

REPORT

ON

AUDIT & ASSESSMENT OF QUALITY OF SERVICE

OF

**BASIC SERVICE (WIRELINER),
BASIC SERVICE (WIRELESS) &
CELLULAR MOBILE TELEPHONE SERVICE**

AND

BROADBAND SERVICE

FOR

WEST ZONE – MADHYA PRADESH-CHHATISGARH CIRCLE

Report Period: December 2008 – February 2009

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PREFACE

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

In pursuance of above objective TRAI has issued from time to time a large number of regulations, orders and directives to deal with issues coming before it and provided the required direction to the evolution of Indian telecom industry in a multi operator, multi service open competitive market. In continuation to that efforts, TRAI has selected through bidding process Audit Agency to audit and assess the Quality of Service (QoS) rendered by the service providers namely Basic Services (wireline), Basic Services (wireless) & Cellular Mobile Telephone Services and Broadband Services.

The Audit would assess the Quality of Service of telecom operators 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 for various circles within the Zones have been distributed across various quarterly periods. TCIL Auditors carried out Audits in Madhya Pradesh and Chhatisgarh Circles, West Zone in the period of December 2008 – February 2009. This report details the performance of various service providers in Madhya Pradesh and Chhatisgarh Circles against Quality of Services benchmarks for various parameters laid down by TRAI in respective regulations for Basic Services (wireline), Basic Services (wireless) & Cellular Mobile Telephone Services and Broadband Services.

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CHAPTER – 1

BACKGROUND

1.1 Introduction

TRAI' s mission is to create and nurture conditions for growth of telecommunications in the country in a manner and at a pace, which will enable India to play a leading role in emerging global information society. One of the main objectives of Telecom Regulatory Authority of India (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 issued from time to time a large number of regulations, orders and directives to deal with issues coming before it and provided the required direction to the evolution of Indian telecom market from a Government owned monopoly to a multi operator multi service open competitive market.

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.

The purpose of laying down Quality of Service Parameters is to:

- i) Create conditions for consumer satisfaction by making known the quality of service, which the service provider is required to provide, and the user has a right to expect.
- ii) Measure the Quality of Service provided by the Service Providers from time to time and to compare them with the norms so as to assess the level of performance.
- iii) Generally protect the interests of consumers of telecommunication services.

TRAI has been carrying out regular reviews of the status of quality of service of the networks of all operators. In continuation to these efforts TRAI has selected through bidding process Audit Agency to audit and assess the Quality of Service rendered by the service providers namely basic (wireline), basic (wireless), cellular mobile telephone service and broadband service.

The objective assessment of Quality of Services(QoS) has been carried out by TCIL for all the Basic Service (Wireline), Basic Service (Wireless) & Cellular mobile Telephone Service and Broadband service Providers during the period starting from December 2008 to February 2009 in Madhya Pradesh & Chhatisgarh Circles. The report provides the critical findings of the Audit by providing: -

- ◆ “Service provider performance report” based on 3-days live assessment and one month data audit the Basic Service (Wireline), Basic Service (Wireless) & Cellular mobile Telephone Service and broadband service, which highlight the performance of various operators against the benchmark specified by TRAI, during the month in which the Audit was carried out by TCIL.
- ◆ “Parameter wise critical findings” for the Basic Service (Wireline), Basic Service (Wireless) & Cellular mobile Telephone Service and broadband service. This indicates parameter wise observations and findings from different activities carried out during the Audit process by TCIL.

1.2 Scope of Work

The audit and assessment of Quality of Service is conducted for BSNL, private basic service providers, unified access service providers, cellular mobile service providers and ISPs (providing broadband service) in Madhya Pradesh & Chhatisgarh Service areas in the Western Zone for basic service (wireline), basic (wireless) and cellular mobile telephone service and broadband service.

The detailed scope of work is given below:-

- i) Verification of the data submitted by the service providers to TRAI as part of QoS monitoring reports i.e. quarterly Performance Monitoring Reports (PMRs) and monthly Point of Interconnect (POI) Congestion Reports with reference to the records maintained by the service provider.
- ii) Verification of the performance of service providers against the Quality of Service benchmarks laid down by TRAI using live measurement for 3 days during the month in which the audit and assessment is carried out.
- iii) Verification of the performance of service providers against the Quality of Service benchmarks laid down by TRAI using the data for the entire month during which the live measurement is carried out.
- iv) Drive tests of the mobile networks of service providers.
- v) Live testing of the efficiency of the call center / customer care help line.

1.3 Methodology

1.3.1 Basic Service (Wireline):

The Network parameter of the QoS TRAI regulations is observed / verified for the 3 days for nearly 5% of the telephone exchanges covering 10% of the SDCA in a Service area. The network parameter for the entire month is also collected from the operator as per the requirement. There are operators who have unified NMS/NOC from where the entire data can be seen. At the same time on several occasions the data had to be collected from the respective exchange as the centralized monitoring is not available. The data related to Billing and Customer care is checked for the previous month and verified with the customer by calling the customer by the auditing officers in presence of operator. The process of registration and handling of the complaints was also studied for the various operators. Call centre number was called for measuring the efficiency of the call centre in two sessions, 50 calls in each session.

1.3.2 Basic Service (Wireless) and Cellular Mobile Telephone Services:

All the MSC, BSC and BTS data for the relevant details were collected either from the centralized NOC or through a remote access to the NOC. The Radio parameters of the QoS TRAI Regulations were audited/observed/verified from the data collected from OMC-R. The Drive test was conducted for the highways, commercial complex and residential areas and for the areas from which TRAI has received the complaints. The POI and other network parameter was audited/observed/verified from the data collected from the OMC-S. The data related to Billing and Customer care is checked for the previous month and verified with the customer by calling the customer by the auditing officers in presence of operator. The process of registration and handling of the complaints was also studied for the various operator. Call centre number was even called for measuring the efficiency of the call centre. The Inter operator congestion was checked by calling the operators during the time specified in the tender. TCBH is taken as 19:00 Hrs as per the maximum traffic for three days observed.

1.3.3 Broadband Services:

5% of the POPs in 10% of the SDCA were audited for the relevant details from the centralized NOC or through a remote access to the NOC. The network parameter was also checked from the centralized NOC. MRTG, Cactii and Sandvine software were used for monitoring link utilisation. Smoke Ping and Ping Test were used for monitoring Network Latency. The data related to Billing and Customer care was checked for the previous month and verified with the sample of customers by calling them and taking their feedback. The process of registration and handling of the complaints was also studied for the various operators. Test Calls were made to the Helpline number of the Call Centre of different ISPs for measuring the efficiency of the call centre during the peak hours as per the TRAI benchmark.

CHAPTER – 2

REFERENCE DOCUMENTS / SOFTWARE / TOOLS USED

The following documents shall be followed and consulted while conducting the Audit and Assessment of Quality of Services of basic services (wireline), basic service (wireless) & cellular mobile telephone services and broadband services:

1. TRAI Regulations documents
 - a. Regulations on Quality of Service of Basic and Cellular Mobile Telephone Services, 2005
 - b. Quality of Service of Broadband Service Regulations 2006.
2. Quarterly Performance Monitoring Report (PMR) for the quarter ending June 2008, provided by TRAI.
3. TRAI Tender document no. II (Audit)
4. Manufacturer's operating and configuration manual where ever made available.
5. The following Systems /Tools were used while conducting the Audit and Assessment of QoS of Basic (Wireless) and Cellular Mobile Services.
 - a. Drive Test Tools
 - b. OMC-R & OMC-S
 - c. MSC
6. The following Software /Tools were used while conducting the Audit and Assessment of QoS of Broadband Services.
 - MRTG, Cactii and Sandvine for link utilisation.
 - Smoke Ping and Ping Test for Latency calculations.
 - Internet Explorer and Speed test tools for testing download speed.
 - FTP and ping Test for packet loss.

CHAPTER – 3

OPERATORS AUDITED

3.1 BASIC SERVICE (WIRELINER)

| Sl. | Service Provider | Zone | Circle/ Service Area |
|-----|----------------------------------|------|------------------------------|
| 1 | Bharat Sanchar Nigam Ltd. (BSNL) | West | Madhya Pradesh & Chhatisgarh |
| 2 | Bharti Airtel Ltd | West | Madhya Pradesh & Chhatisgarh |
| 3 | Reliance Communications Ltd. | West | Madhya Pradesh |
| 4 | Tata Teleservices (TTSL) | West | Madhya Pradesh |

Nearly 5 % of the exchanges were audited as per the scope of works. Tata Teleservices (TTSL) is providing PRI services only in Madhya Pradesh & Chhatisgarh Circle.

3.2 BASIC SERVICE (WIRELESS) AND CELLULAR MOBILE SERVICES

| Sl. | Name of service Provider | Zone | Circle/ Service Area |
|-----|----------------------------------|------|------------------------------|
| 1 | Idea Cellulars | West | Madhya Pradesh |
| 2 | Bharat Sanchar Nigam Ltd. (BSNL) | West | Madhya Pradesh & Chhatisgarh |
| 3 | Bharti Airtel Ltd | West | Madhya Pradesh & Chhatisgarh |
| 4 | Reliance Communications Ltd | West | Madhya Pradesh |
| 5 | Reliance Telecom | West | Madhya Pradesh |
| 6 | Tata Teleservices (TTSL) | West | Madhya Pradesh |

All the MSC's and BSS systems were considered for audit and assessment.

3.3 BROADBAND SERVICES

| Sl. | Name of service Provider | Zone | Circle/ Service Area |
|-----|----------------------------------|------|------------------------------|
| 1 | Bharat Sanchar Nigam Ltd. (BSNL) | West | Madhya Pradesh & Chhatisgarh |
| 2 | Bharti Airtel Ltd. | West | Madhya Pradesh & Chhatisgarh |
| 3 | Tata Communications (VSNL) | West | Madhya Pradesh & Chhatisgarh |
| 4 | Sify Limited | West | Madhya Pradesh & Chhatisgarh |
| 5 | Reliance Communications Ltd. | West | Madhya Pradesh & Chhatisgarh |
| 6 | You Telecom India Pvt Ltd | West | Madhya Pradesh & Chhatisgarh |

5% of the POPs of ISP spread over in 10% SDCAs in specified service area are covered. You Telecom are not yet providing the services in Madhya Pradesh & Chhatisgarh Circle.

CHAPTER – 4

SERVICES / SYSTEMS AUDITED

The following Services are audited as per the documents under reference in chapter – 2.

1. Basic Service (Wireline)
2. Basic Service (Wireless) and Cellular Mobile Telephone Services
3. Broadband Service
4. RF Coverage

The following Systems are audited as per the documents under reference in chapter – 2.

1. PSTN Exchanges
2. Mobile Switching Centre.
3. Broadband PoPs
4. Billing Applications
5. Customer Care applications

Facilities that are audited as per the documents under reference in chapter – 2

1. Billing documents.
2. Customer Care records.

The following field verifications was conducted as per the documents under reference in chapter – 2.

1. RF network coverage
2. Inter Operator Congestion
3. Billing Complaints
4. Network Complaints
5. Customer Care efficiency

The live calling has been made to assess the quality of services for Inter Operator Congestion, Billing Complaints, Network Complaints and Customer Care efficiency.

CHAPTER – 5


**PMR DATA VERIFICATION REPORT
PERIOD: JULY – SEPTEMBER 2008**


Verification of quarterly Performance Monitoring Report (PMR) submitted by operator to TRAI with Quality of Services (QoS) records maintained by Operator.

5.1 Basic Service (Wireline) (PMR Period : July – September 2008)

| S.N. | Parameters | Benchmarks | AIRTEL | | BSNL(MP) | | BSNL(CG) | | RELIANCE COMM. | |
|------|--|------------|--------|------------------|----------|------------------|----------|------------------|----------------|------------------|
| | | | PMR | Verified by TCIL | PMR | Verified by TCIL | PMR | Verified by TCIL | PMR | Verified by TCIL |
| 1 | Provision of a telephone after registration of demand | | | | | | | | | |
| | 100 % cases within 7 days (subject to technical feasibility) | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| 2 | Fault incidences | | | | | | | | | |
| | (No. of faults/100 subscribers /month) | <3 | 6.5% | 6.5% | 4.1% | 4.1% | 8.2% | 8.2% | 4.48% | 4.48% |
| 3 | Fault repair by next working day | | | | | | | | | |
| | By next working day | > 90% | 97% | 97% | 94.74% | 94.74% | 84.84% | 84.84% | 97.75% | 97.75% |
| 4 | Mean Time To Repair (MTTR) | < 8Hrs | 7.9 | 7.9 | 5.9 | 5.9 | 10.75 | 10.75 | 5.29 | 5.29 |
| 5 | Call Completion Rate within a local network | | | | | | | | | |
| | Should be better than 55% | > 55% | 59% | 59% | 68.35% | 68.35% | 64.93% | 64.93% | 73.83% | 73.83% |
| 6 | Metering and billing credibility | | | | | | | | | |
| | Disputed Bills over bills issued | <0.1% | 0.03% | 0.03% | 0.03% | 0.03% | 0.02% | 0.02% | 0.0003% | 0.0003% |
| 7 | Customer Care | | | | | | | | | |
| | (Promptness in attending to customers requests) 95% of requests | | | | | | | | | |
| | - Shifts (< 3 days) | 95% | 99% | 99% | 100% | 100% | 100% | 100% | 100% | 100% |
| | - Closures (< 24 Hrs) | 95% | 100% | 100% | 100% | 100% | 100% | 100% | 98.27% | 98.27% |
| | - Additional Facility (< 24 Hrs) | 95% | 99% | 99% | 100% | 100% | 100% | 100% | 98.95% | 98.95% |

| S.N. | Parameters | Benchmarks | AIRTEL | | BSNL(MP) | | BSNL(CG) | | RELIANCE COMM. | |
|------|---|------------|--------|------------------|----------|------------------|----------|------------------|----------------|------------------|
| | | | PMR | Verified by TCIL | PMR | Verified by TCIL | PMR | Verified by TCIL | PMR | Verified by TCIL |
| 8 | Response Time to the customer for assistance | | | | | | | | | |
| | (i) % age of calls answered (electronically): | | | | | | | | | |
| | within 20 seconds | 80% | 100% | 100% | 90% | 90% | 100% | 100% | 100% | 100% |
| | within 40 seconds | 95% | 100% | 100% | 95% | 95% | 100% | 100% | 100% | 100% |
| | (ii) % age of calls answered by operator(voice to voice): | | | | | | | | | |
| | within 60 seconds | 80% | 95% | 95% | 99% | 99% | 100% | 100% | 93% | 93% |
| | within 90 seconds | 95% | 100% | 100% | 99.90% | 99.90% | 100% | 100% | 100% | 100% |
| 9 | Time taken for refund of deposits after closure (100% within 60 days) | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

 Indicates deviation from benchmark of TRAI.

 Discrepancy found

NA – Not Applicable

Observation:

The PMR data was verified with the data provided by the operators. The data was found to be as per the detail provided in the table above.

Airtel:

Airtel is meeting most of the benchmarks except for fault incidences.

BSNL(MP)

BSNL(MP) is meeting most of the benchmarks except for fault incidences.

BSNL(CG)

BSNL(CG) is meeting most of the benchmarks except for fault incidences and MTTR.


Reliance


Reliance is meeting most of the benchmarks except for fault incidences. Reliance has not submitted the data for the parameters at Sl. No. 5 "Call Completion Rate within a local network (CCR)" in PMR to TRAI. However Reliance Comm has given the ASR data for verification in place of CCR.

5.2 Basic Service (Wireless) and Cellular Mobile Telephone Services (PMR Period : July – September 2008)

| S.N. | Parameters | Bench marks | GSM OPERATORS | | | | | | | | | | CDMA OPERATORS | | | |
|------------|---|-------------|---------------|------------------|--------|------------------|-----------|------------------|-----------|------------------|------------------|------------------|----------------|------------------|----------------|------------------|
| | | | Airtel | | Idea | | BSNL (MP) | | BSNL (CG) | | Reliance Telecom | | TTSL | | Reliance Comm. | |
| | | | PMR | Verified by TCIL | PMR | Verified by TCIL | PMR | Verified by TCIL | PMR | Verified by TCIL | PMR | Verified by TCIL | PMR | Verified by TCIL | PMR | Verified by TCIL |
| 1 | Network Performance | | | | | | | | | | | | | | | |
| 1.1 | Accumulated down time of Community Isolation | < 24 Hrs | 22.2 | 22.2 | 22:59 | 22:59 | 4 | 4 | 0 | 0 | 23:03 | 23:03 | 0:00 | 0:00 | 0.48 | 0.48 |
| 1.2 | Call set-up Success Rate (within licensees own network) (%) | > 95% | 97.95% | 97.95% | 98.34% | 98.34% | 97.6% | 97.6% | 96% | 96% | 100% | 100% | 98.05% | 98.05% | 99.24% | 99.24% |
| 1.3 | Service Access Delay (Sec) | 9 – 20 Sec | 11.65 | 11.65 | 7.86 | 7.86 | 10 | 10 | 8 | 8 | 7.25 | 7.25 | 5.89 | 5.89 | 4.09 | 4.09 |
| 1.4 | Blocked Call Rate | | | | | | | | | | | | | | | |
| | (i) SDCCCH Congestion (%) | < 1% | 0.34% | 0.34% | 0.92% | 0.92% | 0.70% | 0.70% | 0.6% | 0.6% | 0.20% | 0.20% | 0.0% | 0.0% | 0.0% | 0.0% |
| | (ii)TCH Congestion (%) | < 2% | 1.05% | 1.05% | 0.97% | 0.97% | 2.58% | 2.58% | 1.8% | 1.8% | 1.21% | 1.21% | 0.0% | 0.0% | 0.47% | 0.47% |
| | (iii) Cell exceeding 80% TCH utilization (Nos) | | | | | | | | | | | | | | | |
| 1.5 | Call Drop Rate (%) | < 3% | 1.16% | 1.16% | 2.29% | 2.29% | 1.67% | 1.67% | 2.7% | 2.7% | 1.38% | 1.38% | 0.9% | 0.9% | 1.74% | 1.74% |
| 1.6 | Percentage of connections with good voice quality (%) | > 95% | 98.7% | 98.7% | 96.2% | 96.2% | 97.38% | 97.38% | 98% | 98% | 95.9% | 95.9% | 98.34% | 98.34% | 99.46% | 99.46% |
| 1.8 | POI Congestion (%) | < 0.5% | 0.45% | 0.45% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0.12% | 0.12% | 0.1% | 0.1% |
| 2 | Customer Help Lines: | | | | | | | | | | | | | | | |
| 2.1 | Response time to the customer for assistance | | | | | | | | | | | | | | | |
| | (i) % age of calls answered (electronically) | | | | | | | | | | | | | | | |
| | within 20 seconds (%) | 80% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 98.14% | 98.14% |
| | within 40 seconds (%) | 95% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 98.14% | 98.14% |
| | (ii) % age of calls answered by operator (voice to voice): | | | | | | | | | | | | | | | |
| | Within 60 seconds (%) | 80% | 91.26% | 91.26% | 94% | 94% | 83% | 83% | 82.5% | 82.5% | 92% | 92% | 98% | 98% | 97.93% | 97.93% |
| | Within 90 seconds (%) | 95% | 94.77% | 94.77% | 95% | 95% | 95% | 95% | 94.8% | 94.8% | 100% | 100% | 99% | 99% | 98.96% | 98.96% |

| S.N. | Parameters | Bench marks | GSM OPERATORS | | | | | | | | | | CDMA OPERATORS | | | |
|----------|--|-------------|---------------|------------------|---------|------------------|-----------|------------------|-----------|------------------|------------------|------------------|----------------|------------------|---------------|------------------|
| | | | Airtel | | Idea | | BSNL (MP) | | BSNL (CG) | | Reliance Telecom | | TTSL | | Reliance Comm | |
| | | | PMR | Verified by TCIL | PMR | Verified by TCIL | PMR | Verified by TCIL | PMR | Verified by TCIL | PMR | Verified by TCIL | PMR | Verified by TCIL | PMR | Verified by TCIL |
| 3 | Billing Complaints | | | | | | | | | | | | | | | |
| 3.1 | Billing complaints per 100 bills issued (%) | <0.1% | 0% | 0% | 0.02% | 0.02% | 0% | 0% | 0% | 0% | 0.01% | 0.01% | 0.02% | 0.02% | 0.08% | 0.08% |
| 3.2 | % of billing complaints resolved within 4 weeks (%) | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| 3.3 | Period of all refunds / payments due to customers from the date of resolution of complaints as in (ii) above (weeks) | < 4 Weeks | <4 Weeks | <4 Weeks | <4Weeks | <4Weeks | <3 Weeks | <3 Weeks | <4 Weeks | <4 Weeks | <24 Hrs | <24 Hrs | <4 Weeks | <4 Weeks | <4 Weeks | <4 Weeks |

 Indicates deviation from benchmark of TRAI.

 Discrepancy found

NA – Not Applicable

NP – Data Not Provided

Observation:

The above data was verified with the data provided by the operators. The data was found to be as per the detail provided above.

Airtel

Airtel is meeting all the benchmarks. However, Airtel is filing POI congestion report on monthly basis.

Idea

Idea is meeting all the benchmarks. However, Idea is filing POI congestion report on monthly basis.

BSNL(MP)

BSNL is meeting all the benchmarks except TCH congestion.

BSNL(CG)

BSNL is meeting all the benchmarks.

Reliance Telecom

Reliance Telecom is meeting all the benchmarks.

TTSL

TTSL is meeting all the benchmarks.

Reliance Communications

Reliance is meeting all the benchmarks.


5.3 Broadband Service (PMR Period : July – September 2008)


| S.N. | Parameters | Benchmark | BSNL(MP) | | BSNL(CG) | | Reliance Comm* | | SIFY* | | Bharti | | VSNL | |
|----------|--|---------------------------|----------|------------------|----------|------------------|-----------------------|-----------------------|-------|------------------|--------|------------------|-------|------------------|
| | | | PMR | Verified by TCIL | PMR | Verified by TCIL | PMR | Verified by TCIL | PMR | Verified by TCIL | PMR | Verified by TCIL | PMR | Verified by TCIL |
| 1 | Service Provisioning/ Activation Time | 100% in =<15 working days | | | | | | | | | | | | |
| 1.1 | No. of connections registered | | 12868 | 12868 | 3140 | 3140 | 11115 | 11115 | 17386 | 17386 | 13994 | 13994 | 2717 | 2717 |
| 1.2 | %age of connections provided within 15 days of registration of demand | 100% | 100% | 100% | 99.30% | 99.30% | 99% | 99% | 100% | 100% | 99% | 99% | 100% | 100% |
| 1.3 | %age of connections provided after 15 days of registration of demand | | 0% | 0% | 0.70% | 0.70% | 1% | 1% | 0% | 0% | 1% | 1% | 0% | 0% |
| 1.4 | No. of customers to whom credit is given for delayed connections | | 0 | 0 | 14 | 14 | No delayed connection | No delayed connection | 0 | 0 | 0 | 0 | 0 | 0 |
| 1.5 | Total no. of connections provided during the period | | 13094 | 13094 | 2742 | 2742 | 96774 | 96774 | 17386 | 17386 | 12534 | 12534 | 2606 | 2606 |
| 1.6 | Total no. of working connections at the period | | 76283 | 76283 | 25394 | 25394 | 96774 | 96774 | 17057 | 17057 | 253101 | 253101 | 22110 | 22110 |
| 2 | Faults Repair / Restoration Time | | | | | | | | | | | | | |
| 2.1 | Total no. of faults registered | | 9660 | 9660 | 7424 | 7424 | 54451 | 54451 | 44534 | 44534 | 10802 | 10802 | 49722 | 49722 |
| 2.2 | %age of faults repaired by next working day | >90% | 96.40% | 96.42% | 94.50% | 94.50% | 97.33% | 97.33% | 92% | 92% | 94% | 94% | 86% | 86% |
| 2.3 | %age of faults repaired within 3 working days | =>99% | 100% | 100% | 99.50% | 99.50% | 99.33% | 99.33% | 99% | 99% | 99.4% | 99.4% | 97% | 97% |
| 2.4 | No. of customers to whom rent rebate is given in minimum monthly charges or equivalent usage allowance for delay in fault repair | | 0 | 0 | 0 | 113 | 10 | 10 | 84 | 84 | 387 | 387 | 45268 | 45268 |
| | a. Rent Rebate of 7 days | | 0 | 0 | 34 | 34 | 5 | 5 | 72 | 72 | 362 | 362 | 44056 | 44056 |
| | b. Rent Rebate of 15 days | | 0 | 0 | 37 | 37 | 3 | 3 | 12 | 12 | 23 | 23 | 1033 | 1033 |
| | c. Rent Rebate of One Month | | 0 | 0 | 42 | 42 | 2 | 2 | 0 | 0 | 2 | 2 | 179 | 179 |

