total billing complaints would be audited by averaging over billing cycles in a quarter.
- For Prepaid, the data of total charging complaints in a quarter would be taken for the purpose of audit.

7.1.1. KEY FINDINGS: METERING AND BILLING CREDIBILITY: POST – PAID

Metering and Billing Credibility: Postpaid

	Aircel	Airtel	IDEA	MTNL	MTS CDMA	RCOM CDMA	RCOM GSM	TTSL CDMA	VODAF ONE
Billing Performance for Postpaid: Consolidated	0.01%	0.02%	0.07%	0.06%	0.00%	0.09%	0.09%	0.00%	0.15%
Benchmark ≤ 0.1%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%
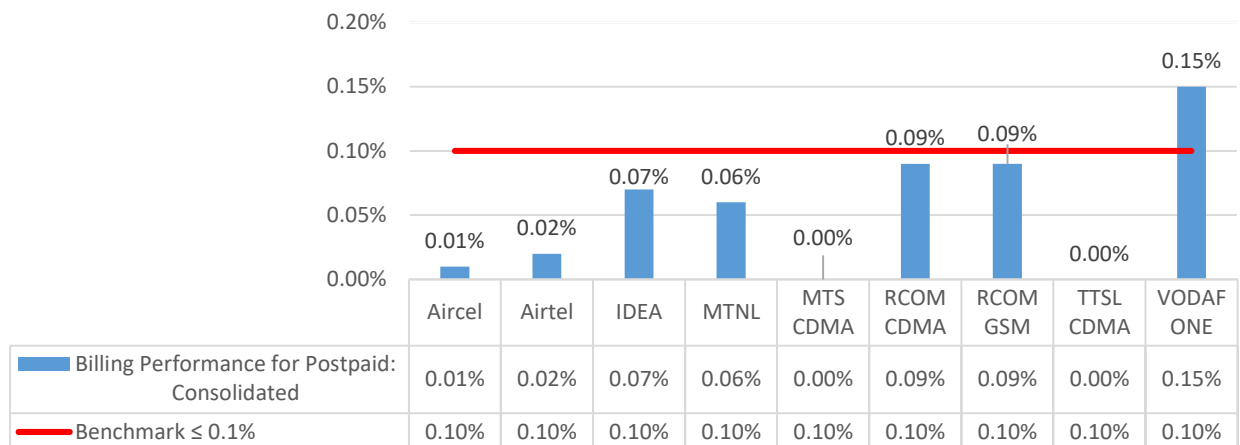
- Vodafone has parameter value of **0.15%** and failed to meet the benchmark of ≤ 0.1% for Metering and Billing credibility (Postpaid subscribers)

7.1.2. KEY FINDINGS: METERING AND BILLING CREDIBILITY: PREPAID

Metering and Billing Credibility: Prepaid

	Aircel	Airtel	MTNL	IDEA	RCOM CDMA	RCOM GSM	TTSL CDMA	MTS CDMA	VODAFO NE
Billing Performance for Prepaid: Consolidated	0.00%	0.00%	0.20%	0.02%	0.01%	0.02%	0.09%	0.00%	0.05%
Benchmark ≤ 0.1%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%

- MTNL has parameter value of **0.20%** and failed to meet the benchmark of ≤ 0.1% for Metering and Billing credibility (Prepaid subscribers).

7.2. RESOLUTION OF BILLING COMPLAINTS

Calculation of Percentage resolution of billing complaints: The calculation methodology (given below) as per QoS regulations 2009 (7 of 2009) was followed to calculate resolution of billing complaints.

Resolution of billing complaints within 4 weeks:

%age of billing complaints (for post-paid customers)/ charging, credit & validity (for pre-paid customers) resolved within 4 weeks =

$$\frac{\text{number of billing complaints for post-paid customers/charging, credit/ validity complaints for pre-paid customers resolved within 4 weeks during the quarter}}{\text{number of billing/charging, credit / validity complaints received during the quarter}} \times 100$$

Resolution of billing complaints within 6 weeks:

%age of billing complaints (for post-paid customers)/ charging, credit & validity (for pre-paid customers) resolved within 6 weeks =

$$\frac{\text{number of billing complaints for post-paid customers/charging, credit/ validity complaints for pre-paid customers resolved within 6 weeks during the quarter}}{\text{number of billing/charging, credit / validity complaints received during the quarter}} \times 100$$

- Billing complaints here shall include only dispute related issues (including those that may arise because of a lack of awareness at the subscribers' end). It does not include any provisional issues (such as delayed dispatch of billing statements, etc.) in which the operator has opened a ticket internally. Complaints raised by the consumers to operator are only considered as part of the calculation.
- Date of resolution in this case would refer to the date when a communication has taken place from the operator's end to inform the complainant about the final resolution of the issue / dispute.
- Benchmark: 98% complaints resolved within 4 weeks, 100% within 6 weeks.

7.2.1. KEY FINDINGS: BILLING COMPLAINTS RESOLUTION WITHIN 4 WEEKS

Complaints resolved within 4 weeks

	Aircel	Airtel	IDEA	MTNL	MTS CDMA	RCOM CDMA	RCOM GSM	TTSL CDMA	VODAFO NE
Billing Complaints: Consolidated	100%	100%	100%	100%	100%	100%	100%	100%	100%
Benchmark ≥ 98%	98%	98%	98%	98%	98%	98%	98%	98%	98%
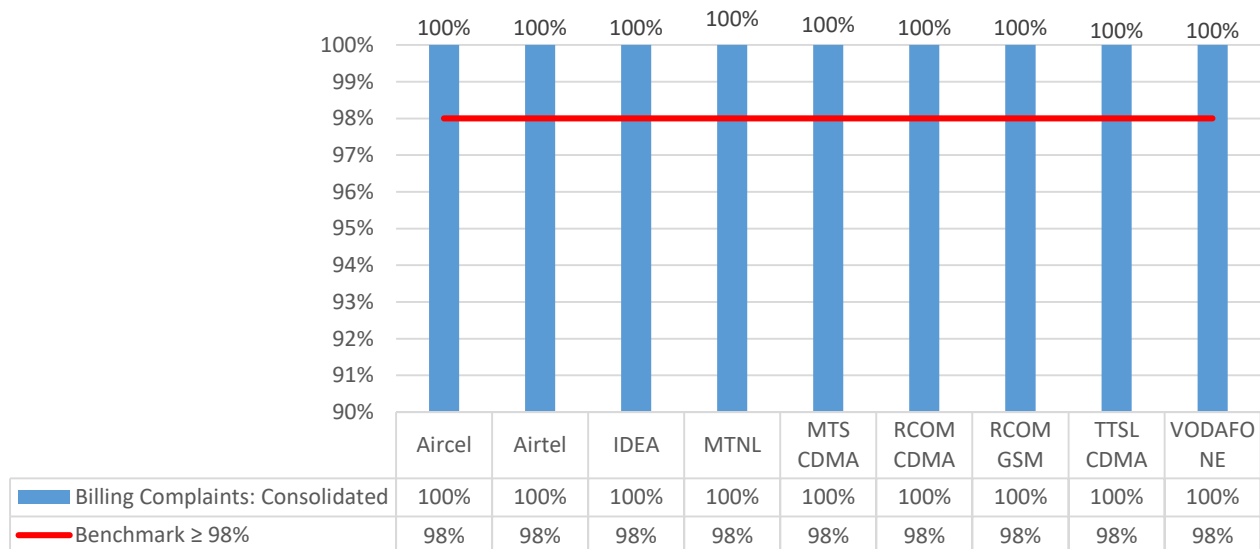
- It is clear from the analysis that all the operators are within benchmark.

7.2.2. KEY FINDINGS: BILLING COMPLAINTS RESOLUTION WITHIN 6 WEEKS

Complaints resolved within 6 weeks

	Aircel	Airtel	IDEA	MTNL	MTS CDMA	RCOM CDMA	RCOM GSM	TTSL CDMA	VODAF ONE
Billing Complaints: Consolidated	100%	100%	100%	100%	100%	100%	100%	100%	100%
Benchmark =100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
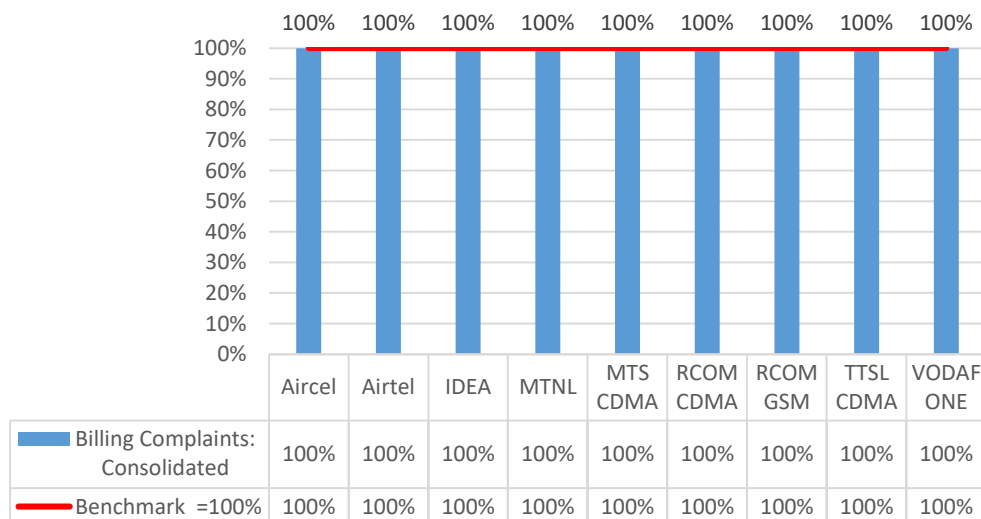
- It is clear from the analysis that all the operators are within benchmark.

7.3. PERIOD OF APPLYING CREDIT / WAVER

- Computational Methodology:

Period of applying credit waiver = $\frac{\text{number of cases where credit waiver is applied within 7 days}}{\text{total number of cases eligible for credit waiver}} * 100$

- TRAI Benchmark: Period of applying credit waiver within 7 days: 100%

- Audit Procedure:
  - Operator to provide details of:-
  - List of all eligible cases along with
  - Date of applying credit waiver to all the eligible cases
  - Date of resolution of complaint for all eligible cases

7.3.1. KEY FINDINGS
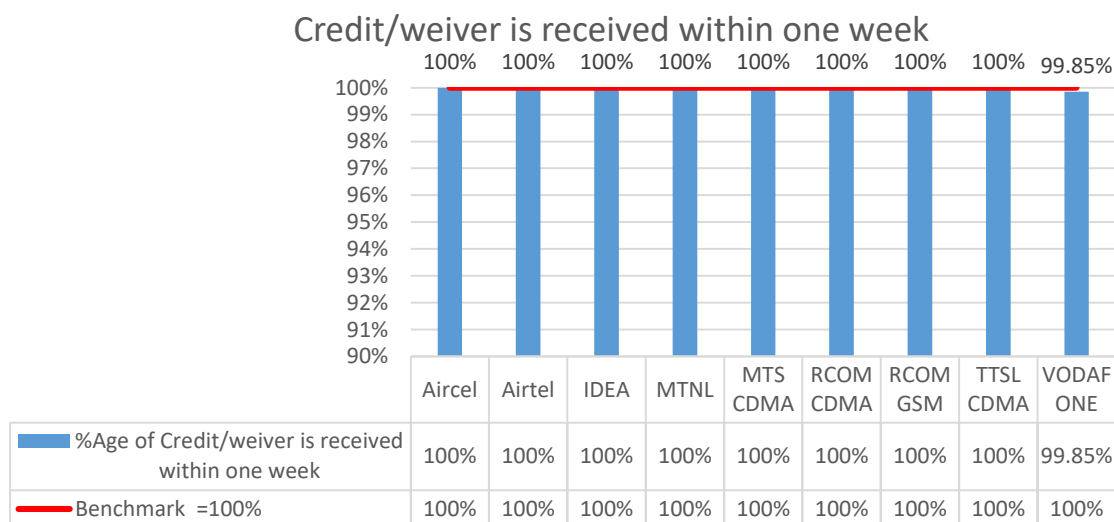
Credit/weiver is received within one week

	Aircel	Airtel	IDEA	MTNL	MTS CDMA	RCOM CDMA	RCOM GSM	TTSL CDMA	VODAF ONE
%Age of Credit/weiver is received within one week	100%	100%	100%	100%	100%	100%	100%	100%	99.85%
Benchmark =100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

- Vodafone has parameter value of **99.85%** and failed to meet the benchmark of = 100% for Billing Complaints (%age of where credit/waiver is received within one week).
- It is clear from the analysis that all the op

7.4. CALL CENTRE PERFORMANCE: IVR

- Computational Methodology:

Call centre performance IVR = $\frac{\text{Number of calls connected and answered by IVR}}{\text{All calls attempted to IVR}} * 100$

- TRAI Benchmark: >= 95%

- Audit Procedure:
  - Operators provide details of the following from their central call centre/ customer service database:
  - Total calls connected and answered by IVR
  - Total calls attempted to IVR
  - Also live calling is done to test the calls connected and answered by IVR

7.4.1. KEY FINDINGS

Call Centre Performance: IVR
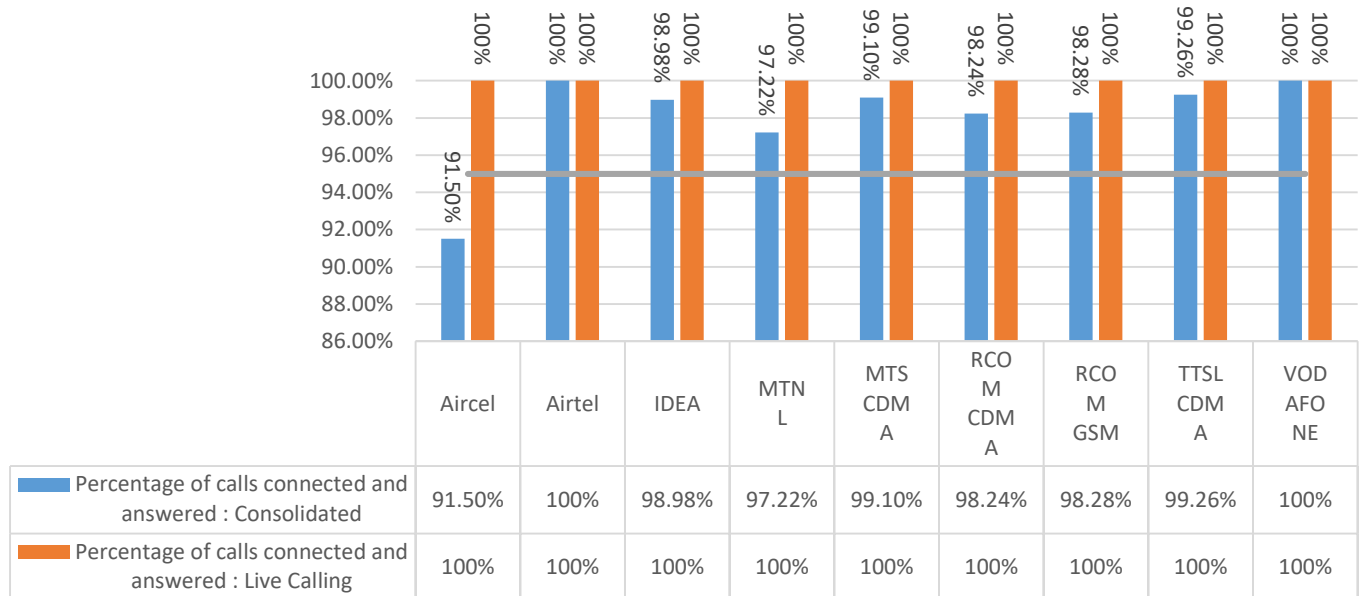
	Aircel	Airtel	IDEA	MTNL	MTS CDMA	RCOM CDMA	RCOM GSM	TTSL CDMA	VODAFONE
Percentage of calls connected and answered : Consolidated	91.50%	100%	98.98%	97.22%	99.10%	98.24%	98.28%	99.26%	100%
Percentage of calls connected and answered : Live Calling	100%	100%	100%	100%	100%	100%	100%	100%	100%

- Aircel has parameter value of **91.50%** and failed to meet the benchmark of ≥95% for %age of calls answered by the IVR

7.5. CALL CENTER PERFORMANCE: VOICE TO VOICE

- Computational Methodology:

    Call centre performance Voice to Voice = $\frac{\text{Number of calls answered by operator within 90 seconds}}{\text{All calls attempted to connect to the operator}} * 100$

- Audit Procedure:
    - Operators provide details of the following from their central call centre/ customer service database:
    - Total calls connected and answered by operator within 90 seconds
    - Total calls attempted to connect to the operator
    - Also live calling was done to test the calls answered within 90 seconds by the operator

- Benchmark: 95% calls to be answered within 90 seconds.

Call Centre Performance: Voice to Voice

	Aircel	Airtel	IDEA	MTNL	MTS CDMA	RCOM CDMA	RCOM GSM	TTSL CDMA	VODAFONE
Percentage of calls connected and answered : 3 Month Data	94.30%	94.32%	98.62%	98.00%	97.80%	92.37%	86.57%	99.44%	97.16%
Percentage of calls connected and answered : Live Calling	100%	100%	100%	100%	100.00%	100.00%	100.00%	97%	100.00%
Benchmark ≥ 95%	95%	95%	95%	95%	95%	95%	95%	95%	95%

- Aircel has parameter value of **94.30%** and failed to meet the benchmark of ≥95% for %age of call answered by the operators (voice to voice) within 90 seconds

- Airtel has parameter value of **94.32%** and failed to meet the benchmark of ≥95% for %age of call answered by the operators (voice to voice) within 90 seconds

- RCOM CDMA has parameter value of **92.37%** and failed to meet the benchmark of ≥95% for %age of call answered by the operators (voice to voice) within 90 seconds

- RCOM GSM has parameter value of **86.57%** and failed to meet the benchmark of ≥95% for %age of call answered by the operators (voice to voice) within 90 seconds

7.6. TERMINATION OR CLOSURE OF SERVICE

- Computational Methodology:

  Time taken for closure of service $= \dfrac{\text{number of closures done within 7 days}}{\text{total number of closure requests}} * 100$

- TRAI Benchmark: Termination/Closure of Service: <=7 days

- Audit Procedure:
    - Operator provide details of the following from their central billing/CS database:
    - Date of lodging the closure request (all requests in given period)

7.6.1. KEY FINDINGS

Termination/ Closure of service within 7 days

	Aircel	Airtel	IDEA	MTNL	MTS CDMA	RCOM CDMA	RCOM GSM	TTSL CDMA	VODAFONE
Percentage cases closure done within 7 days: Consolidated	100.00%	100%	100%	100%	100%	100%	100%	100%	100.00%
Benchmark =100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
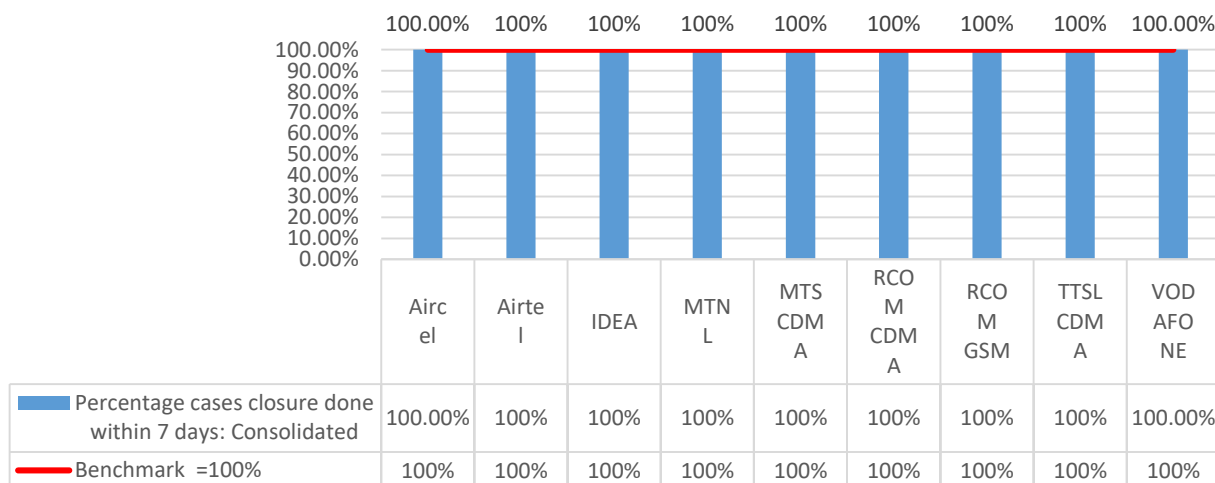
It is clear from the analysis that all the operators are within benchmark.

7.7. REFUND OF DEPOSIT AFTER CLOSURE

- Computational Methodology:

  Time taken for refund for deposit after closures = $\frac{\text{number of cases of refund after closure done within 60 days}}{\text{total number of cases of refund after closure}} * 100$

  ▪ Any case where the operators need to return the amount back to consumers post closure of service in form of cheque/cash is considered to be refund.

- TRAI Benchmark: Time taken for refund for deposit after closures: 100% within 60 days

- Audit Procedure:
  ▪ Operator provide details of the following from their central billing/refund database:

  ▪ Dates of completion of all 'closure requests' resulting in requirement of a refund by the operator.

  ▪ Dates of refund pertaining to all closure request received during relevant quarter
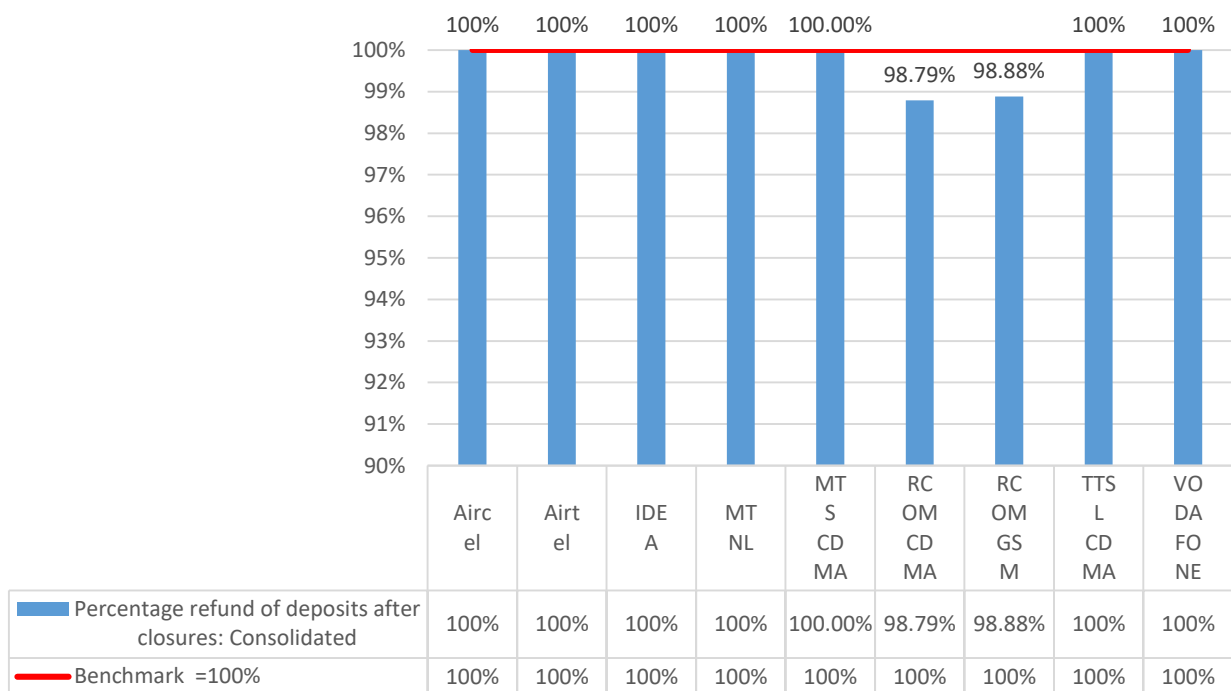
Refund of deposit after closure

	Airc el	Airt el	IDE A	MT NL	MT S CD MA	RC OM CD MA	RC OM GS M	TTS L CD MA	VO DA FO NE
Percentage refund of deposits after closures: Consolidated	100%	100%	100%	100%	100.00%	98.79%	98.88%	100%	100%
Benchmark =100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

- RCOM CDMA has parameter value of **98.79%** and failed to meet the benchmark of = 100% for Time taken for refund of deposits after closures (Cleared over a period of <60 days).

- RCOM GSM has parameter value of **98.88%** and failed to meet the benchmark of = 100% for Time taken for refund of deposits after closures (Cleared over a period of <60 days).

2G VOICE PMR DATA: OCTOBER

- Aircel has parameter value of 5.99% and failed to meet the benchmark for Worst Affected cell having more than 3% TCH drop as it is pre-defined at ≤ 3%

2G VOICE PMR DATA: NOVEMBER

- Aircel has parameter value of 4.73% and failed to meet the benchmark for Worst Affected cell having more than 3% TCH drop as it is pre-defined at ≤ 3%.

2G VOICE PMR DATA: DECEMBER

- Aircel has parameter value of 3.87% and failed to meet the benchmark for Worst Affected cell having more than 3% TCH drop as it is pre-defined at ≤ 3%.

2G VOICE PMR DATA: CONSOLIDATED

- Aircel has parameter value of 4.87% and failed to meet the benchmark for Worst Affected cell having more than 3% TCH drop as it is pre-defined at ≤ 3%.

2G VOICE 3 DAYS LIVE DATA: OCTOBER

- Aircel has parameter value of 6.26% and failed to meet the benchmark for Worst Affected cell having more than 3% TCH drop as it is pre-defined at ≤ 3%.

2G VOICE 3 DAYS LIVE DATA: NOVEMBER

- Aircel has parameter value of 5.00% and failed to meet the benchmark for Worst Affected cell having more than 3% TCH drop as it is pre-defined at ≤ 3%.

2G VOICE 3 DAYS LIVE DATA: DECEMBER

- Aircel has parameter value of 3.72% and failed to meet the benchmark for Worst Affected cell having more than 3% TCH drop as it is pre-defined at ≤ 3%.

2G VOICE 3 DAYS LIVE DATA: CONSOLIDATED

- Aircel has parameter value of 4.99% and failed to meet the benchmark for Worst Affected cell having more than 3% TCH drop as it is pre-defined at ≤ 3%.

BILLING AND CUSTOMER CARE

- Aircel has parameter value of **91.50%** and failed to meet the benchmark of ≥95% for %age of calls answered by the IVR.

- Aircel has parameter value of **94.30%** and failed to meet the benchmark of ≥95% for %age of call answered by the operators (voice to voice) within 90 seconds.

- Airtel has parameter value of **94.32%** and failed to meet the benchmark of ≥95% for %age of call answered by the operators (voice to voice) within 90 seconds.

