Objective Assessment of Quality of Services for (QoS) for Cellular Mobile (Wireless) Service Providers
Orissa Circle

Report: April - May - June, 2012

Prepared for: **Telecom Regulatory Authority of India**

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A specialist unit of IMRB International

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Preface

TRAI, the regulatory watch dog for the Quality of Service for the telecom services – Basic (Wireline), Cellular Mobile (Wireless) and Broadband has commissioned this study with the objective of measuring Quality of Services under the parameters as per the published notifications.

The Audit module would assess the Quality of Service of telecom operators Basic (Wireline), Cellular Mobile (Wireless) and Broadband services) by auditing the service level records maintained by the operators, conducting drive tests as well as live measurements and comparing them with quality of service benchmarks stipulated by TRAI.

The Audit module for various circles within the Zones, due the sheer scale of data collection, has been distributed across various quarterly periods. IMRB International Auditors carried out Audits across Orissa, Bihar & Jharkhand, West Bengal, North-East, Assam and Kolkata circles in the second quarter of 2012. **This report details the performance of various service providers in Orissa circle against Quality of Services benchmarks for various parameters laid down by TRAI in respective regulations for Cellular (Mobile) services.**

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1.0 Background

The Telecom Regulatory Authority of India (TRAI) has a critical mandate to protect the interest of telecom consumers in addition to various other functions bestowed upon it. As part of the license conditions to telecom operators, it has the power and authority to measure the Quality of Service provided by various govt. (BSNL & MTNL) and private telecom operators. The parameters that need to be measured for Basic (Wireline) and Cellular Mobile (Wireless) services have been specified in the TRAI notification on Quality of Services of Basic (Wireline) and Cellular Mobile (Wireless) services dated 20th March, 2009. The parameters for Broadband Service have been specified in the TRAI notification for Quality of Services of Broadband Service Regulation, 2006

Audit module: To assess the quality of service of telecom operators Basic (Wireline), Cellular Mobile (Wireless) and Broadband services by auditing the service level records maintained by the operators, conducting drive tests as well as live measurements and comparing them with quality of service benchmarks stipulated by TRAI

This report highlights the findings for the Audit module for Orissa circle that was covered in period of April - June 2012. The verification of records maintained by various operators of Cellular Mobile (Wireless) service was undertaken by the auditors of IMRB International during the period April - June 2012.

This report highlights the Audit Module findings for "Orissa circle for Cellular Mobile services

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2.0 Objectives and Methodology

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). Following are the key activities undertaken by Auditors during the Audit process conducted at the operator's premises

All Network related and Non network related parameters notified by TRAI in various regulations were Audited

1. **Verification of the data submitted by service providers:** This involved verification of the quarterly Performance Monitoring Reports (PMR's) and monthly Point of Interconnect (POI) Congestion reports being submitted by various service providers. The raw data in the records maintained by service providers was audited to assess the book keeping methodology.

2. **Live measurement for three days:** Network performance of service providers was assessed for three days in the month in which the Audit was carried out. Live figures from the server/ NMS software were recorded for various network related parameters.

3. **Data verification for the month in which Audits were carried out:** Subsequent to the visits for Audit during the live measurement at various Exchanges/ISP Nodes/Exchanges, data for all the network and Non network related parameters was collected from various service providers for the complete month in which the Audit was carried out. Raw data/records pertaining to these were also verified on sample basis to check the veracity of data provided by the operators.

4. **Drive tests:** Operator assisted drive test were conducted in three cities as per the norms stated in the tender.

5. **Live calling:** Live testing was done on a sample basis to check efficiency of various parameters

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- Any changes or discrepancies found in the methodology were reported to the service providers and changes were suggested by IMRB Auditors.
- PMR verification was done as per the new parameters being reported to TRAI by all operators.
- Live measurement and 1 month data collection was done as per the new regulations published by TRAI on 20th March, 2009.

3.0 Sampling methodology

3.1 Sampling for Cellular Mobile (Wireless) service providers

Data pertaining to 100% of the Gateway MSC's (GMSC's) and Mobile Switching Centre's (MSC's) of all the Cellular Mobile Service Providers or Unified Access Service Providers (UASP) was collected and verified in specified circles/service areas. Following are the various operators covered in Orissa circle

	Name of Operator	Month of Audit
Operator 1	Idea	May, 2012
Operator 2	BSNL	June, 2012
Operator 3	Reliance CDMA	May, 2012
Operator 4	Reliance GSM	May, 2012
Operator 5	MTS	June, 2012
Operator 6	Airtel	May, 2012
Operator 7	Videocon	May, 2012
Operator 8	Uninor	May, 2012
Operator 9	Vodafone	June, 2012
Operator 10	Tata Tele - CDMA	May, 2012
Operator 11	Tata Docomo	June, 2012
Operator 12	Aircel	June, 2012

4.0 Audit methodology

4.1 Cellular Mobile Services

In a nutshell the following activities were done while auditing for various parameters for Cellular Mobile Services:

S.no	Parameter	AS REPORTED IN PMR	AS FOUND IN ACTUAL RECORDS AFTER VERIFICATION	AS FOUND IN VERIFICATION FOR THE MONTH OF AUDIT	AS FOUND IN 3 DAY LIVE MEASUREMENT DATA	LIVE CALLING	OPERATOR ASSISSTED DRIVE TESTS	INDEPENDENT DRIVE TESTS
A	**Network Performance**							
A (i)	BTS accumulated down time	Yes	Yes	Yes				
A (ii)	Call setup success rate (within licensee own network)	Yes	Yes	Yes	Yes		Yes	Yes
A (iii)	Blocked Call Rate	Yes	Yes	Yes	Yes		Yes	Yes
A (iv)	Call Drop rate	Yes	Yes	Yes	Yes		Yes	Yes
A (v)	% Connections with good voice quality	Yes	Yes	Yes			Yes	Yes
A (vi)	Service Coverage	Yes	Yes	Yes			Yes	Yes
A (vii)	PoI Congestion	Yes	Yes	Yes				
B	**Customer Helpline**							
B (i)	Response time to the customer for assistance	Yes	Yes	Yes		Yes		
C	**Billing Complaints**							
C (i)	Billing complaints per 100 bills issued	Yes	Yes	Yes				
C (ii)	%age of billing complaints resolved within 4 weeks	Yes	Yes	Yes		Yes		
C (iii)	Period of all refunds/payments due to customers from date of resolution as in (ii) above	Yes	Yes	Yes		Yes		

5.0 Executive Summary

The objective assessment of Quality of Services (QoS) was carried out by IMRB International for all the Cellular mobile service providers during the period starting from April 2012 to June 2012 in Orissa circle. The executive summary encapsulates the key findings of the Audit

5.1 Service provider performance report based on one month data verification: Cellular Mobile Services

Name of Service Provider	Time Consistent Busy Hour (TCBH)	Network Availability					Connection Establishment (Accessibility)			Connection Maintenance (Retainability)					POI	Total number of working POI Service Area wise	Network Traffic Capacity and Utilization		
		Total no. of BTSs in the licensed service area	Sum of downtime of BTSs in a month in hours i.e. total outage time of all BTSs in hours during a month	BTSs Accumulated downtime (not available for service) (%age)	No. of BTSs having accumulated downtime of >24 hours in a month	Worst affeected BTSs due to downtime (%age)	Call Set-up Success Rate (within licensee's own network)	SDCCH/ Paging Chl. Congestion (%age)	TCH Congestion (%age)	Call Drop Rate (%age)	Total No. of cells exceeding 3% TCH drop (call drop)	Total no. of cells in the network	Worst affected cells having more than 3% TCH drop (call drop) rate (%age)	%age of connection with good voice quality	POI Congestion (No. of POIs not meeting the benchmark) Note :2)		Equipped Capacity of Network in respect of Traffic in erlang	Total traffic handled in TCBH in erlang	Total no. of customers served (as per VLR) on last day of the month
Benchmark				≤ 2%		≤ 2%	≥ 95%	≤ 1%	≤ 2%	≤ 2%			≤ 3%	≥ 95%	≤ 0.5%				
Idea	19:00 to 20:00 hrs	1165	1612	0.19%	3	0.26%	98.42%	0.14%	0.52%	0.45%	68	3491	1.95%	97.21%	0	63	29573	21262	678100
BSNL	19:00 to 20:00 hrs	1987	11302	0.76%	15	0.75%	98.29%	0.96%	1.71%	1.36%	25	907	2.76%	95.91%	0	17	16000	16454	414869
Reliance CDMA	19:00 to 20:00 hrs	742	1161	0.21%	1	0.13%	99.44%	0.00%	0.01%	0.26%	11	2226	0.49%	99.38%	0	22	83000	16215	428589
Reliance GSM	19:00 to 20:00 hrs	1972	606	0.04%	0	0.00%	98.90%	0.14%	0.26%	0.26%	20	5916	0.34%	98.92%	0	23	72000	65961	2496366
MTS	19:00 to 20:00 hrs	37	141	0.51%	0	0.00%	98.54%	0.00%	0.00%	1.64%	1	111	0.69%	98.51%	0	27	4200	4	508
Airtel	19:00 to 20:00 hrs	3766	2243	0.08%	17	0.45%	99.64%	0.02%	0.09%	0.45%	133	11857	1.12%	99.10%	0	55	259072	242553	6074642
Videocon	20:00 to 21:00 hrs	40	205	0.69%	0	0.00%	98.44%	0.31%	0.00%	1.58%	1	120	0.83%	99.75%	0	11	5000	0	63
Uninor	20:00 to 21:00 hrs	951	6020	0.85%	9	0.95%	97.18%	0.38%	1.50%	1.82%	53	2844	1.86%	96.56%	0	60	33973	33900	772586
Vodafone	19:00 to 20:00 hrs	3367	3016	0.12%	4	0.12%	98.25%	0.36%	1.08%	0.88%	109	10037	1.09%	98.56%	0	42	93124	74784	2257590
Tata Tele - CDMA	19:00 to 20:00 hrs	467	203	0.06%	0	0.00%	98.81%	0.00%	0.02%	0.49%	3	1407	0.21%	99.13%	0	34	108445	22690	262009
Tata Docomo	19:00 to 20:00 hrs	1676	426	0.03%	4	0.24%	99.21%	0.06%	0.07%	0.52%	47	5028	0.93%	97.90%	0	12	85006	30360	1054684
Aircel	19:00 to 20:00 hrs	2625	10673	0.55%	113	4.30%	99.11%	0.45%	0.57%	1.22%	250	7670	3.26%	96.03%	0	86	141273	48477	1505927

*Details pertaining to these are obtained through operator done drive tests. Results of the operator assisted drive tests are explained in detail in critical findings

** Methodology not in line with QoS

☐ Figures provided on All India basis

☐ Not meeting the benchmark

B'mark = TRAI Benchmark, DNA = Details not available, NA: Not Applicable

Critical findings: Cellular Mobile Services

The audit for cellular mobile service providers were conducted at their respective MSCs in the Orissa circle apart from Reliance Communication whose audit was conducted at their central NOC at Mumbai.

The audit involved a three stage verification process which consisted of auditing the records of the service providers and verifying the data submitted to TRAI. The second step involved a three day live measurement of all the network parameters. Finally basis the three day live measurement the auditors needed to find out the busy hour for the service provider and collect the hourly data for this busy hour for the month in which the audit was conducted.

Busy Hour of Various Service Providers

Service Provider	Reported Time Consistent Busy Hour	Network Busy Hour found in 3 day live measurement
Idea	19:00 to 20:00 hrs	19:00 to 20:00 hrs
BSNL	19:00 to 20:00 hrs	20:00 to 21:00 hrs
Reliance CDMA	19:00 to 20:00 hrs	19:00 to 20:00 hrs
Reliance GSM	19:00 to 20:00 hrs	19:00 to 20:00 hrs
MTS	19:00 to 20:00 hrs	19:00 to 20:00 hrs
Airtel	19:00 to 20:00 hrs	19:00 to 20:00 hrs
Videocon	20:00 to 21:00 hrs	20:00 to 21:00 hrs
Uninor	20:00 to 21:00 hrs	20:00 to 21:00 hrs
Vodafone	19:00 to 20:00 hrs	19:00 to 20:00 hrs
Tata Tele - CDMA	19:00 to 20:00 hrs	19:00 to 20:00 hrs
Tata Docomo	19:00 to 20:00 hrs	19:00 to 20:00 hrs
Aircel	19:00 to 20:00 hrs	19:00 to 20:00 hrs

The TCBH reported by all the service providers matched the network busy hour calculated by IMRB auditors for the Orissa circle.

BTSs Accumulated Downtime:
In the Orissa circle, all operators met the benchmark.