| S.N. | Parameters | Benchmark | BSNL(MP) | | BSNL(CG) | | Reliance Comm* | | SIFY* | | Bharti | | VSNL | |
|----------|---|---------------------|---|---|---|---|----------------|------------------|--------|---|--------|------------------|---------|------------------|
| | | | PMR | Verified by TCIL | PMR | Verified by TCIL | PMR | Verified by TCIL | PMR | Verified by TCIL | PMR | Verified by TCIL | PMR | Verified by TCIL |
| 3 | Billing Performance | | | | | | | | | | | | | |
| 3.1 | Total no. of bills issued | | 216314 | 216314 | 70922 | 70922 | 237109 | 237109 | 0 | Sify is using prepaid module, hence no bills issued | 776340 | 776340 | 34359 | 34359 |
| 3.2 | No. of bills disputed | | 600 | 600 | 198 | 198 | 381 | 381 | 0 | | 0 | 0 | 256 | 256 |
| 3.3 | %age of bills disputed | <2% | 0.30% | 0.28% | 0.30% | 0.30% | 0.16% | 0.16% | 0 | | 0% | 0% | 0.75% | 0.75% |
| 3.4 | %age of complaints resolved within 4 weeks | 100% within 4 weeks | 100% | 100% | 100% | 100% | 100% | 100% | 0 | | 100% | 100% | 100% | 100% |
| 3.5 | %age of cases to whom refund of deposits is made within 60 days of closures | 100% within 60 days | 100% | 100% | 100% | 100% | 100% | 100% | 0 | | 100% | 100% | 100% | 100% |
| 4 | Response Time to the Customer for assistance | | | | | | | | | | | | | |
| 4.1 | Total no. of calls received by operators (Voice to voice) | | 28533 | 28533 | 12721 | 12721 | 981549 | 981549 | 67763 | 67763 | 118203 | 118203 | 1328406 | 1328406 |
| 4.2 | %age of calls answered by operator (Voice to voice) within 60 sec | >60% | 89.74% | 89.74% | 78.40% | 78.40% | 88% | 88% | 78% | 78% | 90% | 90% | 76.92% | 76.92% |
| 4.3 | %age of calls answered by operator (Voice to voice) within 90 sec | >80% | 100% | 100% | 90.80% | 90.80% | 92% | 92% | 94% | 94% | 100% | 100% | 83.55% | 83.55% |
| 5 | Bandwidth utilisation/throughput | | | | | | | | | | | | | |
| 5.1 | No. of intra network links (POP to ISP Gateway nodes) | | BRAS -23, T1-24, T2-624, DSLAM 5945 Multiplay BNG 105, RPR6 16, OCLAN 2399, DSLAM 30220 | BRAS -23, T1-24, T2-624, DSLAM 5945 Multiplay BNG 105, RPR6 16, OCLAN 2399, DSLAM 30220 | BRAS -23, T1-24, T2-624, DSLAM 5945 Multiplay BNG 105, RPR6 16, OCLAN 2399, DSLAM 30220 | BRAS -23, T1-24, T2-624, DSLAM 5945 Multiplay BNG 105, RPR6 16, OCLAN 2399, DSLAM 30220 | 0 | 91 | 400.33 | 400 | 7 | 7 | 16 | 16 |
| 5.2 | No. of intra network links having Bandwidth utilisation >90% during peak hours (TCBH) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| S.N. | Parameters | Benchmark | BSNL(MP) | | BSNL(CG) | | Reliance Comm* | | SIFY* | | Bharti | | VSNL | |
|------|---|------------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|----------------|------------------|---------|------------------|---------|------------------|---------------------------------------|---------------------------------------|
| | | | PMR | Verified by TCIL | PMR | Verified by TCIL | PMR | Verified by TCIL | PMR | Verified by TCIL | PMR | Verified by TCIL | PMR | Verified by TCIL |
| 5.3 | No. of Upstream links for International connectivity (ISP Gateway nodes to IGSP/NIXI node/NAP) | | IGW-126,STMs &NIXI 3GE | IGW-126,STMs &NIXI 3GE | IGW-126,STMs &NIXI 3GE | IGW-126,STMs &NIXI 3GE | 6 | 88 | 27.33 | 27 | 7 | 7 | 11 stm 1, 22stm4, 4stm16, 8gig B-Bona | 11 stm 1, 22stm4, 4stm16, 8gig B-Bona |
| 5.4 | No. of Upstream links for International connectivity having bandwidth utilisation >90% during peak hours (TCBH) | | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5.5 | Total International bandwidth available from ISP Node to IGSP/NIXI/NAP in Mbps | | IGW-19595.52 &NIXI 3000 | IGW-19595.52 &NIXI 3000 | IGW-19595.52 &NIXI 3000 | IGW-19595.52 &NIXI 3000 | 1860 | 1860 | 2830 | 2830 | 1401.66 | 1401.66 | 30241 | 30241 |
| 5.6 | Total International bandwidth during peak hours (TCBH) in Mbps (Enclose MRTG) | | 13821.7 | 13821.7 | 13821.7 | 13821.7 | 465 | 465 | 2135.67 | 2135.67 | 1056.33 | 1056.33 | 19569 | 19569 |
| 5.7 | %age International bandwidth utilisation during peak hours (TCBH) in Mbps (enclose MRTG) | <80% | 78.30% | 78.30% | 78.30% | 78.30% | 25% | 25% | 85% | 75.66% | 75% | 75% | 64.70% | 64.70% |
| 5.8 | Broadband Connection Speed available (download) from ISP node to user | >80% | 92% | 91.98% | 88.90% | 88.90% | 90% | 90% | 95% | 95% | 99% | 99% | >80% | >80% |
| 6 | Service Availability / Uptime (for all users) in %age | >98% w.e.f. Quarter Ending Sep. 07 | | | | | | | | | | | | |
| 6.1 | Total Operational Hours | | 2208 | 2208 | 2208 | 2208 | 2208 | 2208 | 2208 | 2208 | 736 | 736 | 2432352 | 2432352 |
| 6.2 | Total downtime in hours | | 9.27 | 9.26 | 28.66 | 28.66 | 10.12 | 10.12 | 0 | 0 | 0.14 | 0.14 | 23031 | 23031 |
| 6.3 | Service availability/uptime (for all users) in %age | >98% | 99.60% | 99.58% | 98.70% | 98.70% | 68.02% | 99.54% | 100% | 100% | 100% | 99.98% | 99.05% | 99.05% |
| 7 | Packet loss (for wired broadband access) in %age | <1% | 0.10% | 0.10% | 0.10% | 0.10% | 0.68% | 0.9% | <1% | <1% | 0% | 0% | 0% | 0% |

| S.N. | Parameters | Benchmark | BSNL(MP) | | BSNL(CG) | | Reliance Comm* | | SIFY* | | Bharti | | VSNL | |
|----------|---|-----------|----------|------------------|----------|------------------|----------------|------------------|--------|------------------|--------|------------------|--------|------------------|
| | | | PMR | Verified by TCIL | PMR | Verified by TCIL | PMR | Verified by TCIL | PMR | Verified by TCIL | PMR | Verified by TCIL | PMR | Verified by TCIL |
| 8 | Network latency (for wired broadband access) | | | | | | | | | | | | | |
| 8.1 | User reference point at POP/ISP Gateway node to IGSP/NIXI | <120 ms | 63ms | 63ms | 63ms | 63ms | 51ms | 51ms | <45ms | <45ms | 162ms | 88ms | <80ms | <80ms |
| 8.2 | User reference point at ISP Gateway node to IGSP/NIXI | <350 ms | 273.7ms | 273.7 ms | 273.7ms | 273.7ms | 287ms | 287ms | <300ms | <300ms | 88ms | 296ms | <180ms | <180ms |
| 8.3 | User reference point at ISP Gateway node to international nearest NAP port abroad (satellite) | <800 ms | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

 Indicates deviation from benchmark of TRAI.

 Discrepancy found

NA – Not Applicable

Observation:

The above data was verified with the data provided by the operators. The data was found to be as per the detail provided above.

BSNL(MP)

BSNL(MP) is meeting all the benchmarks. However, Bandwidth Utilisation/throughput, Service Availability/Uptime, Packet Loss and Network Latency parameters are based on all India figures.

BSNL(CG)

BSNL(CG) is meeting all the benchmarks except for percentage of connections provided within 15 days of registration of demand. However, Bandwidth Utilisation/throughput, Service Availability/Uptime, Packet Loss and Network Latency parameters are based on all India figures.

Reliance

Reliance is meeting most of the benchmark except for percentage of connections provided within 15 days of registration of demand. However, discrepancies have been found in the Bandwidth Utilisation, Service Availability/Uptime and Packet Loss parameters.

Reliance is submitting the PMR on all India basis, hence data is verified on All India basis not for MPCG Circle particularly.

Sify

Sify is meeting all the benchmarks. Sify claims that all its retail broadband customers are prepaid and hence there are no bills issued.

SIFY is submitting the PMR on all India basis, hence data is verified on All India basis not for MPCG Circle particularly.

Bharti

Bharti is meeting most of the benchmark except for percentage of connections provided within 15 days of registration of demand.

TATA Communications (VSNL)


VSNL is meeting most of the benchmark except for Fault Repair/Restoration time i.e. for % of Faults repaired by next working day and within 3 working days.

However, QoS Parameters no. 2.4, 4, 5, 7 & 8 represents all India figures and rest are representing Central region (Gujarat and Madhya Pradesh & Chhatisgarh) figures.

CHAPTER -6**LIVE ASSESSMENT OF QoS OF DIFFERENT SERVICES****3 DAYS DATA****6.1 LIVE ASSESSMENT : BASIC SERVICE (WIRELINE)**

Service Provider Performance Report based on 3-days Live measurement data collected during audit period December 2008 – February 2009.

| S.N. | Parameters | Benchmarks | AIRTEL | BSNL(MP) | BSNL(CG) | RELIANCE COMM. |
|------|--|------------|--------|----------|----------|----------------|
| 1 | Call Completion Rate within a local network | | | | | |
| | Should be better than 55% | > 55% | 59.85% | 64.98% | 59.32% | 73.9% |
| 2 | Response Time to the customer for assistance | | | | | |
| 2.1 | % age of calls answered (electronically) | | | | | |
| | within 20 seconds | 80% | 100% | 100% | 100% | 100% |
| | within 40 seconds | 95% | 100% | 100% | 100% | 100% |
| 2.1 | % age of calls answered by operator(voice to voice): | | | | | |
| | within 60 seconds | 80% | 97% | 98.45% | 95% | 98% |
| | within 90 seconds | 95% | 100% | 99.22% | 100% | 100% |

 Indicates deviation from benchmark of TRAI.

NA – Not Applicable

NOTE:

BSNL (MP): 130 Exchanges from the SSA/SDCA of Bhopal, Indore, Ujjain, Hosangabad, Jabalpur, Katni, Guna and Gwalior were audited.

BSNL (CG): 30 Exchanges from the SSA/SDCA of Raipur, Bilaspur and Jagdalpur were audited.

For all other operators, Centralized data was provided for all the exchanges of MP & CG Circle.

6.1.1 Observation & Findings : Live Measurement – Basic Service (Wireline)

AIRTEL

Airtel is meeting the benchmarks of “better than 55%” for Call Completion Ratio within a local network during the 3-days live measurement.

Airtel is also meeting the benchmark provided by TRAI for Response Time to Customer for Assistance for both the parameters “Calls answered electronically within 20 Seconds & 40 Seconds” and “Calls answered Voice to Voice within 60 Seconds & 90 Seconds” during the 3-days live measurement.

BSNL(MP)

For BSNL, 130 Exchanges from the SSA/SDCA of Bhopal, Indore, Ujjain, Hosangabad, Jabalpur, Katni, Guna and Gwalior were audited. BSNL is meeting the benchmarks provided by TRAI during the 3-days live assessment for Call Completion Rate (CCR).

BSNL is meeting the benchmark provided by TRAI for Response Time to Customer for Assistance for both the parameters 20 Seconds & 40 Seconds for electronically and both the parameters 60 Seconds & 90 Seconds for Voice to Voice during the 3-days live measurement.

BSNL(CG)

For BSNL, 30 Exchanges from the SSA/SDCA of Raipur, Bilaspur and Jagdalpur were audited. BSNL is meeting all the benchmarks provided by TRAI during the 3-days live assessment for Call Completion Rate (CCR).

RELIANCE COMM.

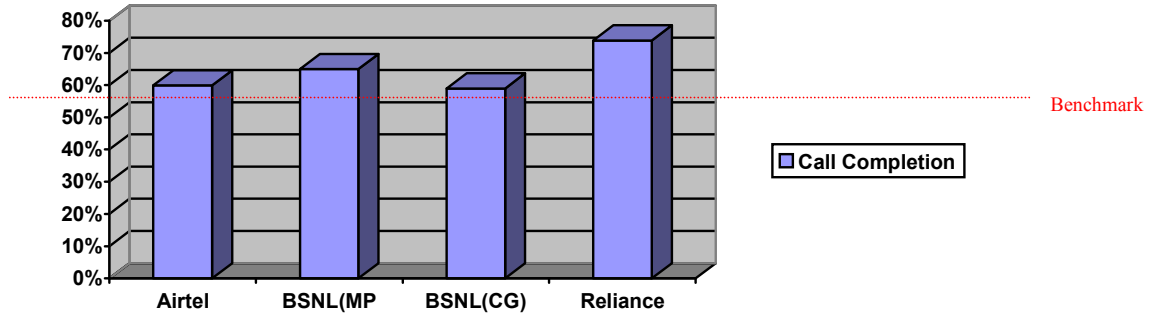
Reliance is complying the benchmarks of TRAI during the 3- days live Measurement for Call Completion Rate (CCR) within a local network.

Reliance is meeting the benchmark provided by TRAI for Customer Assistance for both the parameters 20 Seconds & 40 Seconds for Electronically and both the parameters 60 Seconds & 90 Seconds for Voice to Voice.

6.1.2 Data Analysis & Graphical Representations – 3 Days Live Assessment – Basic Service (Wireline)

1.0 Call Completion Rate within a local network:

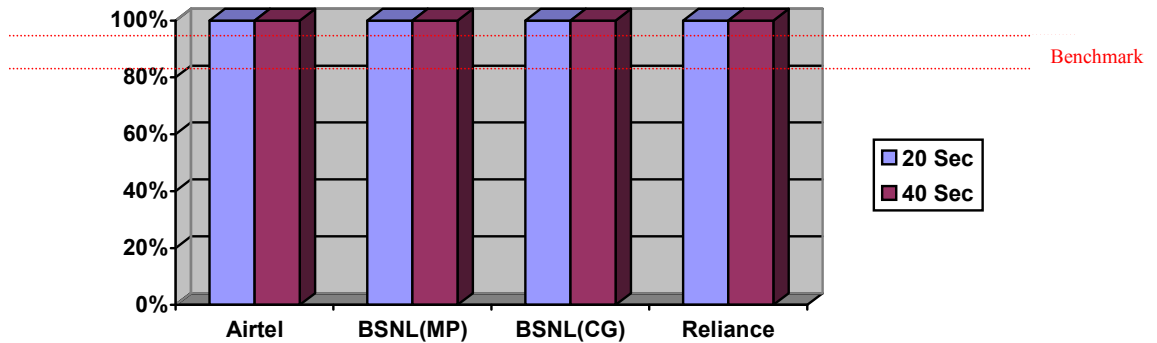
Should be better than 55%: All the operators meeting the benchmark.



2.0 Response time to the customer for assistance:

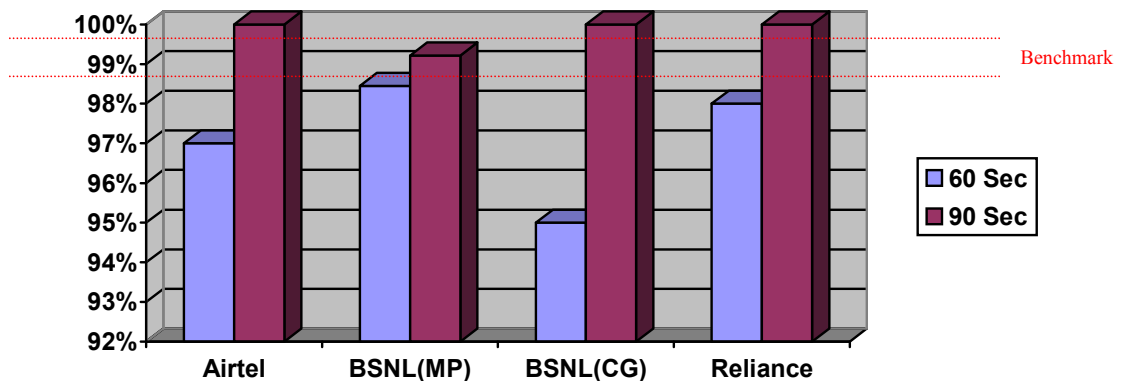
(i) % age of calls answered by operator (Electronically)

- **Within 20 seconds (>80%):** All the operators meet the benchmark.
- **Within 40 seconds (>95%):** All the operators meet the benchmark.



(ii) % age of calls answered by operator (Voice to Voice)


- **Within 60 seconds (>80%):** All the operator meeting the benchmark.
- **Within 90 seconds (>95%):** All the operators meeting the benchmark.



6.2 LIVE ASSESSMENT : BASIC (WIRELESS) AND CELLULAR MOBILE SERVICES

Service Provider Performance Report based on 3-days Live measurement data collected during audit period December 2008 – February 2009.

| S.N. | Parameters | Bench mark | GSM OPERATORS | | | | | CDMA OPERATORS | |
|----------|---|------------|---------------|-------|-----------|-----------|------------------|----------------|----------------|
| | | | Airtel | Idea | BSNL (MP) | BSNL (CG) | Reliance Telecom | TTSL | Reliance Comm. |
| 1 | Network Performance | | | | | | | | |
| 1.2 | Call set-up Success Rate (within licensees own network) (%) | > 95% | 89% | 98.3% | 98.5% | 95% | 100% | 98.5% | 100% |
| 1.3 | Service Access Delay (Sec) | 9 – 20 Sec | 16:36 | 7.1 | 11.8 | 13.2 | 3.9 | 13.22 | 11.5 |
| 1.4 | Blocked Call Rate | | | | | | | | |
| | (i) SDCCH Congestion (%) | < 1% | 0.25% | 0.94% | 0.66% | 0.38% | 0.07% | 0% | 0% |
| | (ii)TCH Congestion (%) | < 2% | 0.53% | 1.04% | 2.22% | 3.43 | 0.61% | 0% | 0.4% |
| | (iii) Cell exceeding 80% TCH utilization (Nos) | | 4052 | 4258 | 1207 | NP | 307 | 18.6 | 3 |
| 1.5 | (i) Call Drop Rate (%) | < 3% | 1.34% | 2% | 1.77% | 3.43% | 1.19% | 0.81% | 1.4% |
| | (ii) Cell exceeding 3% TCH drop (Nos) | | 2705 | 2673 | 874 | 839 | 304 | 7 | 10 |
| | (iii) Cell exceeding 3% TCH drop (%) | | 15.4% | 19.9% | 16.8% | 34.8% | 5.74% | 0.59% | 1.21% |
| 1.6 | Percentage of connections with good voice quality (%) | > 95% | 98.4% | 96.1% | 90.26% | 82.24% | 86.8% | 97.2% | 95.5% |
| 1.7 | Service Coverage | | | | | | | | |
| | In door (>= -75dBm) | | 53% | 79.7% | 80.9% | 100% | 36.6% | 98.8% | 30.4% |
| | In-vehicle (>= -85dBm) | | 87% | 97.5% | 96.1% | 100% | 84.9 | 99.1% | 65.13% |
| | Out door- in city (>= -95dBm) | | 100% | 99.7% | 100% | 100% | 99.4% | 100% | 100% |
| 1.8 | POI Congestion (%) | 0.5% | 1.62% | 0.17% | 1.3% | * | 0% | 0% | 0% |
| 2 | Customer Help Lines: | | | | | | | | |
| 2.1 | Response time to the customer for assistance | | | | | | | | |
| | (i) % age of calls answered (electronically) : | | | | | | | | |
| | within 20 seconds (%) | > 80% | 100% | 100% | 100% | 100% | 100% | 100% | 99% |
| | within 40 seconds (%) | > 95% | 100% | 100% | 100% | 100% | 100% | 100% | 99% |
| | (ii) % age of calls answered by operator (voice to voice): | | | | | | | | |
| | Within 60 seconds (%) | > 80% | 97% | 96% | 82.6% | 83% | 83% | 82% | 95% |
| | Within 90 seconds (%) | > 95% | 99.8% | 100% | 97% | 96% | 100% | 98% | 97% |

 Indicates deviation from benchmark of TRAI.

NA – Not Applicable

NP- Data not provided.

* BSNL-CG: GMSC for CG & MP Circle is at LUCENT Bhopal and at present no direct POI with private operators is working at MSC CG.

6.2.1 Observation & Findings : Live Measurement – Basic (Wireless) & Cellular Mobile Services

AIRTEL

Airtel is not meeting the benchmarks of “better than 95%” for Call Setup Success Rate during the 3-days live measurement.

Airtel is not meeting the benchmark of “less than 0.05%”, in the case of Point of Congestion (POI).

Airtel is meeting the benchmark provided by TRAI for Response Time to Customer for Assistance (Electronically) for both the parameters 20 Seconds & 40 Seconds for electronically. Also, Airtel is meeting the benchmarks provided by TRAI for both the parameters 60 Seconds & 90 Seconds for Voice to Voice.

IDEA

Idea with score 98.3% meeting the benchmarks of “better than 95%” for Call Setup Success Rate during the 3-days live measurement.

Idea is meeting the benchmark provided by TRAI for Response Time to Customer for Assistance (Electronically) for both the parameters 20 Seconds & 40 Seconds for electronically. Also, Idea is meeting the benchmarks provided by TRAI for both the parameters 60 Seconds & 90 Seconds for Voice to Voice.

BSNL (MP)

BSNL with score 98.5% meeting the benchmarks of “better than 95%” for Call Setup Success Rate during the 3-days live measurement.

BSNL (2.22%) is not meeting the benchmark of “less than 2%” for TCH congestion.

BSNL (90.26%) is not meeting %age of connections with good voice quality.

BSNL (1.3%) is not meeting the benchmark of “less than 0.05%”, in the case of Point of Congestion (POI).

BSNL is meeting the benchmark provided by TRAI for Response Time to Customer for Assistance (Electronically) for both the parameters 20 Seconds & 40 Seconds for electronically. Also, BSNL is meeting the benchmarks provided by TRAI for both the parameters 60 Seconds & 90 Seconds for Voice to Voice.

BSNL (CG)

BSNL with score 95% at the cutoff of meeting the benchmarks of “better than 95%” for Call Setup Success Rate during the 3-days live measurement.

BSNL (3.43%) is not meeting the benchmark of “less than 2%” for TCH congestion.

BSNL (3.43%) is not meeting the benchmark of “less than 3%”, in the case of Call drop rate..

BSNL (82.24%) is not meeting %age of connections with good voice quality.

BSNL is meeting the benchmark provided by TRAI for Response Time to Customer for Assistance (Electronically) for both the parameters 20 Seconds & 40 Seconds for electronically. Also, BSNL is

meeting the benchmarks provided by TRAI for both the parameters 60 Seconds & 90 Seconds for Voice to Voice.

RELIANCE TELECOM

Reliance telecom is meeting all the parameters except to “%age of connections with good voice quality” during the 3-days live measurement.

TTSL

TTSL is meeting all the parameters during the 3-days live measurement.

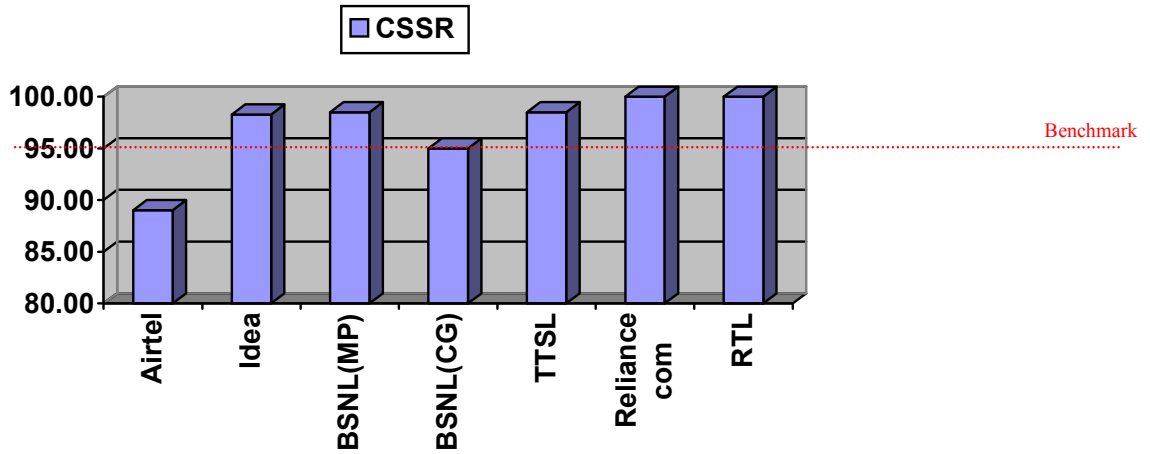
RELIANCE COMM.

Reliance Comm is meeting all the parameters.