- Idea has parameter value of **0.20%** and failed to meet the benchmark of ≤ 0.1% for Metering and Billing Credibility (Prepaid).

- RCOM CDMA has parameter value of **98.79%** and failed to meet the benchmark of = 100% for Time taken for refund of deposits after closures (Cleared over a period of <60 days).

- RCOM GSM has parameter value of **98.88%** and failed to meet the benchmark of = 100% for Time taken for refund of deposits after closures (Cleared over a period of <60 days).

- RCOM CDMA has parameter value of **92.37%** and failed to meet the benchmark of ≥95% for %age of call answered by the operators (voice to voice) within 90 seconds.

- RCOM GSM has parameter value of **86.57%** and failed to meet the benchmark of ≥95% for %age of call answered by the operators (voice to voice) within 90 seconds.

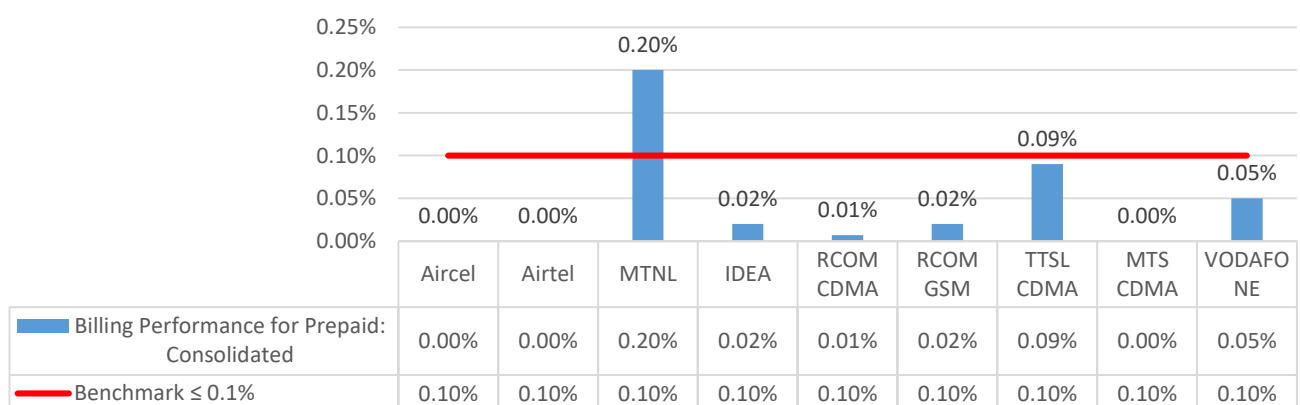- Vodafone has parameter value of **0.15%** and failed to meet the benchmark of ≤ 0.1% for Metering and Billing credibility (Postpaid subscribers).

- Vodafone has parameter value of **99.85%** and failed to meet the benchmark of = 100% for Billing Complaints (%age of where credit/waiver is received within one week).

3 Days Live Call Centre Data

- Airtel has parameter value of 90.00% and failed to meet the benchmark of ≥95% for % age calls answered by the operator within 90 seconds.

- RCOM CDMA has parameter value of 86.00% and failed to meet the benchmark of ≥95% for % age calls answered by the operator within 90 seconds.

- RCOM GSM has parameter value of 92.00% and failed to meet the benchmark of ≥95% for % age calls answered by the operator within 90 seconds.

12. PMR COMPARISON (AGENCY VS TSP)

12.1. Network Parameters

Name of Service Provider	Network Availability				Connection Establishment (Accessibility)						Connection Maintenance (Retainability)					
	Sum of downtime of BTSs in a month in hrs. in the licensed service area		No. of BTSs having accumulated downtime of >24 hours in a month		Call Set-up Success Rate (Within Licensee own network)		SDDCH/Paging chl. Congestion		TCH Congestion		Call Drop Rate (%age)		Wost Affected cell having more than 3% TCH drop		%age of connection with good voice quality	
Benchmark	≤ 2%		≤ 2%		≥ 95%		≤ 1%		≤ 2%		≤ 2%		≤ 3%		≥ 95%	
	Agency	TSP	Agency	TSP	Agency	TSP	Agency	TSP	Agency	TSP	Agency	TSP	Agency	TSP	Agency	TSP
Aircel	0.20%	0.20%	0.44%	0.44%	97.76%	97.76%	0.39%	0.39%	1.19%	1.19%	0.96%	0.96%	4.87%	4.87%	97.04%	97.04%
Airtel	0.01%	0.01%	0.00%	0.00%	99.85%	99.85%	0.04%	0.04%	0.05%	0.05%	0.76%	0.76%	1.23%	1.23%	99.19%	99.19%
Idea	0.04%	0.04%	0.00%	0.00%	98.87%	98.87%	0.60%	0.60%	0.60%	0.60%	0.68%	0.68%	2.41%	2.41%	98.12%	98.12%
MTNL GSM	0.14%	0.14%	0.42%	0.41%	97.06%	97.06%	0.44%	0.44%	1.81%	1.82%	1.84%	1.85%	2.56%	2.57%	97.09%	97.09%
MTS	0.07%	0.07%	0.03%	0.03%	98.86%	98.86%	NA	0.00%	0.19%	0.19%	0.27%	0.27%	1.33%	1.32%	99.20%	99.20%
RCOM CDMA	0.04%	0.04%	0.15%	0.26%	96.75%	96.77%	NA	0.00%	1.27%	1.27%	0.18%	0.19%	0.82%	0.90%	99.17%	99.13%
RCOM GSM	0.12%	0.11%	0.86%	0.67%	97.32%	97.46%	0.38%	0.40%	0.86%	0.83%	0.15%	0.16%	0.75%	0.75%	98.72%	99.05%
TATA CDMA	0.03%	0.03%	0.07%	0.07%	99.26%	99.26%	NA	0.00%	0.03%	0.03%	0.29%	0.29%	2.12%	2.11%	99.19%	99.19%
Vodafone	0.13%	0.13%	0.64%	0.64%	98.47%	98.47%	0.43%	0.43%	0.87%	0.87%	1.20%	1.20%	2.73%	2.73%	97.72%	97.72%

- **For each instance of "DNA (Data Not Available)", please refer the respective hard copy of audit report(s).

12.2. CSD Parameters

Name of Service Provider	Metering and Billing credibility				Billing Complaints						Termination & Closures		Time taken for refund of deposits after closures: Benchmark		Customer Care			
	Postpaid Subscribers		Prepaid Subscribers		%age complaints resolved within 4 weeks		%age complaints resolved within 6 weeks		%age of credit/weiver is received within one week		% of Termination/ Closure of service within 7 days (100 %)		Cleared over a period of <60 days (100%)		%age of calls answered by the IVR		%age of call answered by the operators (voice to voice) within 90 seconds	
Benchmark	≤ 0.1%		≤ 0.1%		≥ 98%		= 100%		= 100%		= 100%		= 100%		≥ 95%		≥ 95%	
	Agency	TSP	Agency	TSP	Agency	TSP	Agency	TSP	Agency	TSP	Agency	TSP	Agency	TSP	Agency	TSP	Agency	TSP
Aircel	0.01%	0.01%	0.00%	0.00%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	91.50%	91.50%	94.30%	94.30%
Airtel	0.02%	0.02%	0.00%	0.00%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	94.32%	94.32%
Idea	0.07%	0.07%	0.20%	0.20%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98.98%	98.98%	98.62%	98.62%
MTNL	0.06%	0.06%	0.02%	0.01%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	97.22%	97.44%	98.00%	97.98%
MTS	0.00%	0.00%	0.01%	0.00%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99.10%	99.10%	97.80%	97.80%
RCOM CDMA	0.09%	0.09%	0.02%	0.02%	100%	100%	100%	100%	100%	100%	100%	100%	98.79%	98.79%	98.24%	98.24%	92.37%	92.37%
RCOM GSM	0.09%	0.09%	0.09%	0.09%	100%	100%	100%	100%	100%	100%	100%	100%	98.88%	98.88%	98.28%	98.28%	86.57%	86.57%
TATA CDMA	0.00%	0.00%	0.00%	0.00%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99.26%	99.26%	96.44%	96.44%
Vodafone	0.15%	0.15%	0.05%	0.05%	100%	100%	100%	100%	99.85%	99.85%	100%	100%	100%	100%	100.00%	100.00%	97.16%	97.16%

12.3. Key Findings: BTSs Accumulated Downtime

BTSs Accumulated downtime (not available for service) (%age)

	Aircel	Airtel	Idea	MTNL GSM	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR Data Audit Agency: Consolidated	0.20%	0.01%	0.04%	0.14%	0.07%	0.04%	0.12%	0.03%	0.13%
PMR Data TSP: Consolidated	0.20%	0.01%	0.04%	0.14%	0.07%	0.04%	0.11%	0.03%	0.13%
Benchmark ≤ 2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
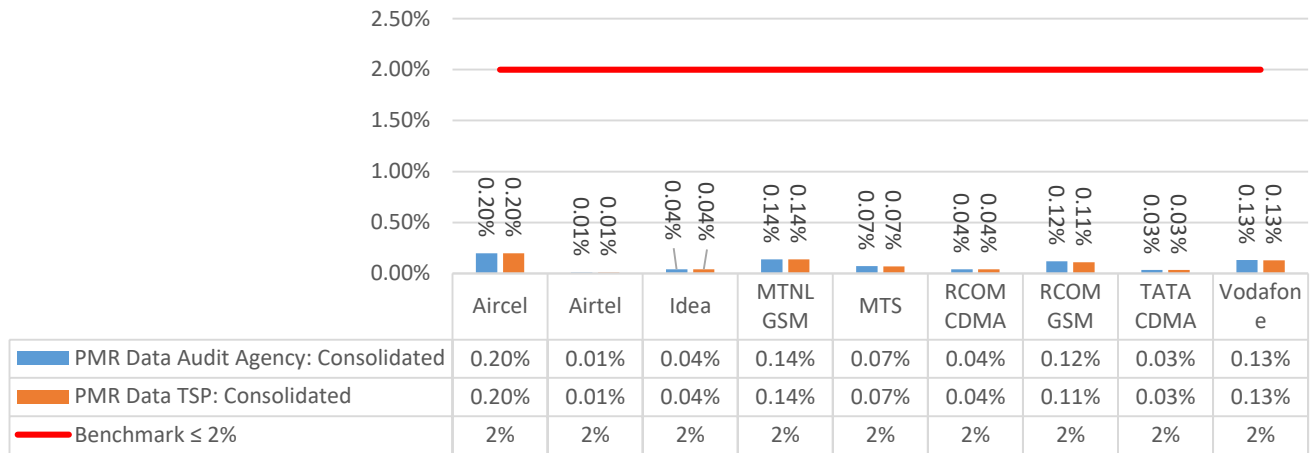
12.4. Key Findings: Worst affected BTSs due to downtime

Worst affected BTSs due to downtime (%age)

	Aircel	Airtel	Idea	MTNL GSM	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR Data Audit Agency: Consolidated	0.44%	0.00%	0.00%	0.42%	0.03%	0.15%	0.86%	0.07%	0.64%
PMR Data TSP: Consolidated	0.44%	0.00%	0.00%	0.41%	0.03%	0.26%	0.67%	0.07%	0.64%
Benchmark ≤ 2%	2%	2%	2%	2%	2%	2%	2%	2%	2%

12.5. Key Findings: Call Setup Success Rate

Call Set-up Success Rate (within licensee's own network)

	Aircel	Airtel	Idea	MTNL GSM	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR Data Audit Agency: Consolidated	97.76%	99.85%	98.87%	97.06%	98.86%	96.75%	97.32%	99.26%	98.47%
PMR Data TSP: Consolidated	97.76%	99.85%	98.87%	97.06%	98.86%	96.77%	97.46%	99.26%	98.47%
Benchmark ≥ 95%	95%	95%	95%	95%	95%	95%	95%	95%	95%

12.6. Key Findings: SDCCH/Paging Channel Congestion

SDCCH/ Paging Chl. Congestion(%age)

	Aircel	Airtel	Idea	MTNL GSM	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR Data Audit Agency: Consolidated	0.39%	0.04%	0.60%	0.44%	0.00%	0.00%	0.38%	0.00%	0.43%
PMR Data TSP: Consolidated	0.39%	0.04%	0.60%	0.44%	0.00%	0.00%	0.40%	0.00%	0.43%
Benchmark ≤ 1%	1%	1%	1%	1%	1%	1%	1%	1%	1%

12.7. Key Findings: TCH Congestion

TCH Congestion (%age)

	Aircel	Airtel	Idea	MTNL GSM	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR Data Audit Agency: Consolidated	1.19%	0.05%	0.60%	1.81%	0.19%	1.27%	0.86%	0.03%	0.87%
PMR Data TSP: Consolidated	1.19%	0.05%	0.60%	1.82%	0.19%	1.27%	0.83%	0.03%	0.87%
Benchmark ≤ 2%	2%	2%	2%	2%	2%	2%	2%	2%	2%

12.8. Key Findings: Call Drop Rate

Call Drop Rate (%age)

	Aircel	Airtel	Idea	MTNL GSM	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR Data Audit Agency: Consolidated	0.96%	0.76%	0.68%	1.84%	0.27%	0.18%	0.15%	0.29%	1.20%
PMR Data TSP: Consolidated	0.96%	0.76%	0.68%	1.85%	0.27%	0.19%	0.16%	0.29%	1.20%
Benchmark ≤ 2%	2%	2%	2%	2%	2%	2%	2%	2%	2%

12.9.   Key Findings: Worst Affected call having more than 3% TCH drop

Worst affected cells having more than 3% TCH drop (call drop) rate (%age)

	Aircel	Airtel	Idea	MTNL GSM	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
■ PMR Data Audit Agency: Consolidated	5.11%	1.23%	2.41%	2.56%	1.33%	0.82%	0.75%	2.12%	2.73%
■ PMR Data TSP: Consolidated	4.87%	1.23%	2.41%	2.57%	1.32%	0.90%	0.75%	2.11%	2.73%
— Benchmark ≤ 3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
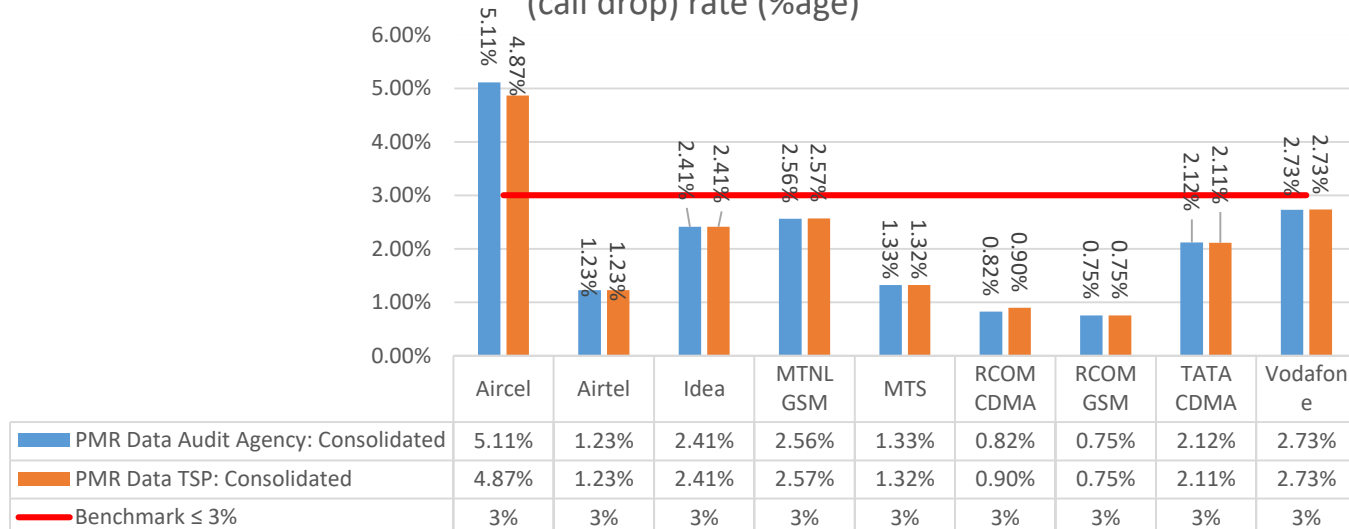
12.10.   Key Findings: Connection with Good Voice Quality

Connection with good voice quality

	Aircel	Airtel	Idea	MTNL GSM	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
■ PMR Data Audit Agency: Consolidated	97.04%	99.19%	98.12%	97.09%	99.20%	99.17%	98.72%	99.19%	97.72%
■ PMR Data TSP: Consolidated	97.04%	99.19%	98.12%	97.09%	99.20%	99.13%	99.05%	99.19%	97.72%
— Benchmark ≥ 95%	95%	95%	95%	95%	95%	95%	95%	95%	95%

12.11.   Key Findings: Metering and Billing Credibility: Postpaid

Metering and billing credibility - Post paid

	Aircel	Airtel	Idea	MTNL GSM	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR Data Audit Agency: Consolidated	0.01%	0.02%	0.07%	0.06%	0.00%	0.09%	0.09%	0.00%	0.15%
PMR Data TSP: Consolidated	0.01%	0.02%	0.07%	0.06%	0.00%	0.09%	0.09%	0.00%	0.15%
Benchmark ≤ 0.1%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%

12.12.   Key Findings: Metering and Billing Credibility: Prepaid

Metering and billing credibility - Pre paid

	Aircel	Airtel	Idea	MTNL GSM	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR Data Audit Agency: Consolidated	0.00%	0.00%	0.20%	0.02%	0.01%	0.02%	0.09%	0.00%	0.05%
PMR Data TSP: Consolidated	0.00%	0.00%	0.20%	0.01%	0.00%	0.02%	0.09%	0.00%	0.05%
Benchmark ≤ 0.1%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%

Resolution of billing/charging complaints within 4 weeks

	Air cel	Airt el	Ide a	MT NL GS M	MT S	RC OM CD MA	RC OM GS M	TA TA CD MA	Vo daf on e
PMR Data Audit Agency: Consolidated	100%	100%	100%	100%	100%	100%	100%	100%	100%
PMR Data TSP: Consolidated	100%	100%	100%	100%	100%	100%	100%	100%	100%
Benchmark ≥ 98%	98%	98%	98%	98%	98%	98%	98%	98%	98%

Resolution of billing/charging complaints within 4 weeks

	Airc el	Airt el	Ide a	MT NL GS M	MT S	RC OM CD MA	RC OM GS M	TAT A CD MA	Vod afo ne
PMR Data Audit Agency: Consolidated	100%	100%	100%	100%	100%	100%	100%	100%	100%
PMR Data TSP: Consolidated	100%	100%	100%	100%	100%	100%	100%	100%	100%
Benchmark ≥ 98%	98%	98%	98%	98%	98%	98%	98%	98%	98%

12.15.   Key Findings: Period of applying credit/ waiver/ adjustment to customer's account from the date of resolution of complaints

Period of applying credit/ waiver/ adjustment to customer's account from the date of resolution of complaints

	Aircel	Airtel	Idea	MTNL GSM	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR Data Audit Agency: Consolidated	100%	100%	100%	100%	100%	100%	100%	100%	99.85%
PMR Data TSP: Consolidated	100%	100%	100%	100%	100%	100%	100%	100%	99.85%
Benchmark =100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
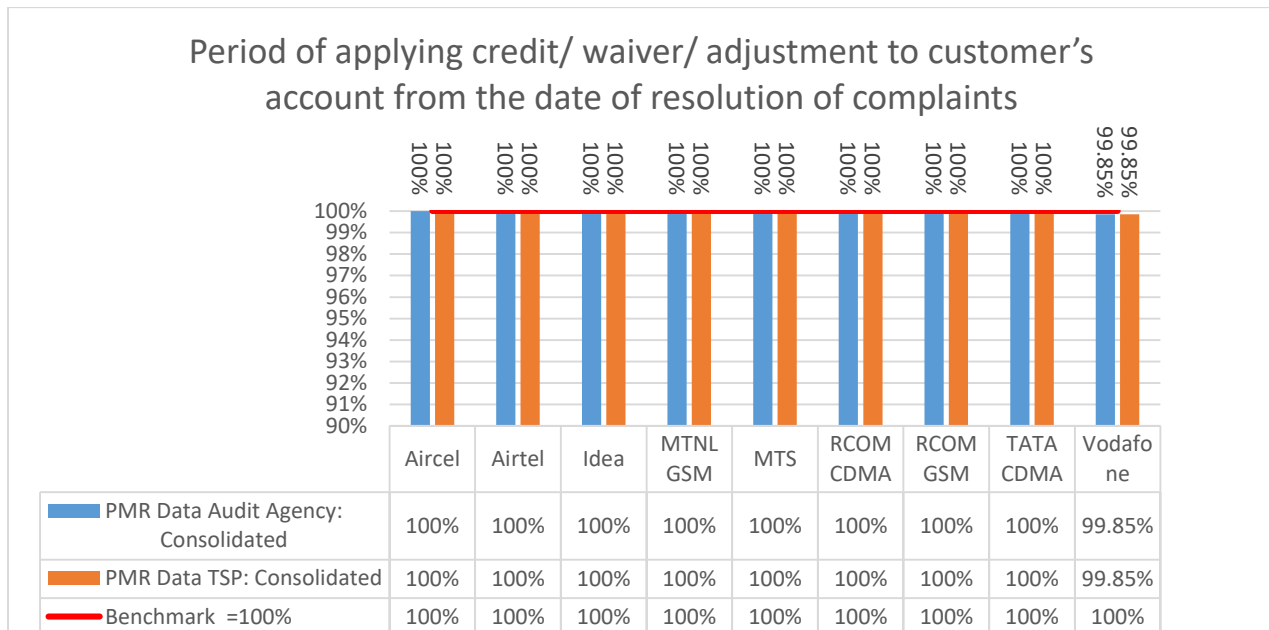
12.16.   Key Findings: Accessibility of call centre/ customer care

Accessibility of call centre/ customer care

	Aircel	Airtel	Idea	MTNL GSM	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR Data Audit Agency: Consolidated	91.50%	100%	98.98%	97.22%	99.10%	98.24%	98.28%	99.26%	100%
PMR Data TSP: Consolidated	91.50%	99.99%	98.98%	97.44%	99.10%	98.24%	98.28%	99.26%	100%
Benchmark ≥ 95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
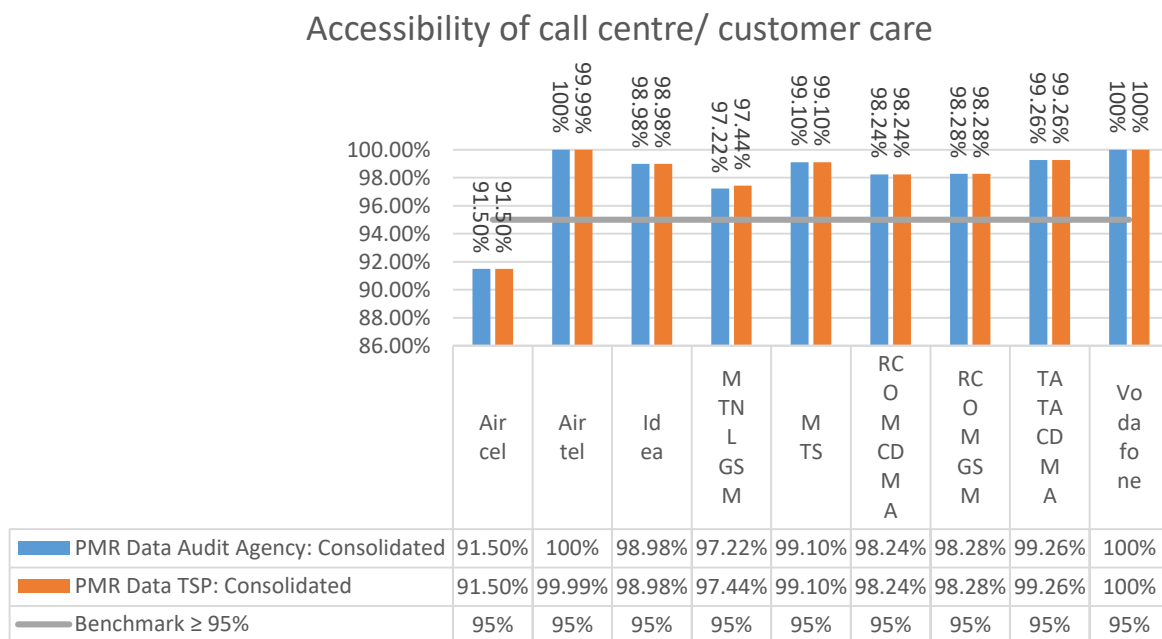
12.17.   Key Findings: Percentage of calls answered by the operators (voice to voice) within 90 seconds

Percentage of calls answered by the operators (voice to voice) within 90 seconds

	Aircel	Airtel	Idea	MTNL GSM	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR Data Audit Agency: Consolidated	94.30%	94.32%	98.62%	98.00%	97.80%	92.37%	86.57%	99.44%	97.16%
PMR Data TSP: Consolidated	94.30%	94.32%	98.62%	97.98%	97.80%	92.37%	86.57%	96.44%	97.16%
Benchmark ≥ 95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
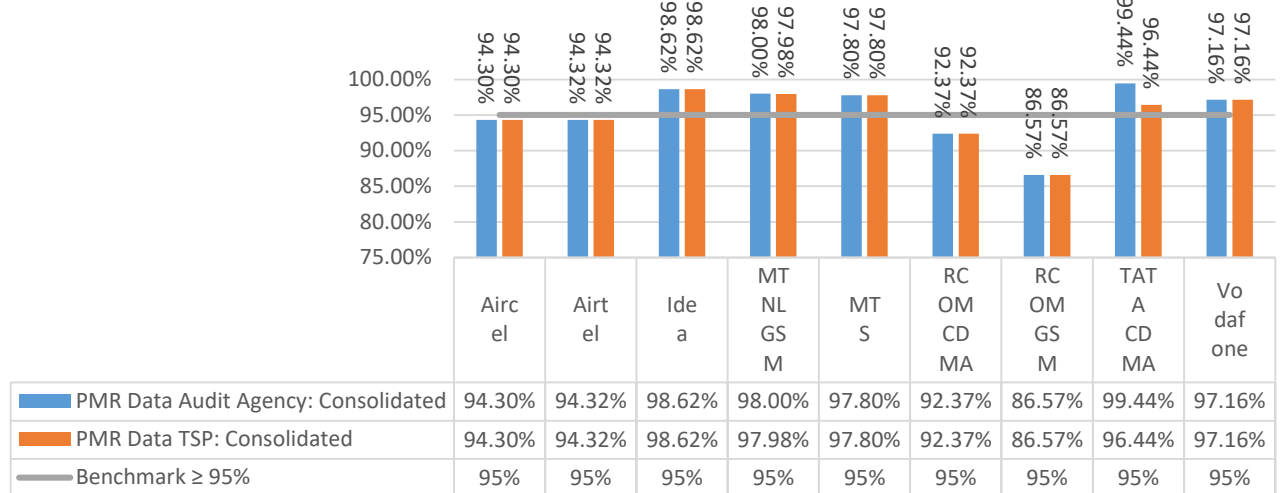
12.18.   Key Findings: Percentage requests for Termination / Closure of service complied within 7 days