Call Set-up Success Rate (CSSR):
All the operators were comfortably meeting the benchmark on this parameter. During the audits the maximum CSSR was observed for Airtel with 99.64% of their calls getting completed. All the operators were found to be calculating the parameter as per the norm specified by TRAI. CSSR was established as the ratio of total number of successful call attempts (establishment) to the total number of call attempts made.

Network Congestion parameters:
SDCCH / Paging Channel Congestion, TCH and POI are part of the network congestion parameters. All the operators are meeting the TRAI specified benchmarks on the congestion parameters. BSNL however was performing the worst with a SDCCH congestion of 0.96% and TCH congestion of 1.71%. All CDMA operators including MTS, Reliance CDMA and TATA CDMA leads the way in network congestion parameters with almost negligible paging as well as traffic channel congestion. The calculation methodology of these parameters was found to be in complete accordance with what has been specified by TRAI. Both RCOM CDMA and Tata Teleservices measure paging channel utilization. When the value of this parameter is less than 100%, it is counted as 0% congestion. There were no POIs with congestion more than the benchmark (≤0.5%).

Call Drop Rate:
During the audit it was found that all the service providers were measuring this parameter as per the TRAI guidelines. The call drop rate was measured as the ratio of total calls dropped to the total number of call attempts for all operators. Also, all of service providers were found to be meeting the TRAI specified benchmark. The lowest call drop rate was of RCOM (both CDMA & GSM) at 0.26% while the highest was for MTS at 1.64%.

Connections with good voice quality:
All the operators are measuring this parameter via their periodic drive tests. However, for some operators these parameters can be obtained at their switch as well. During the audit it was found that all the service providers were measuring this parameter as per the TRAI guidelines.

Customer Care / Helpline Assessment
For the accessibility of customer care aspect all the service providers meet the TRAI benchmark except Aircel.

Billing performance
All the operators were found to be meeting the benchmark of ≤ 0.1% complaints registered per 100 bills issued and the benchmark of 100% billing complaints being resolved within 4 weeks. In all cases where customers were due for refund, all the service providers meet the TRAI benchmark of 100% with 1 week.

Inter operator calls assessment

Inter operator call Assessment To↓ From→	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
Idea	NA	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
BSNL	100%	NA	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Reliance CDMA	100%	100%	NA	100%	100%	100%	100%	100%	100%	100%	100%	100%
Reliance GSM	100%	100%	100%	NA	100%	100%	100%	100%	100%	100%	100%	100%
MTS	100%	100%	100%	100%	NA	100%	100%	99%	100%	100%	100%	100%
Airtel	100%	100%	100%	100%	100%	NA	100%	100%	100%	100%	100%	100%
Videocon	100%	99%	100%	100%	99%	100%	NA	100%	100%	100%	100%	100%
Uninor	100%	100%	100%	100%	100%	100%	100%	NA	100%	100%	100%	100%
Vodafone	100%	100%	100%	100%	100%	100%	100%	100%	NA	100%	100%	100%
Tata Tele - CDMA	100%	100%	100%	100%	100%	100%	99%	100%	100%	NA	100%	100%
Tata Docomo	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	NA	100%
Aircel	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	NA

The maximum problem faced by the calling operator to other operators

In the inter-operator call assessment, calls were made from the test SIMs of service provider whose audit was being conducted to all the other service providers. Almost all operators were comfortably able to connect with each other except BSNL & MTS which faced a slight difficulty in connecting with Videocon.

Details of inter-operator calling are as followed:

Operator	Date	Location
Idea	11th May, 2012	Bhubaneswar
BSNL	5th June, 2012	Bhubaneswar
Reliance CDMA	14th May, 2012	Bhubaneswar
Reliance GSM	18th May, 2012	Bhubaneswar
MTS	6th June, 2012	Bhubaneswar
Airtel	21st May, 2012	Bhubaneswar
Videocon	16th May, 2012	Bhubaneswar
Uninor	17th May, 2012	Bhubaneswar
Vodafone	7th June, 2012	Bhubaneswar
Tata Tele - CDMA	23rd May, 2012	Bhubaneswar
Tata Docomo	8th June, 2012	Bhubaneswar
Aircel	25th May, 2012	Bhubaneswar

Results of Operator assisted Drive test

The drive test was conducted simultaneously for all the operators present in the Orissa circle. There was in total of three drive tests conducted in the circle. These tests were conducted in the cities of Cuttack, Bhubaneswar, Bhadrak. IMRB auditors were present in vehicles of every operator. A sample of 15 – 30 test calls were made along each of the routes. The holding period for all test calls was between 120 seconds to 180 seconds. The drive test vehicle across all routes plied at a speed of less than 20 km per hour. Taking into consideration the route that was taken for the drive test; most of the major areas Orissa telecom circles were covered.

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 dms for in-vehicle and > -95 dbm outdoor routes.

The drive tests in the Orissa circle were conducted in the cities of Cuttack, Bhubaneswar, Bhadrak was conducted along the following route:

	Type of location	Cuttack	Bhubaneshwar	Bhadrak
Outdoor	Periphery of the city	Press Chowk, High Court, Sati Chaurah, Bidnasi Chowk, Jobra, Sikharpur	Palsuni, Rasolgarh, CRPF Fire station, Khandagiri, DAV School Building	Power Grid, Gelpur, Aradi Chowk, Bandh Chowk, Dahani Gadia Chowk, Charampa Chowk
	Congested area	Chandi Chowk, Stadium, Manglabaag, Rani Haat, College Square, OMP, Chualia Ganj, Bidhydhar Pur	Rasolgarh, Cuttack Road, Kalpana, Rajmahal, Master Canteen, Ram Mandir, Jaydev Vihar, Sainik school, Kalinga Hospital	Chandbani Bypass, Kazi Bazar, Banka Sahi, Patan Sahi, Charampa Chowk, Rahnj
	Across the city	Press Chowk, Madhupatna Chowk, Badambadi, Dolmundai, Haripur Road, Chodhry Bazar, Shelter Chowk, Bidnasi Chowk	Pokhriput, Alaspally, Jaydev Vihar, Tower, Patia	Rai Ghat Chowk, Chandbadi Bypass, Haldia Diha
Indoor	Office complex	BSNL Office, Link Road	IDCO Tower	BSNL Office
	Shopping complex	Bhartia Tower, Badambadi	Pal Heights	Nehru Market Complex

The tables given below gives a glimpse of the results of the operator assisted drive test:

Drive Test – Cuttack

	B'mark	Idea		BSNL		Reliance CDMA		Reliance GSM		Airtel		Uninor		Vodafone		Tata Tele - CDMA		Tata Docomo		Aircel	
		In door	Outdoor	In door	Outdoor	In door	Outdoor	In door	Outdoor	In door	Outdoor	In door	Outdoor	In door	Outdoor	In door	Outdoor	In door	Outdoor	In door	Outdoor
Voice quality	≥ 95%	100.00%	100.00%	99.00%	96.50%	93.89%	97.50%	99.08%	98.39%	97.42%	96.40%	96.74%	96.48%	97.10%	96.00%	99.98%	99.90%	99.29%	99.46%	98.01%	97.23%
CSSR	≥ 95%	100.00%	100.00%	100.00%	99.35%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
%age Blocked calls		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Call drop rate	≤ 2%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Hands off success rate		100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	0.00%	100.00%	100.00%	100.00%

Drive Test – Bhubaneswar

	B'mark	Idea		BSNL		Reliance CDMA		Reliance GSM		Airtel		Uninor		Vodafone		Tata Tele - CDMA		Tata Docomo		Aircel	
		In door	Outdoor	In door	Outdoor	In door	Outdoor	In door	Outdoor	In door	Outdoor	In door	Outdoor	In door	Outdoor	In door	Outdoor	In door	Outdoor	In door	Outdoor
Voice quality	≥ 95%	100.00%	100.00%	98.99%	95.96%	98.94%	95.26%	97.17%	97.76%	99.17%	95.83%	97.54%	94.51%	98.77%	94.80%	100.00%	99.82%	99.96%	99.75%	99.68%	96.36%
CSSR	≥ 95%	100.00%	100.00%	100.00%	98.05%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
%age Blocked calls		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Call drop rate	≤ 2%	0.00%	0.00%	0.00%	0.66%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Hands off success rate		100.00%	100.00%	97.61%	98.02%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	0.00%	100.00%	100.00%	99.30%	100.00%	100.00%	0.00%	100.00%	100.00%	100.00%

Drive Test – Bhadrak

	B'mark	Idea		BSNL		Reliance CDMA		Reliance GSM		Airtel		Uninor		Vodafone		Tata Tele - CDMA		Tata Docomo		Aircel	
		In door	Outdoor	In door	Outdoor	In door	Outdoor	In door	Outdoor	In door	Outdoor	In door	Outdoor	In door	Outdoor	In door	Outdoor	In door	Outdoor	In door	Outdoor
Voice quality	≥ 95%	100.00%	100.00%	98.79%	97.67%	100.00%	99.89%	99.34%	99.05%	99.29%	97.04%	98.13%	95.16%	97.72%	97.57%	99.99%	99.71%	98.69%	99.19%	98.02%	96.39%
CSSR	≥ 95%	100.00%	100.00%	100.00%	98.90%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
%age Blocked calls		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Call drop rate	≤ 2%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Hands off success rate		100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Not meeting the benchmark

Following were the areas where the signal strength was found to be inadequate for the operators:

ALL SERVICE PROVIDERS

Bhubaneswar: Location where inadequate Coverage and Interference was recorded was Near Pokharifut D.A.V. School , Cuttack Road, and kalpana Near Bargar

Cuttack: Near high court road interference was recorded

**Bhadrak:** Inadequate coverage was recorded near Puruna Bazaar, and Haladi Dihi ByPass

Conclusions:
Drive test was conducted by IMRB with the help of service providers to measure this parameter. In the drive test it was found that all the operators meet the TRAI benchmark on voice quality.

1. Reliance CDMA does not meet the voice quality benchmark in Cuttack whereas Uninor & Vodafone do not meet the benchmark in Bhubaneswar

Summary of Live Measurement Results – Cellular Mobile Services

Name of Service Provider	Network Availability		Connection Establishment (Accessibility)			Connection Maintenance (Retainability)		
	BTSs Accumulated downtime (not available for service)	Worst affected BTSs due to downtime	Call Set-up Success Rate (within licensee's own network)	SDCCH/ Paging Chl. Congestion (%age)	TCH Congestion (%age)	Call Drop Rate (%age)	Worst affected cells having more than 3% TCH drop	%age of connection with good voice quality
Benchmark	≤ 2%	≤ 2%	≥ 95%	≤ 1%	≤ 2%	≤ 2%	≤ 3%	≥ 95%
Idea	0.56%	0.34%	99.57%	0.10%	0.11%	0.42%	2.28%	97.91%
BSNL	0.99%	0.97%	98.40%	0.85%	1.60%	1.63%	1.87%	DNP
Reliance CDMA	0.45%	0.00%	99.34%	0.00%	0.00%	0.03%	0.00%	99.79%
Reliance GSM	0.08%	0.00%	98.77%	0.22%	0.11%	0.49%	0.22%	98.54%
MTS	0.21%	0.00%	99.19%	0.00%	0.00%	1.43%	0.00%	98.57%
Airtel	0.14%	0.05%	99.65%	0.02%	0.09%	0.45%	1.18%	99.13%
Videocon	0.00%	0.00%	98.40%	0.00%	1.33%	0.00%	0.00%	99.69%
Uninor	0.44%	0.00%	98.56%	0.01%	0.01%	1.47%	2.35%	96.55%
Vodafone	0.16%	0.00%	98.78%	0.14%	0.75%	0.87%	1.04%	98.58%
Tata Tele - CDMA	0.01%	0.00%	98.57%	0.00%	0.00%	0.56%	0.00%	99.14%
Tata Docomo	0.03%	0.00%	99.36%	0.04%	0.01%	0.46%	1.51%	98.19%
Aircel	0.76%	0.00%	99.38%	0.20%	0.36%	1.14%	2.91%	96.07%

☐ Not meeting the benchmark

* Based on operator assisted drive tests conducted by IMRB

During the three day live measurement, all operators were found to be meeting the TRAI benchmark on all the parameters.