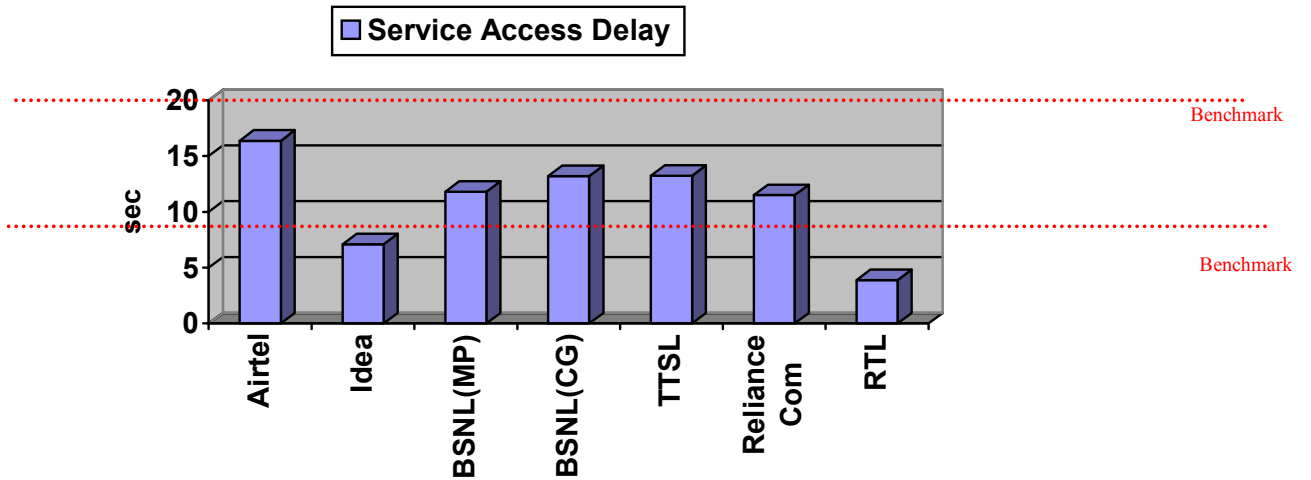
6.2.2 Data Analysis & Graphical Representations – 3 Days Live Assessment – Basic (Wireless) & Cellular Mobile Services

A) NETWORK PERFORMANCE

I. Call setup success rate: All operator meet TRAI benchmarks (>95 %) except Airtel (89%).

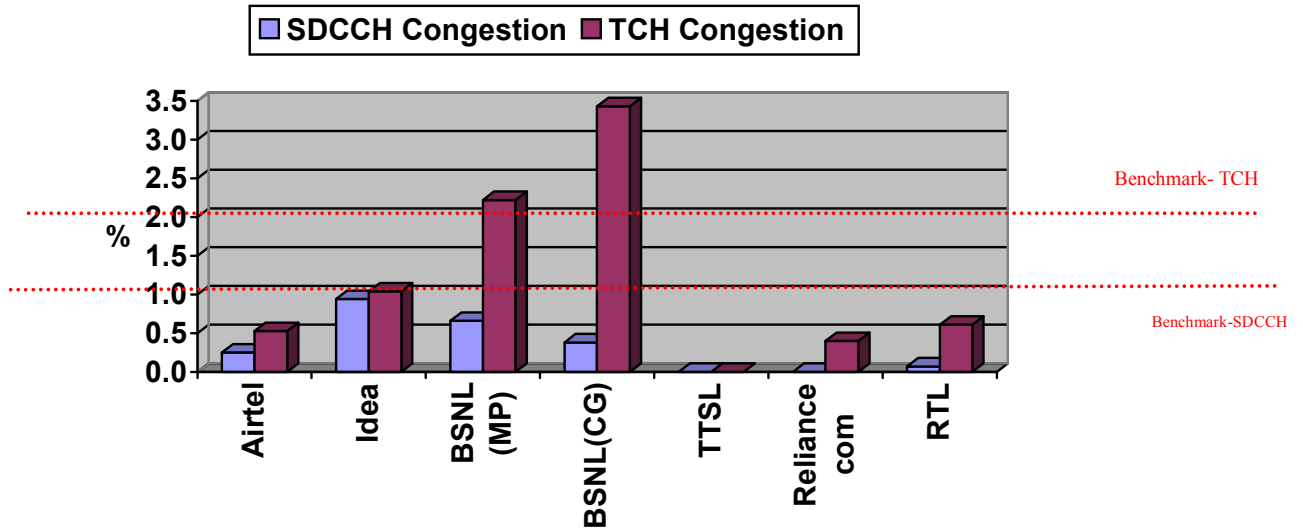


II. Service access delay: All operators meet the benchmark (>9 to < 20 sec). Here Idea & Reliance telecom is better than the lower limit set as benchmark.

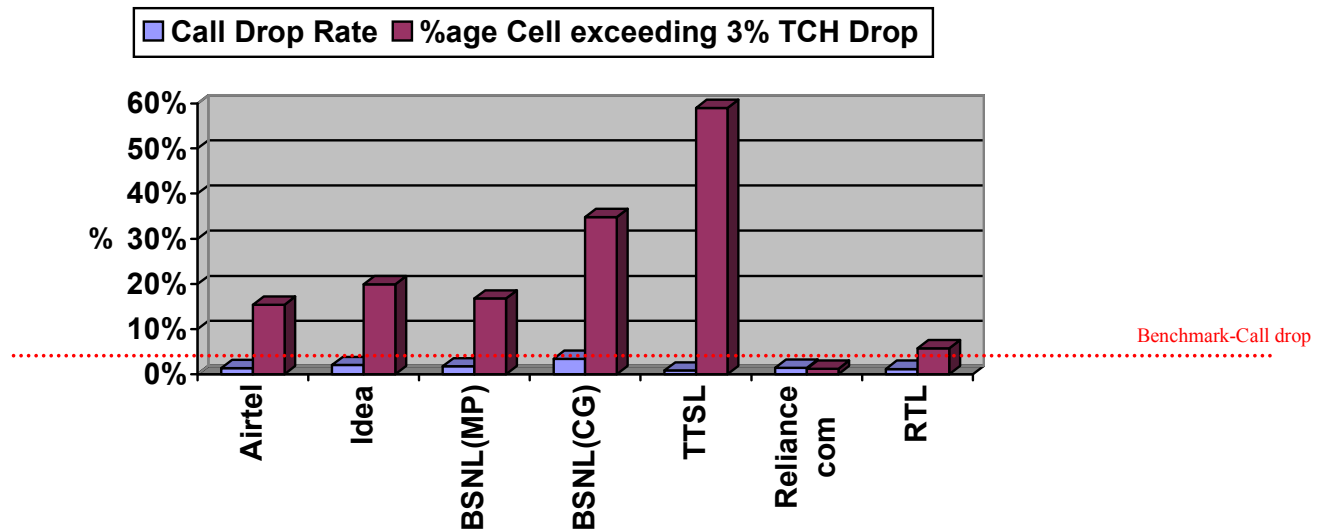


III. Blocked call rate:

- (1) SDCCH congestion (%): All operators meet benchmark (<1 %).
- (2) TCH congestion (%): All operators meet benchmark (<2 %) except BSNL (MP) & BSNL (CG).

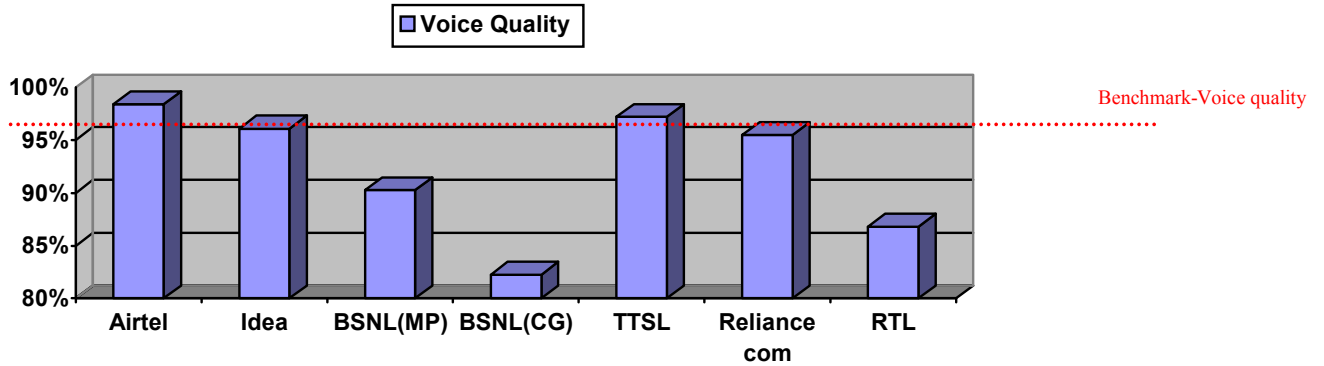


- IV. 1) Call drop rate (%): All operators meet benchmark (benchmark <3%) except BSNL (CG).
- 2) %-age Cell exceeding 3% TCH Drop:

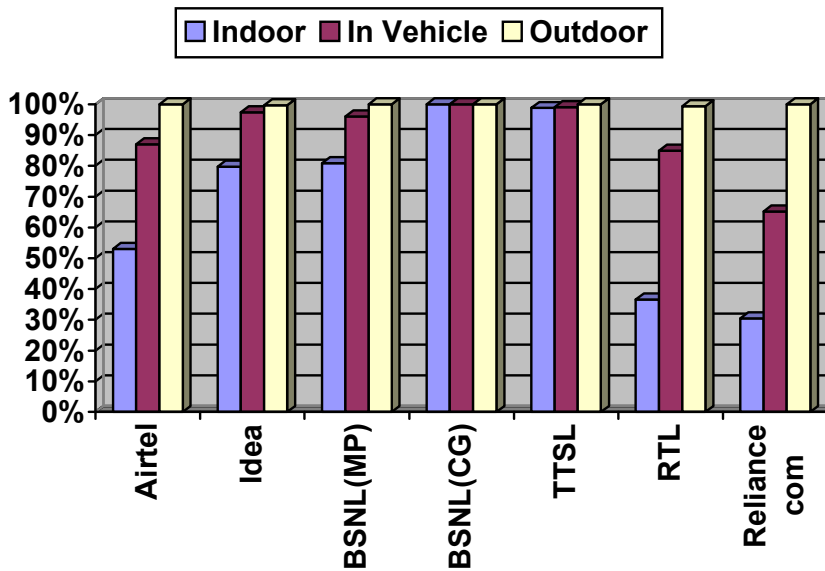


V. Percentage of connections with good voice quality(benchmark >95%):

All of operators meet TRAI benchmarks except BSNL (MP & CG) & RTL.

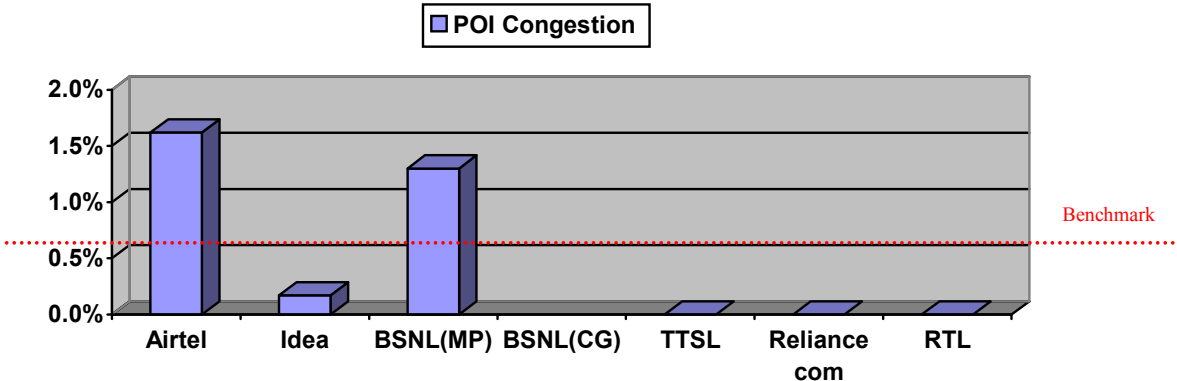


VI. Service Coverage



VII. POI Congestion (<0.5%):

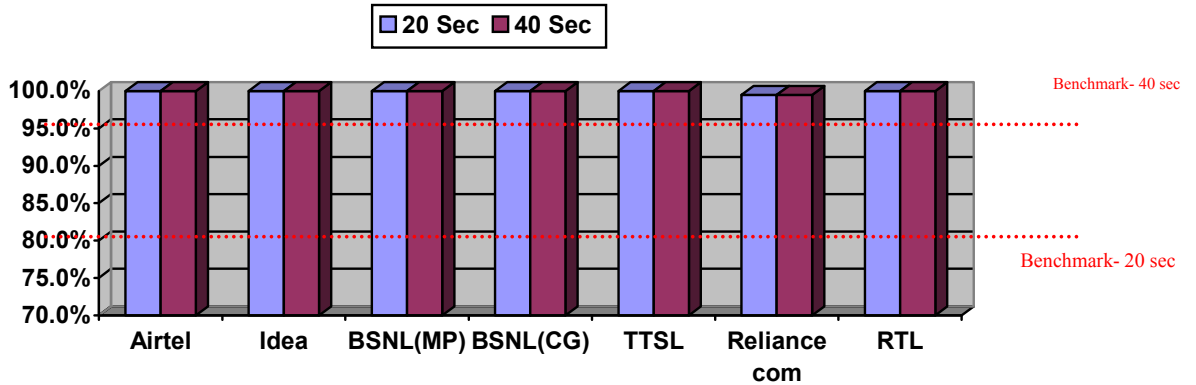
All operators meet benchmark (<0.5%) except for Airtel (1.62%)& BSNL-MP(1.3%).



B) CUSTOMER HELPLINE PERFORMANCE

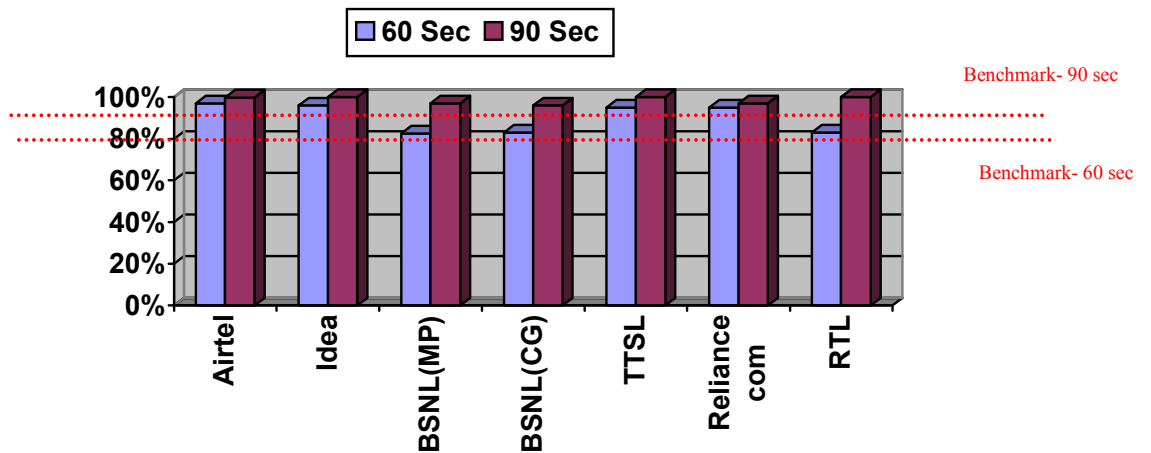
Response time to the customer for assistance:

- I. Percentage of call answered (Electronically);
 With in 20 sec (%): All operators meet benchmark.(>80%)
 With in 40 sec (%); All operators meet benchmark.(>95%)



- II. Percentage of call answered by operators (Voice to voice);


With in 60 sec: All operators meet benchmark(>80%) .
 With in 90 sec: All operators meet benchmark (>95%).



6.3 LIVE ASSESSMENT : BROADBAND SERVICE

Service Provider Performance Report based on 3-days Live measurement data collected during audit period December 2008 – February 2009.

| S.N. | Parameters | Benchmark | Bharti | BSNL (MP) | BSNL (CG) | Reliance Comm. | SIFY | VSNL |
|------|---|-----------|--------|-----------|-----------|----------------|---------|----------|
| 1 | Response time to the customer for assistance | | | | | | | |
| | % age of calls answered by operator (Voice to Voice) | | | | | | | |
| | Within 60 seconds | >60% | 97% | 98.44% | 95% | 92.7% | 94% | 100% |
| | Within 90 seconds | >80% | 100% | 99.22% | 100% | 95.15% | 98.4% | 100% |
| 2 | Bandwidth Utilization/ Throughput: | | | | | | | |
| | Bandwidth Utilization | <80% | | | | | | |
| | i) POP to ISP Gateway Node [Intra-network] Link(s) | | 76% | 29.50% | 39% | 65% | 65.96% | 62.65% |
| | ii) ISP Gateway Node to IGSP / NIXI Node upstream Link(s) for International connectivity | | 71.5% | 37.32% | 77.95% | NA | 68.27% | 48.67% |
| | Broadband Connection Speed (download) | >80% | 97% | 85.53% | 85% | 98% | 96% | 86% |
| 3 | Packet Loss | <1% | 0.01% | 0% | 0.32% | 0% | 0.01% | 0% |
| 4 | Network Latency (for wired broadband access) | | | | | | | |
| 4.1 | User reference point at POP / ISP Gateway Node to International Gateway (IGSP/NIXI) | < 120ms | 73ms | 68ms | 36.67ms | 15ms | 40.33ms | 28.33ms |
| 4.2 | User reference point at ISP Gateway Node to International nearest NAP port abroad (Terrestrial) | < 350ms | 88ms | 247ms | 206.67 ms | NA | 316ms | 145.67ms |
| 4.3 | User reference point at ISP Gateway Node to International nearest NAP port abroad (Satellite) | < 800ms | NA | NA | NA | NA | NA | NA |

 Indicates deviation from benchmark of TRAI.

NA – Not Applicable

The Satellite link does not exist with any of the Operator, hence the parameter “ 4.3 User reference point at ISP Gateway Node to International nearest NAP port abroad (Satellite)” is not applicable to the above Operators.

6.3.1 Observation & Findings : Live Measurement – Broadband Services

Airtel

Airtel is meeting benchmarks for all the parameters for Live measurement data collected & audited for 3 days during December 2008 – February 2009.

BSNL(MP)

BSNL-MP is meeting benchmarks for all the parameters for Live measurement data collected & audited for 3 days during December 2008 – February 2009.

BSNL(CG)

BSNL-CG is meeting benchmarks for all the parameters for Live measurement data collected & audited for 3 days during December 2008 – February 2009.

Reliance Comm.

Reliance is meeting benchmarks for Live measurement data collected & audited for 3 days during December 2008 – February 2009 for all the parameters. However, for the Bandwidth Utilization and Network Latency parameter for ISP Gateway Node to IGSP / NIXI Node upstream Link(s) for International connectivity, there is No ISP Gateway Node provided for Madhya Pradesh & Chhatisgarh Circle as Upstream link is taken care by ISP gateway at Mumbai, Delhi & Chennai, hence Not Applicable for Madhya Pradesh & Chhatisgarh Circle.

SIFY

Sify is meeting benchmarks for all the parameters for Live measurement data collected & audited for 3 days during December 2008 – February 2009.

VSNL

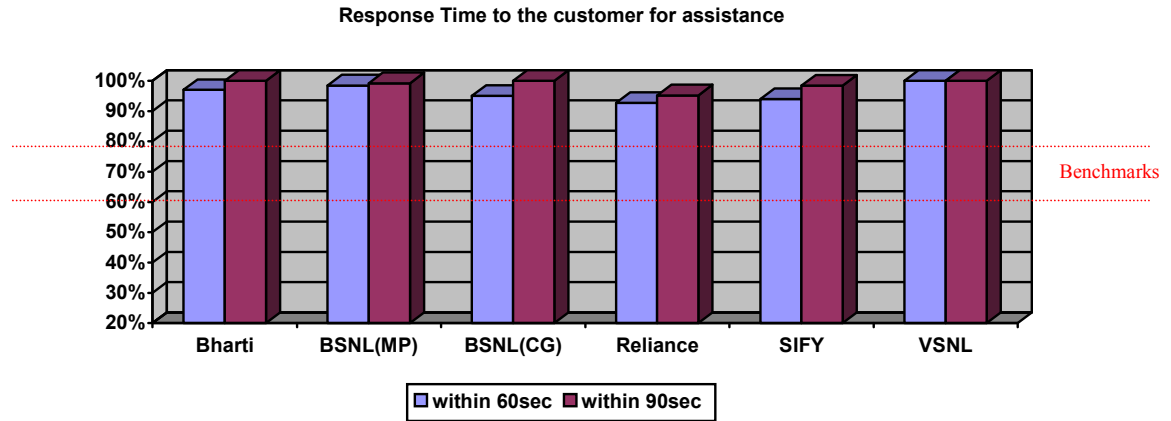
VSNL is meeting benchmarks for all the parameters for Live measurement data collected & audited for 3 days December 2008 – February 2009.

6.3.2 Data Analysis & Graphical Representations – 3 Days Live Assessment – Broadband Services

1.0 Response time to the customer for assistance:

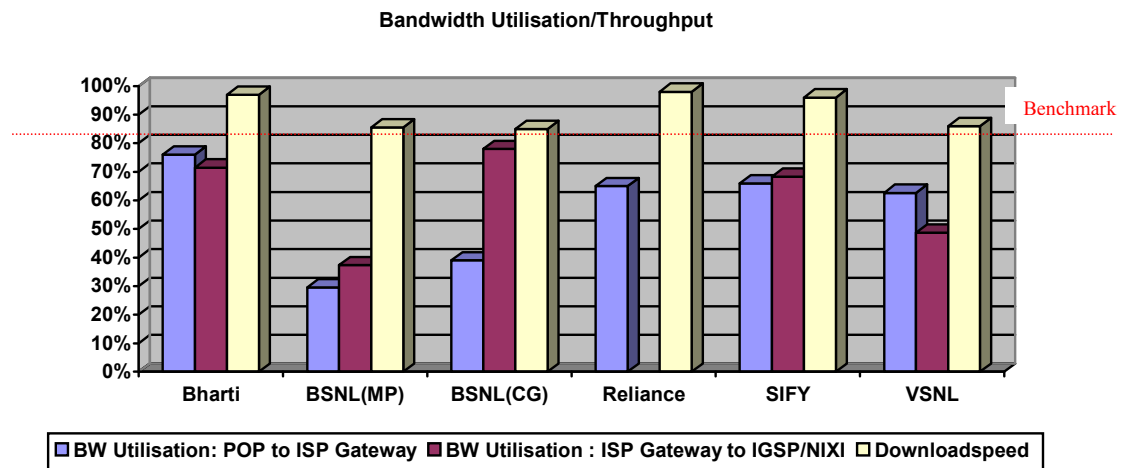
% age of calls answered by operator (Voice to Voice)

- **Within 60 seconds (>60%):** All the operators meet the benchmark.
- **Within 90 seconds (>80%):** All the operators meet the benchmark.

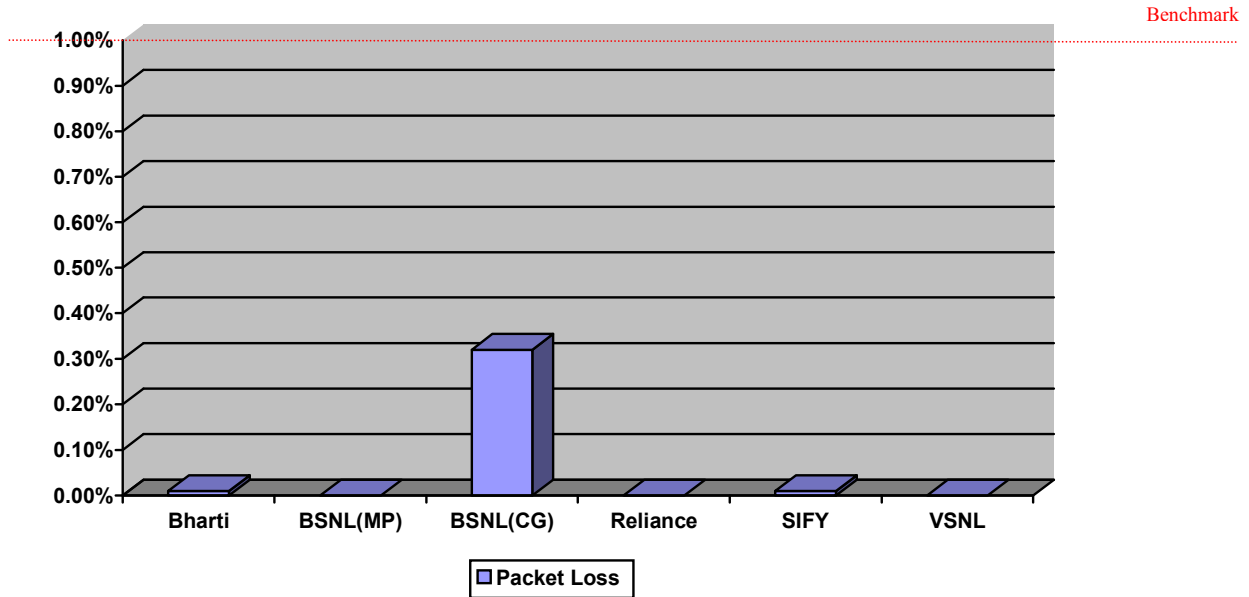


2.0 Bandwidth Utilization/ Throughput:

- POP to ISP Gateway Node [Intra-network] Link(s): (Benchmark <80%): All the operators meet the benchmark.
- ISP Gateway Node to IGSP / NIXI Node upstream Link(s) for International connectivity: (Benchmark <80%): All the operators meet the benchmark.
- Broadband Connection Speed (download) (>80%): All the operators meet the benchmark.