%Age Requests for Termination / Closure of service complied within 7 days

	Aircel	Airtel	Idea	MTNL GSM	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR Data Audit Agency: Consolidated	100%	100%	100%	100%	100%	100%	100%	100%	100%
PMR Data TSP: Consolidated	100%	100%	100%	100%	100%	100%	100%	100%	100%
Benchmark =100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
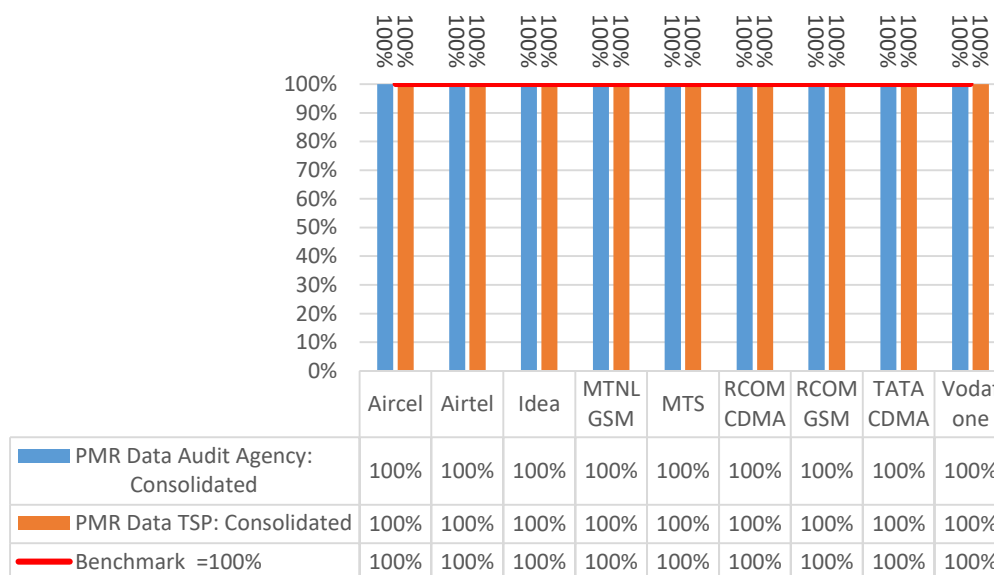
12.19.   Key Findings: Time taken for refund of deposits after closures within 60 days

Time taken for refund of deposits after closures within 60 days

	Aircel	Airtel	Idea	MTNL GSM	MTS	RCOM CDMA	RCOM GSM	TATA CDMA	Vodafone
PMR Data Audit Agency: Consolidated	100%	100%	100%	100%	100%	98.79%	98.88%	100%	100%
PMR Data TSP: Consolidated	100%	100%	100%	100%	100%	98.79%	98.88%	100%	100%
Benchmark =100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
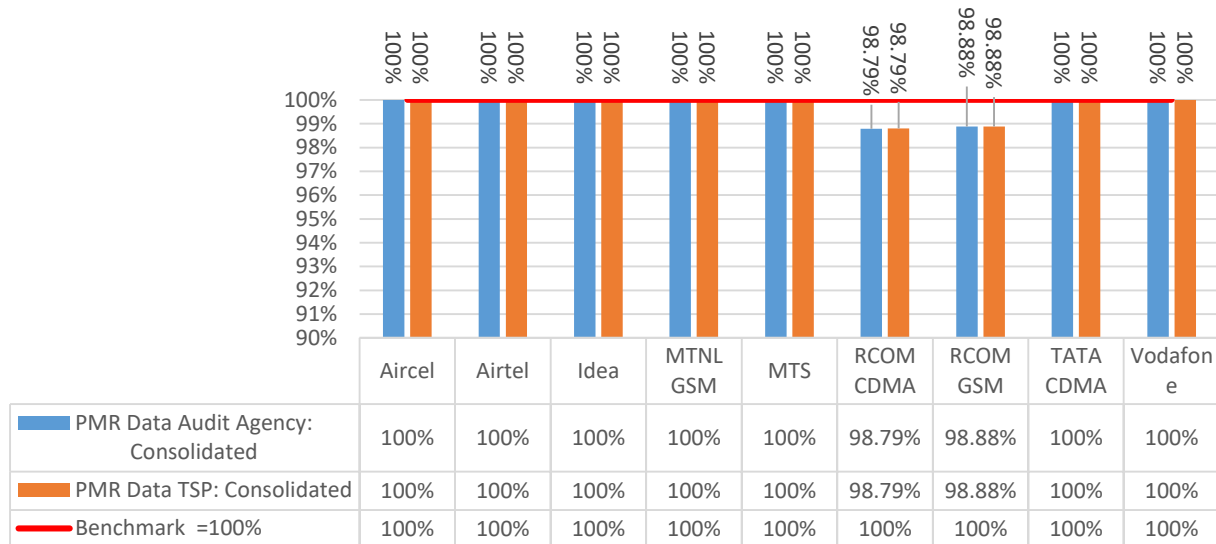
10. OPERATOR ASSISTED DRIVE TEST

The drive test was conducted simultaneously for all the operators present in the Delhi circle. As per the new directive given by TRAI headquarters, drive test for the month of October, November and December, 2015 were conducted at a SSA level. Drive test was conducted for three days in each SSA and the selection of routes ensured that the maximum towns, villages, highways are covered as part of drive test. The routes were selected on basis of the complaints received from the customers. The auditors were present in vehicles of every operator. The holding period for all test calls was 120 seconds and the gap between calls was 10 seconds.

For measuring voice quality RxQual samples for GSM operators and Frame Error Rate (FERs) for CDMA service providers were measured. RxQual greater than 5 meant that the sample was not of appropriate voice quality and for CDMA operators FERs of more than 4 were considered bad. Call drops were measured by the number of calls that were dropped to the total number of calls established during the drive test. Similarly CSSR was measured as the ratio of total calls established to the total call attempts made. Signal strength was measured in Dbm with strength > -75dbm for indoor, -85 dbm for in-vehicle and > -95 dbm outdoor routes.   Below is the schedule and operators involved in the drive test for the Delhi circle.

10.1. NOVEMBER: DELHI SSA

Month	Name of SSA covered	Drive Test Schedule
November 2015	Delhi	November 23, 2015 to November 25, 2015

10.2. DISTANCE COVERED: DELHI SSA

Drive Test Distance Covered	Day 1	Day 2	Day 3
Delhi SSA	140 km	126 km	110 km

10.3. ROUTE MAP: DELHI SSA: DAY 1

SSA: Delhi
Outdoor
Route Name
HIGHWAY(Noida-Greater Noida Expressway-NH-24)
MAJOR ROADS(Sector-122-Sector-71-Hoshiyarpur-Sector-46-sector-37-sector-18-sector16-sector15-sector-28-sector 29-Nithashi Road-NTPC Road-Yamaha Company-Kisan Chowk Road-Sarafabad Road-Sector62-sector 61)
WITHIN CITY (Sector 50-sector52-Sector59-Sector 44-Sector 105-Hazipur-Basola-Sector12-Khora Cut-Nayawas-Atta Market)
Indoor
Route Name
TGIP MALL,NOIDA

Route Covered Day1

1. Sector122
2. Sector71
3. Hoshiyarpur
4. Sector46
5. sector37
6. sector18
7. Sector16
8. Sector15
9. sector28
10. sector 29
11. Nithashi Road
12. NTPC Road
13. Yamaha Company
14. Kisan Chowk Road
15. Sarafabad Road
16. Sector62
17. sector 61
18. Sector 50
19. Sector52
20. Sector59
21. Sector 44
22. Sector 105
23. HazipurBasolaSector 12Khora CutNayawas
24. Atta Market
25. NoidaGreater Noida ExpresswayNH24

NEW SITEPLANNED

SITE HALTED

Legend

RX LEVEL-DAY-01

○	-65 to 0	(149256)
○	-75 to -65	(11492)
○	-65 to -75	(3518)
○	-95 to -85	(921)
○	-120 to -95	(1246)

10.4. ROUTE MAP: DELHI SSA: DAY 2

SSA: Delhi
Outdoor
Route Name
HIGHWAY(Noida-Greater Noida Expressway-Sector-44 to Pari Chowk)
MAJOR ROAD(LG Road-Yamaha Company Road-Police Line-Surajpur-Gol Chakkar Road-Greater Noida Authority Road-Ryan Public School-Bhangel-Surajpur Road)
WITHIN CITY(OPPOSITE HONDA City-Alpha Sector-Beta Sector-Gamma Sector-Phi Sector-Delta Sector-Knowledge Park)
Indoor
Route Name
Ansal Plaza,Greater Noida

10.5. ROUTE MAP: DELHI SSA: DAY 3

SSA: Delhi
Outdoor
Route Name
HIGHWAY(Delhi to Meerut Road-Delhi to Hapur Road-Bulandshahar-Dadri Road)
MAJOR ROADS(Chaudhary Mod-Lal Kuan to Mohan Nagar-Nehru Nagar Road-Raj Nagar Road-Bhaupura Road-Sahibabad Road-Lajpat Rai Road-Lohia Park-Kabir Nagar)
WITHIN CITY (Vaishali-Indirapuram-Vasundhara-Ghaziabad)
Indoor
Route Name
CHAUDHARY MALL,GHAZIABAD
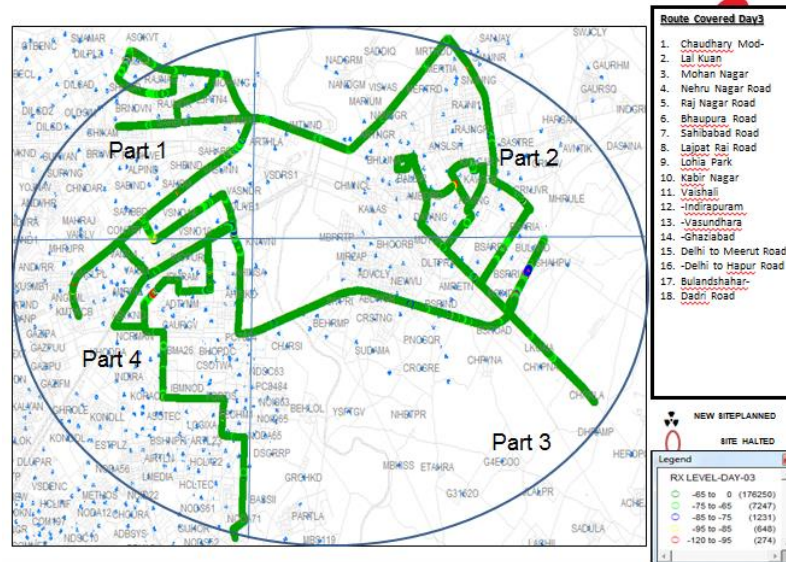
10.6. DRIVE REPORT ANALYSIS

10.6.1. AIRCEL DAY 1:

SSA (Urban/Rural)-Day 1				
RxQual	Samples (S)	Total	%	Summary
0 ≤ S < 1	182096	287369	63.37	
1 ≤ S < 2	13374	287369	4.65	
2 ≤ S < 3	14923	287369	5.19	
3 ≤ S < 4	16328	287369	5.68	
4 ≤ S < 5	16025	287369	5.58	
5 ≤ S < 6	17999	287369	6.26	
6 ≤ S	26624	287369	9.26	

RxLev	Samples	Total	%
0 to > = -75	142679	152939	93.29
0 to > = -85	149688	152939	97.87
0 to > = -95	151826	152939	99.27

Office Complex SSA (Urban/Rural)- Day 1				
RxQual	Samples (S)	Total	%	Summary
0 ≤ S < 1	2835	5845	48.5	
1 ≤ S < 2	457	5845	7.82	
2 ≤ S < 3	538	5845	9.2	
3 ≤ S < 4	566	5845	9.68	
4 ≤ S < 5	473	5845	8.09	
5 ≤ S < 6	488	5845	8.35	
6 ≤ S	488	5845	8.35	
RxLev	Samples	Total	%	
0 to > = -75	4564	6071	75.18	
0 to > = -85	6052	6071	99.69	
0 to > = -95	6071	6071	100	

Over All SSA Drive Test Details Day-1				
RxQual	Samples (S)	Total	%	Summary
0-4 (w/o frequency hopping)/CDMA				
0-5 (with frequency hopping	266102	293214	90.75	
Total Call Attempt	203			
Blocked Call Rate (<=3%)	1.97%			
Dropped Call Rate (<=2%)	1.01%			
Call Setup Success Rate (>=95%)	98.03%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	99.19%			
RxLev	Samples	Total	%	
0 to > = -75	147243	159010	92.6	
0 to > = -85	155740	159010	97.94	
0 to > = -95	157897	159010	99.3	

SSA (Urban/Rural)-Day 2				
RxQual	Samples (S)	Total	%	Summary
0 ≤ S < 1	170402	232182	73.39	
1 ≤ S < 2	8409	232182	3.62	
2 ≤ S < 3	9165	232182	3.95	
3 ≤ S < 4	9405	232182	4.05	
4 ≤ S < 5	8784	232182	3.78	
5 ≤ S < 6	10058	232182	4.33	
6 ≤ S	15959	232182	6.87	
RxLev	Samples	Total	%	
0 to > = -75	95097	104980	90.59	
0 to > = -85	102544	104980	97.68	
0 to > = -95	104166	104980	99.22	

Office Complex SSA (Urban/Rural)- Day 2				
RxQual	Samples (S)	Total	%	Summary
0 ≤ S < 1	5583	6394	87.32	
1 ≤ S < 2	187	6394	2.92	
2 ≤ S < 3	160	6394	2.5	
3 ≤ S < 4	176	6394	2.75	
4 ≤ S < 5	125	6394	1.95	
5 ≤ S < 6	98	6394	1.53	
6 ≤ S	65	6394	1.02	
RxLev	Samples	Total	%	
0 to > = -75	1427	6680	21.36	
	6512	6680	97.49	
0 to > = -95	6680	6680	100	

Over All SSA Drive Test Details Day-2				
RxQual	Samples (S)	Total	%	Summary
0-4 (w/o frequency hopping)/CDMA				
0-5 (with frequency hopping	222552	238576	93.28	

Total Call Attempt		176		
Blocked Call Rate (<=3%)		1.14%		
Dropped Call Rate (<=2%)		0.00%		
Call Setup Success Rate (>=95%)		98.86%		
Handover Success Rate % (total HO Success * 100/Total HO attempt)		100.00%		
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	96524	111660	86.44	
0 to > = -85	109056	111660	97.67	
0 to > = -95	110846	111660	99.27	

10.6.3. AIRCEL DAY 3:

SSA (Urban/Rural)-Day 3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	211658	308539	68.6	
1 ≤ S < 2	11791	308539	3.82	
2 ≤ S < 3	12146	308539	3.94	
3 ≤ S < 4	13079	308539	4.24	
4 ≤ S < 5	14236	308539	4.61	
5 ≤ S < 6	16022	308539	5.19	
6 ≤ S	29607	308539	9.6	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	162732	167966	96.88	
0 to > = -85	166154	167966	98.92	
0 to > = -95	167239	167966	99.57	

Office Complex SSA (Urban/Rural)- Day 3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	4739	6441	73.58	
1 ≤ S < 2	304	6441	4.72	
2 ≤ S < 3	290	6441	4.5	
3 ≤ S < 4	317	6441	4.92	
4 ≤ S < 5	271	6441	4.21	
5 ≤ S < 6	269	6441	4.18	

RxQual	Samples	Total	%	
6 ≤ S	251	6441	3.9	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	5911	6695	88.29	
0 to > = -85	6689	6695	99.91	
0 to > = -95	6695	6695	100	

Over All SSA Drive Test Details Day-3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA				
0-5 (with frequency hopping	285122	314980	90.52	
Total Call Attempt	221			
Blocked Call Rate (<=3%)	0.90%			
Dropped Call Rate (<=2%)	0.46%			
Call Setup Success Rate (>=95%)	99.25%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	99.35%			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	168643	174661	96.55	
0 to > = -85	172843	174661	98.96	
0 to > = -95	173934	174661	99.58	

10.6.4. AIRCEL OVERALL

Over All SSA Details				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	577313	846770	68.18	
1 ≤ S < 2	34522	846770	4.08	
2 ≤ S < 3	37222	846770	4.4	
3 ≤ S < 4	39871	846770	4.71	
4 ≤ S < 5	39914	846770	4.71	
5 ≤ S < 6	44934	846770	5.31	
6 ≤ S	72994	846770	8.62	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	412410	445331	92.6	
0 to > = -85	437639	445331	98.3	
0 to > = -95	442677	445331	99.4	

Total Calls Attempt (A)	600
Total Calls Blocked (B)	8
Blocked Call Rate in % (B*100/A)	1.33
Total Calls Established ('C)	590
Total Calls Drop (D)	3
Dropped Calls Rate in % (D*100/C)	0.51
Call Setup Success Rate in % (C*100/A)	98.33
Handover Success Rate % (total HO Success * 100/Total HO attempt)	99.47

10.6.5. AIRTEL: DAY 1

SSA (Urban/Rural)-Day 1				
RxQual	Samples (S)	Total	%	Summary
0 ≤ S < 1	25904	44561	58.13	
1 ≤ S < 2	2247	44561	5.04	
2 ≤ S < 3	2461	44561	5.52	
3 ≤ S < 4	2873	44561	6.45	
4 ≤ S < 5	2949	44561	6.62	
5 ≤ S < 6	3401	44561	7.63	
6 ≤ S	4726	44561	10.61	
RxLev	Samples	Total	%	
0 to > = -75	25087	25874	96.96	
0 to > = -85	25609	25874	98.98	
0 to > = -95	25764	25874	99.57	

Office Complex SSA (Urban/Rural)- Day 1				
RxQual	Samples (S)	Total	%	Summary
0 ≤ S < 1	3980	6423	61.96	
1 ≤ S < 2	460	6423	7.16	
2 ≤ S < 3	428	6423	6.66	
3 ≤ S < 4	443	6423	6.9	
4 ≤ S < 5	379	6423	5.9	
5 ≤ S < 6	311	6423	4.84	
6 ≤ S	422	6423	6.57	
RxLev	Samples	Total	%	

0 to > = -75	3613	3613	100	
0 to > = -85	3613	3613	100	
0 to > = -95	3613	3613	100	

Over All SSA Drive Test Details Day-1				
RxQual	Samples (S)	Total	%	Summary
0-4 (w/o frequency hopping)/CDMA				
0-5 (with frequency hopping	45836	50984	89.9	
Total Call Attempt	210			
Blocked Call Rate (<=3%)	0.95			
Dropped Call Rate (<=2%)	1.93			
Call Setup Success Rate (>=95%)	98.57			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	95.92			
RxLev	Samples	Total	%	
0 to > = -75	28700	29487	97.33	
0 to > = -85	29222	29487	99.1	
0 to > = -95	29377	29487	99.63	

10.6.6. AIRTEL: DAY 2

SSA (Urban/Rural)-Day 2				
RxQual	Samples (S)	Total	%	Summary
0 ≤ S < 1	20945	35418	59.14	
1 ≤ S < 2	1490	35418	4.21	
2 ≤ S < 3	1710	35418	4.83	
3 ≤ S < 4	2023	35418	5.71	
4 ≤ S < 5	2203	35418	6.22	
5 ≤ S < 6	2792	35418	7.88	
6 ≤ S	4255	35418	12.01	
RxLev	Samples	Total	%	
0 to > = -75	19656	20174	97.43	
0 to > = -85	19978	20174	99.03	
0 to > = -95	20097	20174	99.62	

Office Complex SSA (Urban/Rural)- Day 2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	6120	6410	95.48	
1 ≤ S < 2	61	6410	0.95	
2 ≤ S < 3	54	6410	0.84	
3 ≤ S < 4	59	6410	0.92	
4 ≤ S < 5	46	6410	0.72	
5 ≤ S < 6	28	6410	0.44	
6 ≤ S	42	6410	0.66	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	3604	3604	100	
0 to > = -85	3604	3604	100	
0 to > = -95	3604	3604	100	

Over All SSA Drive Test Details Day-2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA				
0-5 (with frequency hopping	37531	41828	89.73	
Total Call Attempt	177			
Blocked Call Rate (<=3%)	2.26			
Dropped Call Rate (<=2%)	1.16			
Call Setup Success Rate (>=95%)	97.74			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	94.1			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	23260	23778	97.82	
0 to > = -85	23582	23778	99.18	
0 to > = -95	23701	23778	99.68	

10.6.7. AIRTEL: DAY 3

SSA (Urban/Rural)-Day 3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**

RxQual	Samples	Total	%
0 ≤ S < 1	30803	50138	61.44
1 ≤ S < 2	2011	50138	4.01
2 ≤ S < 3	2358	50138	4.7
3 ≤ S < 4	2785	50138	5.55
4 ≤ S < 5	3083	50138	6.15
5 ≤ S < 6	3565	50138	7.11
6 ≤ S	5533	50138	11.04
RxLev	**Samples**	**Total**	**%**
0 to > = -75	28058	28414	98.75
0 to > = -85	28295	28414	99.58
0 to > = -95	28369	28414	99.84

Office Complex SSA (Urban/Rural)- Day 3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	4746	6369	74.52	
1 ≤ S < 2	237	6369	3.72	
2 ≤ S < 3	232	6369	3.64	
3 ≤ S < 4	202	6369	3.17	
4 ≤ S < 5	199	6369	3.12	
5 ≤ S < 6	337	6369	5.29	
6 ≤ S	416	6369	6.53	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	3584	3584	100	
0 to > = -85	3584	3584	100	
0 to > = -95	3584	3584	100	

Over All SSA Drive Test Details Day-3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA				
0-5 (with frequency hopping	50558	56507	89.47	
Total Call Attempt	230			
Blocked Call Rate (<=3%)	1.3			
Dropped Call Rate (<=2%)	0			
Call Setup Success Rate (>=95%)	98.7			

Handover Success Rate % (total HO Success * 100/Total HO attempt)		97.84		
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	31642	31998	98.89	
0 to > = -85	31879	31998	99.63	
0 to > = -95	31953	31998	99.86	

10.6.8. AIRTEL: OVERALL

Over All SSA Details				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	92498	149319	61.95	
1 ≤ S < 2	6506	149319	4.36	
2 ≤ S < 3	7243	149319	4.85	
3 ≤ S < 4	8385	149319	5.62	
4 ≤ S < 5	8859	149319	5.93	
5 ≤ S < 6	10434	149319	6.99	
6 ≤ S	15394	149319	10.31	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	83602	85263	98.05	
0 to > = -85	84683	85263	99.32	
0 to > = -95	85031	85263	99.73	

Total Calls Attempt (A)	617
Total Calls Blocked (B)	9
Blocked Call Rate in % (B*100/A)	1.46
Total Calls Established ('C)	607
Total Calls Drop (D)	6
Dropped Calls Rate in % (D*100/C)	0.99
Call Setup Success Rate in % (C*100/A)	98.38
Handover Success Rate % (total HO Success * 100/Total HO attempt)	96.23

10.6.9. IDEA: DAY 1

SSA (Urban/Rural)-Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	204730	257024	79.65	
1 ≤ S < 2	6769	257024	2.63	
2 ≤ S < 3	6689	257024	2.6	

3 ≤ S < 4	7538	257024	2.93
4 ≤ S < 5	7591	257024	2.95
5 ≤ S < 6	8616	257024	3.35
6 ≤ S	15091	257024	5.87
RxLev	**Samples**	**Total**	**%**
0 to > = -75	86451	99406	86.97
0 to > = -85	95963	99406	96.54
0 to > = -95	98465	99406	99.05

Office Complex SSA (Urban/Rural)- Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	35463	37508	94.55	
1 ≤ S < 2	597	37508	1.59	
2 ≤ S < 3	567	37508	1.51	
3 ≤ S < 4	231	37508	0.62	
4 ≤ S < 5	231	37508	0.62	
5 ≤ S < 6	197	37508	0.53	
6 ≤ S	222	37508	0.59	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	13667	13675	99.94	
0 to > = -85	13675	13675	100	
0 to > = -95	13675	13675	100	

Over All SSA Drive Test Details Day-1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA				
0-5 (with frequency hopping	270406	294532	91.81	
Total Call Attempt	196			
Blocked Call Rate (<=3%)	2.55%			
Dropped Call Rate (<=2%)	1.05%			
Call Setup Success Rate (>=95%)	96.93%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	98.56%			

RxLev	Samples	Total	%
0 to > = -75	100118	113081	88.54
0 to > = -85	109638	113081	96.96
0 to > = -95	112140	113081	99.17

10.6.10. IDEA: DAY 2

SSA (Urban/Rural)-Day 2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	177343	223340	79.4	
1 ≤ S < 2	4849	223340	2.17	
2 ≤ S < 3	6020	223340	2.7	
3 ≤ S < 4	6458	223340	2.89	
4 ≤ S < 5	6781	223340	3.04	
5 ≤ S < 6	8074	223340	3.62	
6 ≤ S	13815	223340	6.19	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	81284	96426	84.3	
0 to > = -85	92631	96426	96.06	
0 to > = -95	94640	96426	98.15	

Office Complex SSA (Urban/Rural)- Day 2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	30994	42044	73.72	
1 ≤ S < 2	1809	42044	4.3	
2 ≤ S < 3	2174	42044	5.17	
3 ≤ S < 4	2354	42044	5.6	
4 ≤ S < 5	2598	42044	6.18	
5 ≤ S < 6	1487	42044	3.54	
6 ≤ S	628	42044	1.49	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	14136	14388	98.25	
0 to > = -85	14363	14388	99.83	
0 to > = -95	14388	14388	100	

Over All SSA Drive Test Details Day-2

RxQual	Samples (S)	Total	%	Summary
0-4 (w/o frequency hopping)/CDMA				
0-5 (with frequency hopping	241380	265384	90.95	
Total Call Attempt	171			
Blocked Call Rate (<=3%)	0.58%			
Dropped Call Rate (<=2%)	1.10%			
Call Setup Success Rate (>=95%)	98.83%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	96.20%			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	95420	110814	86.11	
0 to > = -85	106994	110814	96.55	
0 to > = -95	109028	110814	98.39	

10.6.11.   IDEA: DAY 3

SSA (Urban/Rural)-Day 3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	242042	309837	78.12	
1 ≤ S < 2	9212	309837	2.97	
2 ≤ S < 3	9504	309837	3.07	
3 ≤ S < 4	10804	309837	3.49	
4 ≤ S < 5	10058	309837	3.25	
5 ≤ S < 6	11318	309837	3.65	
6 ≤ S	16899	309837	5.45	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	129902	134866	96.32	
0 to > = -85	133750	134866	99.17	
0 to > = -95	134522	134866	99.74	