Summary of Live Calling Results – Cellular Mobile Services

Name of Service Provider	Metering and Billing	Response time to customer for assistance	
	%age complaints resolved within 4 weeks	Accessibility of call centre/ customer care	Percentage of calls answered by the operators (voice to voice) within 60 seconds
Benchmark	100%	≥ 95%	≥ 90%
Idea	99.00%	100.00%	100.00%
BSNL	96.00%	100.00%	100.00%
Reliance CDMA	100.00%	100.00%	100.00%
Reliance GSM	100.00%	100.00%	100.00%
MTS	NA	100.00%	90.00%
Airtel	100.00%	100.00%	100.00%
Videocon	NA	100.00%	99.00%
Uninor	100.00%	100.00%	100.00%
Vodafone	99.00%	100.00%	100.00%
Tata Tele - CDMA	100.00%	100.00%	100.00%
Tata Docomo	NA	100.00%	100.00%
Aircel	100.00%	100.00%	99.00%

▢ Not meeting the benchmark

NA: Not Applicable

6.0 Detailed findings – Includes comparison between Live calling/Live measurements and One month data collection

6.1 Graphical/Tabular Representations for Cellular Mobile Services

BTSs Accumulated Downtime
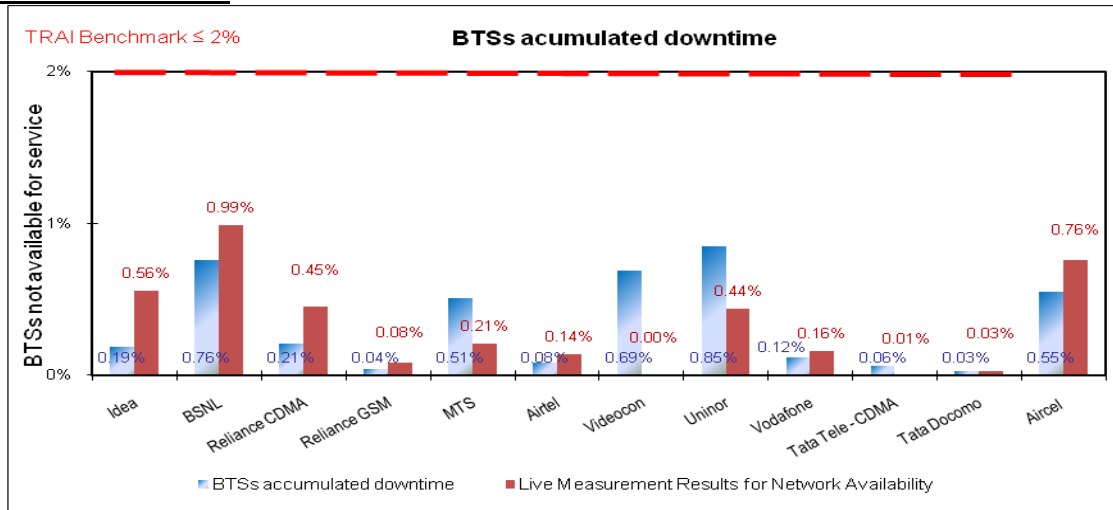
One month

All the operators meet the benchmark

Live measurement

All the operators meet the benchmark

Worst Affected BTSs
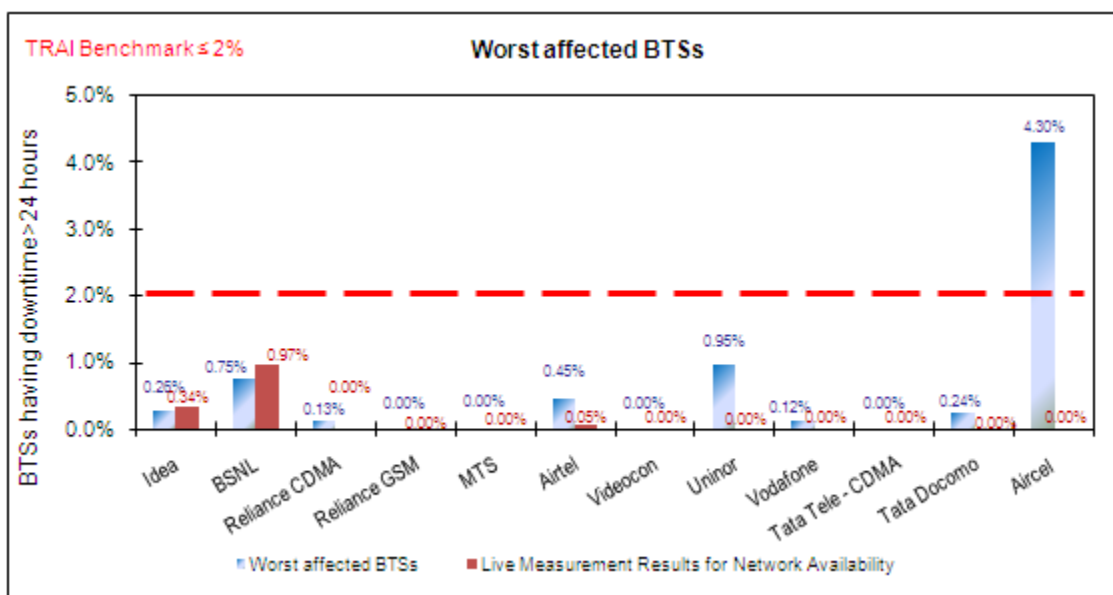
One month
Operator(s) meeting benchmark: Idea, BSNL, Reliance CDMA, Reliance GSM, MTS, Airtel, Videocon, Uninor, Vodafone, Tata Tele - CDMA, Tata Docomo
Operator(s) not meeting the benchmark: Aircel

Live measurement

All the operators meet the benchmark

Call Set-up Success Rate (CSSR)
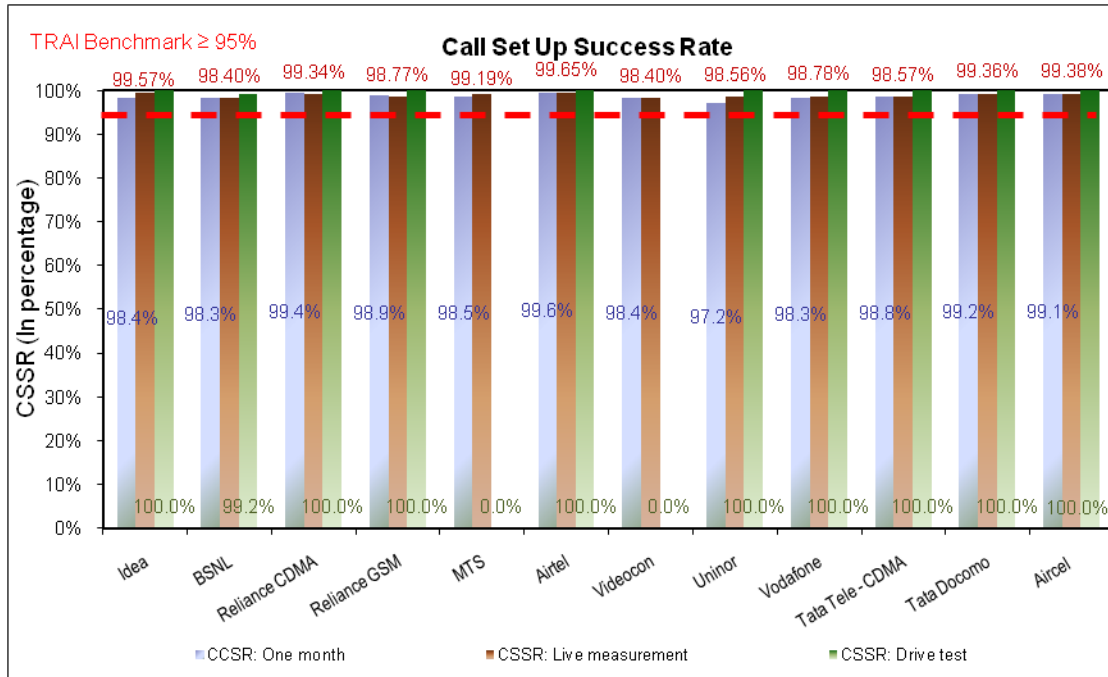
One month

All the operators meet the benchmark

Live measurement

All the operators meet the benchmark

Drive test

All the operators meet the benchmark

SDCCH / Paging Channel Congestion
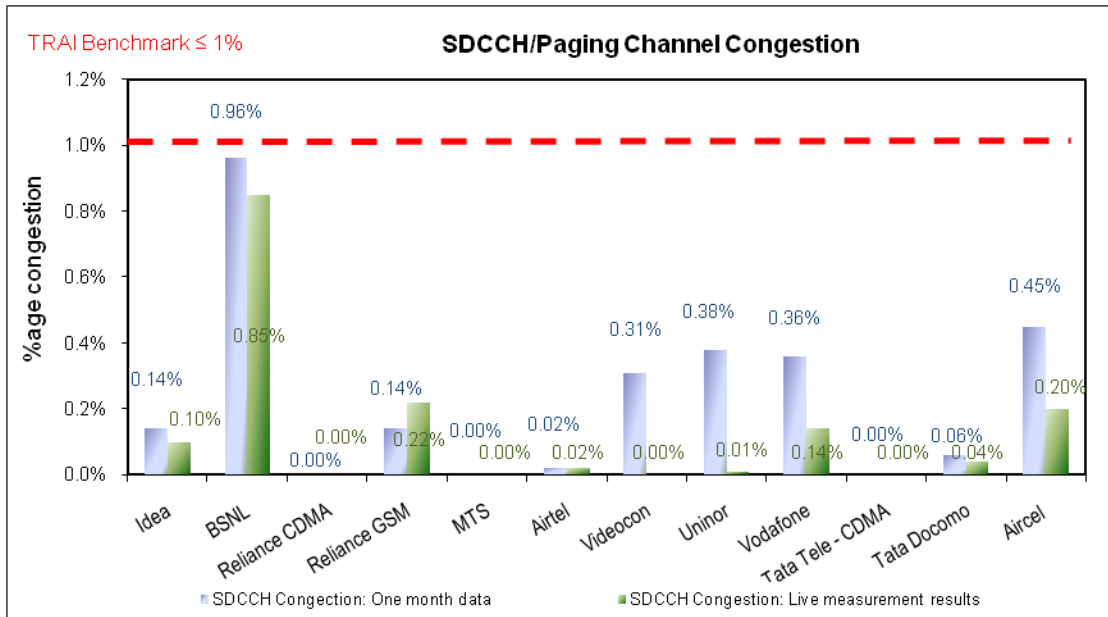
One month