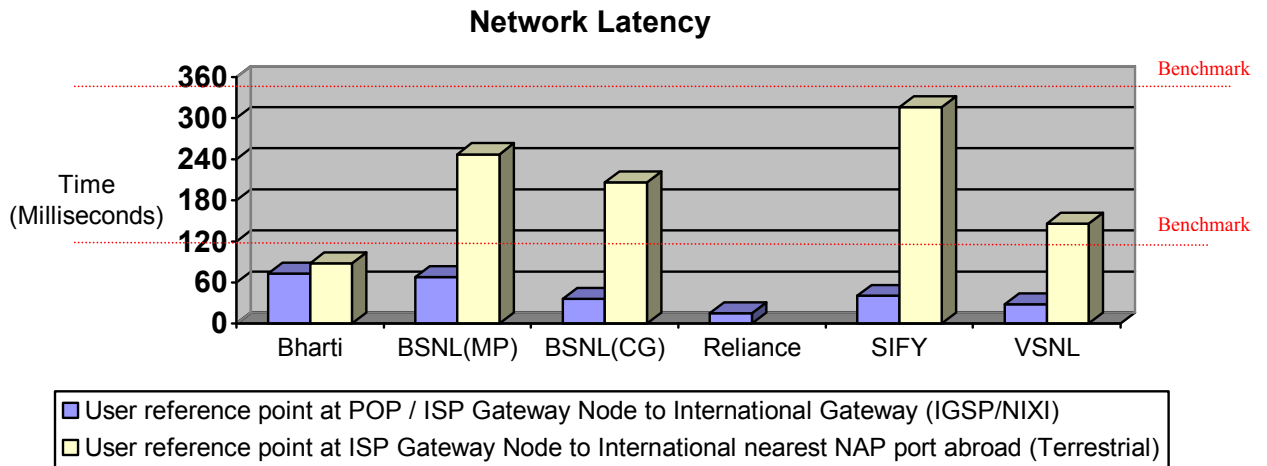


3.0 Packet Loss: (Benchmark <1%) : All the operators meet the benchmark.



4.0 Network Latency:

- User reference point at POP / ISP Gateway Node to International Gateway (IGSP/NIXI): (Benchmark <120ms): All the operators meet the benchmark.
- User reference point at ISP Gateway Node to International nearest NAP port abroad (Terrestrial): (Benchmark <350ms): All the operators meet the benchmark.
- User reference point at ISP Gateway Node to International nearest NAP port abroad (Satellite): Link does not exist for the any of the operator. Hence, Not applicable.



CHAPTER – 7

PERFORMANCE REPORT OF OPERATORS

7.1 QUALITY OF SERVICE ASSESSMENT : BASIC SERVICE (WIRELINER)

7.1.1 Service Provider Performance Report based on One Month Data Verification in which audit was conducted (December 2008 – February 2009).

| S.N. | Parameters | BENCH-MARKS | AIRTEL | BSNL(MP) | BSNL(CG) | RELIANCE COMM. |
|------|---|-------------|---------|----------|----------|---------------------|
| 1 | Provision of a telephone after registration of demand | | | | | |
| | 100 % cases within 7 days (subject to technical feasibility) | 100% | 99.60% | 100% | 100% | 100% |
| 2 | Fault incidences | | | | | |
| | (No. of faults/100 subscribers /month) | < 3% | 6.68% | 3.87% | 6.69% | 1.64% |
| | By 31st June 2008 | | | | | |
| 3 | Fault repair by next working day | | | | | |
| | By next working day | >90% | 96.39% | 96.17% | 91.11% | 99.02% |
| | Within 3 days | 100% | 98.70% | 98.93% | 96.38% | 100% |
| 4 | Mean Time To Repair (MTTR) | <8 Hrs | 7.9 Hrs | 5.68 Hrs | 6.71Hrs | 5.54 Hrs |
| 5 | Call Completion Rate within a local network | | | | | |
| | Should be better than 55% | >55% | 60.40% | 70.41% | 65.77% | 74% |
| 6 | Metering and billing credibility | | | | | |
| | Disputed Bills over bills issued | < 0.1% | 0.03% | 0.02% | 0.01% | 0.01% |
| 7 | Customer Care | | | | | |
| | (Promptness in attending to customers requests) 95% of requests | | | | | |
| | - Shifts (< 3 days) | 95% | 95.31% | 100% | 100% | 100% |
| | - Closures (< 24 Hrs.) | 95% | 100% | 100% | 100% | 97% |
| | - Additional Facility (< 24 Hrs.) | 95% | 100% | 100% | 100% | 100% |
| 8 | Response Time to the customer for assistance | | | | | |
| | (i) % age of calls answered (electronically): | | | | | |
| | within 20 seconds | 80% | 100% | 100% | 100% | 100% |
| | within 40 seconds | 95% | 100% | 100% | 100% | 100% |
| | (ii) % age of calls answered by operator(voice to voice): | | | | | |
| | within 60 seconds | 80% | 96.10% | 97.85% | 91.99% | 97% |
| | within 90 seconds | 95% | 100% | 98.51% | 100% | 99% |
| 9 | Time taken for refund of deposits after closure (100% within 60 days) | 100% | 98.97% | 92.16% | 100% | No cases for refund |

■ Indicates deviation from benchmark of TRAI.

Critical findings and Key take outs

7.1.2 Basic service (Wireline)

- ◆ The Basic service (Wireline) audit for Madhya Pradesh & Chhatisgarh Circle broadly indicates that almost all the service providers are meeting the benchmarks fixed by Telecom Regulatory Authority of India (TRAI) with exceptions in some areas as described in the report.
- ◆ The live calling results of call center for response time to the customer for assistance are found to be similar for the one month data audited and three-days live measurement for all the operators.
- ◆ In the live measurements conducted to assess Call Completion Rate (CCR), it was found that all the operators are meeting the benchmark. The results of three-days live measurement and one month data audited are found to be almost similar.
- ◆ The testing of the efficiency of level 1 services (Police, Fire brigade, Ambulance, Trunk booking, Child helpline, Women helpline, Airline booking, etc.) provided by the service providers in Madhya Pradesh & Chhatisgarh Circle has been conducted by TCIL auditors. To test the same, 300 calls were made to different numbers provided by service providers and answered call was recorded. The efficiency of level 1 services of all the operators are found to be excellent with 100% successful calls rate.
- ◆ To test the Service Providers performance on Technical (Network related complains) & Non-Technical (Provisioning, Billing, Refund etc.) complaint handling TCIL auditors have conducted a customer feedback calling for random 100 nos of customers in each segment. It was found that more than 96% customers are satisfied with services provided by the operators.
- ◆ The BSNL has a decentralised system for Book keeping, and data has been verified only for sample 5% of exchanges spread over 10% of Short Distance Charging Area (SDCA's) in Madhya Pradesh & Chhatisgarh Circle.

The parameter wise key takeouts for the Basic (Wireline) Service providers for the Madhya Pradesh & Chhatisgarh Circle are as under:-

Provision of telephone after registration of demand

Airtel is found to be marginally deviating from the TRAI benchmark of 100% for provisioning of telephone within 7 working days. BSNL, Reliance are fully complying the benchmark.

Fault incidence

Reliance with 1.64% meet the benchmarks of <3% set by TRAI. However major deviations are observed for Airtel (6.68%) and BSNL-MP (3.87%) and BSNL-CG (6.69%) during one month data audit. At the time of PMR verification a major deviation was observed for all the operators.

Fault Repair

It is found that all the operators meeting the benchmarks of >90% set by TRAI for faults repair by next working day for one month data audit. At the time of PMR data verification, deviation was observed for BSNL(CG) all other operators are meeting the benchmark. The live calling scores for the fault repair within 24 hours it was found that almost all the operators are better than 95% of customer satisfaction. While verification of records of service providers it was found that all the service providers are providing rebates as per TRAI norms.

Mean Time to Repair (MTTR)

All the operators are meeting the benchmark of <8hrs fixed by TRAI during one month data audit. It is also found while PMR data verification that all the operators are complying the benchmarks of TRAI for Mean Time to Repair (MTTR) except for BSNL(CG).

Call Completion Rate (CCR)

All the service providers are found to be meeting TRAI benchmark of >55% for Call Completion Rate (CCR) during the PMR data verification, 3-days live measurement and one month data verification in which audit was conducted.

However in the case of Reliance, the Answer Seizure Ratio (ASR) is measured in place of Call Completion Rate (CCR) and the firm claims that the same is a better indicator for the kind of network owned by the Reliance.

Metering and billing credibility

All the operators are complying the benchmark of less than 0.1% billing complaints over the total number of bills issued during the one-month data audit and PMR data verification.

As per the findings for one-month data audit, all the operators were found to meet the sub-parameter “% age of billing complaints resolved within 4 weeks”.

Customer care (Promptness of attending customer request)

Shift:- All the operators are meeting the TRAI benchmarks of 95% for shift requests.

Closure:- All the operators are meeting the TRAI benchmarks of 95% for closure requests.

Additional Facility:- All the operators are meeting the benchmarks of 95% additional facility requests.

Response time to customer for assistance (Electronically)

Response Time to the customer for assistance calls answered electronic through IVR menu parameter, live calling, one month data audit and PMR data verification scores for all the operators are found to be within the benchmarks for call answered in 20 and 40 seconds.

Response Time to Customer for Assistance (Voice to Voice):

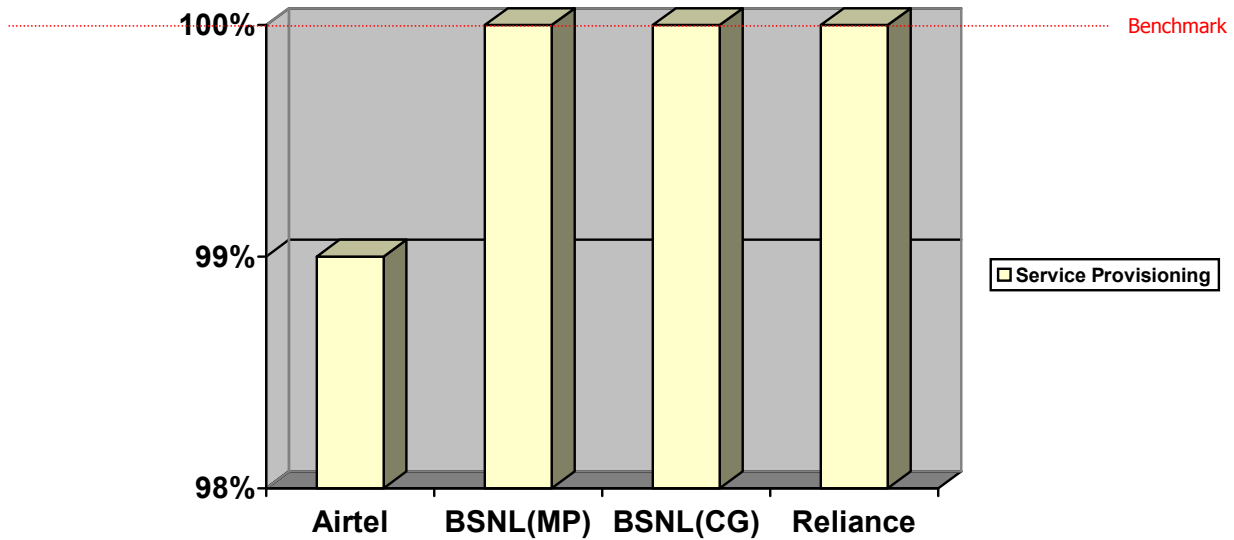
Response Time to the customer for assistance calls answered by operators within 60 Seconds & 90 Seconds parameters, all the operators are meeting the benchmark of 80% & 95% fixed by TRAI for live calling during 3-days live measurement, one month data audit and PMR data verification.

Time taken for refund of deposits after closure

The audit finding on ‘time taken for refund of deposit after closure’ that all the operators are providing the refund to the customers within the benchmark, except for Airtel (98.97%) and BSNL-MP (92.16%).

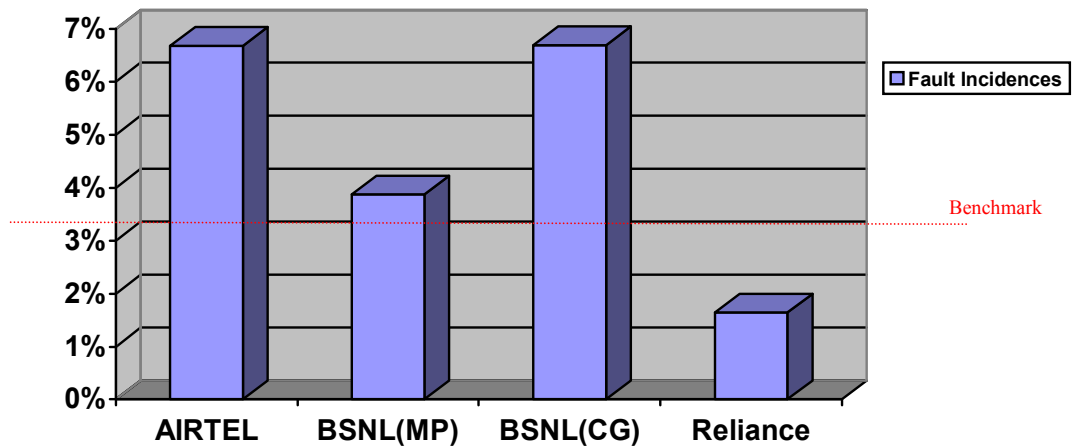
7.1.3 Parameter wise Data Analysis & Graphical Representations – Basic Service (Wireline)

1.0 Service Provisioning /Activation Time(100 % cases within 7 days, subject to technical feasibility): BSNL-MP & CG(100%) and Reliance(100%) meets the benchmark. Airtel with 99.60% deviates marginally from the benchmark.



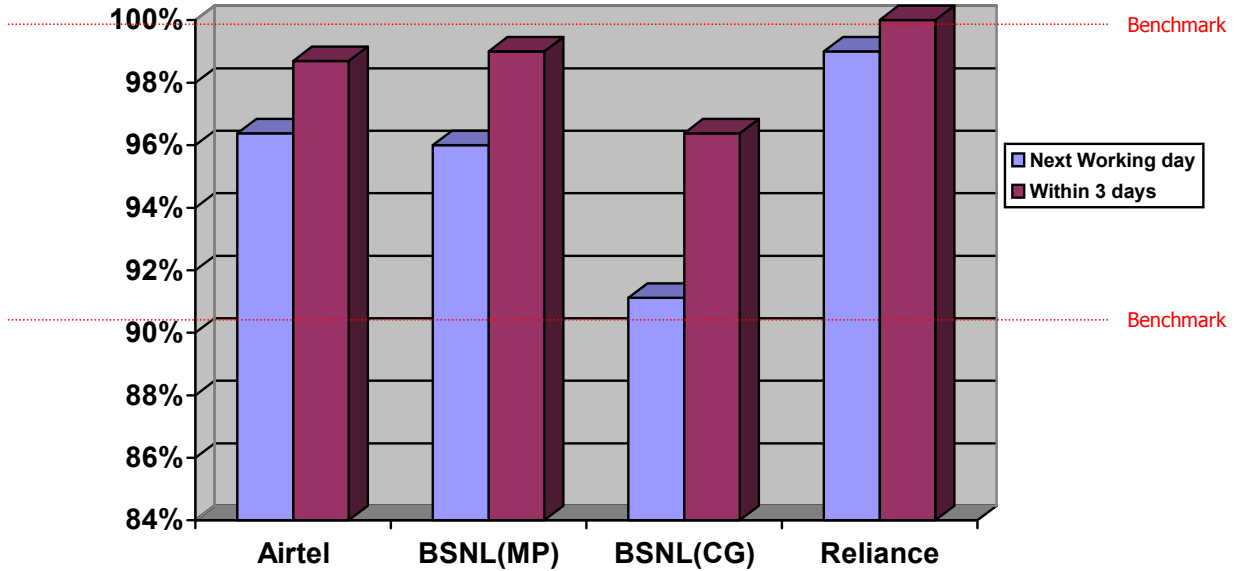
2.0 Fault Incidence (< 3%):

Nos of Faults per 100 subscribers per month : Reliance meeting the TRAI benchmark. Airtel and BSNL(MP) & BSNL(CG) shows deviation from the benchmark.



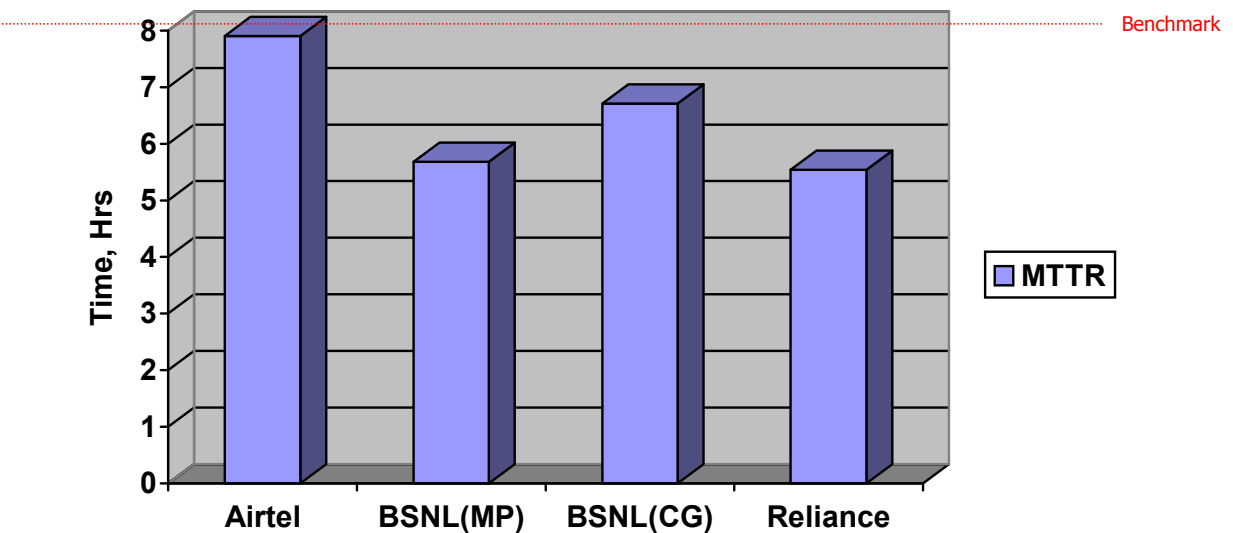
3.0 Fault Repair:

- By next working day (>90%): All the operators comply with the TRAI benchmark of 90%.
- within 3 working days (100%): Only Reliance is comply with the TRAI benchmark of 100%.
Airtel (98.70%), BSNL-MP (98.93%) and BSNL-CG (96.38%) deviating marginally.



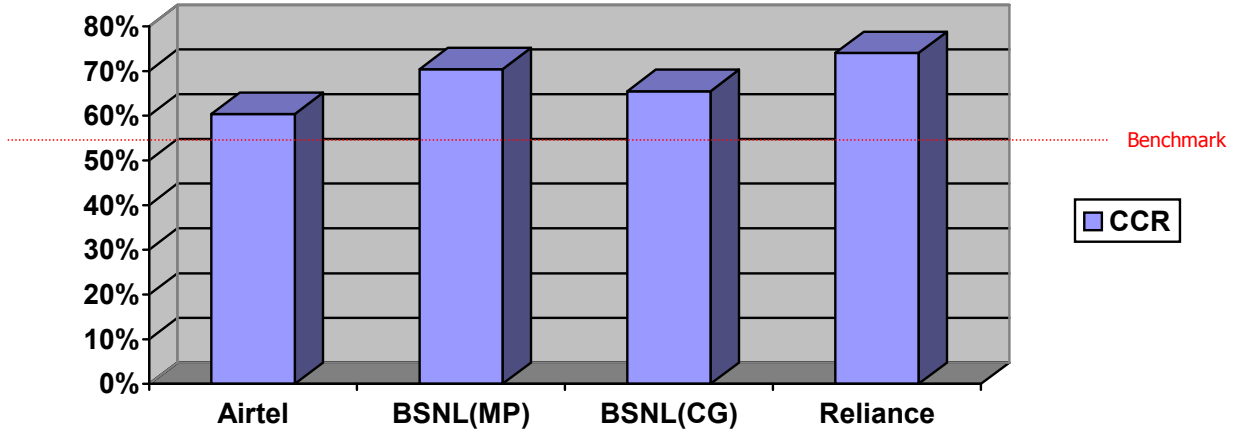
4.0 Mean Time to Repair (MTTR) (<8 Hrs):

All the operators comply with the TRAI benchmark of less than 8 Hrs.



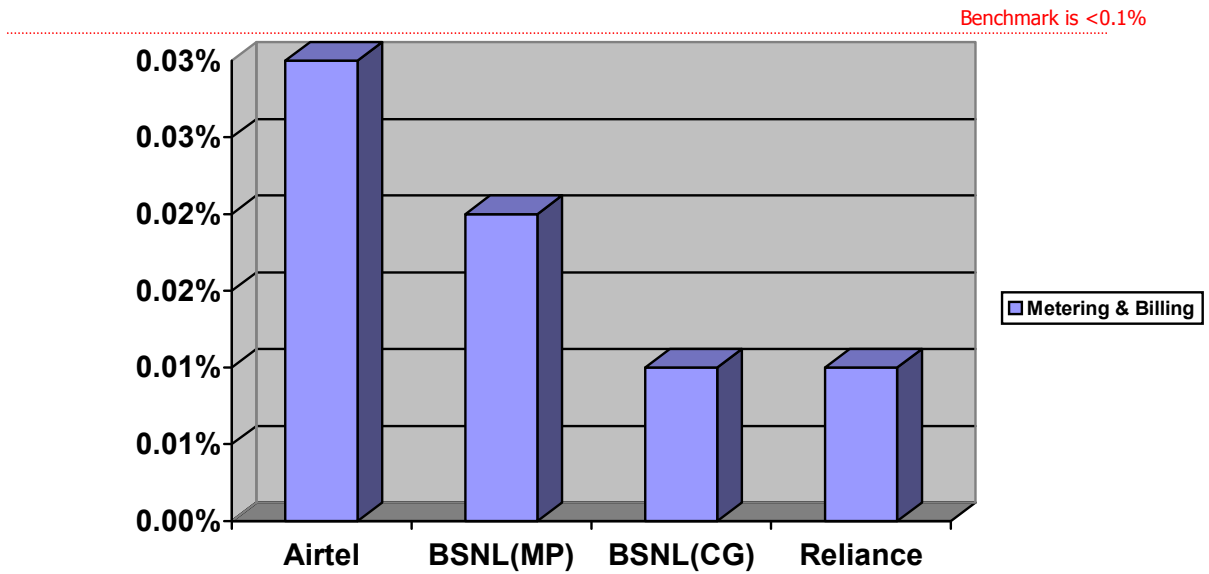
5.0 Call Completion Rate (CCR) (>55%):

All the operators comply with the TRAI standards.



6.0 Metering and Billing Credibility (< 0.1%):

Disputed Bills over Bills issued:- All the operators comply with the TRAI standards.

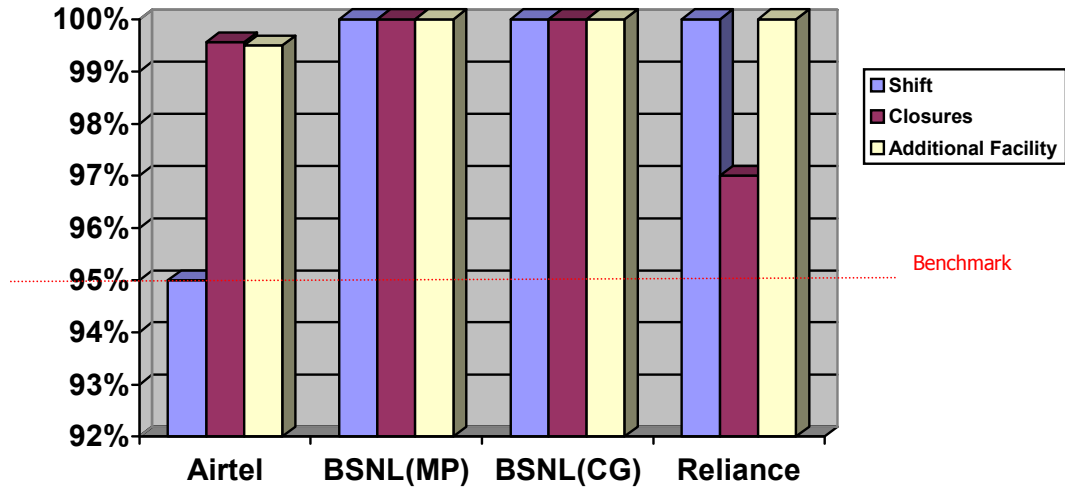


7.0 Customer Care (Better than 95%):

Shifts (>95%): All the operators are meeting the benchmark of TRAI.

Closures (>95%): All the operators are meeting the benchmark of TRAI.