Office Complex SSA (Urban/Rural)- Day 3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	25347	38951	65.07	
1 ≤ S < 2	2557	38951	6.56	

2 ≤ S < 3	2787	38951	7.16	
3 ≤ S < 4	2695	38951	6.92	
4 ≤ S < 5	2937	38951	7.54	
5 ≤ S < 6	1881	38951	4.83	
6 ≤ S	747	38951	1.92	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	13712	13829	99.15	
0 to > = -85	13790	13829	99.72	
0 to > = -95	13790	13829	99.72	

Over All SSA Drive Test Details Day-3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA				
0-5 (with frequency hopping	317943	348788	91.16	
Total Call Attempt	232			
Blocked Call Rate (<=3%)	3.87%			
Dropped Call Rate (<=2%)	0.00%			
Call Setup Success Rate (>=95%)	94.80%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	95.91%			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	143614	148695	96.58	
0 to > = -85	147540	148695	99.22	
0 to > = -95	148312	148695	99.74	

Over All SSA Details			
RxQual	**Samples (S)**	**Total**	**%**
0 ≤ S < 1	715919	908704	78.78
1 ≤ S < 2	25793	908704	2.84
2 ≤ S < 3	27741	908704	3.05
3 ≤ S < 4	30080	908704	3.31
4 ≤ S < 5	30196	908704	3.32
5 ≤ S < 6	31573	908704	3.47
6 ≤ S	47402	908704	5.22
RxLev	**Samples**	**Total**	**%**
0 to > = -75	339152	372590	91.03
0 to > = -85	364172	372590	97.74
0 to > = -95	369480	372590	99.17

Total Calls Attempt (A)	599
Total Calls Blocked (B)	15
Blocked Call Rate in % (B*100/A)	2.50%
Total Calls Established ('C)	579
Total Calls Drop (D)	4
Dropped Calls Rate in % (D*100/C)	0.69%
Call Setup Success Rate in % (C*100/A)	96.66%
Handover Success Rate % (total HO Success * 100/Total HO attempt)	96.84%

SSA (Urban/Rural)-Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	17252	35838	48.14	
1 ≤ S < 2	1954	35838	5.45	
2 ≤ S < 3	2014	35838	5.62	
3 ≤ S < 4	2642	35838	7.37	
4 ≤ S < 5	2795	35838	7.8	
5 ≤ S < 6	3241	35838	9.04	
6 ≤ S	5940	35838	16.57	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	27051	62461	43.31	
0 to > = -85	51930	62461	83.14	
0 to > = -95	61686	62461	98.76	

Office Complex SSA (Urban/Rural)- Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	3714	6169	60.2	
1 ≤ S < 2	452	6169	7.33	
2 ≤ S < 3	386	6169	6.26	
3 ≤ S < 4	431	6169	6.99	
4 ≤ S < 5	397	6169	6.44	
5 ≤ S < 6	398	6169	6.45	
6 ≤ S	391	6169	6.34	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	7367	10764	68.44	
0 to > = -85	10457	10764	97.15	
0 to > = -95	10754	10764	99.91	

Over All SSA Drive Test Details Day-1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA				
0-5 (with frequency hopping	35676	42007	84.93	
Total Call Attempt	194			

Blocked Call Rate (<=3%)	10.82474227
Dropped Call Rate (<=2%)	13.2183908
Call Setup Success Rate (>=95%)	90.20618557
Handover Success Rate % (total HO Success * 100/Total HO attempt)	59.16030534

RxLev	Samples	Total	%	
0 to > = -75	34418	73225	47	
0 to > = -85	62387	73225	85.2	
0 to > = -95	72440	73225	98.93	

10.6.14.   MTNL: Day 2

SSA (Urban/Rural)-Day 2				
RxQual	Samples (S)	Total	%	Summary
0 ≤ S < 1	13590	19819	68.57	
1 ≤ S < 2	619	19819	3.12	
2 ≤ S < 3	641	19819	3.23	
3 ≤ S < 4	888	19819	4.48	
4 ≤ S < 5	906	19819	4.57	
5 ≤ S < 6	1060	19819	5.35	
6 ≤ S	2115	19819	10.67	
RxLev	Samples	Total	%	
0 to > = -75	16870	32610	51.73	
0 to > = -85	28502	32610	87.4	
0 to > = -95	32098	32610	98.43	

n				
RxQual	Samples (S)	Total	%	Summary
0 ≤ S < 1	5828	6071	96	
1 ≤ S < 2	46	6071	0.76	
2 ≤ S < 3	44	6071	0.72	
3 ≤ S < 4	54	6071	0.89	
4 ≤ S < 5	27	6071	0.44	
5 ≤ S < 6	46	6071	0.76	

RxQual	Samples	Total	%	
6 ≤ S	26	6071	0.43	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	7648	10805	70.78	
0 to > = -85	10090	10805	93.38	
0 to > = -95	10779	10805	99.76	

Over All SSA Drive Test Details Day-2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA				
0-5 (with frequency hopping	23749	25890	91.73	
Total Call Attempt	116			
Blocked Call Rate (<=3%)	11.20689655			
Dropped Call Rate (<=2%)	8.823529412			
Call Setup Success Rate (>=95%)	96.55172414			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	94.03794038			
RxLev	**Samples**	**Total**	**%**	

10.6.15.   MTNL: DAY 3

SSA (Urban/Rural)-Day 3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	31121	48247	64.5	
1 ≤ S < 2	2474	48247	5.13	
2 ≤ S < 3	2322	48247	4.81	
3 ≤ S < 4	2981	48247	6.18	
4 ≤ S < 5	3013	48247	6.24	
5 ≤ S < 6	2996	48247	6.21	
6 ≤ S	3339	48247	6.92	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	46177	78358	58.93	
0 to > = -85	72541	78358	92.58	
0 to > = -95	78035	78358	99.59	

Office Complex SSA (Urban/Rural)- Day 3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	2929	6394	45.81	
1 ≤ S < 2	459	6394	7.18	
2 ≤ S < 3	408	6394	6.38	
3 ≤ S < 4	532	6394	8.32	
4 ≤ S < 5	502	6394	7.85	
5 ≤ S < 6	553	6394	8.65	
6 ≤ S	1011	6394	15.81	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	7100	10557	67.25	
0 to > = -85	10083	10557	95.51	
0 to > = -95	10556	10557	99.99	

Over All SSA Drive Test Details Day-3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA				
0-5 (with frequency hopping	50291	54641	92.04	
Total Call Attempt	222			
Blocked Call Rate (<=3%)	3.153153153			
Dropped Call Rate (<=2%)	2.790697674			
Call Setup Success Rate (>=95%)	96.84684685			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	85.74257426			
RxLev	**Samples**	**Total**	**%**	

10.6.16.   MTNL: OVERALL

Over All SSA Details		
Samples (S)	**Total**	**%**
74434	122538	60.74
6004	122538	4.9
5815	122538	4.75

7528	122538	6.14
7640	122538	6.23
8294	122538	6.77
12822	122538	10.46
Samples	**Total**	**%**
112213	205555	54.60%
183603	205555	89.30%
203908	205555	99.20%

Total Calls Attempt (A)	532
Total Calls Blocked (B)	41
Blocked Call Rate in % (B*100/A)	7.71%
Total Calls Established ('C)	491
Total Calls Drop (D)	38
Dropped Calls Rate in % (D*100/C)	7.74%
Call Setup Success Rate in % (C*100/A)	92.29%
Handover Success Rate % (total HO Success * 100/Total HO attempt)	77.96852647

10.6.17.   RCOM CDMA: Day 1

SSA (Urban/Rural)-Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	32925	41322	79.68	
1 ≤ S < 2	405	41322	0.98	
2 ≤ S < 3	3282	41322	7.94	
3 ≤ S < 4	525	41322	1.27	
4 ≤ S < 5	783	41322	1.89	
5 ≤ S < 6	177	41322	0.43	
6 ≤ S	3225	41322	7.8	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	39124	43132	90.71	
0 to > = -85	43126	43132	99.99	
0 to > = -95	43132	43132	100	

Office Complex SSA (Urban/Rural)- Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	3008	3008	100	
1 ≤ S < 2	0	3008	0	
2 ≤ S < 3	0	3008	0	

RxQual	Samples	Total	%	
3 ≤ S < 4	0	3008	0	
4 ≤ S < 5	0	3008	0	
5 ≤ S < 6	0	3008	0	
6 ≤ S	0	3008	0	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	34916	34922	99.98	
0 to > = -85	34922	34922	100	
0 to > = -95	34922	34922	100	

Over All SSA Drive Test Details Day-1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA	40145	44330	90.56	
0-5 (with frequency hopping				
Total Call Attempt	195			
Blocked Call Rate (<=3%)	0.00%			
Dropped Call Rate (<=2%)	4.10%			
Call Setup Success Rate (>=95%)	100.00%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	100.00%			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	74040	78054	94.86	
0 to > = -85	78048	78054	99.99	
0 to > = -95	78054	78054	100	

10.6.18.   RCOM CDMA: DAY 2

SSA (Urban/Rural)-Day 2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	33001	37003	89.18	
1 ≤ S < 2	204	37003	0.55	
2 ≤ S < 3	1908	37003	5.16	
3 ≤ S < 4	270	37003	0.73	

4 ≤ S < 5	333	37003	0.9
5 ≤ S < 6	75	37003	0.2
6 ≤ S	1212	37003	3.28
RxLev	**Samples**	**Total**	**%**
0 to > = -75	24463	38224	64
0 to > = -85	37198	38224	97.32
0 to > = -95	38224	38224	100

Office Complex SSA (Urban/Rural)- Day 2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	76	77	98.7	
1 ≤ S < 2	0	77	0	
2 ≤ S < 3	1	77	1.3	
3 ≤ S < 4	0	77	0	
4 ≤ S < 5	0	77	0	
5 ≤ S < 6	0	77	0	
6 ≤ S	0	77	0	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	33009	33026	99.95	
0 to > = -85	33026	33026	100	
0 to > = -95	33026	33026	100	

Over All SSA Drive Test Details Day-2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA	35460	37080	95.63	
0-5 (with frequency hopping				
Total Call Attempt	172			
Blocked Call Rate (<=3%)	0.00%			
Dropped Call Rate (<=2%)	0.58%			
Call Setup Success Rate (>=95%)	100.00%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	100.00%			

RxLev	Samples	Total	%
0 to > = -75	57472	71250	80.66
0 to > = -85	70224	71250	98.56
0 to > = -95	71250	71250	100

10.6.19.   RCOM CDMA: Day 3

SSA (Urban/Rural)-Day 3				
RxQual	Samples (S)	Total	%	Summary
0 ≤ S < 1	46644	51609	90.38	
1 ≤ S < 2	405	51609	0.78	
2 ≤ S < 3	3168	51609	6.14	
3 ≤ S < 4	339	51609	0.66	
4 ≤ S < 5	531	51609	1.03	
5 ≤ S < 6	126	51609	0.24	
6 ≤ S	396	51609	0.77	
RxLev	Samples	Total	%	
0 to > = -75	51043	53197	95.95	
0 to > = -85	53197	53197	100	
0 to > = -95	53197	53197	100	

Office Complex SSA (Urban/Rural)- Day 3				
RxQual	Samples (S)	Total	%	Summary
0 ≤ S < 1	91	108	84.26	
1 ≤ S < 2	1	108	0.93	
2 ≤ S < 3	13	108	12.04	
3 ≤ S < 4	0	108	0	
4 ≤ S < 5	1	108	0.93	
5 ≤ S < 6	0	108	0	
6 ≤ S	2	108	1.85	
RxLev	Samples	Total	%	
0 to > = -75	35898	35898	100	
0 to > = -85	35898	35898	100	
0 to > = -95	35898	35898	100	

Over All SSA Drive Test Details Day-3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA	50661	51717	97.96	
0-5 (with frequency hopping				
Total Call Attempt	238			
Blocked Call Rate (<=3%)	0.00%			
Dropped Call Rate (<=2%)	0.84%			
Call Setup Success Rate (>=95%)	100.00%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	100.00%			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	86941	89095	97.58	
0 to > = -85	89095	89095	100	
0 to > = -95	89095	89095	100	

10.6.20.   RCOM CDMA: OVERALL

Over All SSA Details		
Samples (S)	**Total**	**%**
115745	133127	86.94
1015	133127	0.76
8372	133127	6.29
1134	133127	0.85
1648	133127	1.24
378	133127	0.28
4835	133127	3.63
Samples	**Total**	**%**
218453	238399	91.60%
237367	238399	99.60%
238399	238399	100.00%

Total Calls Attempt (A)	605
Total Calls Blocked (B)	0
Blocked Call Rate in % (B*100/A)	0.00%
Total Calls Established ('C)	605
Total Calls Drop (D)	11

Dropped Calls Rate in % (D*100/C)	1.82%
Call Setup Success Rate in % (C*100/A)	100.00%
Handover Success Rate % (total HO Success * 100/Total HO attempt)	100.00%

10.6.21.   RCOM GSM: DAY 1

SSA (Urban/Rural)-Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	219494	306396	71.64%	
1 ≤ S < 2	11580	306396	3.78%	
2 ≤ S < 3	13146	306396	4.29%	
3 ≤ S < 4	13892	306396	4.53%	
4 ≤ S < 5	16929	306396	5.53%	
5 ≤ S < 6	16742	306396	5.46%	
6 ≤ S	14613	306396	4.77%	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	114710	135296	84.78%	
0 to > = -85	132712	135296	98.09%	
0 to > = -95	135296	135296	100.00%	

Office Complex SSA (Urban/Rural)- Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	34976	42284	82.72%	
1 ≤ S < 2	1987	42284	4.70%	
2 ≤ S < 3	1523	42284	3.60%	
3 ≤ S < 4	1337	42284	3.16%	
4 ≤ S < 5	1280	42284	3.03%	
5 ≤ S < 6	828	42284	1.96%	
6 ≤ S	353	42284	0.83%	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	17242	17242	100.00%	
0 to > = -85	17242	17242	100.00%	
0 to > = -95	17242	17242	100.00%	

Over All SSA Drive Test Details Day-1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA				
0-5 (with frequency hopping				
Total Call Attempt	203			
Blocked Call Rate (<=3%)	1.97%			
Dropped Call Rate (<=2%)	0.50%			
Call Setup Success Rate (>=95%)	98.03%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	95.10%			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	131952	152538	86.50%	
0 to > = -85	149954	152538	98.31%	
0 to > = -95	152538	152538	100.00%	

10.6.22.   RCOM GSM: DAY 2

SSA (Urban/Rural)-Day 2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	186460	258911	72.02%	
1 ≤ S < 2	9342	258911	3.61%	
2 ≤ S < 3	11626	258911	4.49%	
3 ≤ S < 4	12134	258911	4.69%	
4 ≤ S < 5	14317	258911	5.53%	
5 ≤ S < 6	13684	258911	5.29%	
6 ≤ S	11348	258911	4.38%	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	80536	112926	71.32%	
0 to > = -85	108263	112926	95.87%	
0 to > = -95	112926	112926	100.00%	

Office Complex SSA (Urban/Rural)- Day 2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	12940	15887	81.45%	

1 ≤ S < 2	530	15887	3.34%	
2 ≤ S < 3	455	15887	2.86%	
3 ≤ S < 4	387	15887	2.44%	
4 ≤ S < 5	564	15887	3.55%	
5 ≤ S < 6	325	15887	2.05%	
6 ≤ S	686	15887	4.32%	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	5568	5568	100.00%	
0 to > = -85	5568	5568	100.00%	
0 to > = -95	5568	5568	100.00%	

Over All SSA Drive Test Details Day-2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA				
0-5 (with frequency hopping				
Total Call Attempt	176			
Blocked Call Rate (<=3%)	2.84%			
Dropped Call Rate (<=2%)	1.17%			
Call Setup Success Rate (>=95%)	97.16%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	95.02%			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	86104	118494	72.67%	
0 to > = -85	113831	118494	96.06%	
0 to > = -95	118494	118494	100.00%	

10.6.23.   RCOM GSM: DAY 3

SSA (Urban/Rural)-Day 3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	279513	367308	76.10%	
1 ≤ S < 2	13124	367308	3.57%	
2 ≤ S < 3	15086	367308	4.11%	
3 ≤ S < 4	14374	367308	3.91%	

RxQual	Samples	Total	%	
4 ≤ S < 5	16340	367308	4.45%	
5 ≤ S < 6	16368	367308	4.46%	
6 ≤ S	12503	367308	3.40%	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	139587	158273	88.19%	
0 to > = -85	155923	158273	98.52%	
0 to > = -95	158273	158273	100.00%	

Office Complex SSA (Urban/Rural)- Day 3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	35547	43930	80.92%	
1 ≤ S < 2	1623	43930	3.69%	
2 ≤ S < 3	1744	43930	3.97%	
3 ≤ S < 4	1710	43930	3.89%	
4 ≤ S < 5	1721	43930	3.92%	
5 ≤ S < 6	1065	43930	2.42%	
6 ≤ S	520	43930	1.18%	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	18032	18032	100.00%	
0 to > = -85	18032	18032	100.00%	
0 to > = -95	18032	18032	100.00%	

Over All SSA Drive Test Details Day-3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA				
0-5 (with frequency hopping				
Total Call Attempt	231			
Blocked Call Rate (<=3%)	2.16%			
Dropped Call Rate (<=2%)	0.88%			
Call Setup Success Rate (>=95%)	97.84%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	97.77%			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	157619	176305	89.40%	
0 to > = -85	173955	176305	98.67%	

0 to > = -95	176305	176305	100.00%	

10.6.24.   RCOM GSM: OVERALL

Over All SSA Details		
Samples (S)	**Total**	**%**
768930	1034716	74.31%
38186	1034716	3.69%
43580	1034716	4.21%
43834	1034716	4.24%
51151	1034716	4.94%
49012	1034716	4.74%
40023	1034716	3.87%
Samples	**Total**	**%**
375675	447337	83.98%
437740	447337	97.85%
447337	447337	100.00%

Total Calls Attempt (A)	610
Total Calls Blocked (B)	14
Blocked Call Rate in % (B*100/A)	2.30%
Total Calls Established ('C)	596
Total Calls Drop (D)	4
Dropped Calls Rate in % (D*100/C)	0.67%
Call Setup Success Rate in % (C*100/A)	97.70%
Handover Success Rate % (total HO Success * 100/Total HO attempt)	96.17%

10.6.25.   TATA CDMA: DAY 1

SSA (Urban/Rural)-Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S ≤ 1	29320	47969	61.12	
1 <S ≤ 2	14671	47969	30.58	
2 < S ≤ 3	2314	47969	4.82	
3 < S ≤ 4	434	47969	0.9	97.44
4 < S ≤ 5	140	47969	0.29	
5 < S ≤ 6	111	47969	0.23	
6 ≤ S	979	47969	2.04	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	40855	42879	95.28	
0 to > = -85	42875	42879	99.99	

0 to > = -95	42879	42879	100	

Office Complex SSA (Urban/Rural)- Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S ≤ 1	3701	5972	61.97	
1 <S ≤ 2	2084	5972	34.9	
2 < S ≤ 3	178	5972	2.98	
3 < S ≤ 4	9	5972	0.15	
4 < S ≤ 5	0	5972	0	
5 < S ≤ 6	0	5972	0	
6 ≤ S	0	5972	0	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	5247	5247	100	
0 to > = -85	5247	5247	100	
0 to > = -95	5247	5247	100	

Over All SSA Drive Test Details Day-1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA	NA	NA	NA	
0-5 (with frequency hopping	NA	NA	NA	
Total Call Attempt	229			
Blocked Call Rate (<=3%)	0.00%			
Dropped Call Rate (<=2%)	0.44%			
Call Setup Success Rate (>=95%)	100.00%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	100.00%			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	46102	48126	95.79	
0 to > = -85	48122	48126	99.99	
0 to > = -95	48126	48126	100	

SSA (Urban/Rural)-Day 2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S ≤ 1	22056	35282	62.51	
1 <S ≤ 2	11319	35282	32.08	
2 < S ≤ 3	1515	35282	4.29	
3 < S ≤ 4	165	35282	0.47	99.36
4 < S ≤ 5	19	35282	0.05	
5 < S ≤ 6	20	35282	0.06	
6 ≤ S	188	35282	0.53	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	29214	31509	92.72	
0 to > = -85	31492	31509	99.95	
0 to > = -95	31509	31509	100	

Office Complex SSA (Urban/Rural)- Day 2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S ≤ 1	3997	6220	64.26	
1 <S ≤ 2	2104	6220	33.83	
2 < S ≤ 3	117	6220	1.88	
3 < S ≤ 4	2	6220	0.03	
4 < S ≤ 5	0	6220	0	
5 < S ≤ 6	0	6220	0	
6 ≤ S	0	6220	0	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	5536	5536	100	
0 to > = -85	5536	5536	100	
0 to > = -95	5536	5536	100	

Over All SSA Drive Test Details Day-2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA	NA	NA	NA	
0-5 (with frequency hopping	NA	NA	NA	
Total Call Attempt	177			

Blocked Call Rate (<=3%)	0.00%		
Dropped Call Rate (<=2%)	0.00%		
Call Setup Success Rate (>=95%)	100.00%		
Handover Success Rate % (total HO Success * 100/Total HO attempt)	100.00%		
RxLev	**Samples**	**Total**	**%**
0 to > = -75	34750	37045	93.8
0 to > = -85	37028	37045	99.95
0 to > = -95	37045	37045	100

10.6.27.   TATA CDMA: DAY 3

SSA (Urban/Rural)-Day 3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S ≤ 1	31195	49963	62.44	
1 <S ≤ 2	16005	49963	32.03	
2 < S ≤ 3	2177	49963	4.36	
3 < S ≤ 4	267	49963	0.53	99.36
4 < S ≤ 5	57	49963	0.11	
5 < S ≤ 6	32	49963	0.06	
6 ≤ S	230	49963	0.46	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	43495	44530	97.68	
0 to > = -85	44518	44530	99.97	
0 to > = -95	44530	44530	100	

Office Complex SSA (Urban/Rural)- Day 3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S ≤ 1	3737	5972	62.58	
1 <S ≤ 2	1997	5972	33.44	
2 < S ≤ 3	233	5972	3.9	
3 < S ≤ 4	5	5972	0.08	
4 < S ≤ 5	0	5972	0	

5 < S ≤ 6	0	5972	0	
6 ≤ S	0	5972	0	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	5288	5288	100	
0 to > = -85	5288	5288	100	
0 to > = -95	5288	5288	100	

Over All SSA Drive Test Details Day-3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA	NA	NA	NA	
0-5 (with frequency hopping	NA	NA	NA	
Total Call Attempt	239			
Blocked Call Rate (<=3%)	0.00%			
Dropped Call Rate (<=2%)	0.00%			
Call Setup Success Rate (>=95%)	100.00%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	100.00%			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	48783	49818	97.92	
0 to > = -85	49806	49818	99.98	
0 to > = -95	49818	49818	100	

10.6.28.   TATA CDMA: OVERALL

Over All SSA Details		
Samples (S)	**Total**	**%**
94006	151378	62.1
48180	151378	31.83
6534	151378	4.32
882	151378	0.58
216	151378	0.14
163	151378	0.11
1397	151378	0.92
Samples	**Total**	**%**

129635	134989	96.03
134956	134989	99.98
134989	134989	100

Total Calls Attempt (A)	645
Total Calls Blocked (B)	0
Blocked Call Rate in % (B*100/A)	0.00%
Total Calls Established ('C)	645
Total Calls Drop (D)	1
Dropped Calls Rate in % (D*100/C)	0.16%
Call Setup Success Rate in % (C*100/A)	100.00%
Handover Success Rate % (total HO Success * 100/Total HO attempt)	

10.6.29. Vodafone: Day 1

SSA (Urban/Rural)-Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	233527	283148	82.48	
1 ≤ S < 2	5132	283148	1.81	
2 ≤ S < 3	5899	283148	2.08	
3 ≤ S < 4	6550	283148	2.31	
4 ≤ S < 5	6260	283148	2.21	
5 ≤ S < 6	7648	283148	2.7	
6 ≤ S	18132	283148	6.4	
RxLev	**Samples**	**Total**	**#VALUE!**	
0 to > = -75	142748	157982	90.36	
0 to > = -85	153931	157982	97.44	
0 to > = -95	155455	157982	98.4	

Office Complex SSA (Urban/Rural)- Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	40464	41073	98.52	
1 ≤ S < 2	69	41073	0.17	
2 ≤ S < 3	32	41073	0.08	
3 ≤ S < 4	48	41073	0.12	

RxQual	Samples (S)	Total	%	
4 ≤ S < 5	22	41073	0.05	
5 ≤ S < 6	88	41073	0.21	
6 ≤ S	350	41073	0.85	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	23123	23123	100	
0 to > = -85	23123	23123	100	
0 to > = -95	23123	23123	100	

Over All SSA Drive Test Details Day-1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA				
0-5 (with frequency hopping	305739	324221	94.3	
Total Call Attempt	206			
Blocked Call Rate (<=3%)	2.43%			
Dropped Call Rate (<=2%)	3.13%			
Call Setup Success Rate (>=95%)	97.57%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	98.59%			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	165871	181105	91.59	
0 to > = -85	177054	181105	97.76	
0 to > = -95	178578	181105	98.6	

10.6.30. Vodafone: Day 2

SSA (Urban/Rural)-Day 2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	183163	224756	83.25	
1 ≤ S < 2	4961	224756	2.25	
2 ≤ S < 3	5145	224756	2.34	
3 ≤ S < 4	5111	224756	2.32	
4 ≤ S < 5	5459	224756	2.48	
5 ≤ S < 6	6369	224756	2.89	
6 ≤ S	14548	224756	4.45	

RxLev	Samples	Total	%
0 to > = -75	91965	123239	74.62
0 to > = -85	117256	123239	95.15
0 to > = -95	122394	123239	99.31

Office Complex SSA (Urban/Rural)- Day 2				
RxQual	Samples (S)	Total	%	Summary
0 ≤ S < 1	35702	36789	97.05	
1 ≤ S < 2	166	36789	0.45	
2 ≤ S < 3	82	36789	0.22	
3 ≤ S < 4	44	36789	0.12	
4 ≤ S < 5	32	36789	0.09	
5 ≤ S < 6	80	36789	0.22	
6 ≤ S	683	36789	1.86	
RxLev	Samples	Total	%	
0 to > = -75	20343	20343	100	
	20343	20343	100	
0 to > = -95	20343	20343	100	

Over All SSA Drive Test Details Day-2				
RxQual	Samples (S)	Total	%	Summary
0-4 (w/o frequency hopping)/CDMA				
0-5 (with frequency hopping	246314	261545	94.18	
Total Call Attempt	165			
Blocked Call Rate (<=3%)	1.82%			
Dropped Call Rate (<=2%)	0.62%			
Call Setup Success Rate (>=95%)	98.18%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	98.76%			
RxLev	Samples	Total	%	
0 to > = -75	112308	143582	78.22	
0 to > = -85	137599	143582	95.83	