All the operators meet the benchmark

Live measurement

All the operators meet the benchmark

TCH Congestion
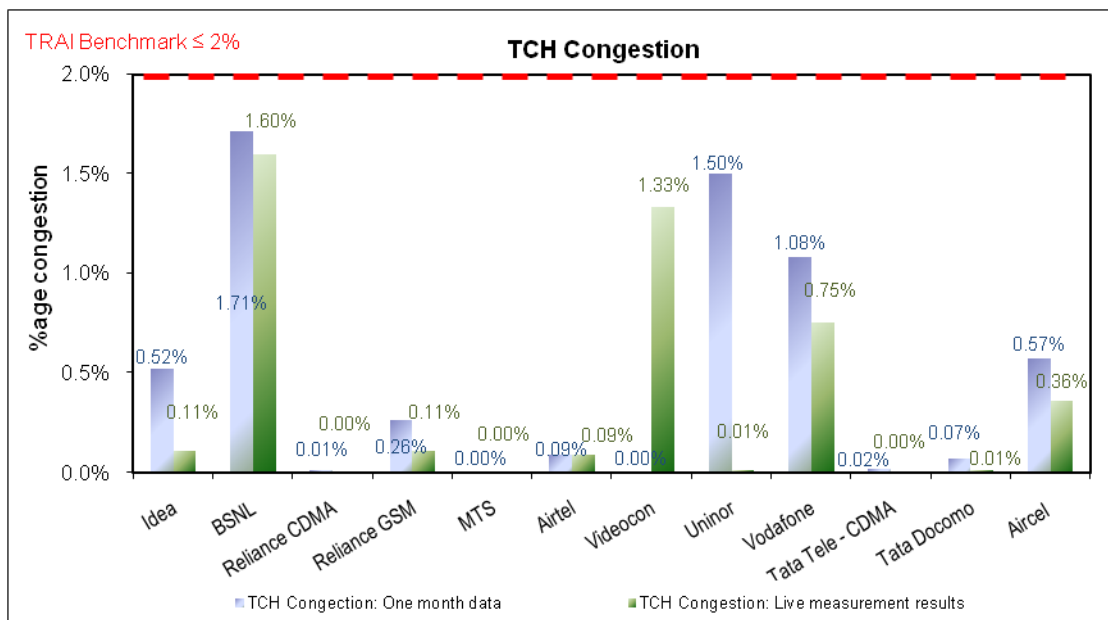
One month

All the operators meet the benchmark

Live measurement

All the operators meet the benchmark

Call Drop Rate
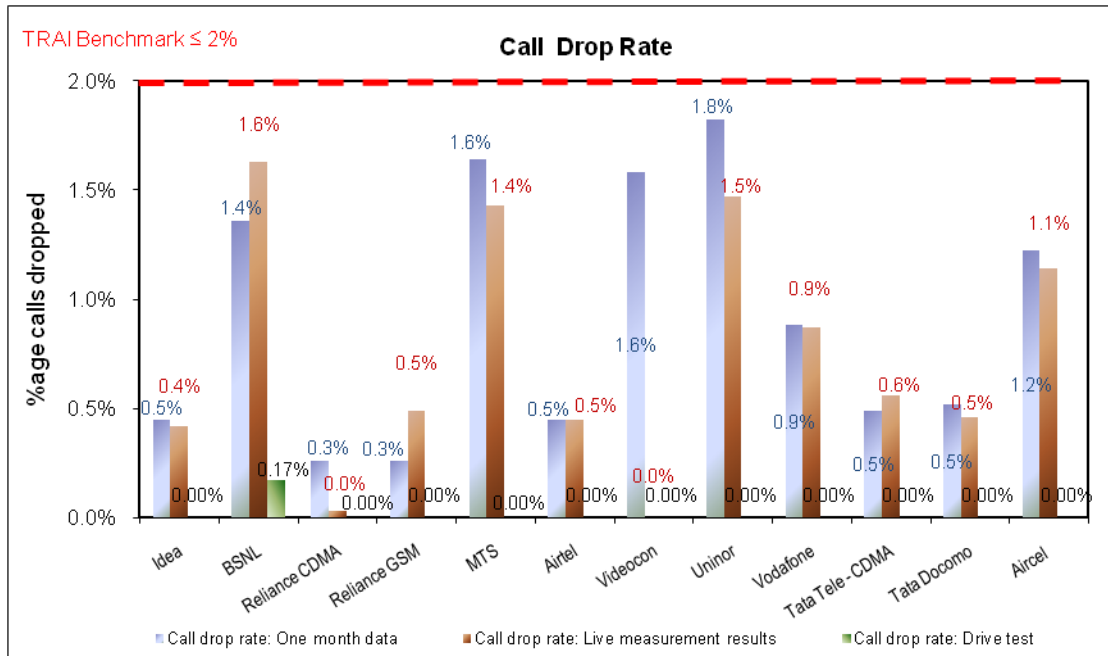
One month

All the operators meet the benchmark

Live measurement

All the operators meet the benchmark

Drive test

All the operators meet the benchmark

Cells with more than 3% TCH Drop Rate
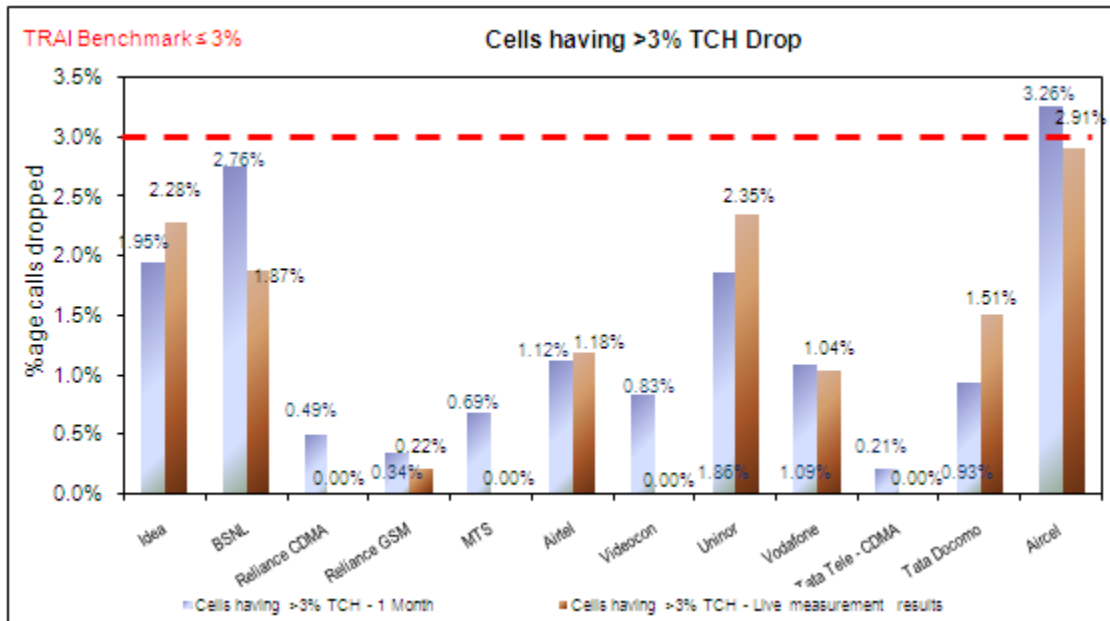
One month
Operator(s) meeting benchmark: Idea, BSNL, Reliance CDMA, Reliance GSM, MTS, Airtel, Videocon, Uninor, Vodafone, Tata Tele - CDMA, Tata Docomo
Operator(s) not meeting the benchmark: Aircel

Live measurement

All the operators meet the benchmark

Voice quality

One month

All the operators meet the benchmark

Live measurement

All the operators meet the benchmark

Drive test

All the operators meet the benchmark

Billing Disputes - Postpaid
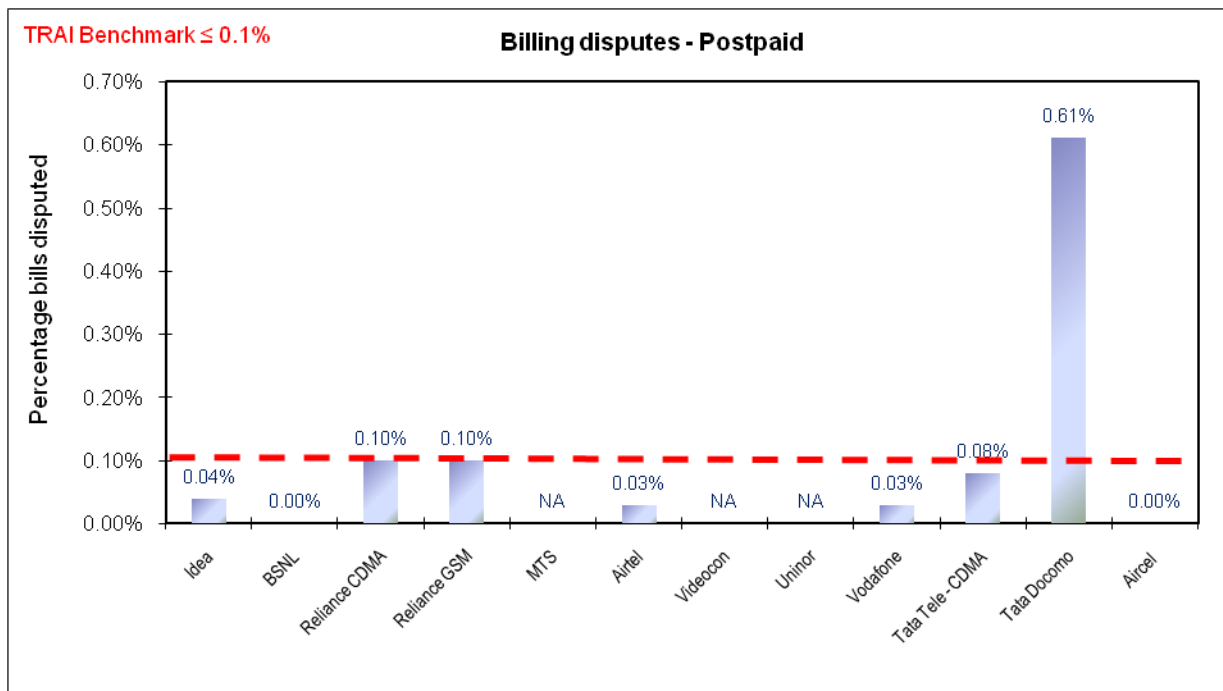
NA: Not Applicable

Operator(s) meeting benchmark: Idea, BSNL, Reliance CDMA, Reliance GSM, Airtel, Vodafone, Tata Tele - CDMA, Aircel
Operator(s) not meeting the benchmark: Tata Docomo

Complaints - Prepaid
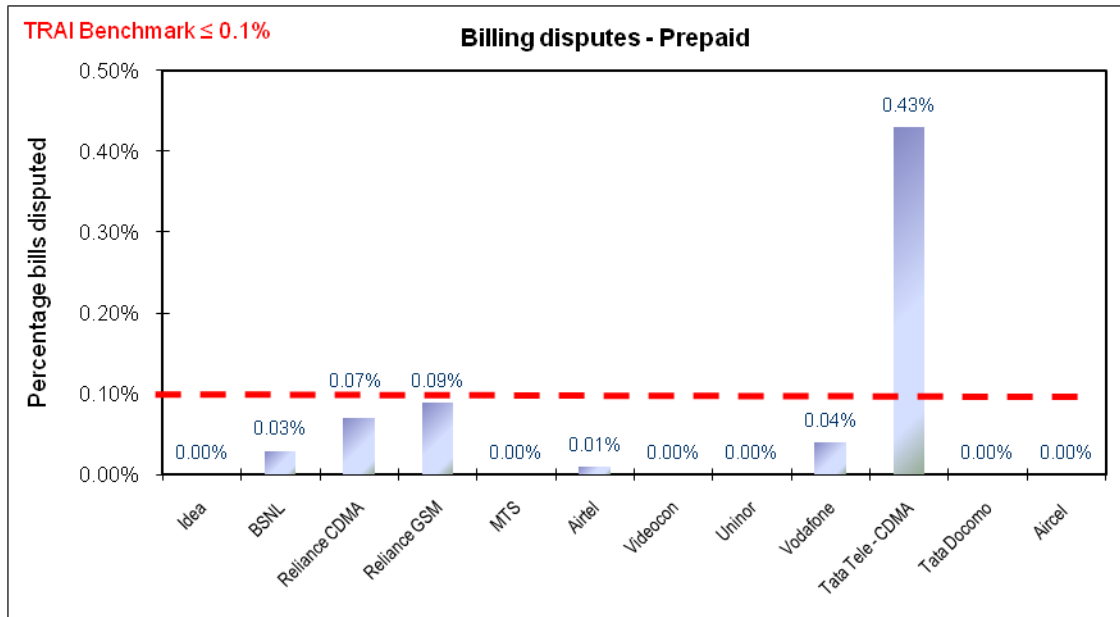
Operator(s) meeting benchmark: Idea, BSNL, Reliance CDMA, Reliance GSM, MTS, Airtel, Videocon, Uninor, Vodafone, Tata Docomo, Aircel
Operator(s) not meeting the benchmark: Tata Tele - CDMA

Resolution of billing complaints
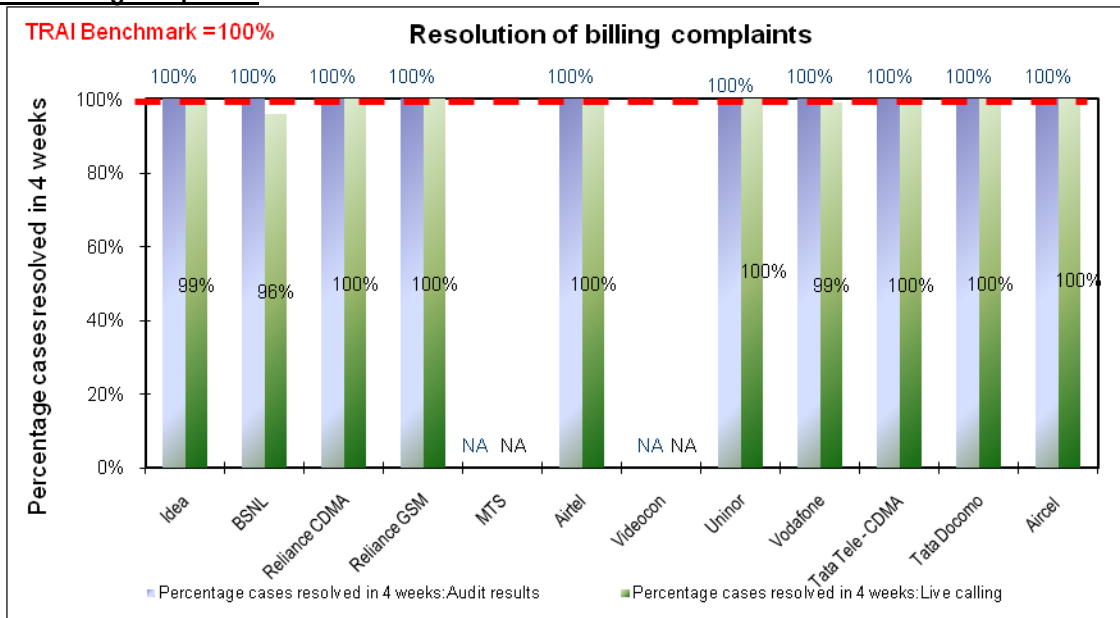
NA: Not Applicable