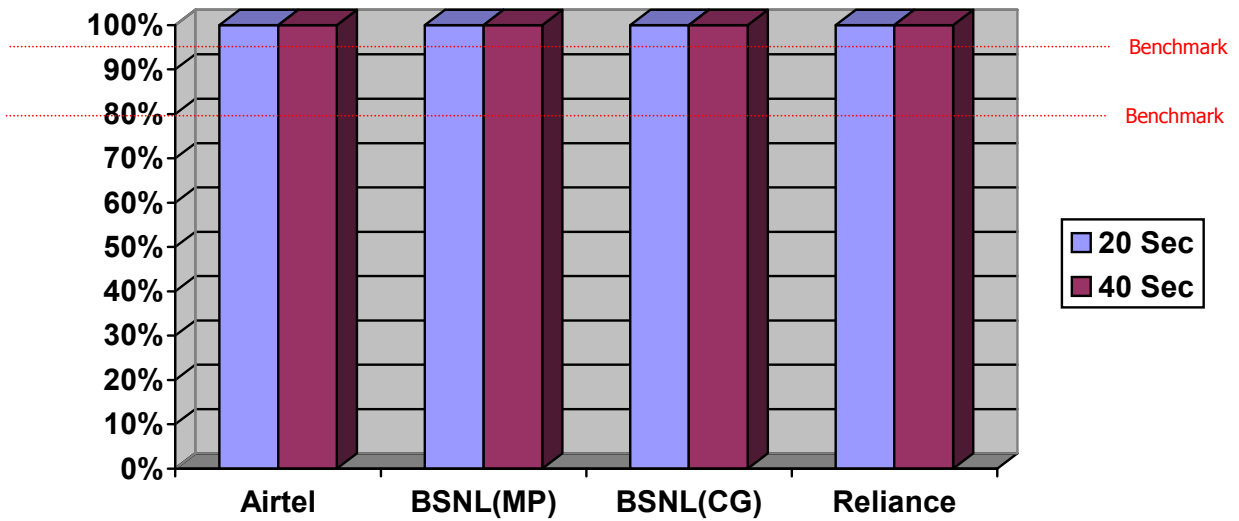
Additional Facility (>95%): All the operators are meeting the benchmark of TRAI.



8.0 Response time to the customer for assistance:

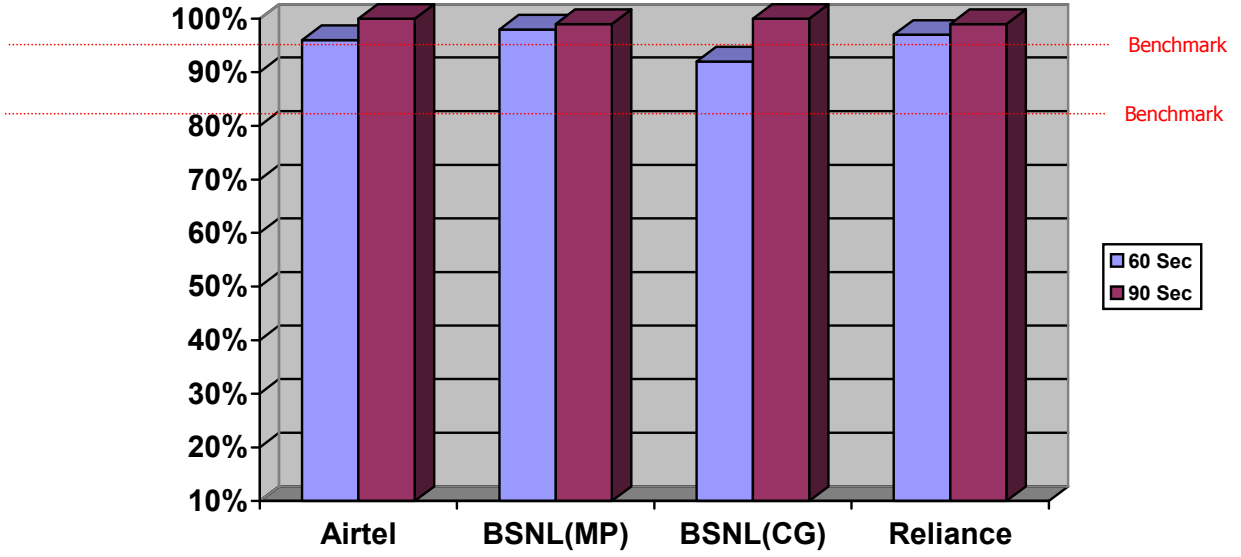
(i) % age of calls answered by operator (Electronically)

- Within 20 seconds (>80%): All the operators meeting the benchmark.
- Within 40 seconds (>95%): All the operators meeting the benchmark.



(ii) % age of calls answered by operator (Voice to Voice)

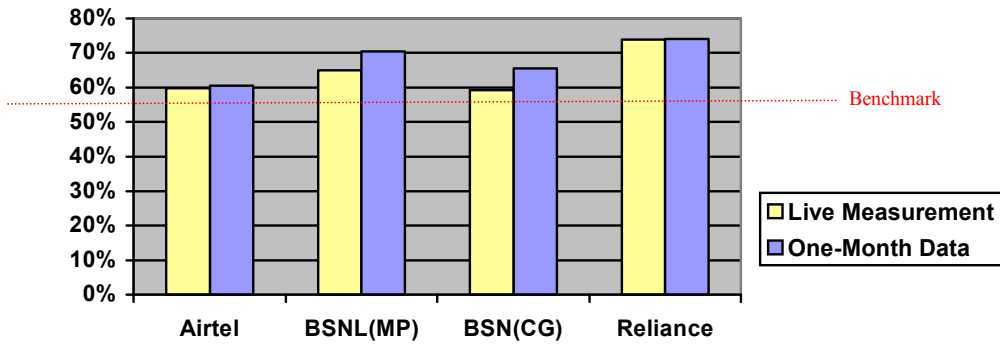
- Within 60 seconds (>80%): All the operators meet the benchmark.
- Within 90 seconds (>95%): All the operators meet the benchmark.



7.1.4 Comparison between Live measurements and One month data Audit – Basic Service (Wireline).

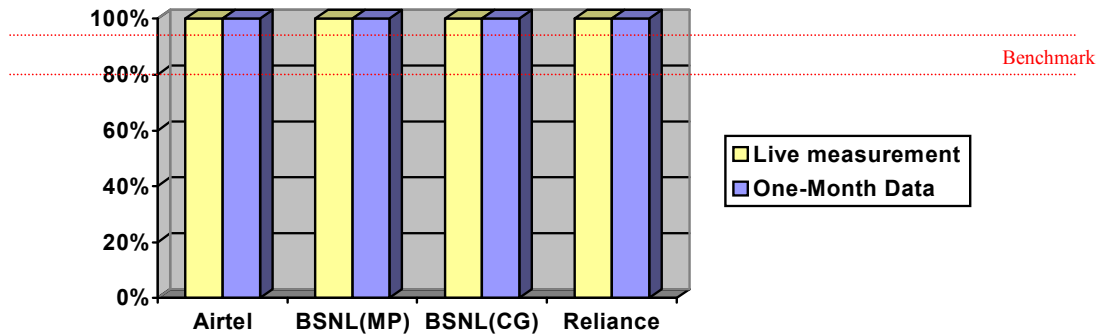
1.0 Call Completion Rate (>55%):

The performance based on Live measurement as well as One-Month Data match for all operators and they meet the benchmarks.



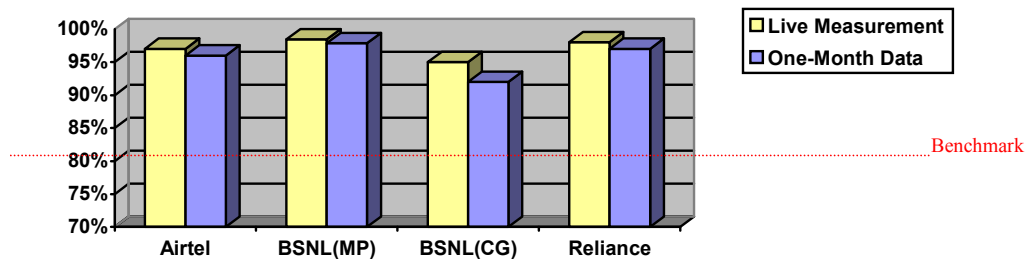
2.0 Response time to the customer for assistance:

(i) Calls answered Electronically (20 Sec.- >80% & 40 Sec.- >95%): All the operators meet the benchmark.



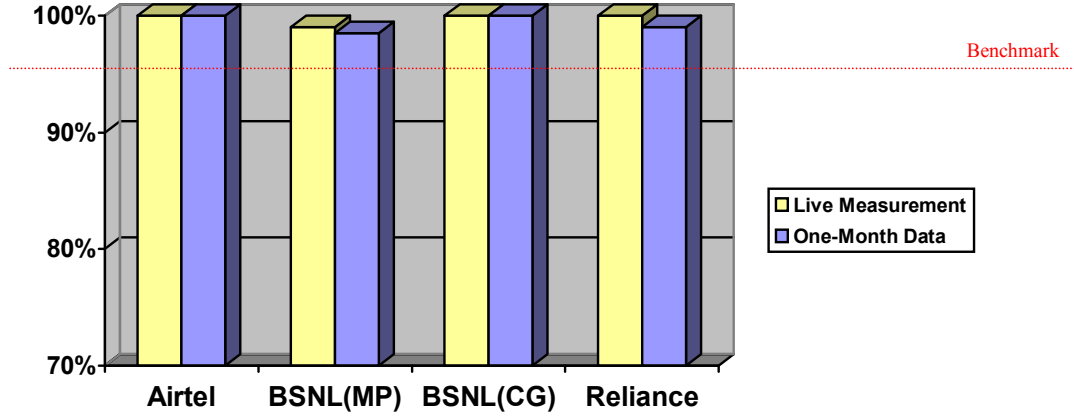
(ii) Calls answered by operator Within 60 seconds (>80%) (Voice to Voice) :

The performance based on Live measurement as well as One-Month Data are matching and all the operators meet the benchmark.



(iii) Calls answered by operator Within 90 seconds (>95%) (Voice to Voice) :


The performance based on Live measurement as well as One-Month Data are similar for all the operators and meeting the benchmarks.



7.2 QUALITY OF SERVICE ASSESSMENT : BASIC SERVICE (WIRELESS) AND CELLULAR MOBILE TELEPHONE SERVICES

7.2.1 Service Provider Performance Report based on One Month Data Verification in which Audit was conducted (December 2008 – February 2009).

| S.N. | Parameters | Bench mark | GSM OPERATORS | | | | | CDMA OPERATORS | |
|----------|--|------------|---------------|----------|-----------|-----------|------------------|----------------|----------------|
| | | | Airtel | Idea | BSNL (MP) | BSNL (CG) | Reliance Telecom | TTSL | Reliance Comm. |
| 1 | Network Performance | | | | | | | | |
| 1.1 | Accumulated down time of Community Isolation | < 24 Hrs | 6.4 | 17.18 | 9.6 | 33 | 22.16 | 0 | 0.65 |
| 1.2 | Call set-up Success Rate (within licensee's own network) (%) | > 95% | 89.4% | 98.07% | 97.8% | 99.6% | 100% | 98.25% | 100% |
| 1.3 | Service Access Delay (Sec) | 9 – 20 Sec | 16:36 | 7.25 | 11.6 | 13 | 3 | 12.5 | 11.8 |
| 1.4 | Blocked Call Rate | | | | | | | | |
| | (i) SDCCH Congestion (%) | < 1% | 0.26% | 0.94% | 0.64% | 0.38% | 0.28% | 0% | 0% |
| | (ii) TCH Congestion (%) | < 2% | 0.46% | 0.56% | 2.19% | 3.43% | 0.65% | 0% | 0.53% |
| | (iii) Cell exceeding 80% TCH utilization (Nos) | | 3997 | 4258 | 1113 | NP | 356 | 16 | 4.4 |
| 1.5 | (i) Call Drop Rate (%) | < 3% | 1.33% | 1.86% | 1.71% | 3.5% | 1.19% | 0.82% | 1.18% |
| | (ii) Cell exceeding 3% TCH drop (Nos) | | 2514 | 2673 | 959 | 839 | 306 | 11 | 5.2 |
| | (iii) Cell exceeding 3% TCH drop (%) | | 14.3% | 19.95% | 18.52% | 34.89% | 5.9% | 1.77% | 0.62% |
| 1.6 | Percentage of connections with good voice quality (%) | > 95% | 95.5% | 96.1% | 95.1% | 89.87% | 96.6% | 97.3% | 95.1% |
| 1.8 | POI Congestion (%) | < 0.5% | 1.67% | 0% | 1.4% | * | 0% | 0% | 0% |
| 2 | Customer Help Lines: | | | | | | | | |
| 2.1 | Response time to the customer for assistance | | | | | | | | |
| | (i) % age of calls answered (electronically) : | | | | | | | | |
| | within 20 seconds (%) | > 80% | 100% | 100% | 100% | 100% | 100% | 100% | 99.5% |
| | within 40 seconds (%) | > 95% | 100% | 100% | 100% | 100% | 100% | 100% | 99.5% |
| | (ii) % age of calls answered by operator (voice to voice): | | | | | | | | |
| | Within 60 seconds (%) | > 80% | 95.6% | 95% | 82% | 82.5% | 81% | 93% | 96.2% |
| | Within 90 seconds (%) | > 95% | 99.1% | 99% | 96% | 96.5% | 100% | 98% | 97.5% |
| 3 | Billing Complaints | | | | | | | | |
| 3.1 | Billing complaints per 100 bills issued (%) | 0.1% | 0.0023% | 0.018% | 0.002% | 0.54% | 0.08% | 0.01% | 0.06% |
| 3.2 | % of billing complaints resolved within 4 weeks (%) | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| 3.3 | Period of all refunds / payments due to customers from the date of resolution of complaints as in (ii) above (weeks) | < 4 weeks | <4 Weeks | <4 Weeks | <8 Weeks | <4 Weeks | <4 Weeks | <4 Weeks | <4 Weeks |

 Indicates deviation from benchmark of TRAI.

NP- Data not provided.

* BSNL-CG : GMSC for CG & MP Circle is at LUCENT Bhopal and at present no direct POI with private operators is working at MSC CG.

Critical findings and Key take outs

7.2.2 Basic service (Wireless) & Cellular Mobile Services

- ◆ Audit has been done for all MSCs of all service providers in Madhya Pradesh & Chhatisgarh circle. Audit activity has been done in three stages as 3 days live assessment, one-month data audit & PMR validation. We have found all the service providers are meeting benchmark by and large.
- ◆ Data has been collected for busy hour of network in live assessment & month of audit for all service providers & verified that service providers are providing busy hour data for QOS service. We have found that TCBH hour is matching with network busy hour as provided by service providers for Madhya Pradesh & Chhatisgarh circle.
- ◆ To test the Service Providers performance on Technical (Network related complains) & Non-Technical (Provisioning, Billing, Refund etc.) complaint handling TCIL auditors have conducted a customer feedback calling for random 100 nos of customers in each segment. It was found that more than 98% customers are satisfied with services provided by the operators.

The parameter wise key takeouts for the Basic (Wireless) & Cellular Mobile Services providers for the Madhya Pradesh & Chhatisgarh Circle are as under:-

Accumulated downtime:

All operators are meeting benchmark except BSNL(CG).

Call setup success rate:

All operators are meeting benchmark except Airtel.

Service access delay:

All operators are meeting benchmark for the live assessment & one-month data validation.

Blocked call rate:

(i) SDCCH congestion: All operators are meeting benchmark for live assessment & one-month data validation.

(ii) TCH congestion: All operators are meeting benchmark for live assessment & one-month data validation except BSNL (MP & CG).

Call drop rate:

BSNL(CG) is not meeting the benchmark for both live assessment & one-month data validation. All other operators are meeting the benchmark.

Connections with good voice quality: All operators are meeting benchmark except for BSNL(MP & CG) and RCOM are not meeting benchmark in 3-days live assessment.

POI Congestion:

Airtel and BSNL(MP) is not meeting the benchmark for both live assessment & one-month data validation. All other operators are meeting the benchmark.

Customer care/Helpline:

All operators are meeting benchmark for the parameter “%age of call answered by operator(Voice to voice)” in live assessment & one-month data validation.

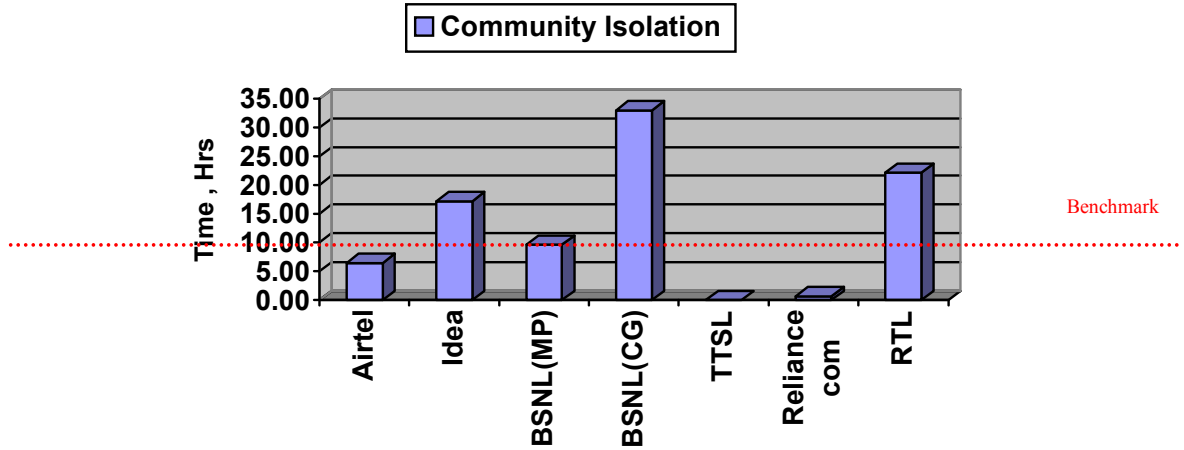
Billing Complaints:

All operators are meeting the benchmark except for BSNL (CG) for one-month data validation.

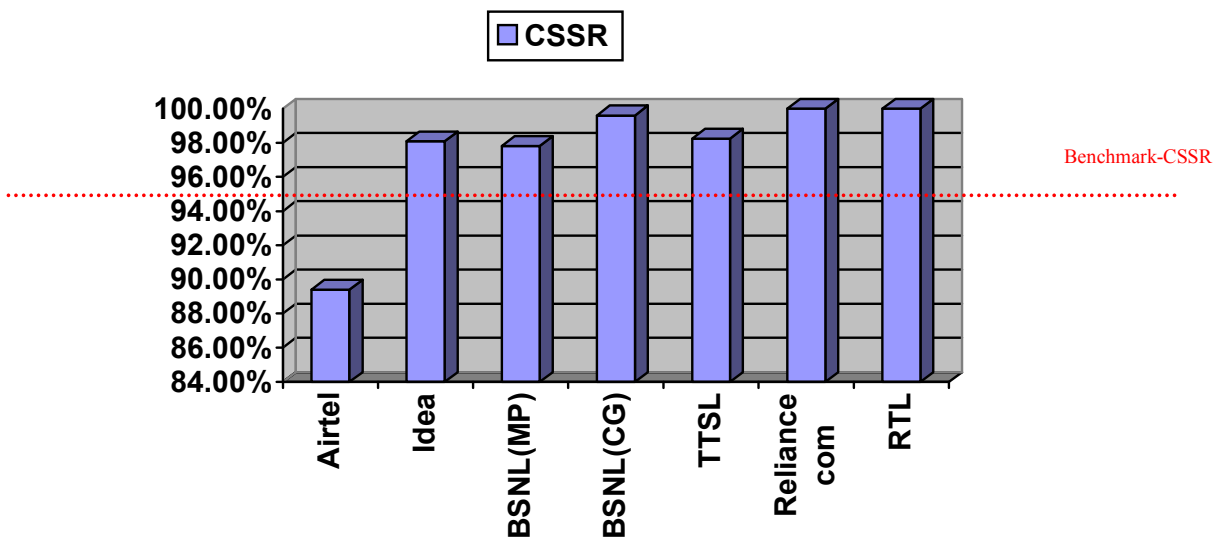
7.2.3 Parameter wise Data Analysis & Graphical Representations – Basic (Wireless) & Cellular Mobile Services

A) NETWORK PERFORMANCE

I. Accumulated down time of Community Isolation :(<24 Hrs): All operators meet TRAI benchmark except BSNL(MP) & BSNL(CG).

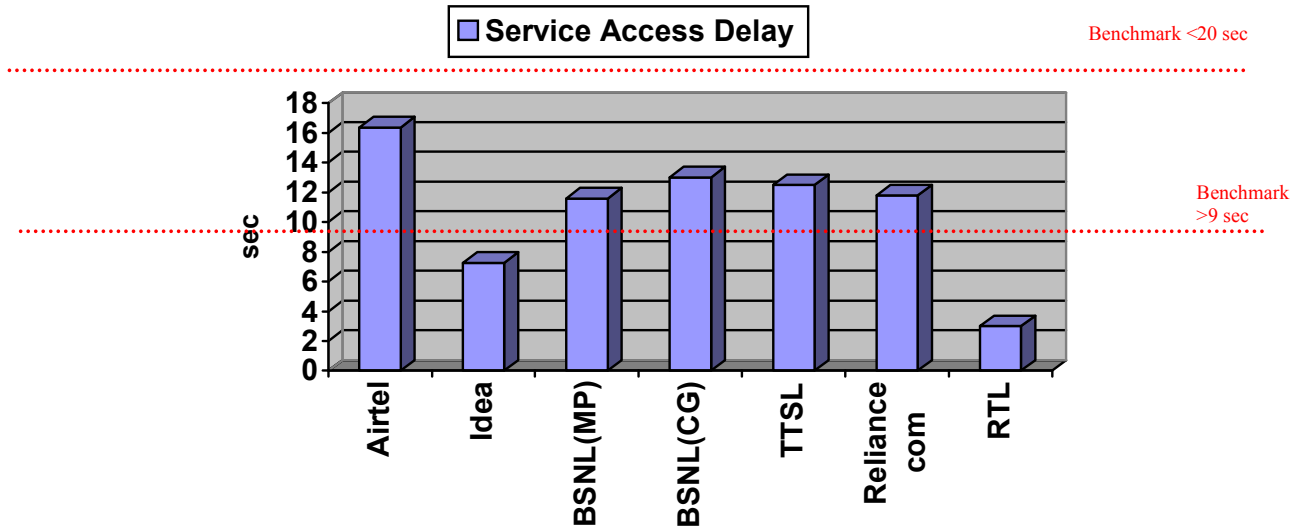


II. Call setup success rate: (>95) : All operators meet benchmark except Airtel(89.4%).



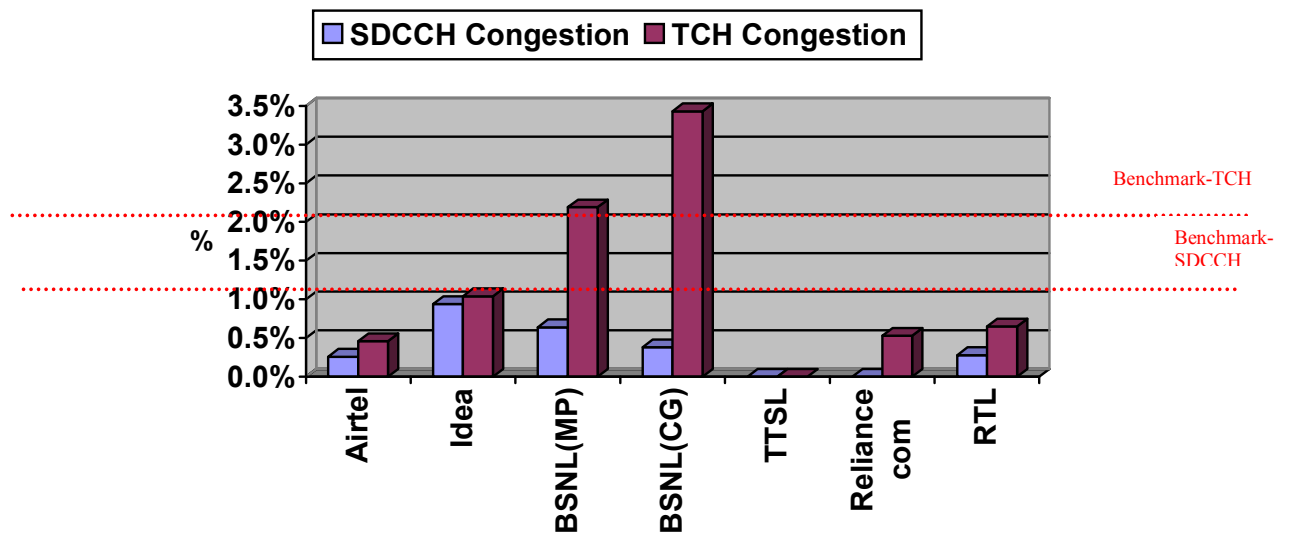
III. Service access delay:

All operators meet the benchmark (>9 to <20 sec.). RTL & Idea have a lower value than the lower limit (9 Sec).