0 to > = -95	142737	143582	99.41	

SSA (Urban/Rural)-Day 3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	272979	321697	84.86	
1 ≤ S < 2	5799	321697	1.8	
2 ≤ S < 3	6405	321697	1.99	
3 ≤ S < 4	6852	321697	2.13	
4 ≤ S < 5	6276	321697	1.95	
5 ≤ S < 6	7897	321697	2.45	
6 ≤ S	15489	321697	4.81	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	158640	182970	86.7	
0 to > = -85	178513	182970	97.56	
0 to > = -95	181828	182970	99.38	

Office Complex SSA (Urban/Rural)- Day 3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	36318	42781	84.89	
1 ≤ S < 2	868	42781	2.03	
2 ≤ S < 3	966	42781	2.26	
3 ≤ S < 4	1140	42781	2.66	
4 ≤ S < 5	1014	42781	2.37	
5 ≤ S < 6	1077	42781	2.52	
6 ≤ S	1398	42781	3.27	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	20729	20729	100	
0 to > = -85	20729	20729	100	
0 to > = -95	20729	20729	100	

Over All SSA Drive Test Details Day-3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA				

0-5 (with frequency hopping	347591	364478	95.37	
Total Call Attempt	235			
Blocked Call Rate (<=3%)	1.28%			
Dropped Call Rate (<=2%)	0.00%			
Call Setup Success Rate (>=95%)	98.72%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	99.11%			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	179369	203699	88.06	
0 to > = -85	199242	203699	97.81	
0 to > = -95	202557	203699	99.44	

10.6.32.   Vodafone: Overall

Over All SSA Details		
Samples (S)	**Total**	**%**
802153	950244	84.42
16995	950244	1.79
18529	950244	1.95
19745	950244	2.08
19063	950244	2.01
23159	950244	2.44
50600	950244	5.32
Samples	**Total**	**%**
457548	528386	86.59
513895	528386	97.26
523872	528386	99.15

Total Calls Attempt (A)	606
Total Calls Blocked (B)	11
Blocked Call Rate in % (B*100/A)	1.82%
Total Calls Established ('C)	595
Total Calls Drop (D)	7
Dropped Calls Rate in % (D*100/C)	1.16%

Call Setup Success Rate in % (C*100/A)	98.18%
Handover Success Rate % (total HO Success * 100/Total HO attempt)	98.80%

10.6.33.   MTS: Day 1

SSA (Urban/Rural)-Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	29043	43448	66.85	
1 ≤ S < 2	8355	43448	19.23	
2 ≤ S < 3	3626	43448	8.35	
3 ≤ S < 4	1379	43448	3.17	
4 ≤ S < 5	400	43448	0.92	
5 ≤ S < 6	110	43448	0.25	
6 ≤ S	535	43448	1.23	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	32735	48473	67.53	
0 to > = -85	48244	48473	99.53	
0 to > = -95	48473	48473	100	

Office Complex SSA (Urban/Rural)- Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	3476	5876	59.16	
1 ≤ S < 2	2135	5876	36.33	
2 ≤ S < 3	255	5876	4.34	
3 ≤ S < 4	9	5876	0.15	
4 ≤ S < 5	0	5876	0	
5 ≤ S < 6	0	5876	0	
6 ≤ S	1	5876	0.02	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	6308	6551	96.29	
0 to > = -85	6551	6551	100	
0 to > = -95	6551	6551	100	

Over All SSA Drive Test Details Day-1

RxQual	Samples (S)	Total	%	Summary
0-4 (w/o frequency hopping)/CDMA	48278	49324	97.88	
0-5 (with frequency hopping	NA	NA	NA	
Total Call Attempt	221			
Blocked Call Rate (<=3%)	0.45%			
Dropped Call Rate (<=2%)	2.27%			
Call Setup Success Rate (>=95%)	99.55%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	100.00%			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	39043	55024	70.95	
0 to > = -85	54795	55024	99.58	
0 to > = -95	55024	55024	100	

10.6.34.   MTS: Day 2

SSA (Urban/Rural)-Day 2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	25881	34721	74.54	
1 ≤ S < 2	4845	34721	13.95	
2 ≤ S < 3	1770	34721	5.1	
3 ≤ S < 4	650	34721	1.87	
4 ≤ S < 5	419	34721	1.21	
5 ≤ S < 6	327	34721	0.94	
6 ≤ S	829	34721	2.39	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	26992	38477	70.15	
0 to > = -85	38473	38477	99.99	
0 to > = -95	38477	38477	100	

Office Complex SSA (Urban/Rural)- Day 2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	5836	5863	99.54	
1 ≤ S < 2	13	5863	0.22	

2 ≤ S < 3	5	5863	0.09	
3 ≤ S < 4	2	5863	0.03	
4 ≤ S < 5	1	5863	0.02	
5 ≤ S < 6	1	5863	0.02	
6 ≤ S	5	5863	0.09	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	6136	6519	94.12	
0 to > = -85	6519	6519	100	
0 to > = -95	6519	6519	100	

Over All SSA Drive Test Details Day-2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA	39002	40584	96.1	
0-5 (with frequency hopping	NA	NA	NA	
Total Call Attempt	175			
Blocked Call Rate (<=3%)	0.57%			
Dropped Call Rate (<=2%)	0.00%			
Call Setup Success Rate (>=95%)	99.43%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	100.00%			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	33128	44996	73.62	
0 to > = -85	44992	44996	26.37	
0 to > = -95	44996	44996	0.01	

10.6.35.   MTS: Day 3

SSA (Urban/Rural)-Day 3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	37057	50650	73.16	
1 ≤ S < 2	10360	50650	20.45	

RxLev	Samples	Total	%
2 ≤ S < 3	2348	50650	4.64
3 ≤ S < 4	348	50650	0.69
4 ≤ S < 5	72	50650	0.14
5 ≤ S < 6	25	50650	0.05
6 ≤ S	440	50650	0.87
RxLev	**Samples**	**Total**	**%**
0 to > = -75	42331	56304	75.18
0 to > = -85	55914	56304	99.31
0 to > = -95	56304	56304	100

Office Complex SSA (Urban/Rural)- Day 3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	3693	5863	62.99	
1 ≤ S < 2	1913	5863	32.63	
2 ≤ S < 3	232	5863	3.96	
3 ≤ S < 4	7	5863	0.12	
4 ≤ S < 5	1	5863	0.02	
5 ≤ S < 6	0	5863	0	
6 ≤ S	17	5863	0.29	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	371	6504	5.7	
0 to > = -85	6478	6504	99.6	
0 to > = -95	6504	6504	100	

Over All SSA Drive Test Details Day-3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA	55958	56513	99.02	
0-5 (with frequency hopping	NA	NA	NA	
Total Call Attempt	246			
Blocked Call Rate (<=3%)	0.81%			
Dropped Call Rate (<=2%)	0.00%			
Call Setup Success Rate (>=95%)	99.19%			

Handover Success Rate % (total HO Success * 100/Total HO attempt)	100.00%		
RxLev	**Samples**	**Total**	**%**
0 to > = -75	42702	62808	67.99
0 to > = -85	62392	62808	99.34
0 to > = -95	62808	62808	100

10.6.36.   MTS: Overall

Over All SSA Details				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	104986	146421	71.7	
1 ≤ S < 2	27621	146421	18.86	
2 ≤ S < 3	8236	146421	5.62	
3 ≤ S < 4	2395	146421	1.64	
4 ≤ S < 5	893	146421	0.61	
5 ≤ S < 6	463	146421	0.32	
6 ≤ S	1827	146421	1.25	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	114873	162828	70.50%	
0 to > = -85	162179	162828	99.60%	
0 to > = -95	162828	162828	100.00%	

Total Calls Attempt (A)	642
Total Calls Blocked (B)	4
Blocked Call Rate in % (B*100/A)	0.62%
Total Calls Established ('C)	638
Total Calls Drop (D)	5
Dropped Calls Rate in % (D*100/C)	0.78%
Call Setup Success Rate in % (C*100/A)	99.38%
Handover Success Rate % (total HO Success * 100/Total HO attempt)	100.00%

10.7. DRIVE TEST OUTCOME SUMMARY

Call Events	Aircel	Airtel	Idea	MTNL	RCOM CDMA	RCOM GSM	TTSL	Vodafone	MTS
Total Calls Attempt (A)	600	617	599	532	605	610	645	606	642
Total Calls Blocked (B)	8	9	15	41	0	14	0	11	4
Blocked Call Rate in % (B*100/A)	1.33	1.46	0.03	0.077	0	0.022	0	0.02	0.62%
Total Calls Established ('C)	590	607	579	491	605	596	645	595	638
Total Calls Drop (D)	3	6	4	38	11	4	1	7	5
Dropped Calls Rate in % (D*100/C)	0.51	0.99	0.01	0.078	0.02	0.01	0.00155	0.012	0.78%
Call Setup Success Rate in % (C*100/A)	98.33%	98.38%	0.97%	0.92%	1%	0.98%	1%	0.98%	99.38%
Handover Success Rate % (total HO Success * 100/Total HO attempt)	99.47%	96.23%	0.97%	77.97%	1%	0.96%		0.99%	100%

10.8. December: Delhi SSA

Month	Name of SSA covered	Drive Test Schedule
December 2015	Delhi	December 02, 2015 to November 04, 2015

10.9. Delhi SSA: Distance Covered

Drive Test Distance Covered	Day 1	Day 2	Day 3
Delhi SSA	126 km	98 km	103 km

10.10. Route Map: Delhi SSA: Day 1

SSA: Delhi
Outdoor
Route Name
HIGHWAY(Mohan Estate to Mathura Highway)
MAJOR ROADS(Sector-55-Sector-22-Sector 23-Sector 4,5-KC Road-Railway Road-Neelam Bata Chowk Road-Faridabad Bypass Road-Sector29)
WITHIN CITY (NIT Market-VK Chowk-ESI Road-NIT bus Stand-Neelam Chowk-Old Faridabad Road-Sector-16-Town Park-Sector-9-Sector10-Sector3 -Sector7)
Indoor
Route Name

MANHATTAN MALL,FARIADABAD

Route Covered Day1

1. DLF Cyber City
2. Sikanderpur
3. MG Road
4. Huda City Centre
5. IFFCO Chowkmetro station
6. Sushant Lok-Phase-1
7. Sector43-31-40
8. South City
9. Cyber Park
10. NSE Marg
11. Wazirabad Village
12. Golf Course Road
13. Ghata Road
14. Sohna Road
15. Rajiv Chowk
16. Delhi-Jaipur Highway(NH8)

10.11. Route Map: Delhi SSA: Day 2

SSA: Delhi
Outdoor
Route Name
HIGHWAY(Gurgaon to Delhi Airport T3)
MAJOR ROAD(Sector5-Sector9 Road-sector10 Road-Khandsa Road-Shivaji Nagar-Udai Singh Kilhaur Road-Old Delhi Road-Kataria Chowk-Sheetla Mata Mandir Road-Palam Road-Dhundehera Village-Kapeshera Road)
WITHIN CITY(Droncharya-Iffco Chowk-Sukhrali-Railway Road-Police Line-Gurudwara Road-Laxmi garden-Pataudi Road-Sector10-Kadi Pur Village-Surya Vihar-Sector7-8 Road-Sector-12-Rajiv Nagar Basai Road-old Railway Road-DLF phase 3)
Indoor
Route Name
Ansal Plaza,Gurgaon

1. Droncharya
2. Iffco Chowk
3. Sukhrali
4. Railway Road
5. Gurudwara Road-
6. laxmi garden
7. Pataudi Road
8. Kadi Pur Village
9. Sector7-8 Road
10. Sector-12
11. Rajiv Nagar
12. Basai Road
13. old Railway Road
14. DLF phase 3
15. Sector5-9 -10
16. -Khandsa Road-
17. Shivaji Nagar-
18. Old Delhi Road-
19. Kataria Chowk-
20. Sheetla Mata Mandir
21. Dhundehera Village
22. Kapeshera Road
23. Gurgaon to Delhi Airport T3

NEW SITEPLANNED

SITE HALTED

Legend

RXLEVEL-DAY-02

○	-65 to 0	(160002)
○	-75 to -65	(4488)
○	-85 to -75	(1037)
○	-95 to -85	(358)
○	-120 to -95	(176)

10.12. Route Map: Delhi SSA: Day 3

SSA: Delhi
Outdoor
Route Name
HIGHWAY(Mohan Estate to Mathura Highway)
MAJOR ROADS(Sector-55-Sector-22-Sector 23-Sector 4,5-KC Road-Railway Road-Neelam Bata Chowk Road-Faridabad Bypass Road-Sector29)
WITHIN CITY (NIT Market-VK Chowk-ESI Road-NIT bus Stand-Neelam Chowk-Old Faridabad Road-Sector-16-Town Park-Sector-9-Sector10-Sector3 -Sector7)
Indoor
Route Name
MANHATTAN MALL,FARIADABAD

Route Covered Day3
1. NIT Market
2. VK Chowk-
3. ESI Road-
4. NIT bus Stand-
5. Neelam Chowk-
6. Old Faridabad Road-
7. Sector-16-
8. Town Park-
9. Sector-9,10,3 ,7
10. Sector-55,22,23
11. Sector 4,5
12. KC Road
13. Railway Road
14. Neelam Bata Chowk Road
15. Faridabad Bypass Road
16. Sector29
17. Mohan Estate to Mathura Highway

10.13. Drive Report Analysis

10.13.1. Aircel: Day 1

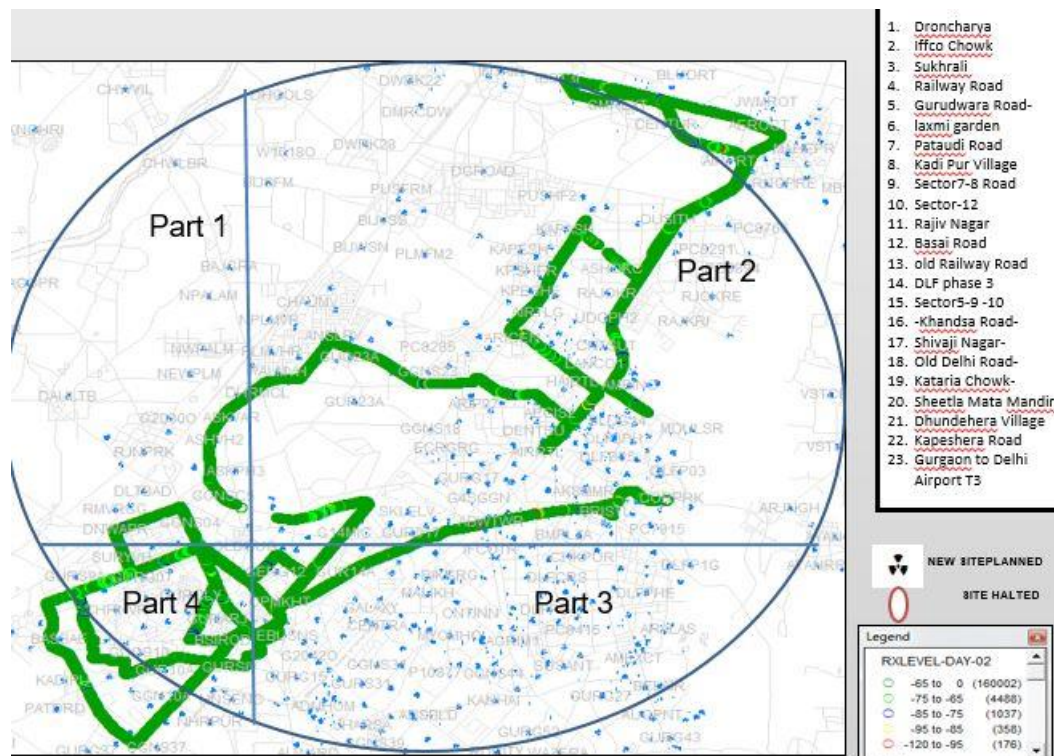| SSA (Urban/Rural)-Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	213059	282260	75.48	
1 ≤ S < 2	7811	282260	2.77	
2 ≤ S < 3	9117	282260	3.23	
3 ≤ S < 4	9539	282260	3.38	
4 ≤ S < 5	10227	282260	3.62	
5 ≤ S < 6	11688	282260	4.14	
6 ≤ S	20819	282260	7.38	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	106908	110958	96.35	
0 to > = -85	109927	110958	99.07	
0 to > = -95	110478	110958	99.57	

Office Complex SSA (Urban/Rural)- Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	5165	5546	93.13	

1 ≤ S < 2	157	5546	2.83	
2 ≤ S < 3	117	5546	2.11	
3 ≤ S < 4	0	5546	0	
4 ≤ S < 5	107	5546	1.93	
5 ≤ S < 6	0	5546	0	
6 ≤ S	0	5546	0	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	3338	3338	100	
0 to > = -85	3338	3338	100	
0 to > = -95	3338	3338	100	

Over All SSA Drive Test Details Day-1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA				
0-5 (with frequency hopping	266987	287806	92.77	
Total Call Attempt	218			
Blocked Call Rate (<=3%)	4.13%			
Dropped Call Rate (<=2%)	1.56%			
Call Setup Success Rate (>=95%)	88.07%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	99.16%			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	110246	114296	96.46	
0 to > = -85	113265	114296	99.1	
0 to > = -95	113816	114296	99.58	

10.13.2. Aircel: Day 2

SSA (Urban/Rural)-Day 2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	210335	284616	73.9	
1 ≤ S < 2	9723	284616	3.42	

2 ≤ S < 3	10548	284616	3.71
3 ≤ S < 4	11111	284616	3.9
4 ≤ S < 5	11587	284616	4.07
5 ≤ S < 6	12540	284616	4.41
6 ≤ S	18772	284616	6.6
RxLev	**Samples**	**Total**	**%**
0 to > = -75	115621	119072	97.1
0 to > = -85	118140	119072	99.22
0 to > = -95	118778	119072	99.75

Office Complex SSA (Urban/Rural)- Day 2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	5921	6406	92.43	
1 ≤ S < 2	224	6406	3.5	
2 ≤ S < 3	158	6406	2.47	
3 ≤ S < 4	0	6406	0	
4 ≤ S < 5	103	6406	1.61	
5 ≤ S < 6	0	6406	0	
6 ≤ S	0	6406	0	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	3825	3825	100	
0 to > = -85	3825	3825	100	
0 to > = -95	3825	3825	100	

Over All SSA Drive Test Details Day-2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA				
0-5 (with frequency hopping	272250	291022	93.55	
Total Call Attempt	205			
Blocked Call Rate (<=3%)	0.49%			
Dropped Call Rate (<=2%)	0.51%			
Call Setup Success Rate (>=95%)	96.10%			

Handover Success Rate % (total HO Success * 100/Total HO attempt)	98.81%			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	119446	122897	97.19	
0 to > = -85	121965	122897	99.24	
0 to > = -95	122603	122897	99.76	

10.13.3.   Aircel: Day 3

SSA (Urban/Rural)-Day 3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	216074	290480	74.39	
1 ≤ S < 2	10165	290480	3.5	
2 ≤ S < 3	10462	290480	3.6	
3 ≤ S < 4	10924	290480	3.76	
4 ≤ S < 5	10541	290480	3.63	
5 ≤ S < 6	12304	290480	4.24	
6 ≤ S	20010	290480	6.89	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	104267	127730	81.63	
0 to > = -85	123317	127730	96.55	
0 to > = -95	126438	127730	98.99	

Office Complex SSA (Urban/Rural)- Day 3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	5342	6347	84.17	
1 ≤ S < 2	397	6347	6.25	
2 ≤ S < 3	349	6347	5.5	
3 ≤ S < 4	0	6347	0	
4 ≤ S < 5	259	6347	4.08	
5 ≤ S < 6	0	6347	0	
6 ≤ S	0	6347	0	

RxLev	Samples	Total	%
0 to > = -75	3722	3823	97.36
0 to > = -85	3811	3823	99.69
0 to > = -95	3823	3823	100

Over All SSA Drive Test Details Day-3				
RxQual	Samples (S)	Total	%	Summary
0-4 (w/o frequency hopping)/CDMA				
0-5 (with frequency hopping	276817	296827	93.26	
Total Call Attempt	210			
Blocked Call Rate (<=3%)	2.38%			
Dropped Call Rate (<=2%)	0.49%			
Call Setup Success Rate (>=95%)	97.62%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	97.94%			
RxLev	Samples	Total	%	
0 to > = -75	107989	131553	82.09	
0 to > = -85	127128	131553	96.64	
0 to > = -95	130261	131553	99.02	

10.13.4. Aircel: Overall

Over All SSA Details				
RxQual	Samples (S)	Total	%	Summary
0 ≤ S < 1	655896	875665	74.9	
1 ≤ S < 2	28477	875665	3.25	
2 ≤ S < 3	30751	875665	3.51	
3 ≤ S < 4	31574	875665	3.61	
4 ≤ S < 5	32824	875665	3.75	
5 ≤ S < 6	36532	875665	4.17	
6 ≤ S	59601	875665	6.81	
RxLev	Samples	Total	%	
0 to > = -75	337681	368746	91.6	
0 to > = -85	362358	368746	98.3	
0 to > = -95	366680	368746	99.4	

Total Calls Attempt (A)	633
Total Calls Blocked (B)	15
Blocked Call Rate in % (B*100/A)	2.37
Total Calls Established ('C)	594
Total Calls Drop (D)	5
Dropped Calls Rate in % (D*100/C)	0.84
Call Setup Success Rate in % (C*100/A)	93.84
Handover Success Rate % (total HO Success * 100/Total HO attempt)	98.78

10.13.5. Airtel: Day 1

SSA (Urban/Rural)-Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	29061	44131	65.85	
1 ≤ S < 2	1486	44131	3.37	
2 ≤ S < 3	1613	44131	3.66	
3 ≤ S < 4	2048	44131	4.64	
4 ≤ S < 5	2131	44131	4.83	
5 ≤ S < 6	2807	44131	6.36	
6 ≤ S	4985	44131	11.3	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	24437	24927	98.03	
0 to > = -85	24710	24927	99.13	
0 to > = -95	24844	24927	99.67	

Office Complex SSA (Urban/Rural)- Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	6273	6402	97.99	
1 ≤ S < 2	49	6402	0.77	
2 ≤ S < 3	36	6402	0.56	
3 ≤ S < 4	16	6402	0.25	
4 ≤ S < 5	7	6402	0.11	

RxQual	Samples (S)	Total	%	
5 ≤ S < 6	4	6402	0.06	
6 ≤ S	17	6402	0.27	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	3592	3592	100	
0 to > = -85	3592	3592	100	
0 to > = -95	3592	3592	100	

Over All SSA Drive Test Details Day-1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA				
0-5 (with frequency hopping	45531	50533	90.1	
Total Call Attempt	207			
Blocked Call Rate (<=3%)	0.97			
Dropped Call Rate (<=2%)	0.99			
Call Setup Success Rate (>=95%)	98.07			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	93.8			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	28029	28519	98.28	
0 to > = -85	28302	28519	99.24	
0 to > = -95	28436	28519	99.71	

10.13.6. Airtel: Day 2

SSA (Urban/Rural)-Day 2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	30689	50601	60.65	
1 ≤ S < 2	2287	50601	4.52	
2 ≤ S < 3	2507	50601	4.95	
3 ≤ S < 4	2919	50601	5.77	
4 ≤ S < 5	3203	50601	6.33	
5 ≤ S < 6	3686	50601	7.28	
6 ≤ S	5310	50601	10.49	
RxLev	**Samples**	**Total**	**%**	

0 to > = -75	24931	25200	98.93	
0 to > = -85	25114	25200	99.66	
0 to > = -95	25174	25200	99.9	

Office Complex SSA (Urban/Rural)- Day 2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	6149	6413	95.88	
1 ≤ S < 2	93	6413	1.45	
2 ≤ S < 3	45	6413	0.7	
3 ≤ S < 4	40	6413	0.62	
4 ≤ S < 5	32	6413	0.5	
5 ≤ S < 6	24	6413	0.37	
6 ≤ S	30	6413	0.47	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	3609	3609	100	
0 to > = -85	3609	3609	100	
0 to > = -95	3609	3609	100	

Over All SSA Drive Test Details Day-2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA				
0-5 (with frequency hopping	51674	57014	90.63	
Total Call Attempt	205			
Blocked Call Rate (<=3%)	1.46			
Dropped Call Rate (<=2%)	0.5			
Call Setup Success Rate (>=95%)	98.54			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	98.5			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	28540	28809	99.07	
0 to > = -85	28723	28809	99.7	

0 to > = -95	28783	28809	99.91	

SSA (Urban/Rural)-Day 3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S ≤ 1	28359	42839	66.2	
1 < S ≤ 2	1505	42839	3.51	
2 < S ≤ 3	1679	42839	3.92	
3 < S ≤ 4	1974	42839	4.61	
4 < S ≤ 5	2187	42839	5.11	
5 ≤ S < 6	2761	42839	6.45	
6 ≤ S	4374	42839	10.21	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	23866	24493	97.44	
0 to > = -85	24267	24493	99.08	
0 to > = -95	24395	24493	99.6	

Office Complex SSA (Urban/Rural)- Day 3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	5952	6423	92.67	
1 ≤ S < 2	78	6423	1.21	
2 ≤ S < 3	107	6423	1.67	
3 ≤ S < 4	87	6423	1.35	
4 ≤ S < 5	83	6423	1.29	
5 ≤ S < 6	68	6423	1.06	
6 ≤ S	48	6423	0.75	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	3609	3609	100	
0 to > = -85	3609	3609	100	
0 to > = -95	3609	3609	100	

Over All SSA Drive Test Details Day-3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**

0-4 (w/o frequency hopping)/CDMA			
0-5 (with frequency hopping	44840	49262	91.02
Total Call Attempt	203		
Blocked Call Rate (<=3%)	1.97		
Dropped Call Rate (<=2%)	0.51		
Call Setup Success Rate (>=95%)	97.54		
Handover Success Rate % (total HO Success * 100/Total HO attempt)	97.73		

RxLev	Samples	Total	%
0 to > = -75	27475	28102	97.77
0 to > = -85	27876	28102	99.2
0 to > = -95	28004	28102	99.65

10.13.8. Airtel: Overall

Over All SSA Details			
RxQual	Samples (S)	Total	%
0 ≤ S < 1	106483	156809	67.91
1 ≤ S < 2	5498	156809	3.51
2 ≤ S < 3	5987	156809	3.82
3 ≤ S < 4	7084	156809	4.52
4 ≤ S < 5	7643	156809	4.87
5 ≤ S < 6	9350	156809	5.96
6 ≤ S	14764	156809	9.42
RxLev	Samples	Total	%
0 to > = -75	84044	85430	98.38
0 to > = -85	84901	85430	99.38
0 to > = -95	85223	85430	99.76

Total Calls Attempt (A)	615
Total Calls Blocked (B)	9
Blocked Call Rate in % (B*100/A)	1.46
Total Calls Established ('C)	603
Total Calls Drop (D)	4