One month

All the operators meet the benchmark

Live calling
Operator(s) meeting benchmark: Reliance CDMA, Reliance GSM, Airtel, Uninor, Tata Tele - CDMA, Tata Docomo, Aircel
Operator(s) not meeting the benchmark: Idea, BSNL, Vodafone

Period of applying credit / waiver
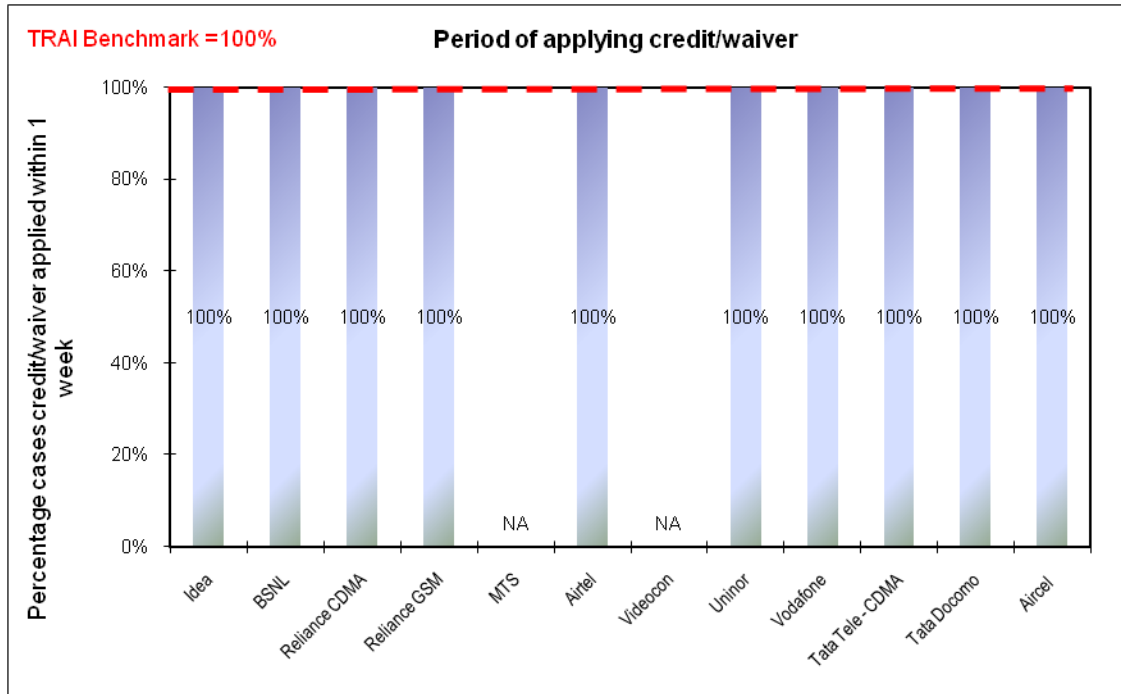
NA: Not Applicable

All the operators meet the benchmark

Customer Care / Helpline: Calls answered
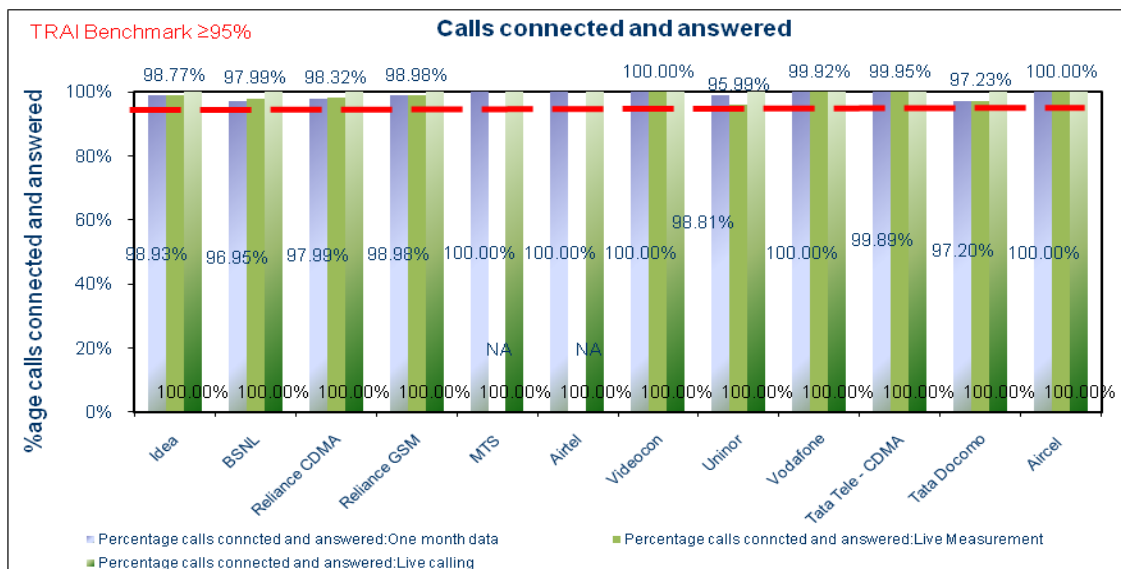
One month

All the operators meet the benchmark

Live measurement

All the operators meet the benchmark

Live calling

All the operators meet the benchmark

### Customer Care / Helpline: Calls answered voice to voice
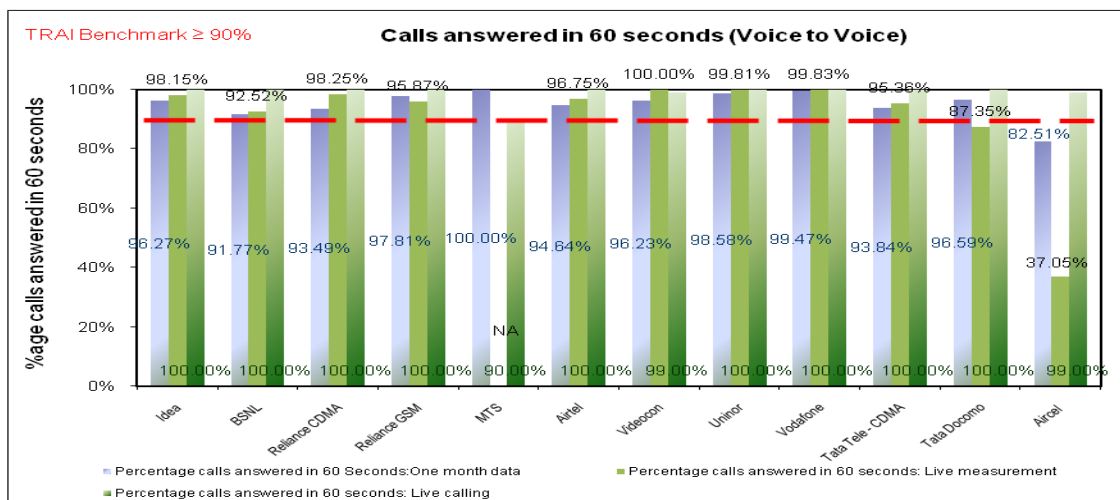
One month
Operator(s) meeting benchmark: Idea, BSNL, Reliance CDMA, Reliance GSM, MTS, Airtel, Videocon, Uninor, Vodafone, Tata Tele - CDMA, Tata Docomo
Operator(s) not meeting the benchmark: Aircel

Live measurement
Operator(s) meeting benchmark: Idea, BSNL, Reliance CDMA, Reliance GSM, Airtel, Videocon, Uninor, Vodafone, Tata Tele - CDMA
Operator(s) not meeting the benchmark: Tata Docomo, Aircel

Live calling

All the operators meet the benchmark

Termination / Closure of service

NA: Not Applicable
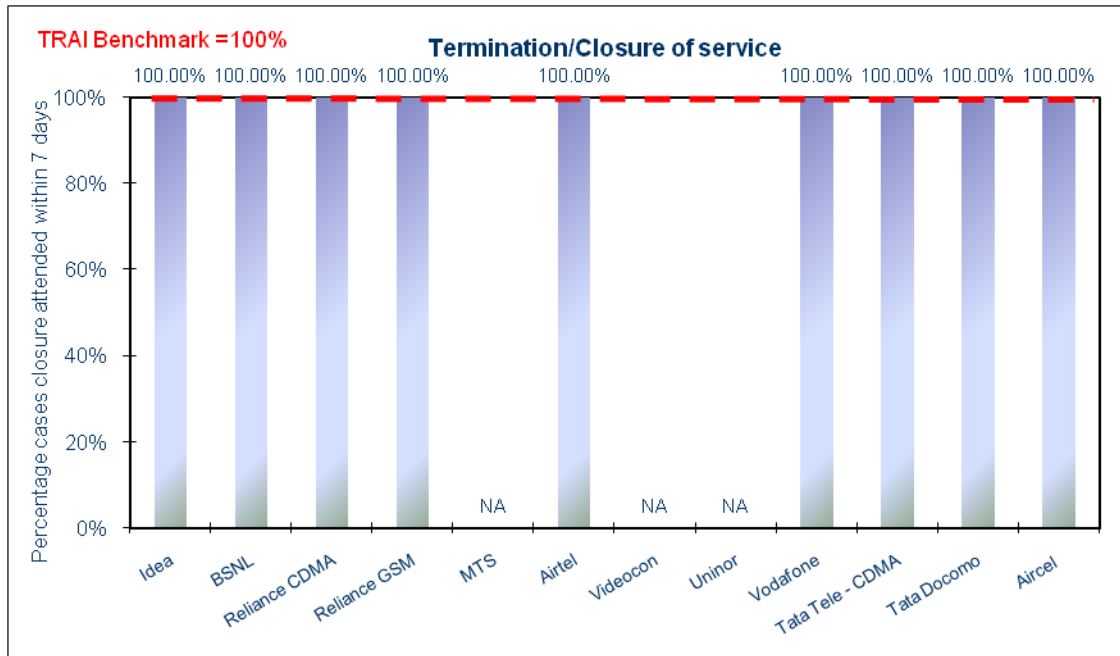
All the operators meet the benchmark

Refund of deposits
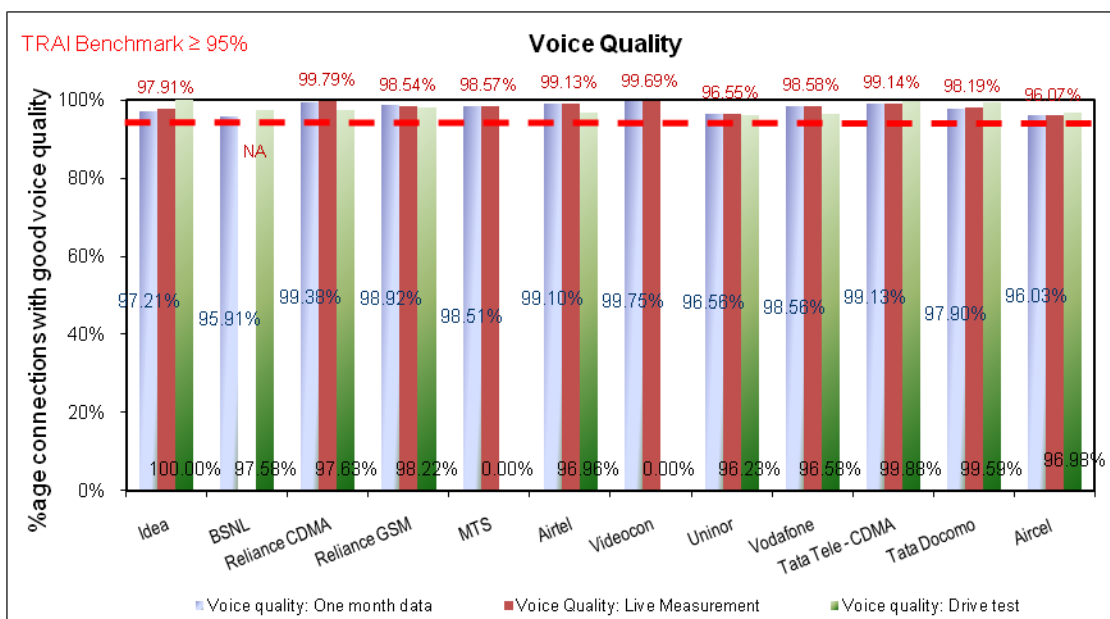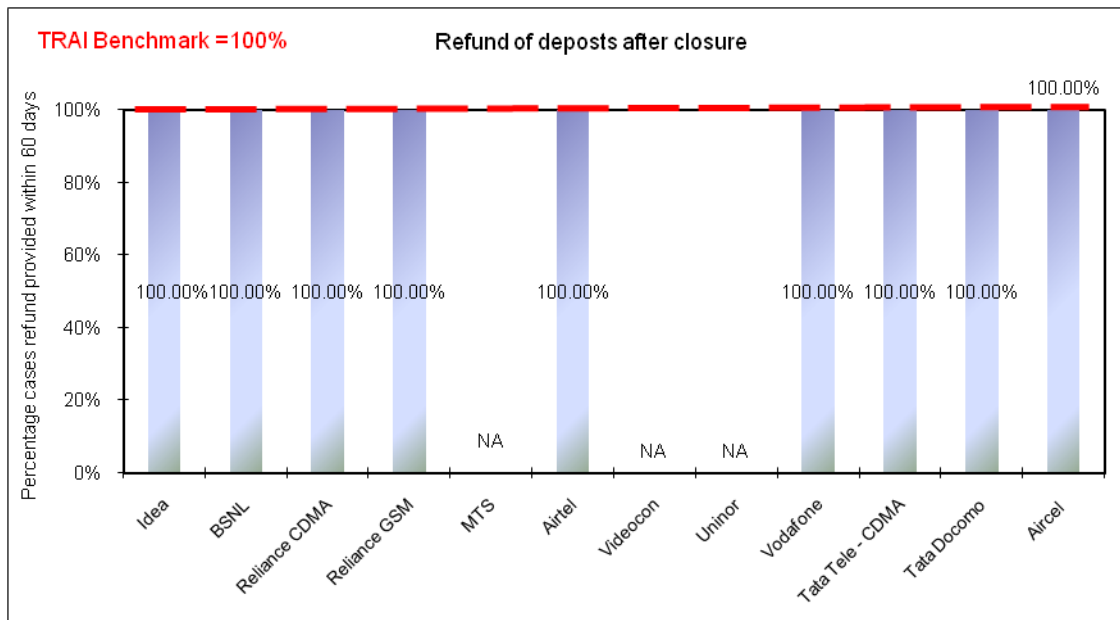