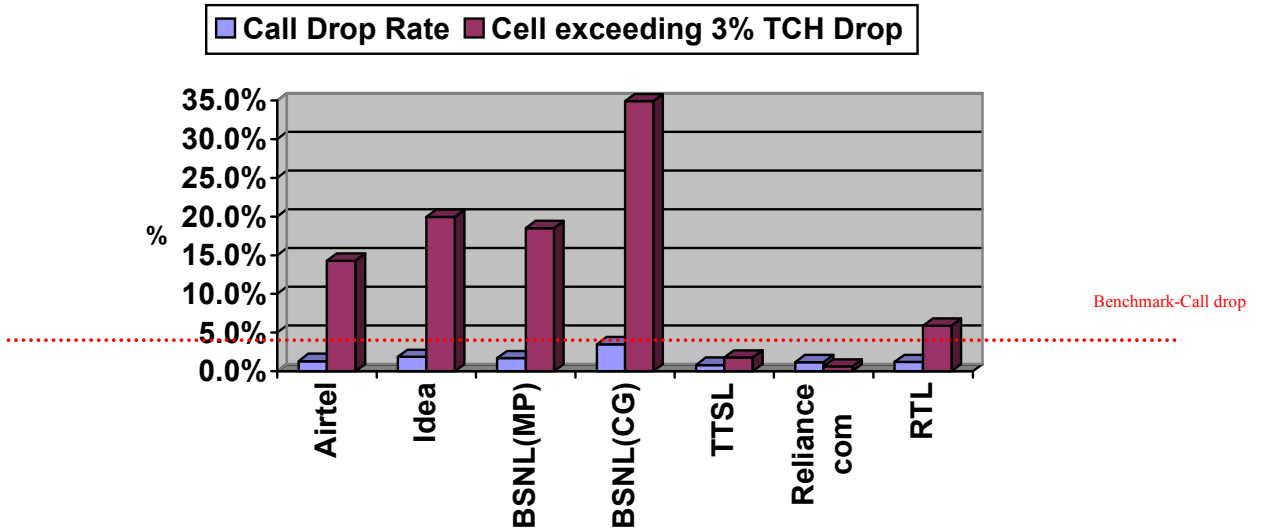


IV. Blocked call rate:

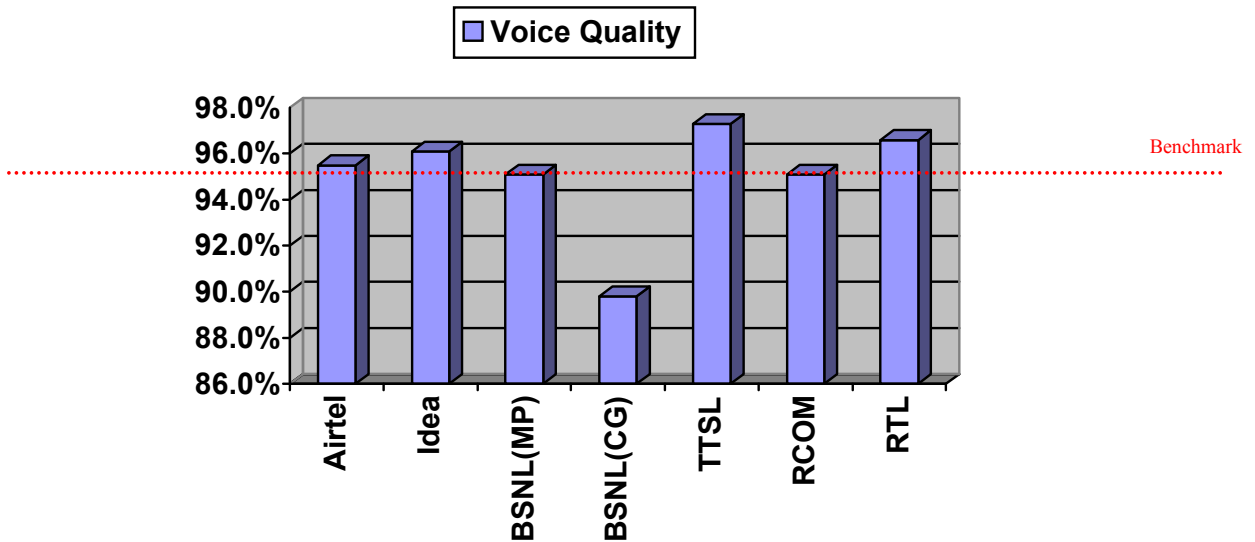
- (1) SDCCH congestion (%): (<1 %): All operators meet benchmark.
- (2) TCH congestion (%): (<2%): All operators meet benchmark except BSNL(MP) & BSNL(CG).



- V.
1. Call drop rate (%): (< 3%) All operators meet benchmark except BSNL (CG).
 2. %-age of Cell exceeding 3% TCH drop:

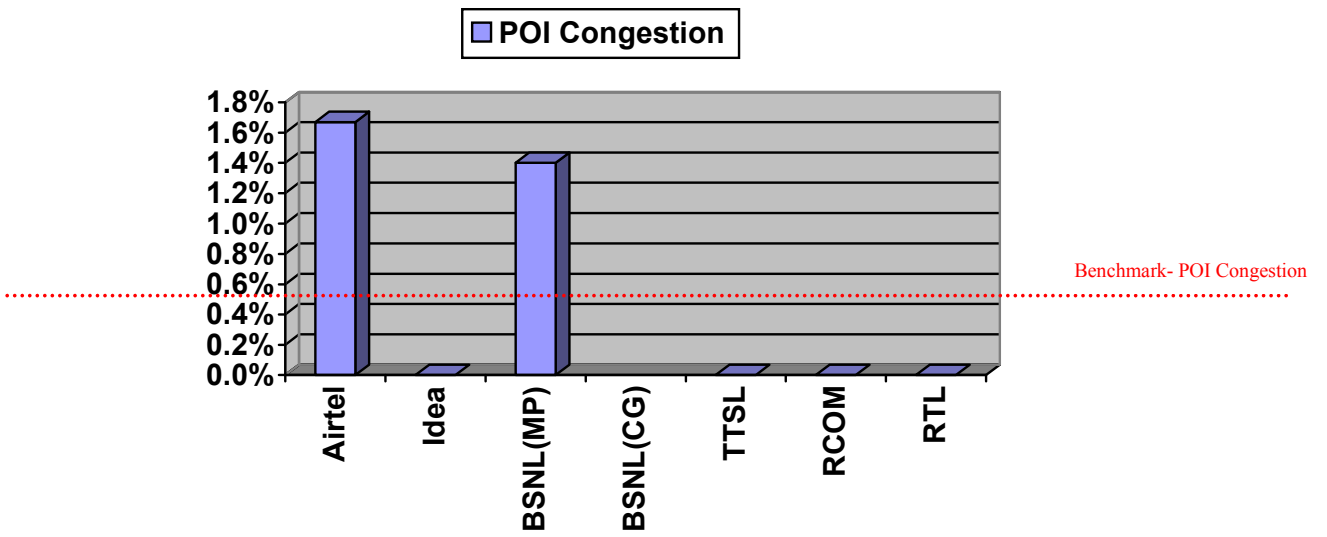


- VI.
- Percentage of connections with good voice quality: (>95%)
- All the operators meets the TRAI benchmarks except BSNL(CG).



VII. POI Congestion: (<0.5%)

All operators meet benchmark except for Airtel & BSNL(MP).



B) CUSTOMER HELPLINE PERFORMANCE

Response time to the customer for assistance:

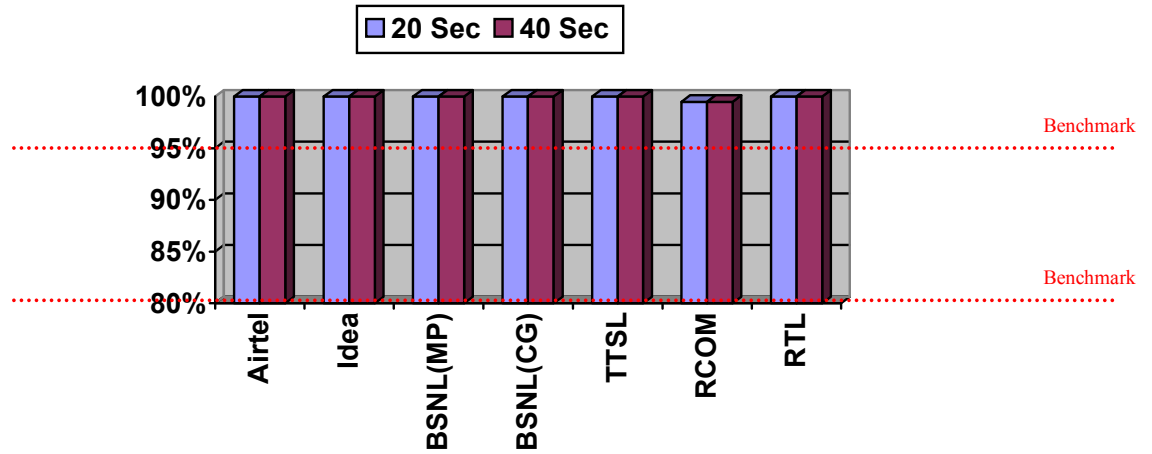
I. Percentage of call answered (Electronically);

With in 20 sec (%): (> 80%)

All operators meet the TRAI benchmark.

With in 40 sec (%): (>95%)

All operators meet the TRAI benchmark.



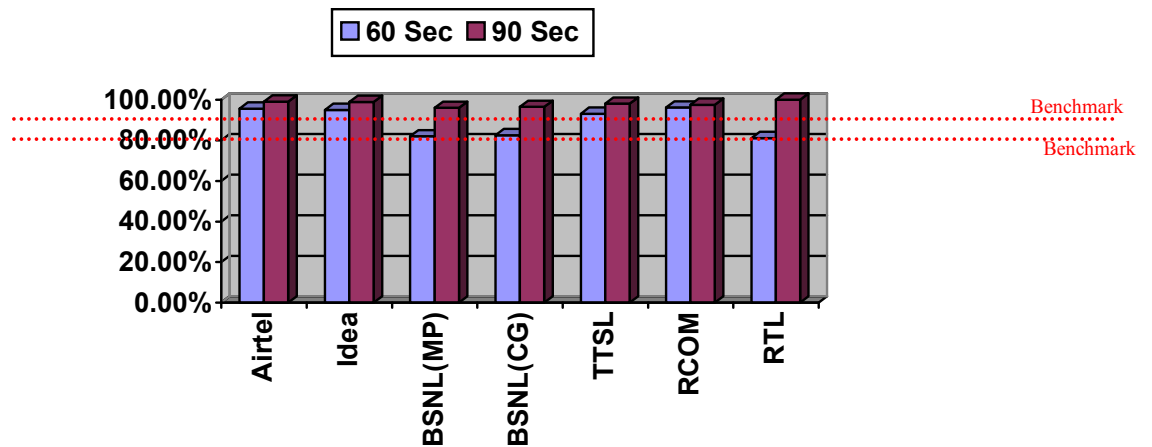
II. Percentage of call answered by operators (Voice to voice);

With in 60 sec (%): (>80%):

All operators meet benchmarks .

With in 90 sec (%): (>95%):

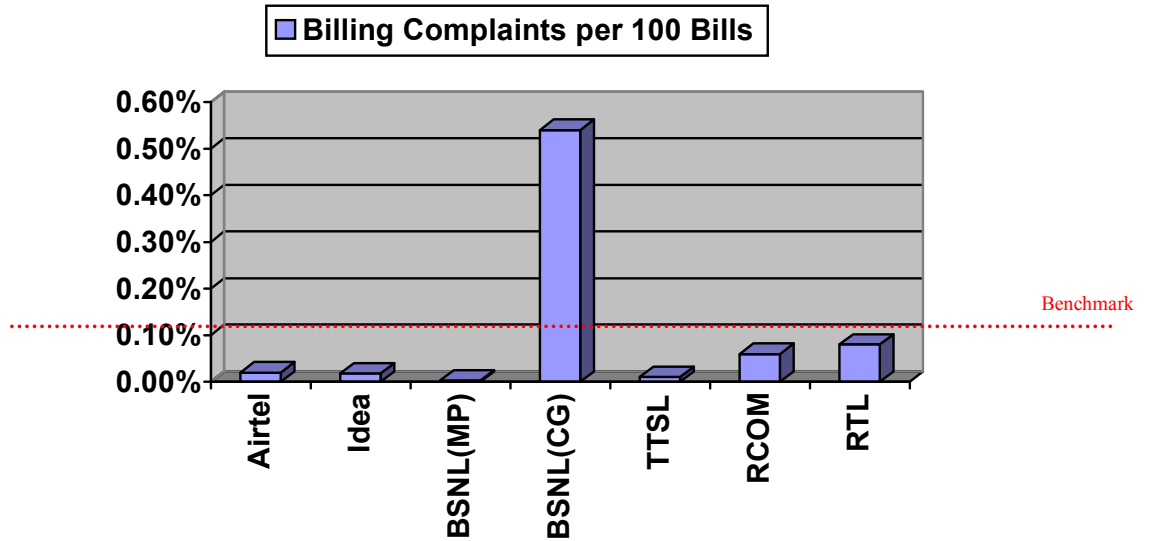
All operators meet benchmarks.



C) BILLING COMPLAINTS

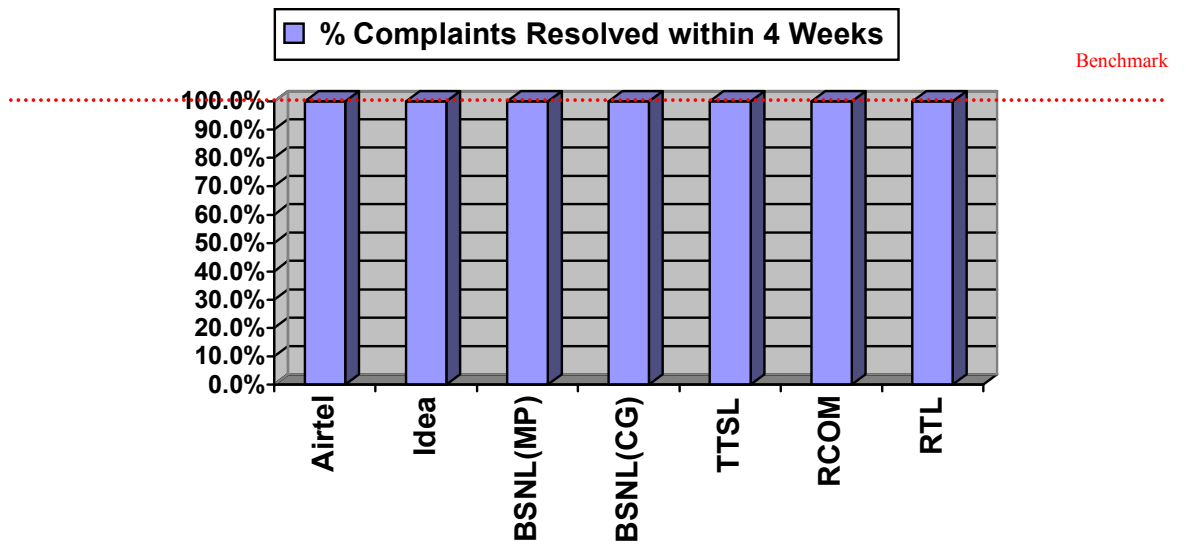
I. Billing Complaints per 100 bills issued:(>0.1%)

All operators meet the benchmarks except BSNL(CG).



II. Percentage of Billing Complaints resolved within 4 weeks: (100%)

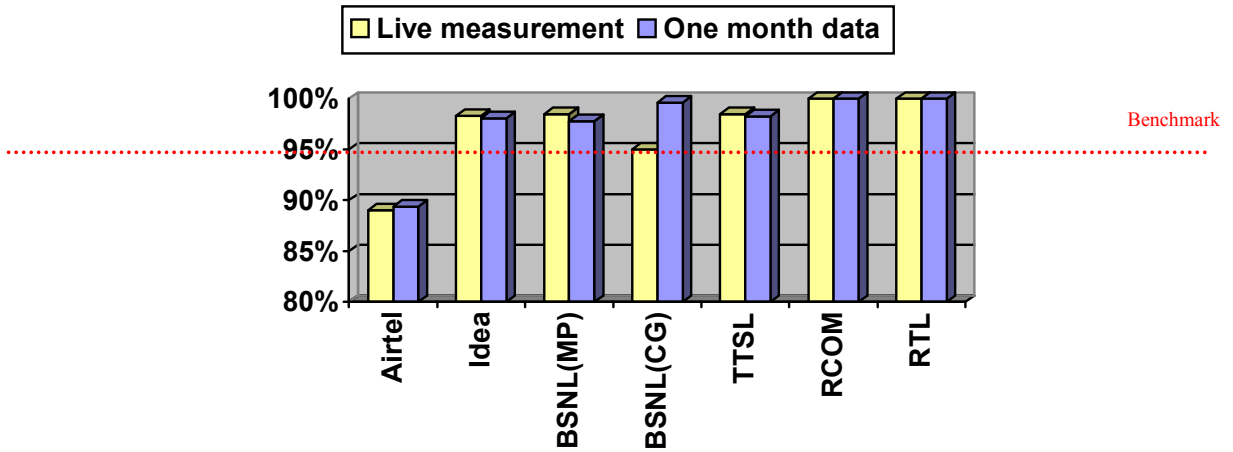
All operator meet the benchmarks.



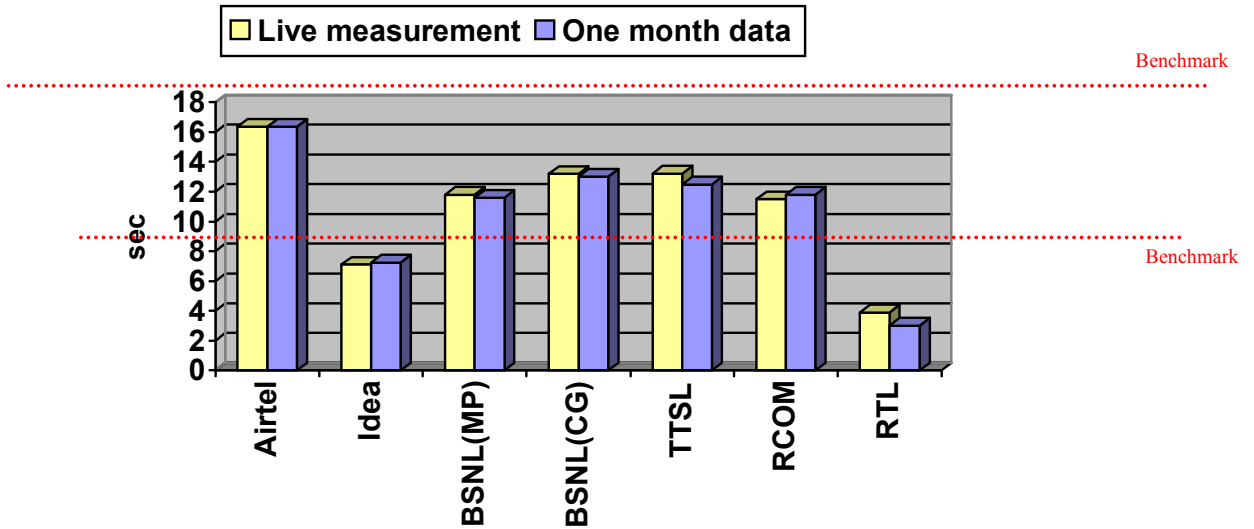
7.2.4 Comparison between Live measurements and One month data Audit – Basic (Wireless) And Cellular Mobile Telephone Services

A) NETWORK PERFORMANCE

I. **Call setup success rate:** All operators meet TRAI benchmarks (>95 %) except Airtel.

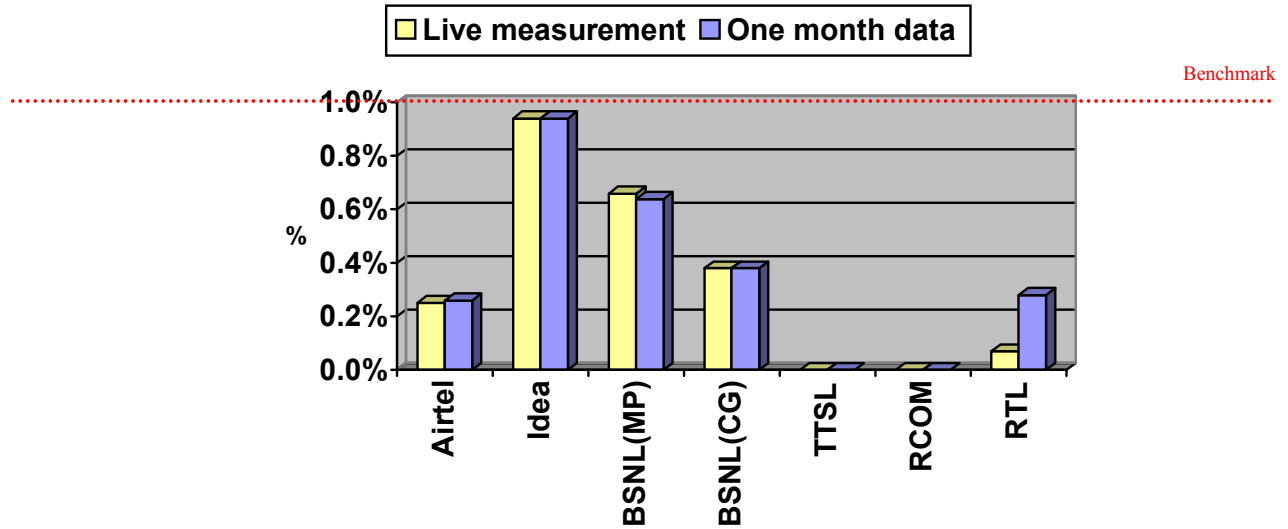


II. **Service access delay:** All operators meet the benchmark (>9 to < 20 sec). However RTL & Idea are below the lower limit set as benchmark in live measurement & month of data both.

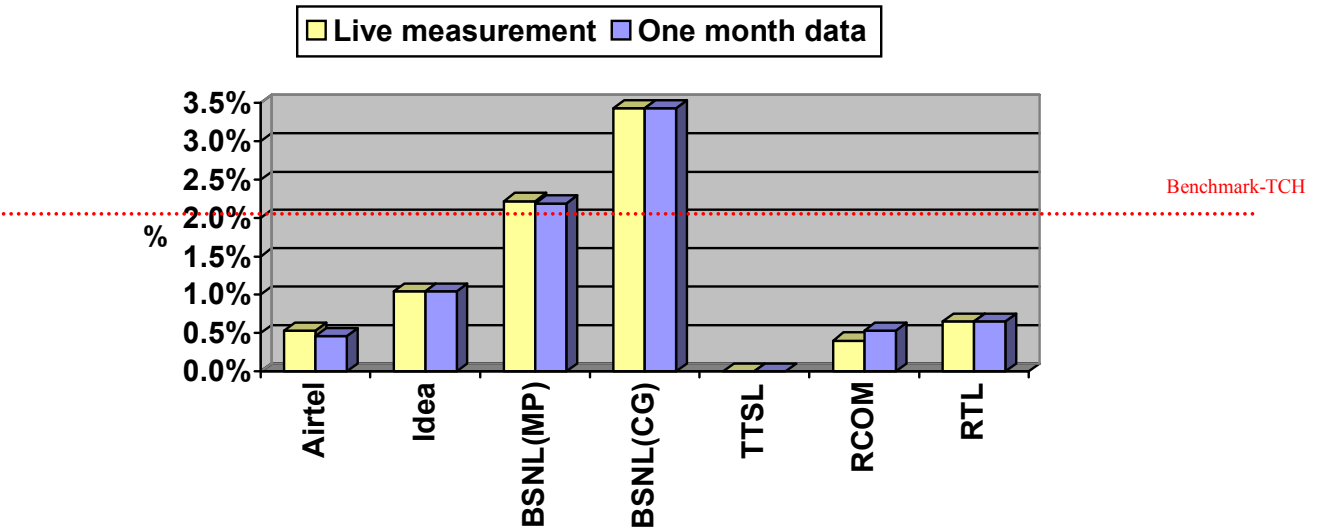


III. Blocked call rate:

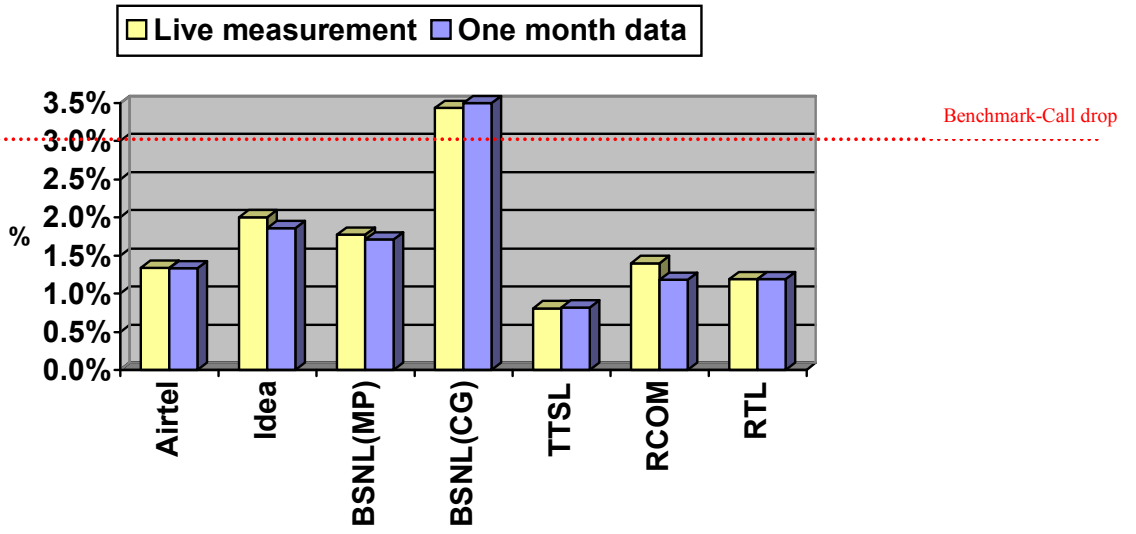
(1) SDCCH congestion (%): All operators meet benchmark (<1 %).