Dropped Calls Rate in % (D*100/C)	0.66
Call Setup Success Rate in % (C*100/A)	98.05
Handover Success Rate % (total HO Success * 100/Total HO attempt)	96.79

10.13.9.   Idea: Day 1

SSA (Urban/Rural)-Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	237357	285454	83.15	
1 ≤ S < 2	6181	285454	2.17	
2 ≤ S < 3	6170	285454	2.16	
3 ≤ S < 4	6801	285454	2.38	
4 ≤ S < 5	7269	285454	2.55	
5 ≤ S < 6	7766	285454	2.72	
6 ≤ S	13910	285454	4.87	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	90771	119462	75.98	
0 to > = -85	114284	119462	95.67	
0 to > = -95	118928	119462	99.55	

Office Complex SSA (Urban/Rural)- Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	5225	6393	81.73	
1 ≤ S < 2	185	6393	2.89	
2 ≤ S < 3	206	6393	3.22	
3 ≤ S < 4	258	6393	4.04	
4 ≤ S < 5	232	6393	3.63	
5 ≤ S < 6	176	6393	2.75	
6 ≤ S	111	6393	1.74	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	2424	2469	98.18	
0 to > = -85	2461	2469	99.68	
0 to > = -95	2466	2469	99.88	

Over All SSA Drive Test Details Day-1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA				
0-5 (with frequency hopping	269884	291847	92.47	
Total Call Attempt	206			
Blocked Call Rate (<=3%)	0.97			
Dropped Call Rate (<=2%)	0.98			
Call Setup Success Rate (>=95%)	98.45			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	99.7			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	93195	121931	76.43	
0 to > = -85	116745	121931	95.75	
0 to > = -95	121394	121931	99.56	

10.13.10. Idea: Day 2

SSA (Urban/Rural)-Day 2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	247503	287979	85.94	
1 ≤ S < 2	4928	287979	1.71	
2 ≤ S < 3	4933	287979	1.71	
3 ≤ S < 4	5518	287979	1.92	
4 ≤ S < 5	5622	287979	1.95	
5 ≤ S < 6	6758	287979	2.35	
6 ≤ S	12717	287979	4.42	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	107915	127521	84.63	
0 to > = -85	124587	127521	97.7	
0 to > = -95	127077	127521	99.65	

Office Complex SSA (Urban/Rural)- Day 2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	5879	6361	92.42	

1 ≤ S < 2	88	6361	1.38	
2 ≤ S < 3	106	6361	1.67	
3 ≤ S < 4	94	6361	1.48	
4 ≤ S < 5	87	6361	1.37	
5 ≤ S < 6	68	6361	1.07	
6 ≤ S	39	6361	0.61	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	2365	2367	99.92	
0 to > = -85	2367	2367	100	
0 to > = -95	2367	2367	100	

Over All SSA Drive Test Details Day-2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA				
0-5 (with frequency hopping	274758	294340	93.35	
Total Call Attempt	195			
Blocked Call Rate (<=3%)	0			
Dropped Call Rate (<=2%)	1.5			
Call Setup Success Rate (>=95%)	100			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	99.32			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	110280	129888	84.9	
0 to > = -85	126954	129888	97.74	
0 to > = -95	129444	129888	99.66	

10.13.11. Idea: Day 3

SSA (Urban/Rural)-Day 3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	197283	242046	81.51	
1 ≤ S < 2	6122	242046	2.53	

2 ≤ S < 3	5893	242046	2.43	
3 ≤ S < 4	6579	242046	2.72	
4 ≤ S < 5	6349	242046	2.62	
5 ≤ S < 6	7006	242046	2.89	
6 ≤ S	12814	242046	5.29	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	82287	125502	65.57	
0 to > = -85	117685	125502	93.77	
0 to > = -95	124478	125502	99.18	

Office Complex SSA (Urban/Rural)- Day 3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	6109	7382	82.76	
1 ≤ S < 2	253	6361	3.98	
2 ≤ S < 3	301	6361	4.73	
3 ≤ S < 4	266	6361	4.18	
4 ≤ S < 5	164	6361	2.58	
5 ≤ S < 6	165	6361	2.59	
6 ≤ S	124	6361	1.95	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	2719	2731	99.56	
0 to > = -85	2729	2731	99.93	
0 to > = -95	2731	2731	100	

Over All SSA Drive Test Details Day-3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA				
0-5 (with frequency hopping	229319	249428	91.94	
Total Call Attempt	182			
Blocked Call Rate (<=3%)	0.55			
Dropped Call Rate (<=2%)	2.2			
Call Setup Success Rate (>=95%)	99.45			

RxLev	Samples	Total	%	
Handover Success Rate % (total HO Success * 100/Total HO attempt)		97.91		
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	85006	128233	66.29	
0 to > = -85	120414	128233	93.9	
0 to > = -95	127209	128233	99.2	

10.13.12.   Idea: Overall

Over All SSA Details				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	699356	835615	83.69	
1 ≤ S < 2	17757	835615	2.13	
2 ≤ S < 3	17609	835615	2.11	
3 ≤ S < 4	19516	835615	2.34	
4 ≤ S < 5	19723	835615	2.36	
5 ≤ S < 6	21939	835615	2.63	
6 ≤ S	39715	835615	4.75	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	288481	380052	75.91	
0 to > = -85	364113	380052	95.81	
0 to > = -95	378047	380052	99.47	

Over All SSA Details				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	699356	835615	83.69	
1 ≤ S < 2	17757	835615	2.13	
2 ≤ S < 3	17609	835615	2.11	

3 ≤ S < 4	19516	835615	2.34
4 ≤ S < 5	19723	835615	2.36
5 ≤ S < 6	21939	835615	2.63
6 ≤ S	39715	835615	4.75
RxLev	**Samples**	**Total**	**%**
0 to > = -75	288481	380052	75.91
0 to > = -85	364113	380052	95.81
0 to > = -95	378047	380052	99.47

10.13.13. MTNL: Day 1

SSA (Urban/Rural)-Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	28625	38987	73.42	
1 ≤ S < 2	1345	38987	3.45	
2 ≤ S < 3	1156	38987	2.97	
3 ≤ S < 4	1559	38987	4	
4 ≤ S < 5	1627	38987	4.17	
5 ≤ S < 6	1763	38987	4.52	
6 ≤ S	2912	38987	7.47	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	20849	26100	79.88	
0 to > = -85	24957	26100	95.62	
0 to > = -95	25820	26100	98.93	

Office Complex SSA (Urban/Rural)- Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	1327	4470	29.69	
1 ≤ S < 2	243	4470	5.44	
2 ≤ S < 3	339	4470	7.58	
3 ≤ S < 4	576	4470	12.89	
4 ≤ S < 5	665	4470	14.88	
5 ≤ S < 6	616	4470	13.78	
6 ≤ S	704	4470	15.75	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	78	3816	2.04	

0 to > = -85	3273	3816	85.77	
0 to > = -95	3761	3816	98.56	

Over All SSA Drive Test Details Day-1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA	N.A.	N.A.	N.A.	
0-5 (with frequency hopping	39841	43457	91.68	
Total Call Attempt	195			
Blocked Call Rate (<=3%)	9.74%			
Dropped Call Rate (<=2%)	7.39%			
Call Setup Success Rate (>=95%)	90.26%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	74.32%			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	20927	29916	69.95	
0 to > = -85	28230	29916	94.36	
0 to > = -95	29581	29916	98.88	

10.13.14. MTNL: Day 2

SSA (Urban/Rural)-Day 2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	31955	45551	70.15	
1 ≤ S < 2	2308	45551	5.07	
2 ≤ S < 3	2088	45551	4.58	
3 ≤ S < 4	2551	45551	5.6	
4 ≤ S < 5	2390	45551	5.25	
5 ≤ S < 6	2228	45551	4.89	
6 ≤ S	2031	45551	4.46	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	20872	27690	75.38	
0 to > = -85	26987	27690	97.46	
0 to > = -95	27560	27690	99.53	

Office Complex SSA (Urban/Rural)- Day 2

RxQual	Samples (S)	Total	%	Summary
0 ≤ S < 1	6461	6516	99.16	
1 ≤ S < 2	34	6516	0.52	
2 ≤ S < 3	14	6516	0.21	
3 ≤ S < 4	2	6516	0.03	
4 ≤ S < 5	0	6516	0	
5 ≤ S < 6	5	6516	0.08	
6 ≤ S	0	6516	0	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	3628	3628	100	
0 to > = -85	3628	3628	100	
0 to > = -95	3628	3628	100	

Over All SSA Drive Test Details Day-2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA	N.A.	N.A.	N.A.	
0-5 (with frequency hopping	50065	52104	96.09	
Total Call Attempt	221			
Blocked Call Rate (<=3%)	5.43%			
Dropped Call Rate (<=2%)	2.88%			
Call Setup Success Rate (>=95%)	94.12%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	87.96%			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	24500	31318	78.23	
0 to > = -85	30615	31318	97.76	
0 to > = -95	31188	31318	99.58	

10.13.15. MTNL: Day 3

SSA (Urban/Rural)-Day 3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**

0 ≤ S < 1	30726	43964	69.89
1 ≤ S < 2	2110	43964	4.8
2 ≤ S < 3	1905	43964	4.33
3 ≤ S < 4	2471	43964	5.62
4 ≤ S < 5	2442	43964	5.55
5 ≤ S < 6	2216	43964	5.04
6 ≤ S	2094	43964	4.76
RxLev	**Samples**	**Total**	**%**
0 to > = -75	17835	26939	66.21
0 to > = -85	26063	26939	96.75
0 to > = -95	26836	26939	99.62

Office Complex SSA (Urban/Rural)- Day 3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	2326	4608	50.48	
1 ≤ S < 2	254	4608	5.51	
2 ≤ S < 3	256	4608	5.56	
3 ≤ S < 4	351	4608	7.62	
4 ≤ S < 5	422	4608	9.16	
5 ≤ S < 6	425	4608	9.22	
6 ≤ S	574	4608	12.46	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	1992	3820	52.15	
0 to > = -85	3753	3820	98.25	
0 to > = -95	3812	3820	99.79	

Over All SSA Drive Test Details Day-3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA	N.A.	N.A.	N.A.	
0-5 (with frequency hopping	45942	48625	94.48	
Total Call Attempt	213			
Blocked Call Rate (<=3%)	4.69%			
Dropped Call Rate (<=2%)	4.95%			

Call Setup Success Rate (>=95%)	94.84%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	76.17%			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	19827	30759	64.46	
0 to > = -85	29816	30759	96.93	
0 to > = -95	30648	30759	99.64	

10.13.16. MTNL: Overall

Over All SSA Details				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	101420	144096	70.40%	
1 ≤ S < 2	6294	144096	4.40%	
2 ≤ S < 3	5758	144096	4.00%	
3 ≤ S < 4	7510	144096	5.20%	
4 ≤ S < 5	7546	144096	5.20%	
5 ≤ S < 6	7253	144096	5.00%	
6 ≤ S	8315	144096	5.80%	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	65254	91993	70.90%	
0 to > = -85	88661	91993	96.40%	
0 to > = -95	91417	91993	99.40%	

Total Calls Attempt (A)	629
Total Calls Blocked (B)	41
Blocked Call Rate in % (B*100/A)	6.52%
Total Calls Established ('C)	586
Total Calls Drop (D)	29
Dropped Calls Rate in % (D*100/C)	4.95%
Call Setup Success Rate in % (C*100/A)	93.16%
Handover Success Rate % (total HO Success * 100/Total HO attempt)	79.50%

SSA (Urban/Rural)-Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	41408	49307	83.98	
1 ≤ S < 2	489	49307	0.99	
2 ≤ S < 3	3879	49307	7.87	
3 ≤ S < 4	654	49307	1.33	
4 ≤ S < 5	717	49307	1.45	
5 ≤ S < 6	207	49307	0.42	
6 ≤ S	1953	49307	3.96	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	36482	51365	71.03	
0 to > = -85	47018	51365	91.54	
0 to > = -95	49871	51365	97.09	

Office Complex SSA (Urban/Rural)- Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	79	84	94.05	
1 ≤ S < 2	4	84	4.76	
2 ≤ S < 3	0	84	0	
3 ≤ S < 4	1	84	1.19	
4 ≤ S < 5	0	84	0	
5 ≤ S < 6	0	84	0	
6 ≤ S	0	84	0	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	33575	33575	100	
0 to > = -85	33575	33575	100	
0 to > = -95	33575	33575	100	

Over All SSA Drive Test Details Day-1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA	46514	49391	94.18	

0-5 (with frequency hopping			
Total Call Attempt	268		
Blocked Call Rate (<=3%)	0.00%		
Dropped Call Rate (<=2%)	1.49%		
Call Setup Success Rate (>=95%)	100.00%		
Handover Success Rate % (total HO Success * 100/Total HO attempt)	100.00%		

RxLev	Samples	Total	%
0 to > = -75	70057	84940	82.48
0 to > = -85	80593	84940	94.88
0 to > = -95	83446	84940	98.24

10.13.18. RCOM CDMA: Day 2

SSA (Urban/Rural)-Day 2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	39937	44482	89.78	
1 ≤ S < 2	351	44482	0.79	
2 ≤ S < 3	2640	44482	5.93	
3 ≤ S < 4	321	44482	0.72	
4 ≤ S < 5	477	44482	1.07	
5 ≤ S < 6	117	44482	0.26	
6 ≤ S	639	44482	1.44	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	34211	45776	74.74	
0 to > = -85	44234	45776	96.63	
0 to > = -95	45776	45776	100	

Office Complex SSA (Urban/Rural)- Day 2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	75	75	100	
1 ≤ S < 2	0	75	0	
2 ≤ S < 3	0	75	0	
3 ≤ S < 4	0	75	0	

4 ≤ S < 5	0	75	0
5 ≤ S < 6	0	75	0
6 ≤ S	0	75	0
RxLev	**Samples**	**Total**	**%**
0 to > = -75	33384	33384	100
0 to > = -85	33384	33384	100
0 to > = -95	33384	33384	100

Over All SSA Drive Test Details Day-2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA	43324	44557	97.23	
0-5 (with frequency hopping				
Total Call Attempt	226			
Blocked Call Rate (<=3%)	0.00%			
Dropped Call Rate (<=2%)	0.00%			
Call Setup Success Rate (>=95%)	100.00%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	100.00%			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	67595	79160	85.39	
0 to > = -85	77618	79160	98.05	
0 to > = -95	79160	79160	100	

10.13.19. RCOM CDMA: Day 3

SSA (Urban/Rural)-Day 2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	39937	44482	89.78	
1 ≤ S < 2	351	44482	0.79	
2 ≤ S < 3	2640	44482	5.93	
3 ≤ S < 4	321	44482	0.72	
4 ≤ S < 5	477	44482	1.07	

5 ≤ S < 6	117	44482	0.26	
6 ≤ S	639	44482	1.44	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	34211	45776	74.74	
0 to > = -85	44234	45776	96.63	
0 to > = -95	45776	45776	100	

Office Complex SSA (Urban/Rural)- Day 2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	75	75	100	
1 ≤ S < 2	0	75	0	
2 ≤ S < 3	0	75	0	
3 ≤ S < 4	0	75	0	
4 ≤ S < 5	0	75	0	
5 ≤ S < 6	0	75	0	
6 ≤ S	0	75	0	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	33384	33384	100	
0 to > = -85	33384	33384	100	
0 to > = -95	33384	33384	100	

Over All SSA Drive Test Details Day-2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA	43324	44557	97.23	
0-5 (with frequency hopping				
Total Call Attempt	226			
Blocked Call Rate (<=3%)	0.00%			
Dropped Call Rate (<=2%)	0.00%			
Call Setup Success Rate (>=95%)	100.00%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	100.00%			

RxLev	Samples	Total	%
0 to > = -75	67595	79160	85.39
0 to > = -85	77618	79160	98.05
0 to > = -95	79160	79160	100

10.13.20. RCOM CDMA: Overall

Over All SSA Details				
RxQual	Samples (S)	Total	%	Summary
0 ≤ S < 1	123016	138536	88.8	
1 ≤ S < 2	1124	138536	0.81	
2 ≤ S < 3	8581	138536	6.19	
3 ≤ S < 4	1186	138536	0.86	
4 ≤ S < 5	1383	138536	1	
5 ≤ S < 6	372	138536	0.27	
6 ≤ S	2874	138536	2.07	
RxLev	Samples	Total	%	
0 to > = -75	206257	242965	84.90%	
0 to > = -85	236434	242965	97.30%	
0 to > = -95	241471	242965	99.40%	

Over All SSA Details				
RxQual	Samples (S)	Total	%	Summary
0 ≤ S < 1	123016	138536	88.8	
1 ≤ S < 2	1124	138536	0.81	
2 ≤ S < 3	8581	138536	6.19	
3 ≤ S < 4	1186	138536	0.86	
4 ≤ S < 5	1383	138536	1	
5 ≤ S < 6	372	138536	0.27	
6 ≤ S	2874	138536	2.07	
RxLev	Samples	Total	%	
0 to > = -75	206257	242965	84.90%	
0 to > = -85	236434	242965	97.30%	
0 to > = -95	241471	242965	99.40%	

SSA (Urban/Rural)-Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	256326	326690	78.46%	
1 ≤ S < 2	10636	326690	3.26%	
2 ≤ S < 3	12357	326690	3.78%	
3 ≤ S < 4	12004	326690	3.67%	
4 ≤ S < 5	13634	326690	4.17%	
5 ≤ S < 6	12152	326690	3.72%	
6 ≤ S	9581	326690	2.93%	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	128536	138303	92.94%	
0 to > = -85	137255	138303	99.24%	
0 to > = -95	138303	138303	100.00%	

Office Complex SSA (Urban/Rural)- Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	30250	31131	97.17%	
1 ≤ S < 2	240	31131	0.77%	
2 ≤ S < 3	154	31131	0.49%	
3 ≤ S < 4	167	31131	0.54%	
4 ≤ S < 5	155	31131	0.50%	
5 ≤ S < 6	114	31131	0.37%	
6 ≤ S	51	31131	0.16%	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	11517	11517	100.00%	
0 to > = -85	11517	11517	100.00%	
0 to > = -95	11517	11517	100.00%	

Over All SSA Drive Test Details Day-1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA				
0-5 (with frequency hopping				
Total Call Attempt	201			
Blocked Call Rate (<=3%)	2.49%			

Dropped Call Rate (<=2%)	1.02%			
Call Setup Success Rate (>=95%)	97.51%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	94.90%			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	140053	149820	93.48%	
0 to > = -85	148772	149820	99.30%	
0 to > = -95	149820	149820	100.00%	

10.13.22. RCOM GSM: Day 2

SSA (Urban/Rural)-Day 2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	280765	341584	82.20%	
1 ≤ S < 2	9143	341584	2.68%	
2 ≤ S < 3	10570	341584	3.09%	
3 ≤ S < 4	10061	341584	2.95%	
4 ≤ S < 5	11893	341584	3.48%	
5 ≤ S < 6	11567	341584	3.39%	
6 ≤ S	7585	341584	2.22%	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	136920	145406	94.16%	
0 to > = -85	144260	145406	99.21%	
0 to > = -95	145406	145406	100.00%	

Office Complex SSA (Urban/Rural)- Day 2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	41370	43177	95.81%	
1 ≤ S < 2	431	43177	1.00%	
2 ≤ S < 3	389	43177	0.90%	
3 ≤ S < 4	371	43177	0.86%	
4 ≤ S < 5	258	43177	0.60%	
5 ≤ S < 6	257	43177	0.60%	
6 ≤ S	101	43177	0.23%	

RxLev	Samples	Total	%	
0 to > = -75	15680	15680	100.00%	
0 to > = -85	15680	15680	100.00%	
0 to > = -95	15680	15680	100.00%	

Over All SSA Drive Test Details Day-2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA				
0-5 (with frequency hopping				
Total Call Attempt	210			
Blocked Call Rate (<=3%)	0.95%			
Dropped Call Rate (<=2%)	0.00%			
Call Setup Success Rate (>=95%)	99.05%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	97.71%			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	152600	161086	94.73%	
0 to > = -85	159940	161086	99.29%	
0 to > = -95	161086	161086	100.00%	

10.13.23. RCOM GSM: Day 3

SSA (Urban/Rural)-Day 3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	265103	336844	78.70%	
1 ≤ S < 2	10930	336844	3.24%	
2 ≤ S < 3	12289	336844	3.65%	
3 ≤ S < 4	12397	336844	3.68%	
4 ≤ S < 5	13383	336844	3.97%	
5 ≤ S < 6	12978	336844	3.85%	
6 ≤ S	9764	336844	2.90%	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	124448	134503	92.52%	
0 to > = -85	133125	134503	98.98%	
0 to > = -95	134503	134503	100.00%	

Office Complex SSA (Urban/Rural)- Day 3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	38520	46081	83.59%	
1 ≤ S < 2	1707	46081	3.70%	
2 ≤ S < 3	1586	46081	3.44%	
3 ≤ S < 4	1416	46081	3.07%	
4 ≤ S < 5	1358	46081	2.95%	
5 ≤ S < 6	917	46081	1.99%	
6 ≤ S	577	46081	1.25%	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	18324	18324	100.00%	
0 to > = -85	18324	18324	100.00%	
0 to > = -95	18324	18324	100.00%	

Over All SSA Drive Test Details Day-3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA				
0-5 (with frequency hopping				
Total Call Attempt	207			
Blocked Call Rate (<=3%)	1.45%			
Dropped Call Rate (<=2%)	0.00%			
Call Setup Success Rate (>=95%)	98.55%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	96.63%			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	142772	152827	93.42%	
0 to > = -85	151449	152827	99.10%	
0 to > = -95	152827	152827	100.00%	

10.13.24.   RCOM GSM: Overall

Over All SSA Details				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	912334	1125507	81.06%	
1 ≤ S < 2	33087	1125507	2.94%	
2 ≤ S < 3	37345	1125507	3.32%	
3 ≤ S < 4	36416	1125507	3.24%	
4 ≤ S < 5	40681	1125507	3.61%	
5 ≤ S < 6	37985	1125507	3.37%	
6 ≤ S	27659	1125507	2.46%	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	435425	463733	93.90%	
0 to > = -85	460161	463733	99.23%	
0 to > = -95	463733	463733	100.00%	

Total Calls Attempt (A)	618
Total Calls Blocked (B)	10
Blocked Call Rate in % (B*100/A)	1.62%
Total Calls Established ('C)	608
Total Calls Drop (D)	3
Dropped Calls Rate in % (D*100/C)	0.49%
Call Setup Success Rate in % (C*100/A)	98.38%
Handover Success Rate % (total HO Success * 100/Total HO attempt)	96.44%

10.13.25. TATA CDMA: Day 1

SSA (Urban/Rural)-Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S ≤ 1	27373	46421	58.97	
1 <S ≤ 2	14391	46421	31	
2 < S ≤ 3	2997	46421	6.46	
3 < S ≤ 4	473	46421	1.02	97.44
4 < S ≤ 5	168	46421	0.36	
5 < S ≤ 6	92	46421	0.2	
6 ≤ S	927	46421	2	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	39813	41945	94.92	
0 to > = -85	41279	41945	98.41	
0 to > = -95	41879	41945	99.84	

Office Complex SSA (Urban/Rural)- Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S ≤ 1	3186	5029	63.35	
1 <S ≤ 2	1703	5029	33.86	
2 < S ≤ 3	140	5029	2.78	
3 < S ≤ 4	0	5029	0	
4 < S ≤ 5	0	5029	0	
5 < S ≤ 6	0	5029	0	
6 ≤ S	0	5029	0	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	4492	4492	100	
0 to > = -85	4492	4492	100	
0 to > = -95	4492	4492	100	

Over All SSA Drive Test Details Day-1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA	NA	NA	NA	
0-5 (with frequency hopping	NA	NA	NA	

Total Call Attempt	254		
Blocked Call Rate (<=3%)	0.39%		
Dropped Call Rate (<=2%)	0.79%		
Call Setup Success Rate (>=95%)	100.00%		
Handover Success Rate % (total HO Success * 100/Total HO attempt)	100.00%		
RxLev	**Samples**	**Total**	**%**
0 to > = -75	44305	46437	95.41
0 to > = -85	45771	46437	98.57
0 to > = -95	46371	46437	99.86

10.13.26.   TATA CDMA: Day 2

SSA (Urban/Rural)-Day 2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S ≤ 1	22143	41961	52.77	
1 <S ≤ 2	14159	41961	33.74	
2 < S ≤ 3	4400	41961	10.49	
3 < S ≤ 4	779	41961	1.86	98.86
4 < S ≤ 5	125	41961	0.3	
5 < S ≤ 6	59	41961	0.14	
6 ≤ S	296	41961	0.71	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	37424	37568	99.62	
0 to > = -85	37568	37568	100	
0 to > = -95	37568	37568	100	

Office Complex SSA (Urban/Rural)- Day 2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S ≤ 1	3100	5985	51.8	
1 <S ≤ 2	1646	5985	27.5	
2 < S ≤ 3	1029	5985	17.19	
3 < S ≤ 4	202	5985	3.38	
4 < S ≤ 5	7	5985	0.12	

5 < S ≤ 6	0	5985	0	
6 ≤ S	1	5985	0.02	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	5322	5322	100	
0 to > = -85	5322	5322	100	
0 to > = -95	5322	5322	100	

Over All SSA Drive Test Details Day-2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA	NA	NA	NA	
0-5 (with frequency hopping	NA	NA	NA	
Total Call Attempt	217			
Blocked Call Rate (<=3%)	0.00%			
Dropped Call Rate (<=2%)	0.00%			
Call Setup Success Rate (>=95%)	100.00%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	100.00%			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	42746	42890	99.66	
0 to > = -85	42890	42890	100	
0 to > = -95	42890	42890	100	

10.13.27.   TATA CDMA: Day 3

SSA (Urban/Rural)-Day 3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S ≤ 1	28171	44716	63	
1 <S ≤ 2	14088	44716	31.51	
2 < S ≤ 3	1973	44716	4.41	
3 < S ≤ 4	226	44716	0.51	99.42
4 < S ≤ 5	59	44716	0.13	
5 < S ≤ 6	39	44716	0.09	
6 ≤ S	160	44716	0.36	
RxLev	**Samples**	**Total**	**%**	

0 to > = -75	40153	40372	99.46
0 to > = -85	40372	40372	100
0 to > = -95	40372	40372	100

Office Complex SSA (Urban/Rural)- Day 3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S ≤ 1	2787	5268	52.9	
1 <S ≤ 2	1460	5268	27.71	
2 < S ≤ 3	560	5268	10.63	
3 < S ≤ 4	368	5268	6.99	
4 < S ≤ 5	37	5268	0.7	
5 < S ≤ 6	3	5268	0.06	
6 ≤ S	53	5268	1.01	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	4556	4690	97.14	
0 to > = -85	4690	4690	100	
0 to > = -95	4690	4690	100	