All the operators meet the benchmark

Inter operator calls assessment

Inter operator call Assessment To↓ From→	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
Idea	NA	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
BSNL	100%	NA	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Reliance CDMA	100%	100%	NA	100%	100%	100%	100%	100%	100%	100%	100%	100%
Reliance GSM	100%	100%	100%	NA	100%	100%	100%	100%	100%	100%	100%	100%
MTS	100%	100%	100%	100%	NA	100%	100%	99%	100%	100%	100%	100%
Airtel	100%	100%	100%	100%	100%	NA	100%	100%	100%	100%	100%	100%
Videocon	100%	99%	100%	100%	99%	100%	NA	100%	100%	100%	100%	100%
Uninor	100%	100%	100%	100%	100%	100%	100%	NA	100%	100%	100%	100%
Vodafone	100%	100%	100%	100%	100%	100%	100%	100%	NA	100%	100%	100%
Tata Tele – CDMA	100%	100%	100%	100%	100%	100%	99%	100%	100%	NA	100%	100%
Tata Docomo	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	NA	100%
Aircel	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	NA

The maximum problem faced by the calling operator to other operators

In the inter-operator call assessment, calls were made from the test SIMs of service provider whose audit was being conducted to all the other service providers. Almost all operators were comfortably able to connect with each other except BSNL & MTS which faced a slight difficulty in connecting with Videocon.

7.0 Compliance reports: Results of Verification of PMR

7.1 Cellular Mobile services

Name of Service Provider		Network Availability					Connection Establishment			Connection Maintenance (Retainability)					POI	Network Traffic Capacity		
		Total no. of BTSs in the licensed service area	Sum of downtime of BTSs in a month in hours i.e. total outage time of all BTSs in hours during a month	BTSs Accumulated downtime (not available for service) (%age)	No. of BTSs having accumulated downtime of >24 hours in a month	Worst affected BTSs due to downtime (%age)	Call Set-up Success Rate (within licensee's own network)	SDCCH/ Paging chl. Congestion (%age)	TCH Congestion (%age)	Call Drop Rate (%age)	Total No. of cells exceeding 3% TCH drop (call drop	Total no. of cells in the network	Worst affected cells having more than 3% TCH drop (call drop) rate (%age)	%age connection with good voice quality	Point of interconnection (POI) Congestion	Equipped Capacity of Network in respect of Traffic in erlang	Total traffic handled in TCHB in erlang	Total no. of customer serves (as per VLR) on last day of the month
Benchmark				≤ 2%		≤ 2%	≥ 95%	≤ 1%	≤ 2%	≤ 2%			≤ 3%	≥ 95%				
Idea	PMR	1139	2208.33333	0.26%	1	0.06%	98.97%	0.05%	0.26%	0.55%	94	3411	2.75%	96.89%	0	29060	16096.6	558803
	IMRB	1139	2208.33333	0.26%	1	0.06%	98.97%	0.05%	0.26%	0.55%	94	3411	2.75%	96.89%	0	29060	16096.7	558803
BSNL	PMR	1987	12851	0.89%	22	1.14%	96.52%	0.89%	1.78%	1.91%	249	5961	4.19%	97.67%	0	168600	131327.3	2492000
	IMRB	1987	12851	0.87%	22	1.13%	98.19%	0.88%	1.81%	1.94%	249	5961	4.18%	95.89%	0	168600	131327.3	2492000
Reliance CDMA	PMR	727	1506	0.28%	3	0.37%	99.64%	0.00%	0.03%	0.92%	13	2182	0.61%	98.87%	0	101667	15415.6	DNP
	IMRB	727	1506	0.28%	3	0.37%	99.64%	0.00%	0.03%	0.92%	13	2182	0.61%	98.87%	0	101667	15415.4	DNP
Reliance GSM	PMR	1841	668	0.04%	0	0.02%	98.27%	0.25%	0.55%	0.63%	91	5523	1.63%	98.33%	0	72000	61391.0	DNP
	IMRB	1841	668	0.35%	0	0.18%	98.27%	0.26%	0.56%	0.63%	91	5523	1.63%	98.33%	0	72000	61391.2	DNP
MTS	PMR	37	289	1.08%	0	0.00%	98.79%	0.00%	0.00%	1.51%	1	111	0.90%	98.38%	0	4200	4.1	381
	IMRB	37	289	1.05%	0	0.00%	98.82%	0.00%	0.00%	1.53%	0	111	0.23%	96.69%	0	4200	4.1	381
Airtel	PMR	3653	6634	0.25%	58	1.59%	98.14%	0.31%	0.62%	1.54%	327	11472	2.85%	96.19%	0	245128	201231.6	5370146
	IMRB	3653	6634	0.25%	58	1.59%	98.14%	0.31%	0.62%	1.54%	327	11472	2.85%	96.19%	0	245128	201231.6	5370146
Videocon	PMR	40	216	0.75%	0	0.00%	99.58%	0.16%	0.00%	0.58%	0	120	0.00%	99.01%	0	5000	1.0	194
	IMRB	40	216	0.75%	0	0.00%	99.58%	0.16%	0.00%	0.58%	0	120	0.00%	99.01%	0	5000	1.0	194
Uninor	PMR	1004	3561	0.48%	3	0.27%	97.88%	0.67%	0.91%	1.86%	75	3000	2.50%	95.52%	0	33136	22994.2	582005

Provider																		
	IMRB	1004	3561	0.48%	3	0.27%	97.86%	0.70%	0.92%	1.87%	75	3000	2.50%	95.52%	0	33136	22993.7	582005
Vodafone	PMR	3324	2559	0.10%	4	0.11%	98.53%	0.34%	0.72%	1.15%	230	9902	2.32%	98.31%	0	87783	62892.3	1996934
	IMRB	3324	2559	0.10%	4	0.11%	98.53%	0.34%	0.72%	1.15%	230	9902	2.34%	98.31%	0	87783	62892.3	1996934
Tata Tele - CDMA	PMR	469	131	0.04%	0	0.00%	99.43%	0.00%	0.00%	0.28%	5	1413	0.33%	99.58%	0	59875	13873.3	276338
	IMRB	469	131	0.04%	0	0.00%	99.43%	0.00%	0.00%	0.28%	5	1413	0.33%	99.58%	0	59875	13873.3	276338
Tata Docomo	PMR	1623	130	0.01%	0	0.00%	98.75%	0.07%	0.30%	0.66%	80	4873	1.65%	98.08%	0	80996	27524.8	953365
	IMRB	1623	130	0.01%	0	0.00%	98.75%	0.07%	0.30%	0.66%	80	4873	1.65%	98.08%	0	321293	27524.7	953365
Aircel	PMR	2564	5000	0.26%	46	1.79%	98.76%	0.31%	0.29%	1.41%	416	7571	5.50%	96.16%	0	137658	41881.4	1296181
	IMRB	2564	5000	0.26%	46	1.79%	99.35%	0.31%	0.29%	1.41%	416	7571	5.50%	96.16%	0	137658	41881.5	1296181

☐ Not meeting the benchmark

DNP: Data not provided by operator

Name of Service Provider		Metering and Billing												Response time to the customer for assistance				Termination/ closure of service			
		Metering and billing credibility - post paid	No. of bills issued during the period	No. of bills disputed including billing complaints during the period	Metering and billing credibility - pre paid	No. of charging / credit / validity complaints during the quarter	Total no. of pre-paid customers at the end of the quarter	Resolution of billing/charging complaints	No. of billing (post-paid) and charging, credit / validity (pre-paid) complaints resolved within 4 weeks during the quarter	Total no. of billing (post-paid) and charging, credit / validity (pre-paid) complaints received during the quarter	No. of billing, credit / validity complaints (pre paid) resolved in favour of the customer during the quarter	No. of complaints disposed on account of not considered as valid complaints during the quarter	adjustment to customer/s account from the date of resolution of complaint	Accessibility of call centre/ customer care	Total no. of call attempts to call centre / customer care nos. during TCBH (Note)	No. of calls connected and answered successfully to call centre / customer care nos. during TCBH (Note)	Percentage of calls answered by the operators (voice to voice) within 60 seconds	%age request for Termination / Clouse of service complied within 7 days	Total No. of request for Termination/ Closure of service received during the quarter	No. of requests for Termination/ Closure of service complied within 7 days during the quarter	Time taken for refund of deposits after closure
Benchmark		< 0.1%			< 0.1%			100% within 4 weeks					100% Within 1 week	≥ 95%			≥ 90%	100% within 7 days			100% within 60 days
Idea	PMR	0.00%	6,011	0	0.00%	80	2,321,403	100.00%	904	904	80	824	100.00%	99.00%	266,102	263,622	95.00%	100.00%	84	0	100.00%
	IMRB	0.00%	6011	0	0.00%	80	2321403	100.00%	80	904	80	824	100.00%	99.07%	266102	263622	95.00%	100.00%	84	84	100.00%
BSNL	PMR	0.01%	173123	22	0.04%	4207	4023418	100.00%	4229	4229	124	4105	100.00%	95.00%	6458	6156	92.00%	100.00%	181	181	100.00%
	IMRB	0.01%	173123	22	0.03%	4207	4023418	100.00%	4229	4229	124	4105	100.00%	95.30%	6458	6156	91.56%	100.00%	181	181	100.00%
Reliance CDMA	PMR	0.10%	88166	89	0.06%	468	769400	100.00%	1492	1492	1042	450	100.00%	98.00%	634164	621913	95.00%	100.00%	88166	88166	100.00%
	IMRB	0.10%	88166	89	0.06%	467.667	769400	100.00%	1492	1492	1042	450	100.00%	98.00%	634164	621913	95.00%	100.00%	88166	88166	100.00%