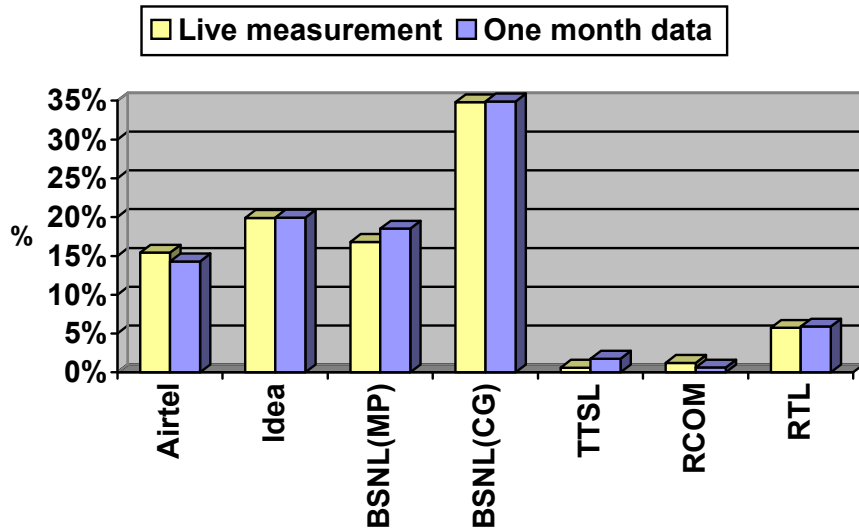
(2) TCH congestion (%): All operators meet benchmark (<2 %) except BSNL (CG) & BSNL(MP) .



IV. 1) Call drop rate (%): All operators meet benchmark (benchmark <3%) except BSNL (CG).

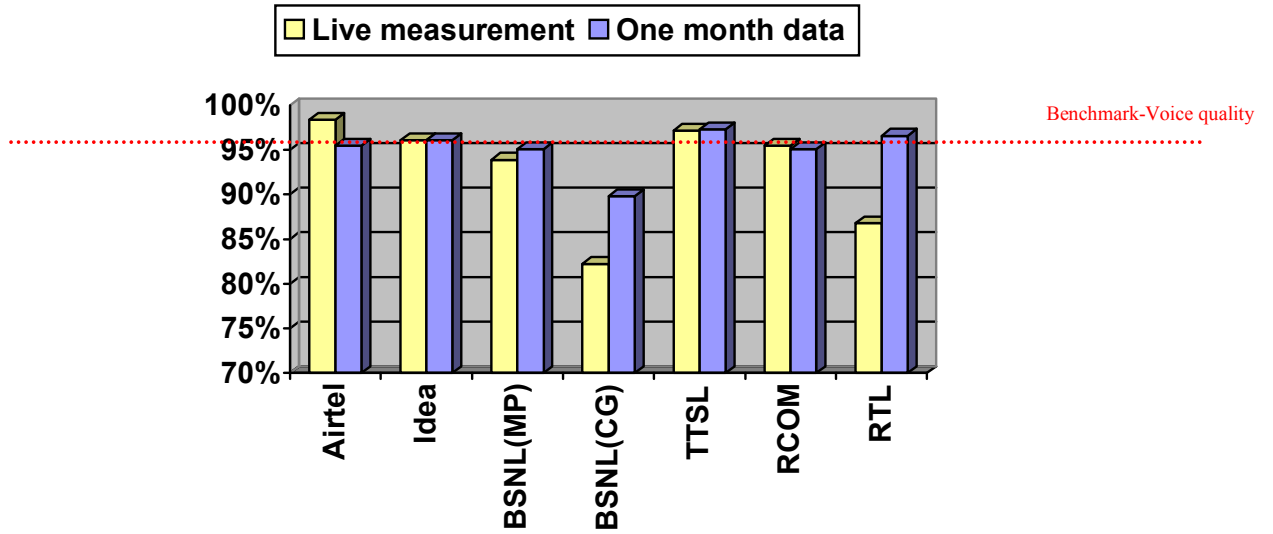


2) %-age Cell exceeding 3% TCH Drop:



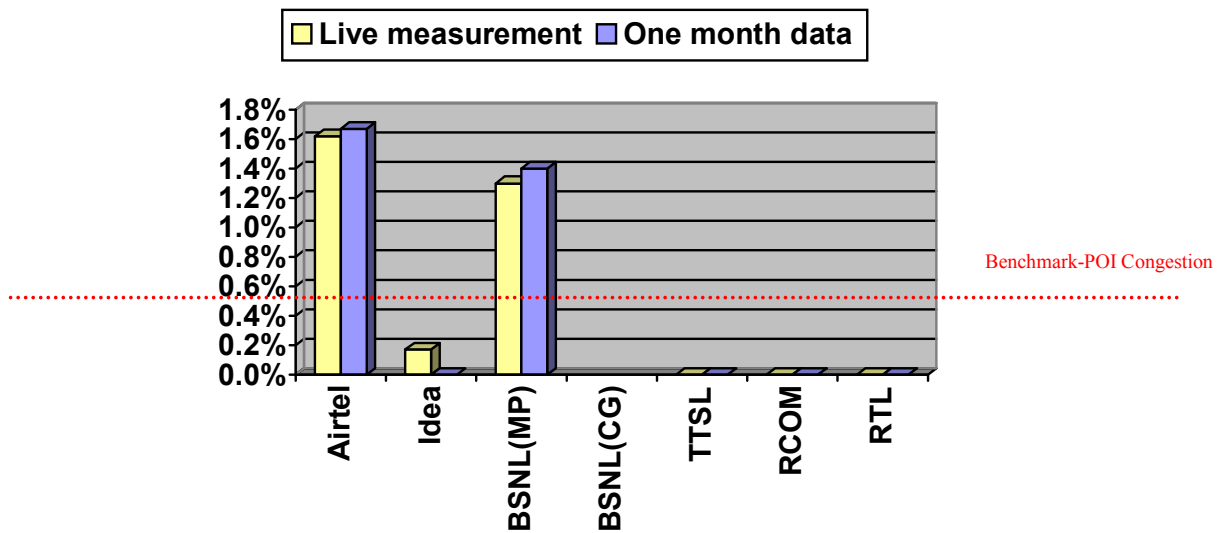
V. Percentage of connections with good voice quality (benchmark >95%):

All of operators meet TRAI benchmarks except BSNL(MP), BSNL(CG) & RTL is not meeting benchmark in live measurement.



VI. POI Congestion:

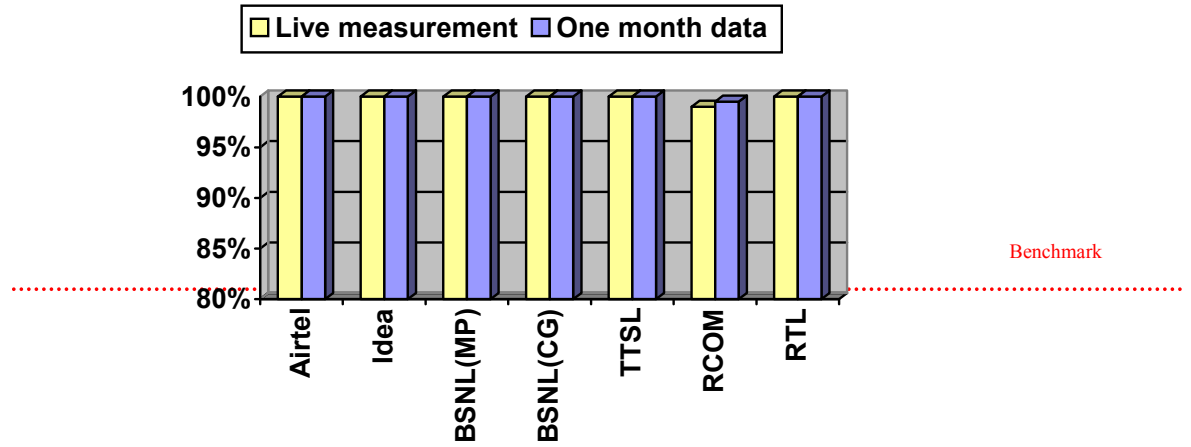
All operators meet benchmark (<0.5%) except for Airtel & BSNL(MP) is not meeting benchmark in live measurement & month of audit both.



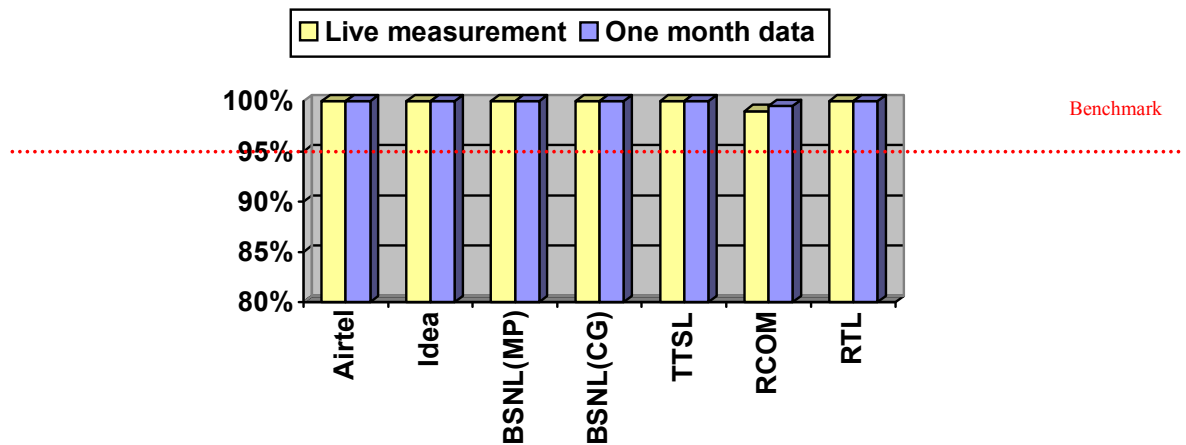
B) CUSTOMER HELPLINE PERFORMANCE

III. Response time to the customer for assistance:
Percentage of call answered (Electronically);

(i) With in 20 sec (%): All operators meet benchmark.(>80%)

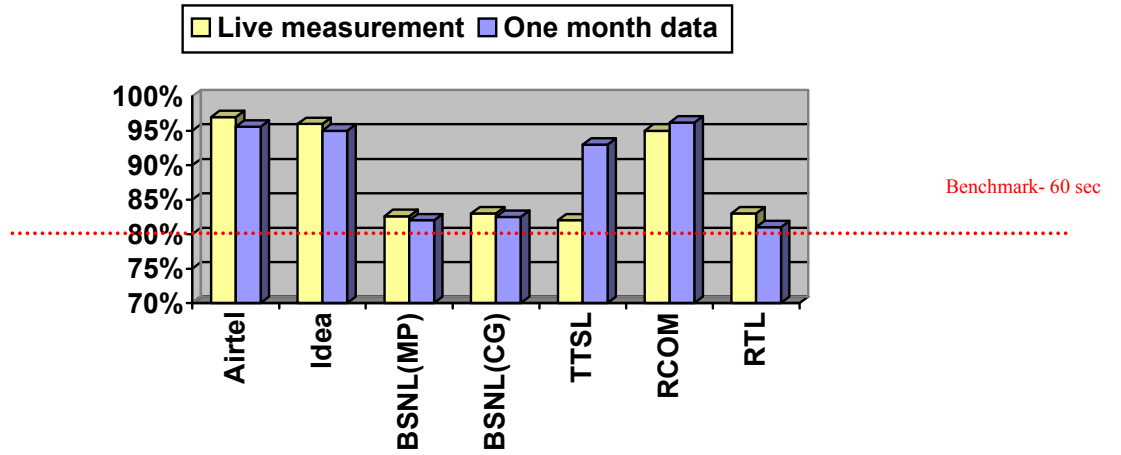


(ii) With in 40 sec (%); All operators meet benchmark.(>95%)

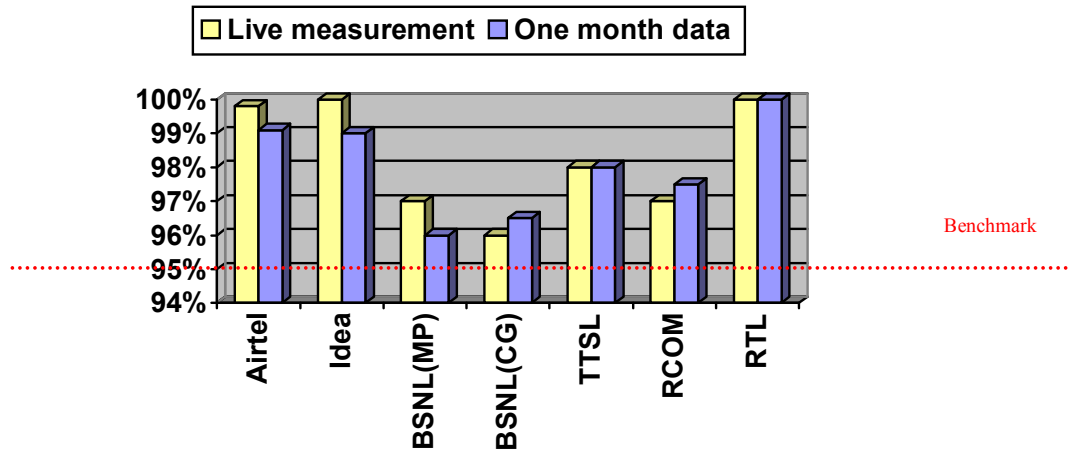


IV. Percentage of call answered by operators (Voice to voice);

(i) With in 60 sec: All operators meet benchmark (>80%).



(ii) With in 90 sec: All operators meet benchmark (>95%) for live measurement & month of audit both.




7.3 QUALITY OF SERVICE ASSESSMENT : BROADBAND SERVICE

7.3.1 Service Provider Performance Report based on One Month Data Verification in which Audit was conducted (December 2008 – February 2009).

| S.N. | Parameters | Benchmark | Bharti | BSNL (MP) | BSNL (CG) | Reliance Comm. | SIFY | VSNL |
|------|--|---|--------|-----------|-----------|--------------------------|--|------------------|
| 1 | Service Provisioning /Activation Time | | | | | | | |
| 1.1 | 100% cases in 15 days (subject to technical feasibility) | <15 working days | 100% | 100% | 100% | 99.21% | 100% | 100% |
| 1.2 | In all cases where payment towards installation charge & security deposit is taken and the Broadband connection is not provided within 15 working days | A credit at the rate of Rs.10/ per day, subject to a maximum of installation charge or equivalent usage allowance shall be given to the customer, at the time of issue of first bill. | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | Fault Repair / Restoration Time | | | | | | | |
| | By next working day: | > 90% | 96% | 96.95% | 94.30% | 100% | 92.85% | 98% |
| | within 3 working days: | 99% | 99.43% | 100% | 99.60% | 100% | 98.21% | 100% |
| 2.1 | Rebate: | | | | | | | |
| | Faults Pending for > 3 working days and < 7 working days: (Rebate equivalent to 7 days of minimum monthly charge or equivalent usage allowance) | | 21 | 0 | 10 | 0 | 0 | 0 |
| | Faults Pending for > 7 working days and < 15 working days: (Rebate equivalent to 15 days of minimum monthly charge or equivalent usage allowance) | | 1 | 0 | 3 | 0 | 0 | 0 |
| | Faults Pending for > 15 working days: (Rebate equivalent to one month of minimum monthly charge or equivalent usage allowance) | | 0 | 0 | 4 | 0 | 0 | 0 |
| 3 | Billing Performance | | | | | | | |
| | Billing complaints per 100 bills issued | < 2% | 0.33% | 0.25% | 0.2% | 0.18% | Not Applicable as SIFY is under Prepaid Module | 0.49% |
| | %age of Billing Complaints resolved | 100% within 4 weeks | 100% | 100% | 100% | 100% | | 100% |
| | Time taken for refund of deposits after closure: | 100% within 60 days | 100% | 100% | 100% | No eligible refund cases | | No closure cases |

| S.N. | Parameters | Benchmark | Bharti | BSNL (MP) | BSNL (CG) | Reliance Comm. | SIFY | VSNL |
|------|--|---|--------|-----------|-----------|----------------|-----------|--------|
| 4 | Response time to the customer for assistance | | | | | | | |
| | % age of calls answered by operator (Voice to Voice) | | | | | | | |
| | Within 60 seconds | > 60% | 95% | 97.85% | 79.80% | 90% | 100% | 98.15% |
| | Within 90 seconds | > 80% | 100% | 98.51% | 92.80% | 93% | 100% | 99.11% |
| 5 | Bandwidth Utilization/ Throughput: | | | | | | | |
| | Bandwidth Utilization (If on any link(s) / route bandwidth utilization exceeds 90%, then network is considered to have congestion. For this additional provisioning of Bandwidth on immediate basis, but not later than one month, is mandated.) | < 80% link(s) / route bandwidth utilization during peak hours (TCBH). | | | | | | |
| | i) POP to ISP Gateway Node [Intra-network] Link(s) | | 77.68% | 27.90% | 46% | 14.42% | 32% | 41.66% |
| | ii) ISP Gateway Node to IGSP / NIXI Node upstream Link(s) for International connectivity | | 79.24% | 36.42% | 75.77% | NA | 55.24% | 51% |
| | Broadband Connection Speed (download) - from ISP Node to User | > 80% | 99% | 90.14% | 87% | >85% | 94.93% | >85% |
| 6 | Service Availability / Uptime (for all users) | | | | | | | |
| | With effect from quarter ending September 2007 and onwards | > 98% | 99.99% | 99.35% | 99% | 99.99% | 100% | 98.22% |
| 7 | Packet Loss | < 1% | 0 | 0.035% | 0.049% | 34.18% | 0.04% | 0% |
| 8 | Network Latency (for wired broadband access) | | | | | | | |
| | User reference point at POP / ISP Gateway Node to International Gateway (IGSP/NIXI) | < 120 msec | 76ms | 93ms | 66.99ms | 20 ms | 35.33ms | 47 ms |
| | User reference point at ISP Gateway Node to International nearest NAP port abroad (Terrestrial) | < 350 msec | 90ms | 292ms | 282.99ms | NA | 296.71 ms | 149 ms |
| | User reference point at ISP Gateway Node to International nearest NAP port abroad (Satellite) | < 800 msec | NA | NA | NA | NA | NA | NA |

 Indicates deviation from benchmark of TRAI.

NA – Not Applicable

The Satellite link does not exist with any of the Operator, hence the parameter “ 4.3 User reference point at ISP Gateway Node to International nearest NAP port abroad (Satellite)” is not applicable to the above Operators.

- VSNL : parameters 2.1 & 4 contains data on all India basis.
- Reliance: ISP gateway is in Mumbai, Delhi, Chennai. Hence No Upstream Link for MP-CG Circle.
- Reliance has packet loss very high due to under sea cable cut.

Critical findings and Key take outs

7.3.2 Broadband service

- ◆ The Broadband Service audit is being carried out for the first time by an independent audit agency for Madhya Pradesh & Chhatisgarh Circle.
- ◆ Reliance and SIFY is submitting the PMR on all India basis, hence data is verified on All India basis not for particularly for Madhya Pradesh & Chhatisgarh Circle.
- ◆ Packet loss for Reliance is observed very high due to under sea cable cut during the one month data verification.
- ◆ The Satellite link does not exist with Operators, hence the parameter “User reference point at ISP Gateway Node to International nearest NAP port abroad (Satellite)” is not applicable to the Operator.
- ◆ To test the Service Providers performance on Technical (Network related complains) & Non-Technical (Provisioning, Billing, Refund etc.) complaint handling TCIL auditors have conducted a customer feedback calling for random 100 nos of customers in each segment. It was found that more than 95% customers are satisfied with services provided by the operators.

The key conclusions (Parameter wise) emerging out from the Audit exercise of Broadband service providers are highlighted below

Service provisioning/Activation time

All the service providers are performing well and meeting the benchmarks for service provisioning except for Reliance deviating marginally.

Fault Repair/Restoration time & Rebate

All the operators are meeting the benchmark of more than 90% for fault repair by next working day and for fault repaired within 3 working days, except for Sify deviating marginally.

All the service providers are found to providing Rebate as per the guide lines set by TRAI.

Billing performance

All the operators are meeting the benchmark of Less than 2% for billing complaints. Also all the operators are meeting the benchmark of “100% cases 4 weeks” for billing complaint resolution for on-month data verifications. All the operators are providing the refund of deposits after closure as per the benchmark of “100% cases within 60 days”.

Sify claims that all its broadband customers are prepaid and hence there are no bills issued.

Customer Care/Helpline Assessment

All the service providers meet the benchmark for both live Measurement as well as One month data verification, for both the parameters response time to the customer for assistance (Voice to Voice) within 60 and 90 seconds.

Bandwidth Utilisation:

All the operators are meeting the benchmarks for bandwidth utilisation – POP to ISP Gateway Node (intra-network) links for both live Measurement and One month data verification.

All the operators are meeting are meeting the benchmarks for Bandwidth utilisation – ISP Gateway Node to IGSP/ NIXI Node upstream links for International connectivity for both live Measurement and one month data verification. Reliance does not have separate upstream links for Madhya Pradesh & Chhatisgarh Circle as their ISP Gateway is at Mumbai, Delhi & Chennai.

Download speed

All the operators are meeting the TRAI benchmark of greater than 80% connection speed during live measurements and one-month data verification.

Service Availability/Uptime:

All the operators are meeting the TRAI benchmark of greater than 98% during one-month data verification.

Packet Loss

All the operators are meeting the TRAI benchmark of less than 1% during live measurements and one-month data verification. However, Packet loss for Reliance is observed very high due to under sea cable cut during the one month data verification.

Network Latency

All the operators are meeting the TRAI benchmarks less than 120ms for “User reference point at POP/ISP Gateway node to IGSP/NIXI” and benchmark less than 350ms for “User reference point at ISP Gateway node to IGSP/NIXI” during live measurements and one-month data verification. However, Reliance does not have separate upstream links for Madhya Pradesh & Chhatisgarh Circle as their ISP Gateway is at Mumbai, Delhi & Chennai.

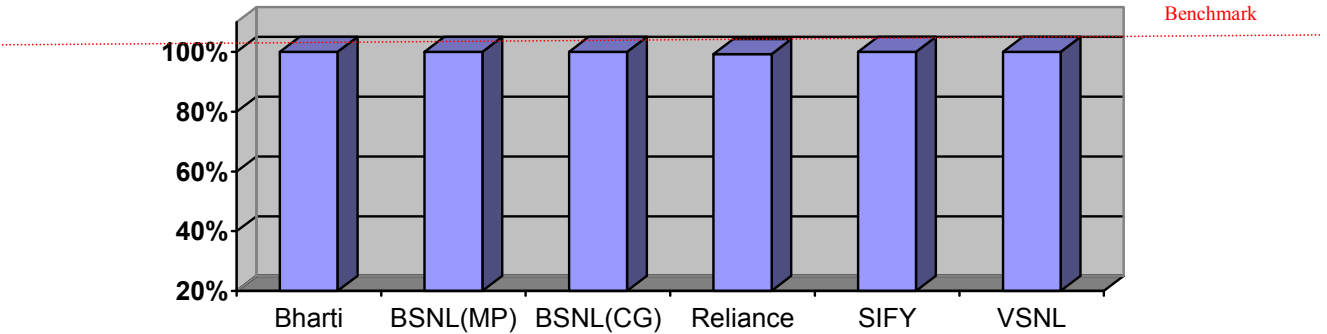
The Satellite link does not exist with any of the operator, hence the parameter “User reference point at ISP Gateway Node to International nearest NAP port abroad (Satellite)” is not applicable to all the operators.

7.3.3 Parameter wise Data Analysis & Graphical Representations – Broadband Service

1.0 Service Provisioning /Activation Time: (Should be 100%)

All the operators comply with the TRAI benchmark of 100%.

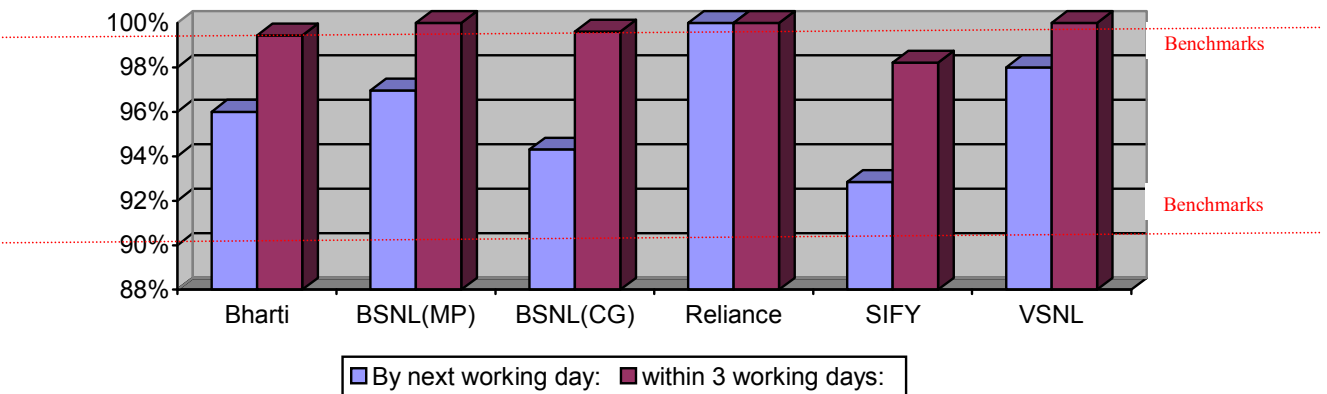
Service Provisioning/Activation Time



2.0 Fault Repair / Restoration Time:

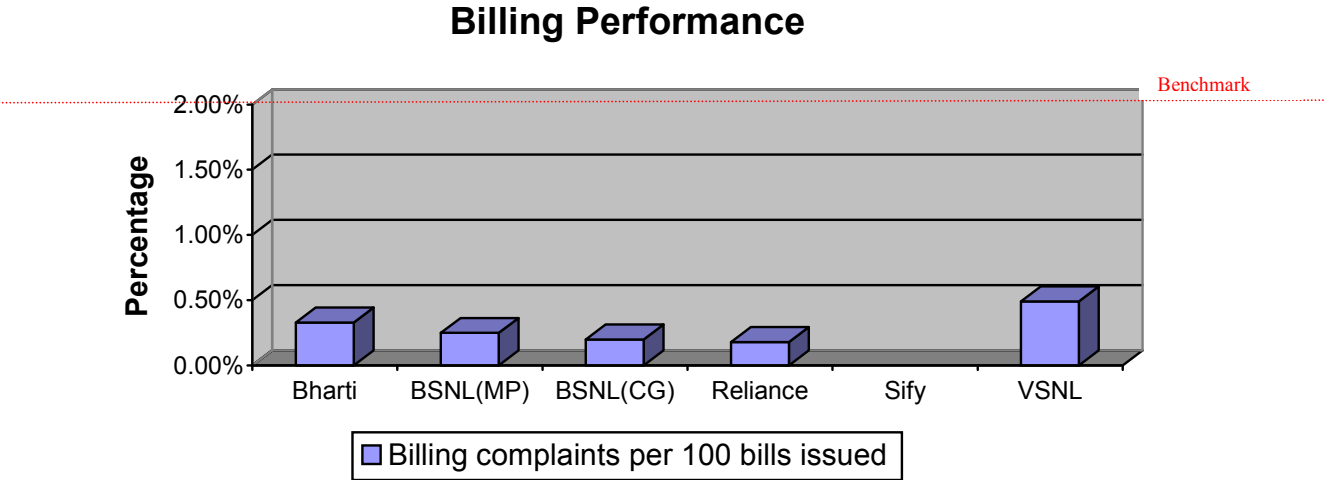
- **By next working day (>90%):** All the operators comply with the TRAI benchmark of 90%.
- **Within 3 working days (>99%):** All the operators comply with the TRAI benchmark except for Sify showing marginal deviation.
- **Rebate:** All the operators are giving rebate to the eligible customers.