Over All SSA Drive Test Details Day-3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA	NA	NA	NA	
0-5 (with frequency hopping	NA	NA	NA	
Total Call Attempt	243			
Blocked Call Rate (<=3%)	0.41%			
Dropped Call Rate (<=2%)	0.00%			
Call Setup Success Rate (>=95%)	100.00%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	100.00%			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	44709	45062	99.22	
0 to > = -85	45062	45062	100	
0 to > = -95	45062	45062	100	

10.13.28. TATA CDMA: Overall

Over All SSA Details				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S ≤ 1	86760	149380	58.08	
1 <S ≤ 2	47447	149380	31.76	
2 < S ≤ 3	11099	149380	7.43	
3 < S ≤ 4	2048	149380	1.37	
4 < S ≤ 5	396	149380	0.27	
5 < S ≤ 6	193	149380	0.13	98.64
6 ≤ S	1437	149380	0.96	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	131760	134389	98.04	
0 to > = -85	133723	134389	99.5	
0 to > = -95	134323	134389	99.95	

Total Calls Attempt (A)	714
Total Calls Blocked (B)	2
Blocked Call Rate in % (B*100/A)	0.28%
Total Calls Established ('C)	714
Total Calls Drop (D)	2
Dropped Calls Rate in % (D*100/C)	0.28%
Call Setup Success Rate in % (C*100/A)	100.00%
Handover Success Rate % (total HO Success * 100/Total HO attempt)	

10.13.29. Vodafone: Day 1

SSA (Urban/Rural)-Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	204795	243545	84.09	
1 ≤ S < 2	5174	243545	2.12	
2 ≤ S < 3	5183	243545	2.13	
3 ≤ S < 4	5773	243545	2.37	

4 ≤ S < 5	6493	243545	2.67	
5 ≤ S < 6	6652	243545	2.73	
6 ≤ S	9475	243545	3.89	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	117210	136906	85.61	
0 to > = -85	132501	136906	96.78	
0 to > = -95	136054	136906	99.38	

Office Complex SSA (Urban/Rural)- Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	30799	36773	83.75	
1 ≤ S < 2	852	36773	2.32	
2 ≤ S < 3	1417	36773	3.85	
3 ≤ S < 4	1595	36773	4.34	
4 ≤ S < 5	1087	36773	2.96	
5 ≤ S < 6	563	36773	1.53	
6 ≤ S	460	36773	1.25	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	18771	18779	99.96	
0 to > = -85	18779	18779	100	
0 to > = -95	18779	18779	100	

Over All SSA Drive Test Details Day-1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA				
0-5 (with frequency hopping	263168	280318	93.88	
Total Call Attempt	201			
Blocked Call Rate (<=3%)	1.00%			
Dropped Call Rate (<=2%)	1.51%			
Call Setup Success Rate (>=95%)	99.00%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	96.80%			
RxLev	**Samples**	**Total**	**%**	

0 to > = -75	135981	155685	87.34	
0 to > = -85	151280	155685	97.17	
0 to > = -95	154833	155685	99.45	

10.13.30.   Vodafone: Day 2

SSA (Urban/Rural)-Day 2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	245839	278166	88.38	
1 ≤ S < 2	4842	278166	1.74	
2 ≤ S < 3	4909	278166	1.76	
3 ≤ S < 4	4768	278166	1.71	
4 ≤ S < 5	4876	278166	1.75	
5 ≤ S < 6	5139	278166	1.85	
6 ≤ S	7793	278166	2.8	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	131413	152283	86.3	
0 to > = -85	150163	152283	98.61	
0 to > = -95	151588	152283	99.54	

Office Complex SSA (Urban/Rural)- Day 2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	36931	37968	97.27	
1 ≤ S < 2	119	37968	0.31	
2 ≤ S < 3	111	37968	0.29	
3 ≤ S < 4	117	37968	0.31	
4 ≤ S < 5	98	37968	0.26	
5 ≤ S < 6	76	37968	0.2	
6 ≤ S	516	37968	1.36	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	18757	18757	100	
0 to > = -85	18757	18757	100	
0 to > = -95	18757	18757	100	

Over All SSA Drive Test Details Day-2				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**

0-4 (w/o frequency hopping)/CDMA			
0-5 (with frequency hopping	302610	316134	95.72
Total Call Attempt	221		
Blocked Call Rate (<=3%)	0.45%		
Dropped Call Rate (<=2%)	0.00%		
Call Setup Success Rate (>=95%)	99.55%		
Handover Success Rate % (total HO Success * 100/Total HO attempt)	98.06%		

RxLev	Samples	Total	%
0 to > = -75	150170	171040	87.8
0 to > = -85	168920	171040	98.76
0 to > = -95	170345	171040	99.59

10.13.31.   Vodafone: Day 3

SSA (Urban/Rural)-Day 3				
RxQual	Samples (S)	Total	%	Summary
0 ≤ S < 1	242707	282759	85.84	
1 ≤ S < 2	5812	282759	2.06	
2 ≤ S < 3	6503	282759	2.3	
3 ≤ S < 4	5670	282759	2.01	
4 ≤ S < 5	7009	282759	2.48	
5 ≤ S < 6	6315	282759	2.23	
6 ≤ S	8743	282759	3.09	
RxLev	Samples	Total	%	
0 to > = -75	127515	144141	88.47	
0 to > = -85	141123	144141	97.91	
0 to > = -95	143451	144141	99.52	

Office Complex SSA (Urban/Rural)- Day 3				
RxQual	Samples (S)	Total	%	Summary
0 ≤ S < 1	21463	33863	63.38	
1 ≤ S < 2	2585	33863	7.63	
2 ≤ S < 3	2844	33863	8.4	

	Samples (S)	Total	%	
3 ≤ S < 4	2588	33863	7.64	
4 ≤ S < 5	2541	33863	7.5	
5 ≤ S < 6	1267	33863	3.74	
6 ≤ S	575	33863	1.7	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	13494	19012	70.98	
0 to > = -85	18593	19012	97.8	
0 to > = -95	18863	19012	99.22	

Over All SSA Drive Test Details Day-3				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA				
0-5 (with frequency hopping	299722	316622	94.66	
Total Call Attempt	219			
Blocked Call Rate (<=3%)	1.83%			
Dropped Call Rate (<=2%)	0.47%			
Call Setup Success Rate (>=95%)	98.17%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	98.74%			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	146378	163153	89.72	
0 to > = -85	159986	163153	98.06	
0 to > = -95	162314	163153	99.49	

10.13.32.   Vodafone: Overall

Over All SSA Details				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	782534	913074	85.7	
1 ≤ S < 2	19384	913074	2.12	
2 ≤ S < 3	20967	913074	2.3	
3 ≤ S < 4	20511	913074	2.25	
4 ≤ S < 5	22104	913074	2.42	

5 ≤ S < 6	20012	913074	2.19
6 ≤ S	27562	913074	3.02
RxLev	**Samples**	**Total**	**%**
0 to > = -75	427160	489878	87.2
0 to > = -85	479916	489878	97.97
0 to > = -95	487492	489878	99.51

Total Calls Attempt (A)	641
Total Calls Blocked (B)	7
Blocked Call Rate in % (B*100/A)	1.09%
Total Calls Established ('C)	634
Total Calls Drop (D)	4
Dropped Calls Rate in % (D*100/C)	0.63%
Call Setup Success Rate in % (C*100/A)	98.90%
Handover Success Rate % (total HO Success * 100/Total HO attempt)	97.90%

10.13.33. MTS: Day 1

SSA (Urban/Rural)-Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	33234	45712	72.7	
1 ≤ S < 2	8553	45712	18.71	
2 ≤ S < 3	2881	45712	6.3	
3 ≤ S < 4	681	45712	1.49	
4 ≤ S < 5	144	45712	0.32	
5 ≤ S < 6	44	45712	0.1	
6 ≤ S	175	45712	0.38	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	41715	50810	82.1	
0 to > = -85	50377	50810	99.15	
0 to > = -95	50810	50810	100	

Office Complex SSA (Urban/Rural)- Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	3626	5851	61.97	

1 ≤ S < 2	1960	5851	33.5	
2 ≤ S < 3	243	5851	4.15	
3 ≤ S < 4	21	5851	0.36	
4 ≤ S < 5	0	5851	0	
5 ≤ S < 6	0	5851	0	
6 ≤ S	1	5851	0.02	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	6482	6494	99.82	
0 to > = -85	6494	6494	100	
0 to > = -95	6494	6494	100	

Over All SSA Drive Test Details Day-1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA	51199	51563	99.29	
0-5 (with frequency hopping	NA	NA	NA	
Total Call Attempt	226			
Blocked Call Rate (<=3%)	0.44%			
Dropped Call Rate (<=2%)	0.00%			
Call Setup Success Rate (>=95%)	99.56%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	100.00%			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	48197	57304	84.11	
0 to > = -85	56871	57304	99.24	
0 to > = -95	57304	57304	100	

10.13.34.   MTS: Day 2

SSA (Urban/Rural)-Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**

0 ≤ S < 1	33234	45712	72.7	
1 ≤ S < 2	8553	45712	18.71	
2 ≤ S < 3	2881	45712	6.3	
3 ≤ S < 4	681	45712	1.49	
4 ≤ S < 5	144	45712	0.32	
5 ≤ S < 6	44	45712	0.1	
6 ≤ S	175	45712	0.38	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	41715	50810	82.1	
0 to > = -85	50377	50810	99.15	
0 to > = -95	50810	50810	100	

Office Complex SSA (Urban/Rural)- Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	3626	5851	61.97	
1 ≤ S < 2	1960	5851	33.5	
2 ≤ S < 3	243	5851	4.15	
3 ≤ S < 4	21	5851	0.36	
4 ≤ S < 5	0	5851	0	
5 ≤ S < 6	0	5851	0	
6 ≤ S	1	5851	0.02	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	6482	6494	99.82	
0 to > = -85	6494	6494	100	
0 to > = -95	6494	6494	100	

Over All SSA Drive Test Details Day-1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA	51199	51563	99.29	
0-5 (with frequency hopping	NA	NA	NA	
Total Call Attempt	226			
Blocked Call Rate (<=3%)	0.44%			

Dropped Call Rate (<=2%)	0.00%		
Call Setup Success Rate (>=95%)	99.56%		
Handover Success Rate % (total HO Success * 100/Total HO attempt)	100.00%		
RxLev	**Samples**	**Total**	**%**
0 to > = -75	48197	57304	84.11
0 to > = -85	56871	57304	99.24
0 to > = -95	57304	57304	100

10.13.35.   MTS: Day 3

SSA (Urban/Rural)-Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	33234	45712	72.7	
1 ≤ S < 2	8553	45712	18.71	
2 ≤ S < 3	2881	45712	6.3	
3 ≤ S < 4	681	45712	1.49	
4 ≤ S < 5	144	45712	0.32	
5 ≤ S < 6	44	45712	0.1	
6 ≤ S	175	45712	0.38	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	41715	50810	82.1	
0 to > = -85	50377	50810	99.15	
0 to > = -95	50810	50810	100	

Office Complex SSA (Urban/Rural)- Day 1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	3626	5851	61.97	
1 ≤ S < 2	1960	5851	33.5	
2 ≤ S < 3	243	5851	4.15	
3 ≤ S < 4	21	5851	0.36	
4 ≤ S < 5	0	5851	0	
5 ≤ S < 6	0	5851	0	

RxLev	Samples	Total	%	
6 ≤ S	1	5851	0.02	
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	6482	6494	99.82	
0 to > = -85	6494	6494	100	
0 to > = -95	6494	6494	100	

Over All SSA Drive Test Details Day-1				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0-4 (w/o frequency hopping)/CDMA	51199	51563	99.29	
0-5 (with frequency hopping	NA	NA	NA	
Total Call Attempt	226			
Blocked Call Rate (<=3%)	0.44%			
Dropped Call Rate (<=2%)	0.00%			
Call Setup Success Rate (>=95%)	99.56%			
Handover Success Rate % (total HO Success * 100/Total HO attempt)	100.00%			
RxLev	**Samples**	**Total**	**%**	
0 to > = -75	48197	57304	84.11	
0 to > = -85	56871	57304	99.24	
0 to > = -95	57304	57304	100	

10.13.36.   MTS: Overall

Over All SSA Details				
RxQual	**Samples (S)**	**Total**	**%**	**Summary**
0 ≤ S < 1	112524	151275	74.38	
1 ≤ S < 2	28586	151275	18.9	
2 ≤ S < 3	7873	151275	5.2	
3 ≤ S < 4	1532	151275	1.01	
4 ≤ S < 5	325	151275	0.21	
5 ≤ S < 6	117	151275	0.08	
6 ≤ S	318	151275	0.21	
RxLev	**Samples**	**Total**	**%**	

0 to > = -75	154408	168003	91.90%
0 to > = -85	167570	168003	99.70%
0 to > = -95	168003	168003	100.00%

Total Calls Attempt (A)	659
Total Calls Blocked (B)	2
Blocked Call Rate in % (B*100/A)	0.30%
Total Calls Established ('C)	657
Total Calls Drop (D)	0
Dropped Calls Rate in % (D*100/C)	0.00%
Call Setup Success Rate in % (C*100/A)	99.70%
Handover Success Rate % (total HO Success * 100/Total HO attempt)	100.00%

10.14. Drive Test Outcome Summary

Call Events	Aircel	Airtel	Idea	MTNL	RCOM CDMA	RCOM GSM	TTSL	Vodafone	MTS
Total Calls Attempt (A)	633	615	583	629	713	618	714	641	659
Total Calls Blocked (B)	15	9	3	41	0	10	2	7	2
Blocked Call Rate in % (B*100/A)	2.37%	1.46%	0.51%	0.07%	0%	0.02%	0.00%	0.01%	0.30%
Total Calls Established ('C)	594	603	579	586	713	608	714	634	657
Total Calls Drop (D)	5	4	9	29	6	3	2	4	0
Dropped Calls Rate in % (D*100/C)	0.84%	0.66%	1.55%	0.05%	0.01%	0.00%	0.00%	0.01%	0.00%
Call Setup Success Rate in % (C*100/A)	93.84%	98.05%	99.31%	0.93%	1.00	0.98	1.00	0.99	99.70%
Handover Success Rate % (total HO Success * 100/Total HO attempt)	98.78%	96.79%	98.96%	0.79%	1.00%	0.96%		0.98%	100.00%

11. COUNTER DETAILS

Sl No.	KPI	Formula with Counter Description
1	CSSR= (No of established Calls / No of Attempted Calls)%	*No of established Calls* = ([Assignment Requests]-([Failed Assignments (Signaling Channel)]+[Failed Assignments during MOC on the A Interface (Including Directed Retry)]+[Failed Assignments during MTC on the A Interface (Including Directed Retry)]+[Failed Assignments during Emergency Call on the A Interface (Including Directed Retry)] +[Failed Assignments during Call Re-establishment on the A Interface (Including Directed Retry)]+[Failed Mode Modify Attempts (MOC) (TCHF)]+[Failed Mode Modify Attempts (MTC) (TCHF)]+[Failed Mode Modify Attempts (Emergency Call) (TCHF)]+[Failed Mode Modify Attempts (Call Re-establishment) (TCHF)]+[Failed Mode Modify Attempts (MOC) (TCHH)]+[Failed Mode Modify Attempts (MTC) (TCHH)]+[Failed Mode Modify Attempts (Call Re-establishment) (TCHH)]))/*No of Attempted Calls* = ([Assignment Requests (Signaling Channel) (TCH)] + [Assignment Requests (Signaling Channel) (SDCCH)] + [Assignment Requests (TCHF Only)] + [Assignment Requests (TCHH Only)] + [Assignment Requests (TCHF Preferred, Channel Type Unchangeable)] + [Assignment Requests (TCHH Preferred, Channel Type Unchangeable)] + [Assignment Requests (TCHF or TCHH, Channel Type Unchangeable)] + [Assignment Requests (TCHF Preferred, Channel Type Changeable)] + [Assignment Requests (TCHH Preferred, Channel Type Changeable)] + [Assignment Requests (TCHF or TCHH, Channel Type Changeable)])
2	SDCCH congestion= (SDCCH Failure/SDCCH attempts)%	*SDCCH Failure*= ([Channel Assignment Failures (All Channels Busy or Channels Unconfigured) in Immediate Assignment Procedure (SDCCH)] + [Failed Internal Intra-Cell Handovers (No Channel Available) (SDCCH)] + [Number of Unsuccessful Incoming Internal Inter-Cell Handovers (No Channel Available) (SDCCH)] + [Failed Incoming External Inter-Cell Handovers (No Channel Available) (SDCCH)])/*SDCCH attempts* = ([Channel Assignment Requests in Immediate Assignment Procedure (SDCCH)] + [Internal Intra-Cell Handover Requests (SDCCH)] + [Number of Incoming Internal Inter-Cell Handover Requests (SDCCH) (900/850/810-900/850/810)] + [Number of Incoming Internal Inter-Cell Handover Requests (SDCCH) (1800/1900-1800/1900)] + [Number of Incoming Internal Inter-Cell Handover Requests (SDCCH) (900/850/810-1800/1900)] + [Number of Incoming Internal Inter-Cell Handover Requests (SDCCH) (1800/1900-900/850/810)] + [Incoming External Inter-Cell Handover Requests (SDCCH) (900/850/810-900/850/810)] + [Incoming External Inter-Cell Handover Requests (SDCCH) (1800/1900-1800/1900)] + [Incoming External Inter-Cell Handover Requests (SDCCH) (900/850/810-1800/1900)] + [Incoming External Inter-Cell Handover Requests (SDCCH) (1800/1900-900/850/810)])
3	TCH congestion= (TCH Failures /TCH Attempts)%	*TCH Failures*= ((Failed TCH Seizures due to Busy TCH (Signaling Channel)+([Failed Assignments (First Assignment, No Channel Available in Assignment Procedure)]+[Failed Assignments (First Assignment, No Channel Available in Directed Retry Procedure)]+[Failed Assignments (Reconnection to Old Channels, No Channel Available in Assignment)]+[Failed Assignments (Reconnection to Old Channels, No Channel Available in Directed Retry)])/*TCH Attempts* = ([Assignment Requests (Signaling Channel) (TCH)] + [Assignment Requests (Signaling Channel) (SDCCH)] + [Assignment Requests (TCHF Only)] + [Assignment Requests (TCHH Only)] + [Assignment Requests (TCHF Preferred, Channel Type Unchangeable)] + [Assignment Requests (TCHH Preferred, Channel Type Unchangeable)] + [Assignment Requests (TCHF or TCHH, Channel Type Unchangeable)] + [Assignment Requests (TCHF Preferred, Channel Type Changeable)] + [Assignment Requests (TCHH Preferred, Channel Type Changeable)] + [Assignment Requests (TCHF or TCHH, Channel Type Changeable)])
4	Call Drop Rate= (The total no of dropped calls*100)/Total no of calls successfully established (where traffic channel is allotted)	*The total no of dropped calls*= ([Call Drops on Radio Interface in Stable State (Traffic Channel)] + [Call Drops on Radio Interface in Handover State (Traffic Channel)] + [Call Drops Due to No MR from MS for a Long Time (Traffic Channel)] + [Call Drops due to Abis Terrestrial Link Failure (Traffic Channel)] + [Call Drops due to Equipment Failure (Traffic Channel)] + [Call Drops due to Forced Handover (Traffic Channel)] + [Call Drops due to local switching Start Failure] + [Call Drops due to Failures to Return to Normal Call from local switching])/*Total no of calls successfully established (where traffic channel is allotted)* = ([Assignment Requests]-([Failed Assignments (Signaling Channel)]+[Failed Assignments during MOC on the A Interface (Including Directed Retry)]+[Failed Assignments during MTC on the A Interface (Including Directed Retry)]+[Failed Assignments during Emergency Call on the A Interface (Including Directed Retry)] +[Failed Assignments during Call Re-establishment on the A Interface (Including Directed Retry)]+[Failed Mode Modify Attempts (MOC) (TCHF)]+[Failed Mode Modify Attempts (MTC) (TCHF)]+[Failed Mode Modify Attempts (Emergency Call) (TCHF)]+[Failed Mode Modify Attempts (Call Re-establishment)

SI No.	KPI	Ericsson
		(TCHF)]+[Failed Mode Modify Attempts (MOC) (TCHH)]+[Failed Mode Modify Attempts (MTC) (TCHH)]+[Failed Mode Modify Attempts (Call Re-establishment) (TCHH)])
5	**Call Drop Rate= (No of cells having call drop rate >3% during CBBH in a month*100)/Total no of cells in the licensed service area**	**Above formula with counters being used in CBBH.**
6	**Connection with good quality voice= (Connection with good quality voice/Total voice samples)%**	*Connection with good quality voice* **= ((Number of MRs on Downlink TCHF (Receive Quality Rank 0)+Number of MRs on Downlink TCHF (Receive Quality Rank 1)+Number of MRs on Downlink TCHF (Receive Quality Rank 2)+Number of MRs on Downlink TCHF (Receive Quality Rank 3)+Number of MRs on Downlink TCHF (Receive Quality Rank 4)+Number of MRs on Downlink TCHF (Receive Quality Rank 5)+Number of MRs on Downlink TCHH (Receive Quality Rank 0)+Number of MRs on Downlink TCHH (Receive Quality Rank 1)+Number of MRs on Downlink TCHH (Receive Quality Rank 2)+Number of MRs on Downlink TCHH (Receive Quality Rank 3)+Number of MRs on Downlink TCHH (Receive Quality Rank 4)+Number of MRs on Downlink TCHH (Receive Quality Rank 5))** */Total voice samples* **= ((Number of MRs on Downlink TCHF (Receive Quality Rank 0)+Number of MRs on Downlink TCHF (Receive Quality Rank 1)+Number of MRs on Downlink TCHF (Receive Quality Rank 2)+Number of MRs on Downlink TCHF (Receive Quality Rank 3)+Number of MRs on Downlink TCHF (Receive Quality Rank 4)+Number of MRs on Downlink TCHF (Receive Quality Rank 5)+Number of MRs on Downlink TCHF (Receive Quality Rank 6)+Number of MRs on Downlink TCHF (Receive Quality Rank 7)+Number of MRs on Downlink TCHH (Receive Quality Rank 0)+:Number of MRs on Downlink TCHH (Receive Quality Rank 1)+Number of MRs on Downlink TCHH (Receive Quality Rank 2)+Number of MRs on Downlink TCHH (Receive Quality Rank 3)+Number of MRs on Downlink TCHH (Receive Quality Rank 4)+Number of MRs on Downlink TCHH (Receive Quality Rank 5)+Number of MRs on Downlink TCHH (Receive Quality Rank 6)+Number of MRs on Downlink TCHH (Receive Quality Rank 7))**

11.1. Ericsson

SI No.	KPI	Ericsson
1	**CSSR= (No of established Calls / No of Attempted Calls)%**	CSSR (No of established Calls / No of Attempted Calls)=(TCASSALL/TASSALL)*100
2	**SDCCH congestion= (SDCCH Failure/SDCCH attempts)%**	SDCCH congestion (SDCCH Failure/SDCCH attempts)% = (CCONGS/CCALLS)*100
3	**TCH congestion= (TCH Failures /TCH Attempts)%**	TCH congestion (TCH Failures /TCH Attempts)%= (CNRELCONG+TNRELCONG)/TASSALL)*100
4	**Call Drop Rate= (The total no of dropped calls*100)/Total no of calls successfully established (where traffic channel is allotted)**	Call Drop Rate (Total no dropped calls/No of established calls)%= (TNDROP)/TCASSALL*100
5	**Call Drop Rate= (No of cells having call drop rate >3% during CBBH in a month*100)/Total no of cells in the licensed service area**	Above formula with counters being used in CBBH.
6	**Connection with good quality voice= (Connection with good quality voice/Total voice samples)%**	Connection with good quality voice (Connection with good quality voice samples 0-5 /Total voice samples)= 100 * (QUAL50DL + QUAL40DL + QUAL30DL + QUAL20DL + QUAL10DL + QUAL00DL) / (QUAL70DL + QUAL60DL + QUAL50DL + QUAL40DL + QUAL30DL + QUAL20DL + QUAL10DL + QUAL00DL)

Ericsson Counters

Counter	Counter Description
TCASSALL	Number of assignment complete messages on TCH for all MS classes
TASSALL	Number of first assignment attempts on TCH for all MS classes.
CNRELCONG	Number of released connections on SDCCH due to TCH or Transcoder (TRA) congestion.
TNRELCONG	Number of released TCH signalling connections due to transcoder resource congestion during immediate assignment on TCH
CCONGS	Congestion counter for SDCCH. Stepped per congested allocation attempt.
CCALLS	Channel allocation attempt counter on SDCCH.
TNDROP	The total number of dropped TCH Connections.
QUAL00DL	Number of quality 0 reported on downlink.
QUAL10DL	Number of quality 1 reported on downlink.
QUAL20DL	Number of quality 2 reported on downlink.