Reliance GSM	PMR	0.09%	30471	28	0.03%	1161	3916810	100.00%	3512	3512	1730	1782	100.00%	99.00%	8583111	8682951	88.00%	100.00%	64	64	100.00%
	IMRB	0.09%	30471	28	0.03%	1161	3916810	100.00%	3512	3512	1730	1782	100.00%	99.00%	8583111	8682951	88.00%	100.00%	64	64	100.00%
MTS	PMR	NA	NA	NA	NA	NA	285	NA	NA	NA	NA	NA	NA	100.00%	0	0	100.00%	0.00%	NA	NA	NA
	IMRB	NA	NA	NA	0.00%	0	342	0.00%	0	0	0	0	100.00%	100.00%	0	0	100.00%	NA	NA	NA	NA
Airtel	PMR	0.02%	77428	15	0.00%	708	21283320	100.00%	723	11660	723	10937	100.00%	100.00%	3986185	3978081	97.00%	100.00%	355	355	100.00%
	IMRB	0.02%	77428	15	0.00%	708	21283320	100.00%	723	723	723	10937	100.00%	99.79%	3986185	3978081	97.04%	100.00%	355	355	100.00%
Videocon	PMR	NA	NA	NA	0.00%	0	10670	100.00%	0	0	0	0	100.00%	99.00%	317	313	98.00%	NA	NA	NA	NA
	IMRB	NA	NA	NA	0.00%	0	10670	100.00%	0	NA	NA	NA	100.00%	98.74%	317	313	98.31%	NA	NA	NA	NA
Uninor	PMR	NA	NA	NA	0.04%	475	1277692	100.00%	475	475	NA	NA	NA	99.00%	240477	237616	96.64%	NA	NA	NA	NA
	IMRB	NA	NA	NA	0.00%	6	1297817	100.00%	6	6	6	0	100.00%	96.00%	299016	287230	92.00%	NA	NA	NA	NA
Vodafone	PMR	0.00%	58841	20	0.08%	5594	2450770	100.00%	5614	5614	4758	856	100.00%	100.00%	270169	264113	99.00%	100.00%	97	97	100.00%
	IMRB	0.03%	58841	20	0.08%	5594	2450770	100.00%	5614	5614	4758	856	100.00%	99.97%	7800900	7798264	99.29%	100.00%	97	97	100.00%
Tata Tele - CDMA	PMR	0.01%	19288	104	0.00%	628	2178987	100.00%	732	732	1	731	100.00%	97.00%	718652	693754	95.00%	100.00%	270	270	100.00%
	IMRB	0.08%	83594	73	1.14%	8127	562749	100.00%	8200	8200	162	8038	100.00%	99.32%	141859	140889	98.11%	100.00%	1836	1836	100.00%
Tata Docomo	PMR	0.01%	19288	104	0.00%	628	2178987	100.00%	732	732	1	731	100.00%	97.00%	718652	693754	95.00%	100.00%	270	270	100.00%
	IMRB	0.54%	19288	104	0.03%	628	2178987	100.00%	732	732	1	731	100.00%	96.54%	718652	693754	95.00%	100.00%	270	270	100.00%
Aircel	PMR	0.02%	16700	4	0.00%	9	2691053	100.00%	13	13	13	1733	100.00%	100.00%	273199	261126	97.39%	100.00%	84	84	100.00%
	IMRB	0.02%	16700	4	0.00%	9	2691055	100.00%	13	13	13	1733	100.00%	100.00%	273199	273199	97.39%	100.00%	84	84	49.09%

Figures do not match with those reported in PMR

Figures verified on all India basis

Not meeting benchmark

B'mark = TRAI Benchmark, NA = Not Applicable

8.0 Conclusions

8.1 Cellular Mobile services

1. The figures reported by all the operators on all parameters completely match the figures obtained on verification except for Tata CDMA & Uninor in Metering and Billing & Response time to the customer for assistance parameters
2. BSNL does not meet the benchmark on worst affected cells having more than 3% TCH drop (call drop) rate.
3. Reliance GSM does not meet the TRAI specified benchmark of percentage of calls answered by the operators (voice to voice) within 60 seconds but only by a slight margin.

9.0 Annexure - I

9.1 Service provider performance report based on one month data

Name of Service Provider	Network Availability		Connection Establishment (Accessibility)			Connection Maintenance (Retainability)			Metering and Billing				Response time to customer for assistance		Termination / closure of service	
	BTSs Accumulated downtime (not available for service)	Worst affected BTSs due to downtime	Call Set-up Success Rate (within licensee's own network)	SDCCH/ Paging Chl. Congestion	TCH Congestion	Call Drop Rate (%age)	Worst affected cells having more than 3% TCH drop	%age of connection with good voice quality	Metering and billing credibility (Postpaid)	Metering and billing credibility (Prepaid)	%age complaints resolved within 4 weeks	Period of applying credit/waiver less than 1 week	Accessibility of call centre/ customer care	Percentage of calls answered by operators within 60 sec	%age requests for Termination complied within 7 days	Refund of deposits after closure within 60 days
Benchmark	≤ 2%	≤ 2%	≥ 95%	≤ 1%	≤ 2%	≤ 2%	≤3%	≥ 95%	≤ 0.1%	≤ 0.1%	100%	100%	≥ 95%	≥ 90%	100%	100%
Idea	0.19%	0.26%	98.42%	0.14%	0.52%	0.45%	1.95%	97.21%	0.04%	0.00%	100.00%	100.00%	98.93%	96.27%	100.00%	100.00%
BSNL	0.76%	0.75%	98.29%	0.96%	1.71%	1.36%	2.76%	95.91%	0.00%	0.03%	100.00%	100.00%	96.95%	91.77%	100.00%	100.00%
Reliance CDMA	0.21%	0.13%	99.44%	0.00%	0.01%	0.26%	0.49%	99.38%	0.10%	0.07%	100.00%	100.00%	97.99%	93.49%	100.00%	100.00%
Reliance GSM	0.04%	0.00%	98.90%	0.14%	0.26%	0.26%	0.34%	98.92%	0.10%	0.09%	100.00%	100.00%	98.98%	97.81%	100.00%	100.00%
MTS	0.51%	0.00%	98.54%	0.00%	0.00%	1.64%	0.69%	98.51%	NA	0.00%	NA	NA	100.00%	100.00%	NA	NA
Airtel	0.08%	0.45%	99.64%	0.02%	0.09%	0.45%	1.12%	99.10%	0.03%	0.01%	100.00%	100.00%	100.00%	94.64%	100.00%	100.00%
Videocon	0.69%	0.00%	98.44%	0.31%	0.00%	1.58%	0.83%	99.75%	NA	0.00%	NA	NA	100.00%	96.23%	NA	NA
Uninor	0.85%	0.95%	97.18%	0.38%	1.50%	1.82%	1.86%	96.56%	NA	0.00%	100.00%	100.00%	98.81%	98.58%	NA	NA
Vodafone	0.12%	0.12%	98.25%	0.36%	1.08%	0.88%	1.09%	98.56%	0.03%	0.04%	100.00%	100.00%	100.00%	99.47%	100.00%	100.00%
Tata Tele - CDMA	0.06%	0.00%	98.81%	0.00%	0.02%	0.49%	0.21%	99.13%	0.08%	0.43%	100.00%	100.00%	99.89%	93.84%	100.00%	100.00%
Tata Docomo	0.03%	0.24%	99.21%	0.06%	0.07%	0.52%	0.93%	97.90%	0.61%	0.00%	100.00%	100.00%	97.20%	96.59%	100.00%	100.00%
Aircel	0.55%	4.30%	99.11%	0.45%	0.57%	1.22%	3.26%	96.03%	0.00%	0.00%	100.00%	100.00%	100.00%	82.51%	100.00%	100.00%

9.2 Monthly Point of Interconnection (POI) Congestion Report

Name of the Service Provider	Name of POI not meeting the benchmark	Total No. of circuits on POI	Total No. of call attempts on POI	Total traffic served on POI (Erlang)	% of Congestion POI	Action already taken/ action plan for meeting the benchmark
Idea	0	0	0	0	0	0
BSNL	0	0	0	0	0	0
Reliance CDMA	0	0	0	0	0	0
Reliance GSM	0	0	0	0	0	0
MTS	0	0	0	0	0	0
Airtel	0	0	0	0	0	0
Videocon	0	0	0	0	0	0
Uninor	0	0	0	0	0	0
Vodafone	0	0	0	0	0	0
Tata Tele - CDMA	0	0	0	0	0	0
Tata Docomo	0	0	0	0	0	0
Aircel	0	0	0	0	0	0

9.3 Parameter wise performance reports for Cellular Mobile services

1. Network Availability

Audit Results for Network Availability

	Benchmark	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
Number of BTSs in the licensed service area		1165	1987	742	1972	37	3766	40	951	3367	467	1676	2625
Sum of downtime of BTSs in a month (in hours)		1612	11302	1161	606	141	2243	205	6020	3016	203	426	10673
BTSs accumulated downtime (not available for service)	≤ 2%	0.19%	0.76%	0.21%	0.04%	0.51%	0.08%	0.69%	0.85%	0.12%	0.06%	0.03%	0.55%
Number of BTSs having accumulated downtime >24 hours		3	15	1	0	0	17	0	9	4	0	4	113
Worst affected BTSs due to downtime	≤ 2%	0.26%	0.75%	0.13%	0.00%	0.00%	0.45%	0.00%	0.95%	0.12%	0.00%	0.24%	4.30%

	Benchmark	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
Number of BTSs in the licensed service area		1165	310	742	1972	37	3799	40	952	3373	467	1676	2605
Sum of downtime of BTSs in a month (in hours)		469.08	221	242	115	6	387.59	0	303	384	3.8	33	1417
BTSs accumulated downtime (not available for service)	≤ 2%	0.56%	0.99%	0.45%	0.08%	0.21%	0.14%	0.00%	0.44%	0.16%	0.01%	0.03%	0.76%
Number of BTSs having accumulated downtime >24 hours		4	3	0	0	0	2	0	0	0	0	0	0
Worst affected BTSs due to downtime	≤ 2%	0.34%	0.97%	0.00%	0.00%	0.00%	0.05%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

2. Connection Establishment (Accessibility)

Audit Results for CSSR, SDCCH and TCH congestion

CSSR	Benchmark	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
CSSR	≥ 95%	98.42%	98.29%	99.44%	98.90%	98.54%	99.64%	98.44%	97.18%	98.25%	98.81%	99.21%	99.11%

SDCCH congestion	Benchmark	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
SDCCH/Paging channel congestion	≤ 1%	0.14%	0.96%	0.00%	0.14%	0.00%	0.02%	0.31%	0.38%	0.36%	0.00%	0.06%	0.45%

TCH congestion	Benchmark	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
TCH congestion	≤ 2%	0.52%	1.71%	0.01%	0.26%	0.00%	0.09%	0.00%	1.50%	1.08%	0.02%	0.07%	0.57%

Live measurement results for CSSR, SDCCH and TCH congestion

CSSR	Benchmark	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
CSSR	≥ 95%	99.57%	98.40%	99.34%	98.77%	99.19%	99.65%	98.40%	98.56%	98.78%	98.57%	99.36%	99.38%

SDCCH congestion	Benchmark	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
SDCCH/Paging channel congestion	≤ 1%	0.10%	0.85%	0.00%	0.22%	0.00%	0.02%	0.00%	0.01%	0.14%	0.00%	0.04%	0.20%

TCH congestion	Benchmark	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
TCH congestion	≤ 2%	0.11%	1.60%	0.00%	0.11%	0.00%	0.09%	1.33%	0.01%	0.75%	0.00%	0.01%	0.36%

Drive test results for CSSR (Average of three drive tests) and blocked calls

CSSR	Benchmark	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
Total number of call attempts		600	587	598	596	NA	602	NA	612	597	595	604	608
Total number of successful calls established		600	582	598	596	NA	602	NA	612	597	595	604	608
CSSR	≥ 95%	100.00%	99.15%	100.00%	100.00%	NA	100.00%	NA	100.00%	100.00%	100.00%	100.00%	100.00%

Blocked calls	Benchmark	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
%age blocked calls		0.00%	0.85%	0.00%	0.00%	NA	0.00%	NA	0.00%	0.00%	0.00%	0.00%	0.00%

3. Connection Maintenance (Retainability)

Audit Results for Call drop rate and for number of cells having more than 3% TCH

Call drop rate	Benchmark	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
Total number of calls established		27804168	220576296	12365526	60584721	3770	331288427	253	33460315	3203275	27800434	39394047	65578165
Total number of calls dropped		126306	3007544	32225	155946	62	1490659	4	607781	28189	136399	204553	802680
Call drop rate	≤ 2%	0.45%	1.36%	0.26%	0.26%	1.64%	0.45%	1.58%	1.82%	0.88%	0.49%	0.52%	1.22%

Cells having more than 3% TCH	Benchmark	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
Total number of cells in the network		3491	907	2226	5916	111	11857	120	2844	10037	1407	5028	7670
Total number of cells having more than 3% TCH		68	25	11	20	0.77	133	1	53	109	3	47	250
Worst affected cells having more than 3% TCH	≤ 3%	1.95%	2.76%	0.49%	0.34%	0.69%	1.12%	0.83%	1.86%	1.09%	0.21%	0.93%	3.26%

Live measurement results for Call drop rate and for number of cells having more than 3% TCH

Call drop rate	Benchmark	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
Total number of calls established		29461904	1600686	14308607	70040595	490	29402246	370	44140517	2919764	1465377	3971432	6695888
Total number of calls dropped		123194	26093	4047	343101	7	132729	0	647679	25545	8151	18305	76089
Call drop rate	≤ 2%	0.42%	1.63%	0.03%	0.49%	1.43%	0.45%	0.00%	1.47%	0.87%	0.56%	0.46%	1.14%

Cells having more than 3% TCH	Benchmark	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
Total number of cells in the network		251352	907	2226	5916	111	11985	120	2847	10054	1407	5038	7742
Total number of cells having more than 3% TCH		5743	17	0	13	0	142	0	67	105	0	76	225
Worst affected cells having more than 3% TCH	≤ 3%	2.28%	1.87%	0.00%	0.22%	0.00%	1.18%	0.00%	2.35%	1.04%	0.00%	1.51%	2.91%

Drive test results for Call drop rate (Average of three drive tests)

Call drop rate	Benchmark	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
Total number of calls established		600	583	598	596	NA	602	NA	612	597	595	604	608
Total number of calls dropped		0	1	0	0	NA	0	NA	0	0	0	0	0
Call drop rate	≤ 2%	0.00%	0.17%	0.00%	0.00%	NA	0.00%	NA	0.00%	0.00%	0.00%	0.00%	0.00%

4. Voice quality

Audit & Live measurement Results for Voice quality

Voice quality	Benchmark	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
Total number of sample calls		4226945219	7313	53408597	4144606639	3770	49900537538	102857	76757613376	526513468	10541	7886341485	7917443804
Total number of calls with good voice quality		4109167737	7014	53075219	4099815672	3714	49451442693	102597	74118894949	518932250	10449	7720562266	7602992426
%age calls with good voice quality	≥ 95%	97.21%	95.91%	99.38%	98.92%	98.51%	99.10%	99.75%	96.56%	98.56%	99.13%	97.90%	96.03%

Voice quality	Benchmark	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
Total number of sample calls		4338782215	NA	64090375	DNP	490	4891429242	20774	6300455375	505122992	9343	1358138399	732219252
Total number of calls with good voice quality		4248103430	NA	63958864	DNP	483	4848735741	20710	6083400361	497933931	9263	1333595037	703413931
%age calls with good voice quality	≥ 95%	97.91%	NA	99.79%	98.54%	98.57%	99.13%	99.69%	96.55%	98.58%	99.14%	98.19%	96.07%

Drive test results for Voice quality (Average of three drive tests)

Voice quality	Benchmark	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
Total number of sample calls		1898369	1087211	30813	107966	NA	282597	NA	1136816	1215092	137666	1737409	845497

	Benchmark	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
Total number of calls with good voice quality		1898369	1060944	30084	106046	NA	274002	NA	1093945	1173582	137498	1730315	819921
%age calls with good voice quality	≥ 95%	100.00%	97.58%	97.63%	98.22%	NA	96.96%	NA	96.23%	96.58%	99.88%	99.59%	96.98%

5. POI Congestion

Audit Results for POI Congestion

POI congestion	Benchmark	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
Total number of working POIs		67	17	22	23	27	55	12	60	42	34	11	84
No. of POIs not meeting benchmark		0	0	0	0	0	0	0	0	0	0	0	0
Total Capacity of all POIs (A) - in erlangs		885315.38	25000	574937.0	814647.3	558.88	160500	284.69	28450.03	76854.6	831245.58	141245.45	1448414.4
Traffic served for all POIs (B)- in erlangs		545577.3	20047	198379.3	559536.5	3	103474	11.78	17934.45	45645.46	394065.46	67265.74	1114887.45
POI congestion	≤ 0.5%	0.00	0.00	0.00	0.00	0.00	0.00	0.95	0.37	0.00	0.00	0.00	0.00

Live measurement results for POI congestion

POI congestion	Benchmark	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
Total number of working POIs		63	17	22	23	27	55	11	60	42	34	12	86
No. of POIs not meeting benchmark		0	0	0	0	0	0	0	0	0	0	0	0
Total Capacity of all POIs (A) - in erlangs		2094826.23	25000	38162.5	92424.81	558.04	173086	212.64	29937.77	84470.81	91876.7	24102	152244.81
Traffic served for all POIs (B)- in erlangs		520459.92	21764	12586.0	61678.40	3.57	104220	18.09	16450.41	44767.45	39301.47	13238.07	89168.39
POI congestion	≤ 0.5%	0.00	0.00	0.00	0.00	0.00	0.00	0.91	0.45	0.00	0.00	0.00	0.00

6. Inter Operator Call Assessment

Inter operator call Assessment To↓ From→	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
Idea	NA	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
BSNL	100%	NA	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Reliance CDMA	100%	100%	NA	100%	100%	100%	100%	100%	100%	100%	100%	100%
Reliance GSM	100%	100%	100%	NA	100%	100%	100%	100%	100%	100%	100%	100%
MTS	100%	100%	100%	100%	NA	100%	100%	99%	100%	100%	100%	100%
Airtel	100%	100%	100%	100%	100%	NA	100%	100%	100%	100%	100%	100%
Videocon	100%	99%	100%	100%	99%	100%	NA	100%	100%	100%	100%	100%
Uninor	100%	100%	100%	100%	100%	100%	100%	NA	100%	100%	100%	100%
Vodafone	100%	100%	100%	100%	100%	100%	100%	100%	NA	100%	100%	100%
Tata Tele - CDMA	100%	100%	100%	100%	100%	100%	99%	100%	100%	NA	100%	100%
Tata Docomo	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	NA	100%
Aircel	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	NA

The maximum problem faced by the calling operator to other operators

7. Metering and Billing credibility

Audit Results for Billing performance

Billing Performance	Benchmark	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
Billing disputes' - Postpaid													
Total bills generated during the period		2756	56028	26694	11207	NA	26603	NA	NA	21828	26024	7547	3659
Total number of bills disputed		1	2	26	11	NA	7	NA	NA	7	21	46	0
Percentage bills disputed	≤ 0.1%	0.04%	0.00%	0.10%	0.10%	NA	0.03%	NA	NA	0.03%	0.08%	0.61%	0.00%
Billing disputes - Prepaid													
Number of complaints related to charging, credit & validity		35	1152	519	3516	0	761	0	14	974	1932	80	16
Total number of prepaid customers in that period		1047739	3840856	787889	3784892	658	7541427	10673	1464003	2598182	446578	2495505	2921317
Percentage of complaints	≤ 0.1%	0.00%	0.03%	0.07%	0.09%	0.00%	0.01%	0.00%	0.00%	0.04%	0.43%	0.00%	0.00%
Resolution of billing complaints													
Total number of billing/charging complaints		341	1154	545	3527	0	768	0	14	981	1953	126	16
Total complaints considered invalid		305	823	118	997	NA	2238	NA	9	103	1926	125	3193
Number of complaints resolved in 4 weeks from date of receipt for complaints listed in 5.3.1		341	331	545	3527	NA	768	NA	14	981	1953	126	3209
Percentage complaints resolved within 4 weeks of date of receipt	100%	100%	100%	100%	100%	NA	100%	NA	100%	100%	100%	100%	100%
Period of applying credit / waiver													
Total number of complaints where credit/waiver is required		36	331	427	2530	NA	768	NA	5	878	27	1	16
Percentage cases in which credit/waiver was received within 1 week	100%	100%	100%	100%	100%	NA	100%	NA	100%	100%	100%	100%	100%

Live calling results for resolution of billing complaints

Resolution of billing complaints	Benchmark	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
Total Number of calls made		100	100	100	100	0	100	0	14	100	100	100	100
Number of cases resolved in 4 weeks		99	96	100	100	NA	100	NA	14	99	100	100	100
Percentage cases resolved in four weeks	100%	99%	96%	100%	100%	NA	100%	NA	100%	99%	100%	100%	100%

8. Customer Care

Audit results for customer care

Customer Care Assessment	Benchmark	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
Total number of call attempts to customer care for assistance		123989	6732	273261	2863121	1	1358411	158	116113	2485195	37664	219288	3651913
Number of calls getting connected and answered (electronically)		122666	6527	267780	2833828	1	1358404	158	114728	2485194	37621	213139	3651913
Percentage calls getting connected and answered	≥ 95%	98.93%	96.95%	97.99%	98.98%	100.00%	100.00%	100.00%	98.81%	100.00%	99.89%	97.20%	100.00%
Number of calls getting transferred to the operator (voice to voice)		322140	3659	43478	652649	0	1740255	106	275252	767523	81576	493515	1525329
Number of calls answered by operator (voice to voice) within 60 seconds		310129	3358	40646	638377	0	1647012	102	271353	763487	76554	476691	1258619
Percentage calls answered within 60 seconds (V2V)	≥ 90%	96.27%	91.77%	93.49%	97.81%	100.00%	94.64%	96.23%	98.58%	99.47%	93.84%	96.59%	82.51%

Live measurement results for customer care

Customer Care Assessment	Benchmark	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
Total number of call attempts to customer care for assistance		117968	161686	25074	259865	0	NA	20	10224	224278	3998	23419	318074
Number of calls getting connected and answered (electronically)		116519	158435	24653	257215	NA	NA	20	9814	224107	3996	22770	318074
Percentage calls getting connected and answered	≥ 95%	98.77%	97.99%	98.32%	98.98%	NA	NA	100.00%	95.99%	99.92%	99.95%	97.23%	100.00%
Number of calls getting transferred to the operator (voice to voice)		33357	71962	3091	62233	NA	161795	14	22281	70440	7564	54115	17567
Number of calls answered by operator (voice to voice) within 60 seconds		32740	66576	3037	59665	NA	156538	14	22239	70321	7213	47271	6509
Percentage calls answered within 60 seconds (V2V)	≥ 90%	98.15%	92.52%	98.25%	95.87%	NA	96.75%	100.00%	99.81%	99.83%	95.36%	87.35%	37.05%

Live calling results for customer care

Customer Care Assessment	Benchmark	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
Total Number of calls received		100	100	100	100	100	100	100	100	100	100	100	100
Total Number of calls getting connected and answered		100	100	100	100	100	100	100	100	100	100	100	100
Percentage calls getting connected and answered	≥ 95%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Live calling results for customer care (Voice to Voice)

Customer Care Assessment	Benchmark	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
Total Number of calls received		100	100	100	100	100	100	100	100	100	100	100	100
Total Number of calls answered within 60 seconds		100	100	100	100	90	100	99	100	100	100	100	99
Percentage calls answered within 60 seconds	≥ 90%	100.00%	100.00%	100.00%	100.00%	90.00%	100.00%	99.00%	100.00%	100.00%	100.00%	100.00%	99.00%

Operator	Customer Care No.	Operator	Customer Care No.
Reliance CDMA	9861098610	MTS	155155
Idea	198, 9090012345	Airtel	121
Aircel	121, 9854012345	Tata CDMA	12524
Vodafone	198	Tata DoCoMo	121
Reliance GSM	198	Uninor	121
BSNL	1503	Videocon	121

9. Termination / closure of service

Audit results for termination / closure of service

Termination	Benchmark	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
Total number of closure request		17	24	66	4	NA	210	NA	NA	47	588	113	16
Number of requests attended within 7 days		17	24	66	4	NA	210	NA	NA	47	588	113	16
Percentage cases in which termination done within 7 days	100%	100.00%	100.00%	100.00%	100.00%	NA	100.00%	NA	NA	100.00%	100.00%	100.00%	100.00%

Audit results for refund of deposits

Refund	Benchmark	Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
Total number of cases requiring refund of deposits		11	64	100	18	NA	17	NA	NA	1	133	16	16
Total number of cases where refund was made within 60 days		11	64	100	18	NA	17	NA	NA	1	133	16	16
Percentage cases in which refund was receive within 60 days	100%	100.00%	100.00%	100.00%	100.00%	NA	100.00%	NA	NA	100.00%	100.00%	100.00%	100.00%

11. Additional Network Related parameters													
Audit Results for Total Traffic Handled in Erlang													
Traffic in Erlang		Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
Equipped capacity of the network		29573	16000	83000	72000	4200	259071.51	5000	33973	93124	108445	85006	141273.3
Total traffic handled in erlang during TCBH		21262	16453.7	16215.25	65960.57	3.52	242553.34	0.47	33900	74784	22690	30360	48476.6

Total number of customers as per VLR												
		Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
Total no. of customers served (as per VLR)		678100	414869	428589	2496366	508	6074642	63	772586	2257590	262009	1054684	1505927

Level 1 services		Idea	BSNL	Reliance CDMA	Reliance GSM	MTS	Airtel	Videocon	Uninor	Vodafone	Tata Tele - CDMA	Tata Docomo	Aircel
Total no. of calls made		150	150	150	150	150	150	150	150	150	150	150	150
Calls answered in 60 sec		150	150	150	150	150	150	150	150	150	150	150	150
Calls answered after 60 sec		0	0	0	0	0	0	0	0	0	0	0	0

Level 1 Numbers	
Railway Enquiry	139
Election Commission Helpline	1950
Postal Life Insurance Call Center	155232
IRDA Call Center	155255
Aadhaar Helpline	1947

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