QUAL30DL   Number of quality 3 reported on downlink.
QUAL40DL   Number of quality 4 reported on downlink.
QUAL50DL   Number of quality 5 reported on downlink.
QUAL60DL   Number of quality 6 reported on downlink.
QUAL70DL   Number of quality 7 reported on downlink

11.2. NSN (Nokia Siemens Network)

SI N o.	KPI	NSN
1	CSSR= (No of established Calls / No of Attempted Calls)%	CSSR= 100-100*((SDCCH_BUSY_ATT)-(TCH_SEIZ_DUE_SDCCH_CON) + (SDCCH_RADIO_FAIL)+(SDCCH_RF_OLD_HO)+(SDCCH_USER_ACT)+(SDCCH_BCSU_RES ET)+(SDCCH_NETW_ACT)+(SDCCH_BTS_FAIL)+(SDCCH_LAPD_FAIL)+ (BLCK_8I_NOM)/ {(CH_REQ_MSG_REC)+(PACKET_CH_REQ)}-{(GHOST_CCCH_RES)- (REJ_SEIZ_ATT_DUE_DIST)}
2	SDCCH congestion= (SDCCH Failure/SDCCH attempts)%	SDCCH congestion = (sdcch_busy_att - .tch_seiz_due_sdcch_con)/{(CH_REQ_MSG_REC)+(PACKET_CH_REQ)}- {(GHOST_CCCH_RES)-(REJ_SEIZ_ATT_DUE_DIST)}
3	TCH congestion= (TCH Failures /TCH Attempts)%	TCH congestion = BLCK_8I_NOM / {(TCH_NORM_SEIZ)+(MSC_I_SDCCH_TCH_AT)+(BSC_I_SDCCH_TCH_AT)}
4	Call Drop Rate= (The total no of dropped calls*100)/Total no of calls successfully established (where traffic channel is allotted)	TCH Drop = (drop_after_tch_assign)-(tch_re_est_release) / {(TCH_NORM_SEIZ)+(MSC_I_SDCCH_TCH_AT)+(BSC_I_SDCCH_TCH_AT)}
5	Call Drop Rate= (No of cells having call drop rate >3% during CBBH in a month*100)/Total no of cells in the licensed service area	Above formula with counters being used in CBBH.
6	Connection with good quality voice= (Connection with good quality voice/Total voice samples)%	Connection with good quality voice= (FREQ_DL_QUAL0+FREQ_DL_QUAL1+FREQ_DL_QUAL2+FREQ_DL_QUAL3+FREQ_DL_QU AL4+FREQ_DL_QUAL5) / (FREQ_DL_QUAL0+FREQ_DL_QUAL1+FREQ_DL_QUAL2+FREQ_DL_QUAL3+FREQ_DL_QU AL4+FREQ_DL_QUAL5+FREQ_DL_QUAL6+FREQ_DL_QUAL7)

11.3. Huawei

SR .NO	KPI	HUAWEI FORMULA
1	CALL SETUP SUCCES (NUM)	[Successful CS IS-95 Orig Call Setups + Successful CS IS-2000 Orig Call Setups + Successful CS IS-95 Term Call Setups + Successful CS IS-2000 Term Call Setups] ([1157628567] + [1157628587] + [1157628568] + [1157628588])
2	CALL SETUP SUCCES (DEN)	[CS IS-95 Orig Attempts + CS IS-2000 Orig Attempts + CS IS-95 Term Attempts + CS IS-2000 Term Attempts] ([1157628553] + [1157628573] + [1157628554] + [1157628574])
3	CALL SETUP SUCCESS RATE (%)	CALL SETUP SUCCES (NUM) / CALL SETUP SUCCES (DEN) * 100\
4	CALL DROP RATE (NUM)	[CS IS-95 Call Drops (Too many Erasure frames) + CS IS-2000 Call Drops (Too many Erasure frames) + CS IS-95 Call Drops (No reverse frame received) + CS IS-2000 Call Drops (No reverse frame received) + CS IS-95 Call Drops (Abis interface abnormal) + CS IS-2000 Call Drops (Abis interface abnormal) + CS IS-95 Call Drops (A2 interface abnormal) + CS IS-2000 Call Drops (A2 interface abnormal) + CS IS-95 Call Drops (HHO fail) + CS IS-2000 Call Drops (HHO fail) + CS IS-95 Call Drops (Other causes) + CS IS-2000 Call Drops (Other causes)] ([1157628608] + [1157628614] + [1157628609] + [1157628615] + [1157628610] + [1157628616] + [1157628611] + [1157628617] + [1157628612] + [1157628618] + [1157628613] + [1157628619])
5	CALL DROP RATE(DEN)	[Successful CS IS-95 Orig Call Setups + Successful CS IS-2000 Orig Call Setups + Successful CS IS-95 Term Call Setups + Successful CS IS-2000 Term Call Setups + CS IS-95 Successful Incoming Hard HOs + CS IS-2000 Successful Incoming Hard HOs] [1157628619]) x 100/([1157628567] + [1157628587] + [1157628568] + [1157628588] + [1157628569] + [1157628589])]
6	Call DROP Rate	CALL DROP RATE (NUM) / CALL DROP RATE(DEN) * 100\
7	RF BLOCK RATE (NUM)	{[(TCH Assignment Requests-CS Orig-IS95[Times] + TCH Assignment Requests-CS Orig-IS2000[Times] + TCH Assignment Requests-CS Term-IS95[Times] + TCH Assignment Requests-CS Term-IS2000[Times]) - (Successful TCH Assignments-CS Orig-IS95[Times] + Successful TCH Assignments-CS

|		
		Orig-IS2000[Times] + Successful TCH Assignments-CS Term-IS95[Times] + Successful TCH Assignments-CS Term-IS2000[Times])] {[(1157628621 + 1157628628 + 1157628635+ 1157628642)
8	RF BLOCK RATE (DEN)	[((TCH Assignment Requests-CS Orig-IS95[Times] + TCH Assignment Requests-CS Orig-IS2000[Times] + TCH Assignment Requests-CS Term-IS95[Times] + TCH Assignment Requests-CS Term-IS2000[Times]))]} [(1157628621 + 1157628628 + 1157628635+ 1157628642)]}
9	RF BLOCK RATE	RF BLOCK RATE (NUM) / RF BLOCK RATE (DEN) *100
10	Call Quality (RFER)	CS Reverse Link Average FER of Carrier[%

15. BLOCK SCHEMATIC DIAGRAM

15.1. Ericsson

NSN
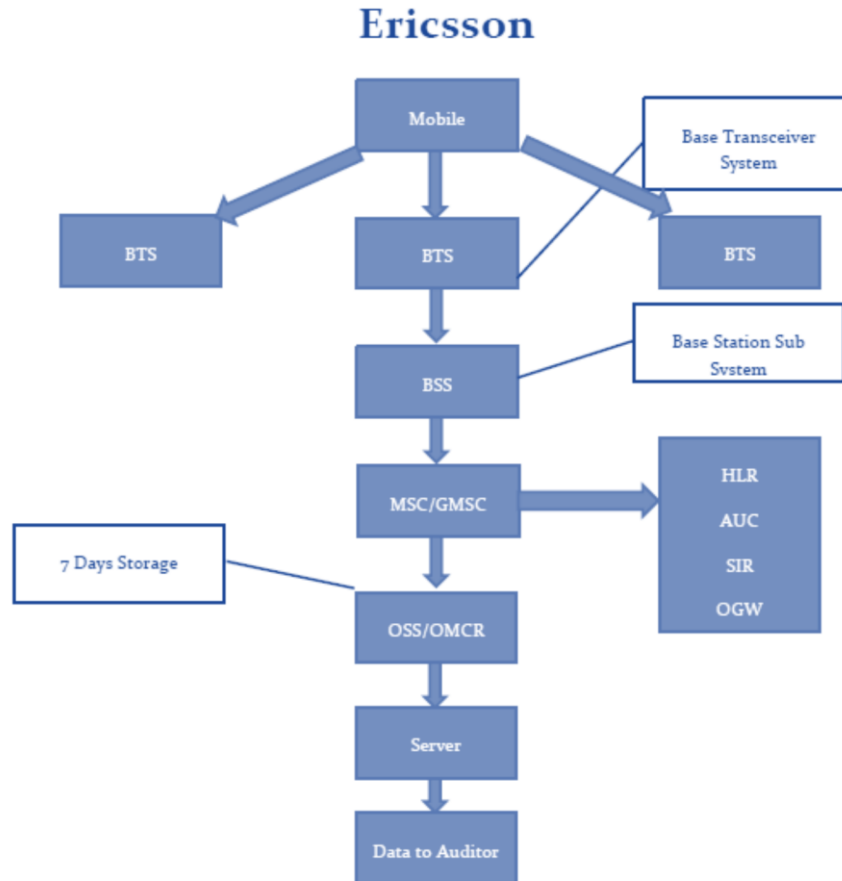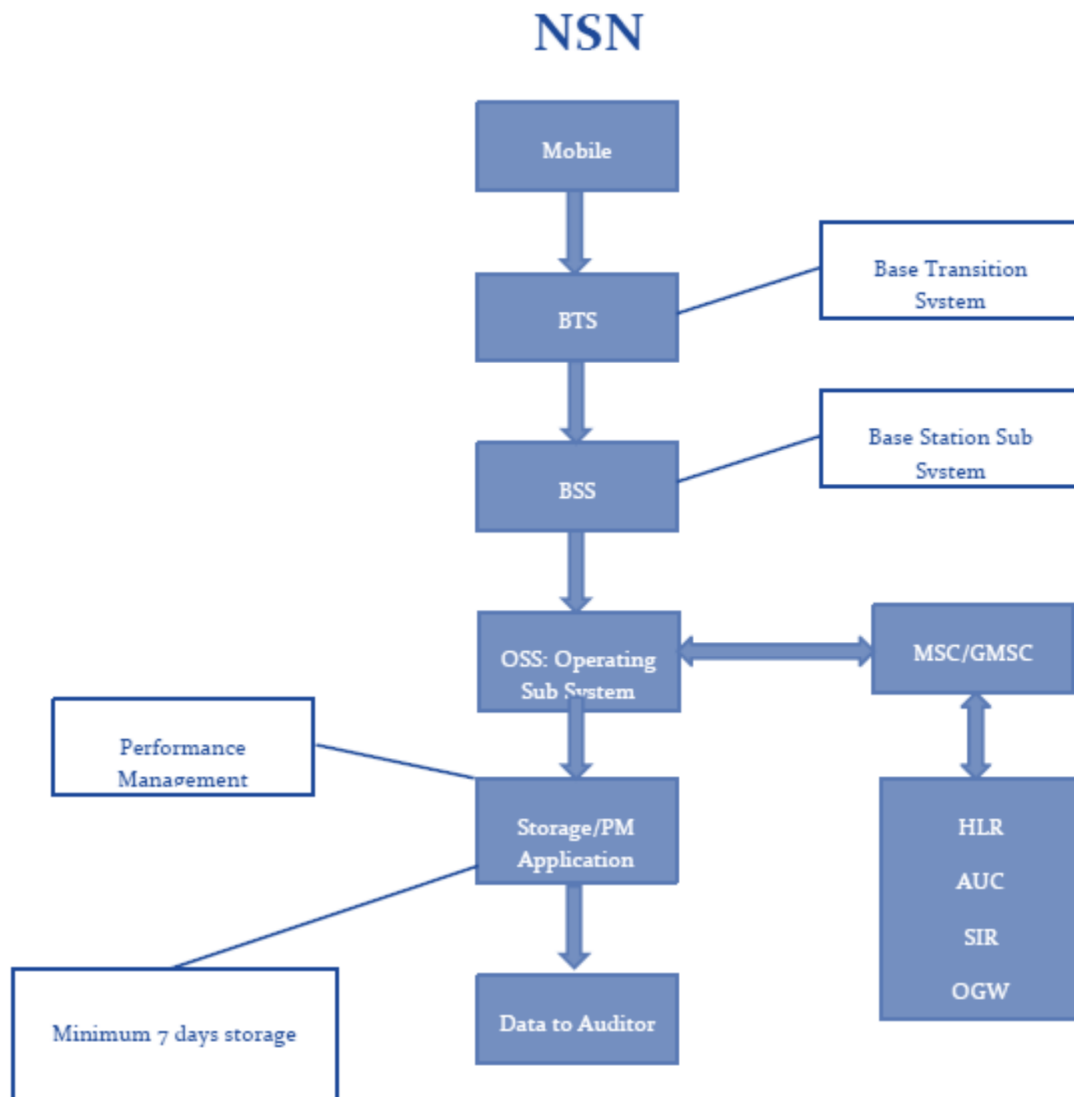
Huawei
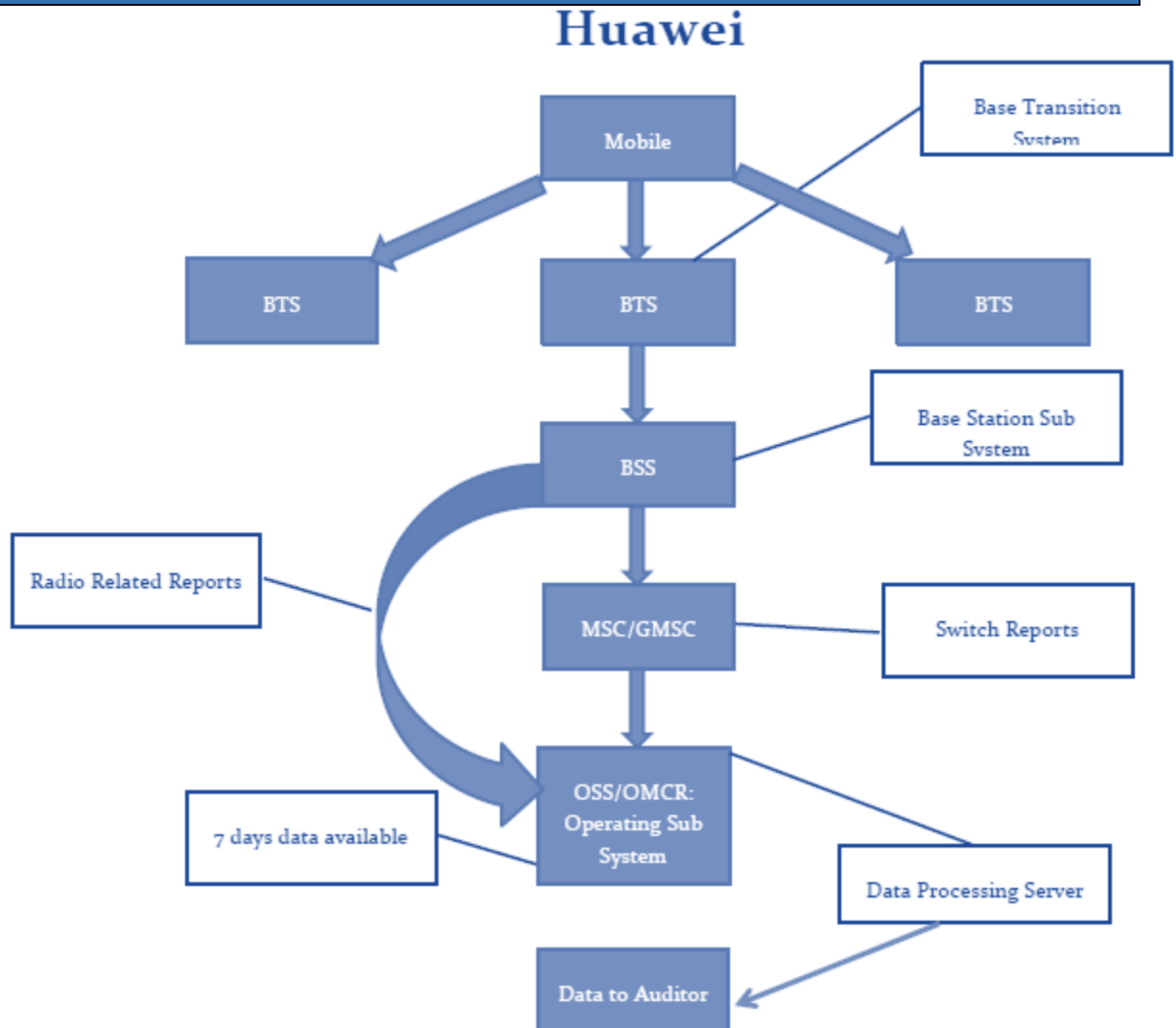
Following terms/abbreviations have been used in this report. This section provides meaning of the abbreviations used in the report.

- TRAI – Telecom Regulatory Authority of India

- QoS – Quality of Service

- QND'15 – Refers to the quarter of October, November and December 2015

- SSA – Secondary Switching Area

- NOC – Network Operation Center

- OMC – Operations and Maintenance Center

- MSC – Mobile Switching Center

- PMR – Performance Monitoring Reports

- TCBH – Time Consistent Busy Hour

- CBBH - Cell Bouncing Busy Hour

- BTS – Base Transceiver Station

- CSSR – Call Setup Success Rate

- TCH – Traffic Channel

- SDCCH – Standalone Dedicated Control Channel

- CDR – Call Drop Rate

- FER – Frame Error Rate

- SIM – Subscriber Identity Module

- GSM – Global System for Mobile

- CDMA – Code Division Multiple Access

- NA – Not Applicable

- NC – Non Compliance

- POI – Point of Interconnection

- IVR – Interactive Voice Response

- STD – Standard Trunk Dialing

- ISD – International Subscriber Dialing

17 ANNEXURE

17.1. 2G Voice PMR Data: Consolidated

Name of Service Provider	Network Availability		Connection Establishment (Accessibility)			Connection Maintenance (Retainability)		
	Sum of downtime of BTSs in a month in hrs in the licensed service area	No. of BTSs having accumulated downtime of >24 hours in a month	Call Set-up Success Rate (Within Licensee own network	SDDCH/Paging chl. Congestion	TCH Congestion	Call Drop Rate (%age)	Worst Affected cell having more than 3% TCH drop	%age of connection with good voice quality
Benchmark	≤ 2%	≤ 2%	≥ 95%	≤ 1%	≤ 2%	≤ 2%	≤ 3%	≥ 95%
Aircel	0.20%	0.44%	97.76%	0.39%	1.19%	0.96%	4.87%	97.04%
Airtel	0.01%	0.00%	99.85%	0.04%	0.05%	0.76%	1.23%	99.19%
MTNL	0.13%	0.42%	97.06%	0.44%	1.81%	1.84%	2.56%	97.09%
Idea	0.04%	0.00%	98.87%	0.60%	0.60%	0.68%	2.41%	98.12%
MTS	0.07%	0.03%	98.86%	NA	0.19%	0.27%	1.33%	99.20%
RCOM CDMA	0.04%	0.15%	96.75%	NA	1.27%	0.18%	0.83%	99.17%
RCOM GSM	0.12%	0.86%	97.32%	0.38%	0.86%	0.15%	0.75%	98.72%
TATA CDMA	0.03%	0.07%	99.26%	NA	0.03%	0.29%	2.12%	99.19%
Vodafone	0.13%	0.64%	98.47%	0.15%	0.87%	1.20%	2.73%	97.72%

- Aircel has parameter value of **4.87%** and failed to meet the benchmark for Worst Affected cell having more than 3% TCH drop as it is pre-defined at ≤ 3%.

17.2. 3G Voice PMR: Consolidated

Name of Service Provider	Network Availability		Connection Establishment (Accessibility)			Connection Maintenance (Retainability)		
	Sum of downtime of Node B's in a month in hrs	No. of Node B's having Accumulated Downtime of > 24 hrs in a month	Call Set-up Success Rate (Within Licensee own network	RRC Congestion	RAB Congestion	Circuit Switched Voice Drop Rate	Worst affected cells having more than 3% Circuit Switched Voice Drop Rate	%age of connections with Good Circuit Switched Voice Quality
Benchmark	≤ 2%	≤ 2%	≥ 95%	≤ 1%	≤ 2%	≤ 2%	≤ 3%	≥ 95%
Aircel	NA	NA	NA	NA	NA	NA	NA	NA
Airtel	0.24%	0.53%	98.81%	0.11%	0.09%	0.41%	2.20%	98.81%
MTNL	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA
Idea	NA	NA	NA	NA	NA	NA	NA	NA
MTS	NA	NA	NA	NA	NA	NA	NA	NA
RCOM CDMA	NA	NA	NA	NA	NA	NA	NA	NA
RCOM GSM	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA
TATA CDMA	NA	NA	NA	NA	NA	NA	NA	NA
Vodafone	0.18%	1.03%	99.98%	0.05%	0.04%	0.49%	2.69%	98.85%

- **For each instance of "DNA (Data Not Available)", please refer the respective hard copy of audit report(s).

17.3. Billing and Customer Care

Name of Service Provider	Metering and Billing credibility		Billing Complaints			Termination & Closures	Time taken for refund of deposits after closures	Response time to customer for assistance		Customer Care & Grievances Redressal	
	Postpaid Subscribers	Prepaid Subscribers	%age complaints resolved within 4 weeks	%age complaints resolved within 6 weeks	%age of where credit/waiver is received within one week	% of Termination/ Closure of service within 7 days (100 %)	Cleared over a period of <60 days (100%)	%age of calls answered by the IVR	%age of call answered by the operators (voice to voice) within 90 seconds	% of Complaints addressed at call center level	% of Complaints addressed by Appellate Authority
Benchmark	≤ 0.1%	≤ 0.1%	≥ 98%	= 100%	= 100%	= 100%	= 100%	≥ 95%	≥ 95%		
Aircel	0.01%	0.00%	100.00%	100.00%	100.00%	100.00%	100.00%	91.50%	94.30%	100.00%	100.00%
Airtel	0.02%	0.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	94.32%	95.67%	61.21%
IDEA	0.07%	0.20%	100.00%	100.00%	100.00%	100.00%	100.00%	98.98%	98.62%	23.33%	100.00%
MTNL	0.06%	0.01%	100.00%	100.00%	100.00%	100.00%	100.00%	97.22%	98.00%	100.00%	NIL
MTS CDMA	0.00%	0.01%	100.00%	100.00%	100.00%	100.00%	100.00%	99.12%	97.80%	40.50%	100.00%
RCOM CDMA	0.09%	0.02%	100.00%	100.00%	100.00%	100.00%	98.79%	98.24%	92.37%	100.00%	100.00%
RCOM GSM	0.09%	0.09%	100.00%	100.00%	100.00%	100.00%	98.88%	98.28%	86.57%	100.00%	100.00%
TTSL CDMA	0.00%	0.00%	100.00%	100.00%	100.00%	100.00%	100.00%	99.26%	96.44%	99.09%	96.67%
VODAFONE	0.15%	0.05%	100.00%	100.00%	99.85%	100.00%	100.00%	100.00%	97.16%	92.68%	NIL

- Aircel has parameter value of **91.50%** and failed to meet the benchmark of ≥95% for %age of calls answered by the IVR.

- Aircel has parameter value of **94.30%** and failed to meet the benchmark of ≥95% for %age of call answered by the operators (voice to voice) within 90 seconds.

- Airtel has parameter value of **94.32%** and failed to meet the benchmark of ≥95% for %age of call answered by the operators (voice to voice) within 90 seconds.

- Idea has parameter value of **0.20%** and failed to meet the benchmark of ≤ 0.1% for Metering and Billing Credibility (Prepaid).

- RCOM CDMA has parameter value of **98.79%** and failed to meet the benchmark of = 100% for Time taken for refund of deposits after closures (Cleared over a period of <60 days).

- RCOM GSM has parameter value of **98.88%** and failed to meet the benchmark of = 100% for Time taken for refund of deposits after closures (Cleared over a period of <60 days).

- RCOM CDMA has parameter value of **92.37%** and failed to meet the benchmark of ≥95% for %age of call answered by the operators (voice to voice) within 90 seconds.

- RCOM GSM has parameter value of **86.57%** and failed to meet the benchmark of ≥95% for %age of call answered by the operators (voice to voice) within 90 seconds.

- Vodafone has parameter value of **0.15%** and failed to meet the benchmark of ≤ 0.1% for Metering and Billing credibility (Postpaid subscribers).

- Vodafone has parameter value of **99.85%** and failed to meet the benchmark of = 100% for Billing Complaints (%age of where credit/waiver is received within one week).

Name of Service Provider	Network Availability				Connection Establishment (Accessibility)						Connection Maintenance (Retainability)					
	Sum of downtime of BTSs in a month in hrs. in the licensed service area		No. of BTSs having accumulated downtime of >24 hours in a month		Call Set-up Success Rate (Within Licensee own network)		SDDCH/Paging chl. Congestion		TCH Congestion		Call Drop Rate (%age)		Wost Affected cell having more than 3% TCH drop		%age of connection with good voice quality	
Benchmark	≤ 2%		≤ 2%		≥ 95%		≤ 1%		≤ 2%		≤ 2%		≤ 3%		≥ 95%	
	Agency	TSP	Agency	TSP	Agency	TSP	Agency	TSP	Agency	TSP	Agency	TSP	Agency	TSP	Agency	TSP
Aircel	0.20%	0.20%	0.44%	0.44%	97.76%	97.76%	0.39%	0.39%	1.19%	1.19%	0.96%	0.96%	4.87%	4.87%	97.04%	97.04%
Airtel	0.01%	0.01%	0.00%	0.00%	99.85%	99.85%	0.04%	0.04%	0.05%	0.05%	0.76%	0.76%	1.23%	1.23%	99.19%	99.19%
Idea	0.04%	0.04%	0.00%	0.00%	98.87%	98.87%	0.60%	0.60%	0.60%	0.60%	0.68%	0.68%	2.41%	2.41%	98.12%	98.12%
MTNL GSM	0.14%	0.14%	0.42%	0.41%	97.06%	97.06%	0.44%	0.44%	1.81%	1.82%	1.84%	1.85%	2.56%	2.57%	97.09%	97.09%
MTS	0.07%	0.07%	0.03%	0.03%	98.86%	98.86%	NA	0.00%	0.19%	0.19%	0.27%	0.27%	1.33%	1.32%	99.20%	99.20%
RCOM CDMA	0.04%	0.04%	0.15%	0.26%	96.75%	96.77%	NA	0.00%	1.27%	1.27%	0.18%	0.19%	0.82%	0.90%	99.17%	99.13%
RCOM GSM	0.12%	0.11%	0.86%	0.67%	97.32%	97.46%	0.38%	0.40%	0.86%	0.83%	0.15%	0.16%	0.75%	0.75%	98.72%	99.05%
TATA CDMA	0.03%	0.03%	0.07%	0.07%	99.26%	99.26%	NA	0.00%	0.03%	0.03%	0.29%	0.29%	2.12%	2.11%	99.19%	99.19%
Vodafone	0.13%	0.13%	0.64%	0.64%	98.47%	98.47%	0.43%	0.43%	0.87%	0.87%	1.20%	1.20%	2.73%	2.73%	97.72%	97.72%

- ▪ **For each instance of "DNA (Data Not Available)", please refer the respective hard copy of audit report(s).

17.5. PMR Comparison (TSP vs. Audit Agency): CSD Parameters

Name of Service Provider	Metering and Billing credibility				Billing Complaints						Termination & Closures		Time taken for refund of deposits after closures: Benchmark		Customer Care			
	Postpaid Subscribers		Prepaid Subscribers		%age complaints resolved within 4 weeks		%age complaints resolved within 6 weeks		%age of credit/weiver is received within one week		% of Termination/ Closure of service within 7 days (100 %)		Cleared over a period of <60 days (100%)		%age of calls answered by the IVR		%age of call answered by the operators (voice to voice) within 90 seconds	
Benchmark	≤ 0.1%		≤ 0.1%		≥ 98%		= 100%		= 100%		= 100%		= 100%		≥ 95%		≥ 95%	
	Agency	TSP	Agency	TSP	Agency	TSP	Agency	TSP	Agency	TSP	Agency	TSP	Agency	TSP	Agency	TSP	Agency	TSP
Aircel	0.01%	0.01%	0.00%	0.00%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	91.50%	91.50%	94.30%	94.30%
Airtel	0.02%	0.02%	0.00%	0.00%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	94.32%	94.32%
Idea	0.07%	0.07%	0.20%	0.20%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	98.98%	98.98%	98.62%	98.62%
MTNL	0.06%	0.06%	0.02%	0.01%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	97.22%	97.44%	98.00%	97.98%
MTS	0.00%	0.00%	0.01%	0.00%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99.10%	99.10%	97.80%	97.80%
RCOM CDMA	0.09%	0.09%	0.02%	0.02%	100%	100%	100%	100%	100%	100%	100%	100%	98.79%	98.79%	98.24%	98.24%	92.37%	92.37%
RCOM GSM	0.09%	0.09%	0.09%	0.09%	100%	100%	100%	100%	100%	100%	100%	100%	98.88%	98.88%	98.28%	98.28%	86.57%	86.57%
TATA CDMA	0.00%	0.00%	0.00%	0.00%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99.26%	99.26%	96.44%	96.44%
Vodafone	0.15%	0.15%	0.05%	0.05%	100%	100%	100%	100%	99.85%	99.85%	100%	100%	100%	100%	100.00%	100.00%	97.16%	97.16%