Fault Repair/ Restoration Time



3.0 Billing Performance: (Benchmark <2%)

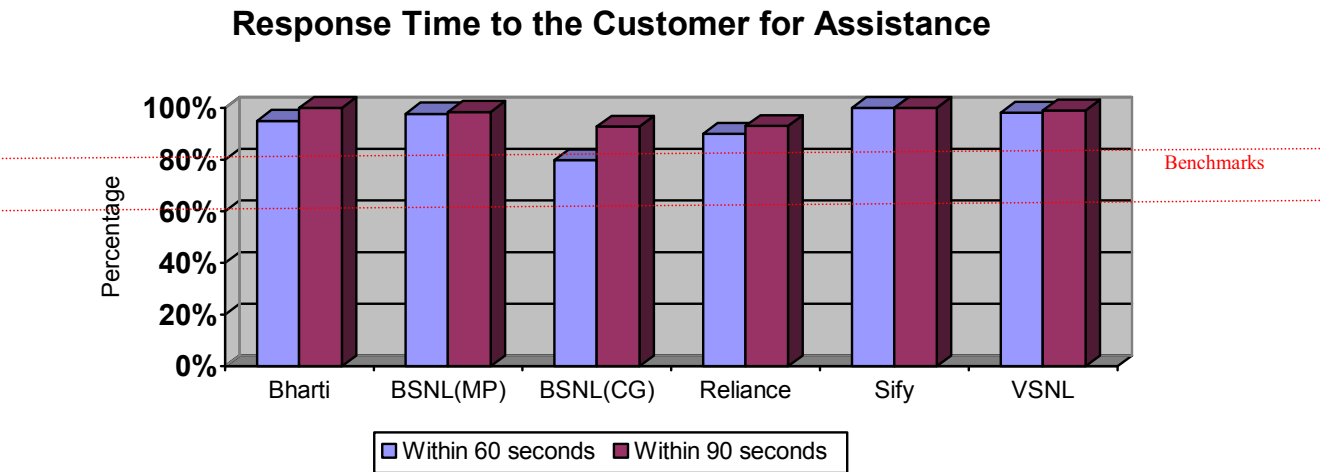
All the operators comply with the TRAI standards.



4.0 Response time to the customer for assistance:

% age of calls answered by operator (Voice to Voice)

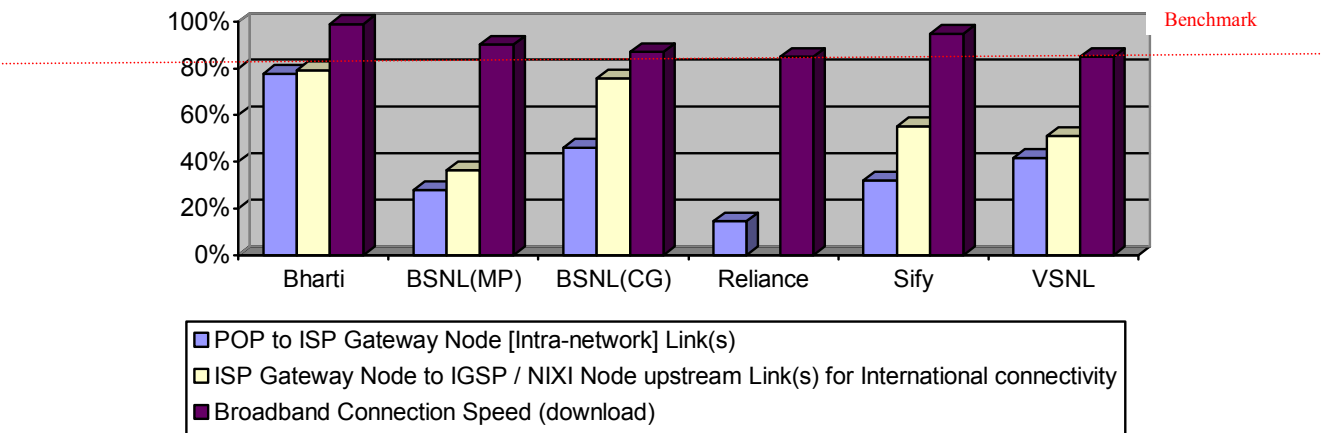
- **Within 60 seconds (>60%):** All the operators meet the benchmark.
- **Within 90 seconds (>80%):** All the operators meet the benchmark.



5.0 Bandwidth Utilization/ Throughput:

- POP to ISP Gateway Node [Intra-network] Link(s): (Benchmark <80%): All the operators meet the benchmark.
- ISP Gateway Node to IGSP / NIXI Node upstream Link(s) for International connectivity: (Benchmark <80%): All the operators meet the benchmark.
- Broadband Connection Speed (download) (>80%): All the operators meet the benchmark.

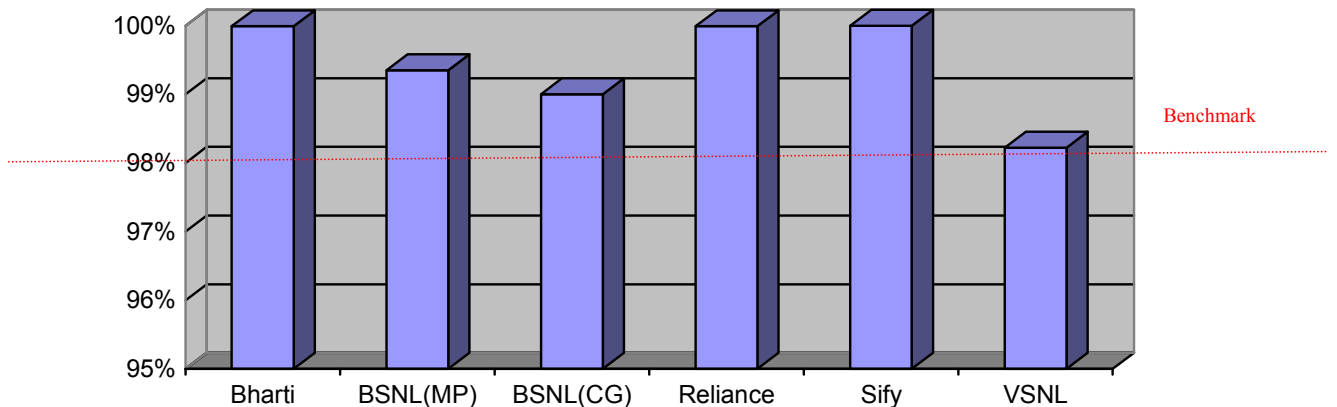
Bandwidth Utilisation



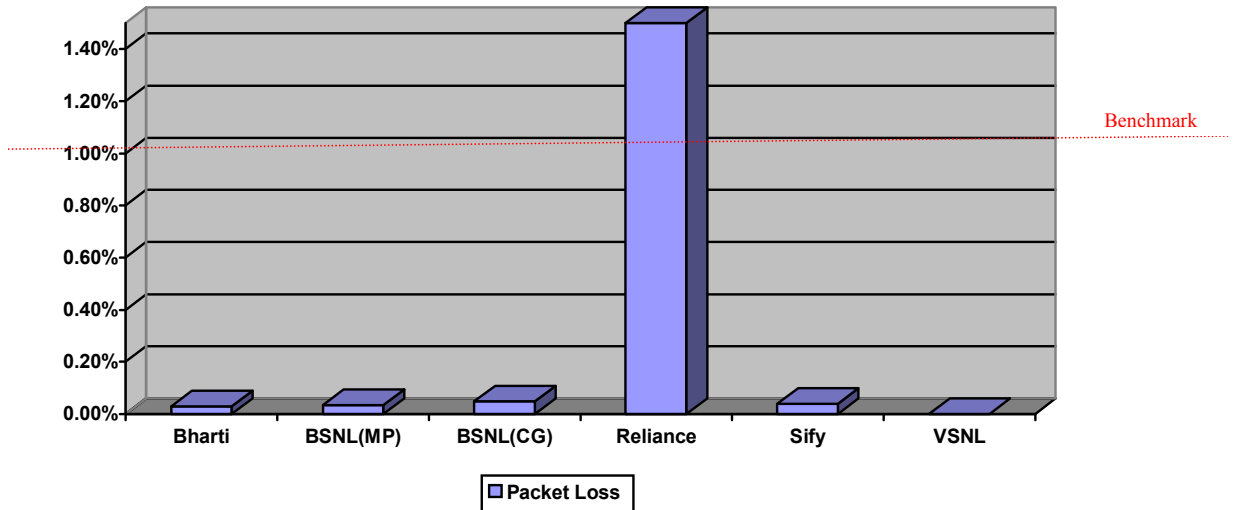
6.0 Service Availability / Uptime (for all users) (better than 98%):

All the operators comply with the TRAI standards of >98%.

Service Availability/ Uptime



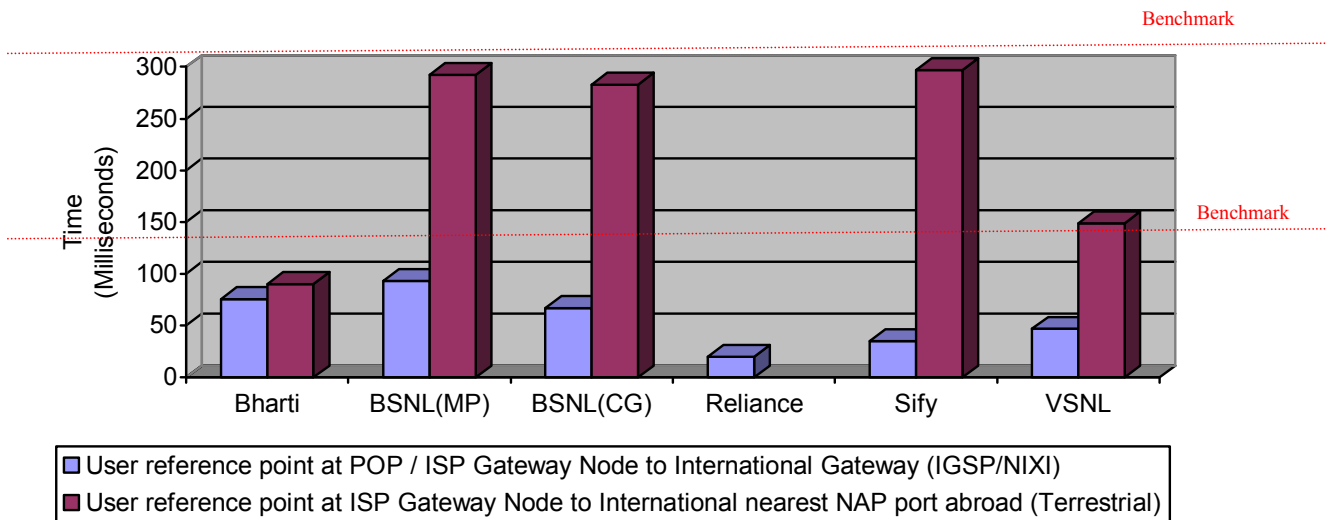
7.0 Packet Loss (Should be less than 1%) : All the operators comply with the TRAI benchmarks except Reliance(34.18%) which was due to under sea cable cut.



8.0 Network Latency:

- User reference point at POP / ISP Gateway Node to International Gateway (IGSP/NIXI): (Benchmark <120ms): All the operators meet the benchmark.
- User reference point at ISP Gateway Node to International nearest NAP port abroad (Terrestrial): (Benchmark <350ms): All the operators meet the benchmark.
- User reference point at ISP Gateway Node to International nearest NAP port abroad (Satellite): Link does not exist for the operators. Hence, Not applicable.

Network Latency



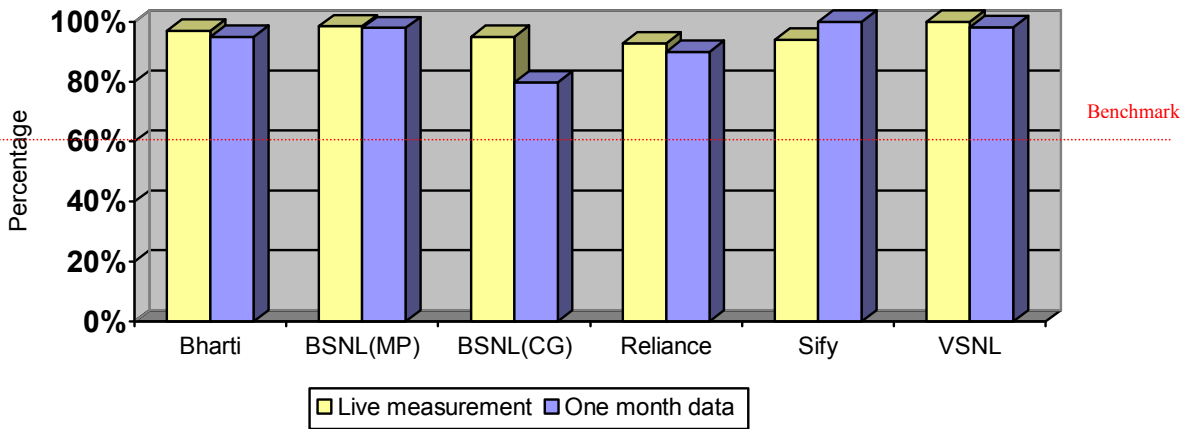
7.3.4 Comparison between Live measurements and One month data Audit – Broadband Service

1. Response time to the customer for assistance (Voice to Voice):

(i) Calls answered by operator within 60 seconds (>60%)

All the operators meet the benchmark.

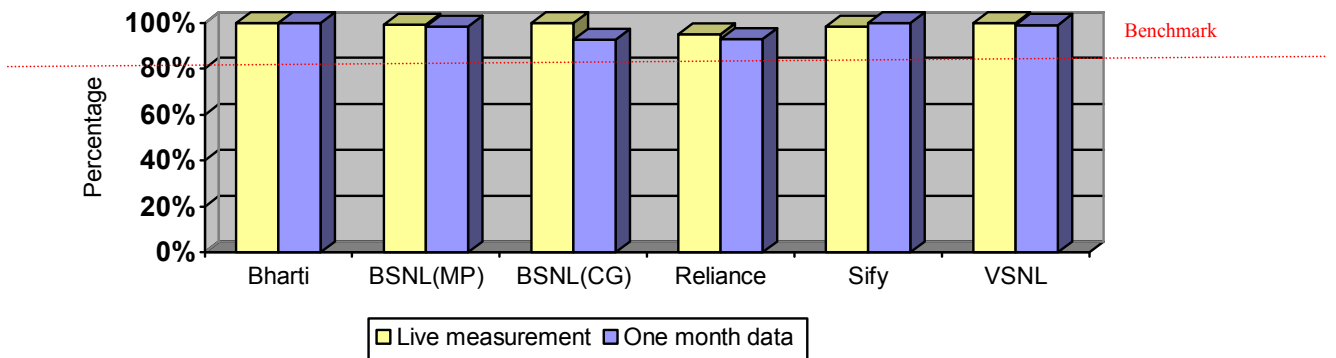
Response Time to the Customer for Assistance



(ii) Calls answered by operator within 90 seconds (>80%)

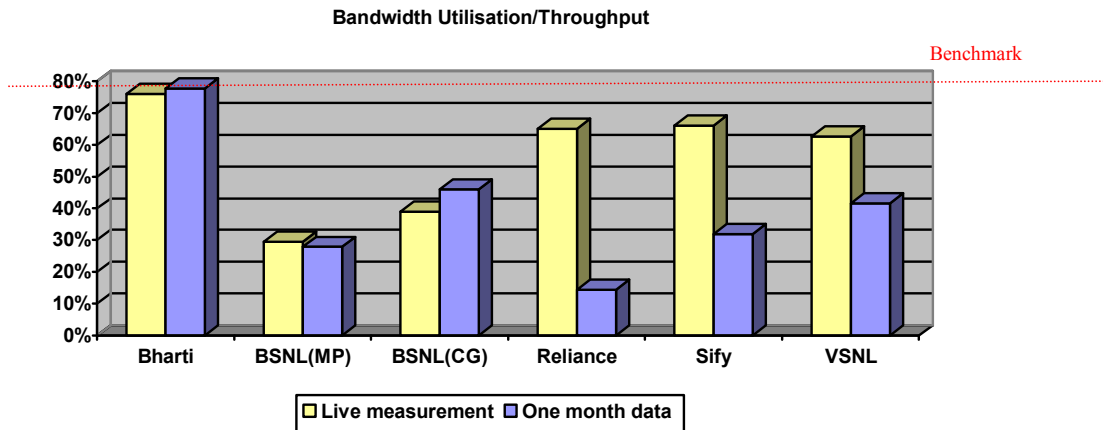
All the operators meet the benchmark.

Response Time to the Customer for Assistance

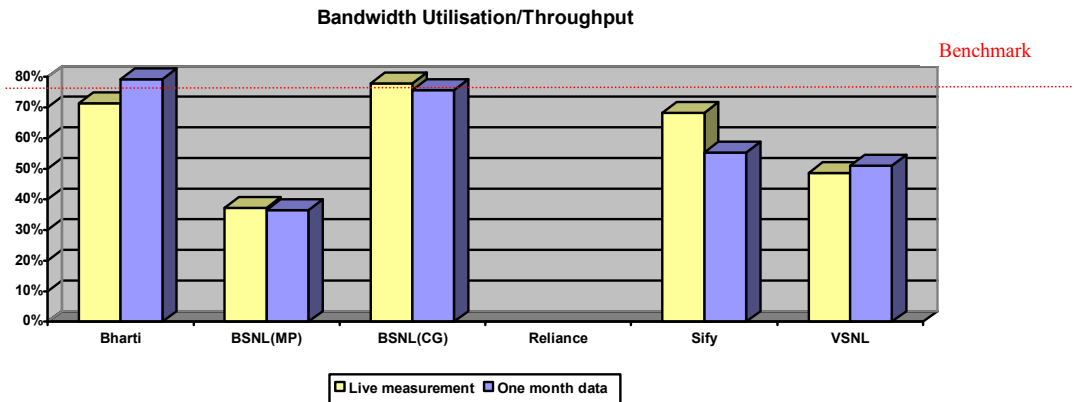


2. Bandwidth Utilization/ Throughput:

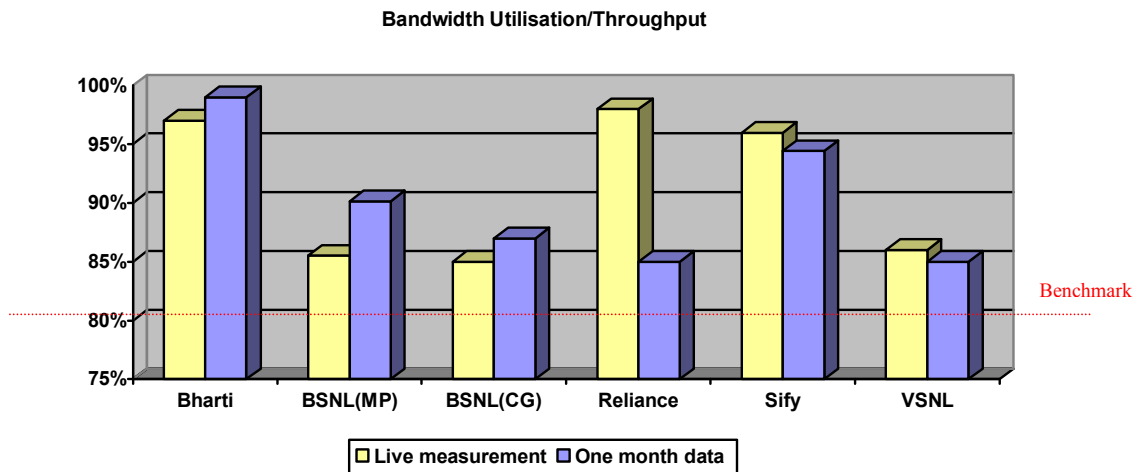
- POP to ISP Gateway Node [Intra-network] Link(s) (<80%): All the operators meet the benchmark.



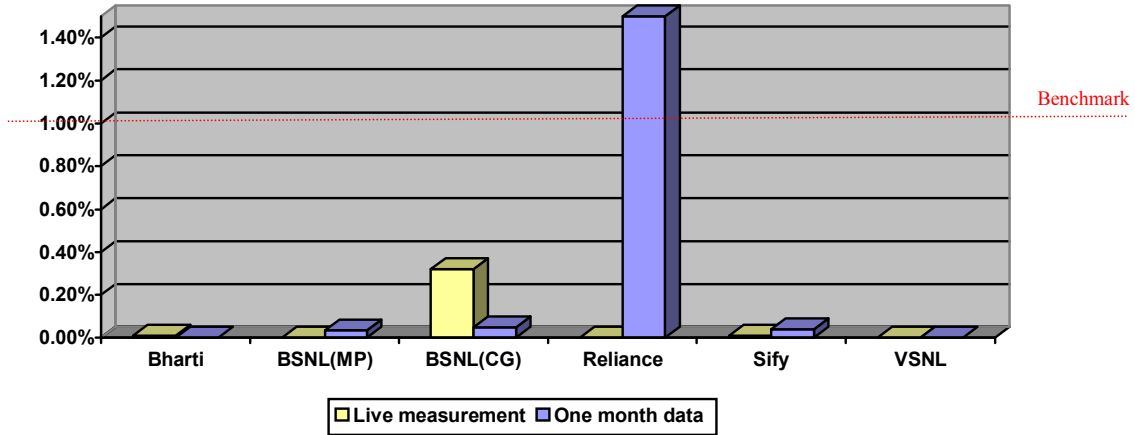
- ISP Gateway Node to IGSP / NIXI Node upstream Link(s) for International connectivity (Should be less than 80%): All the operators meet the benchmark, however, it is not applicable for Reliance.



- Broadband Connection Speed (download) (>80%):** All the operators meet the benchmark.

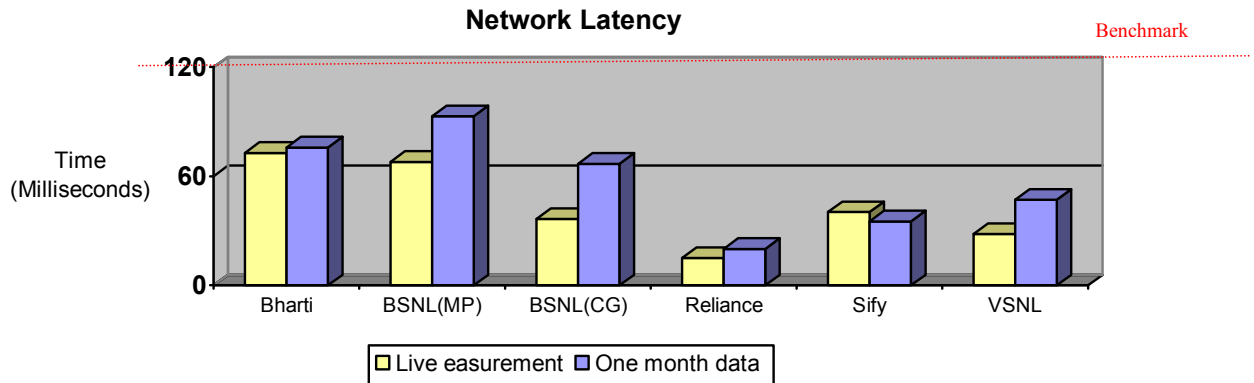


3. **Packet Loss: (Benchmark <1%):** All the operators meet the benchmark, except for Reliance(34.18%) in one-month data verification, which is due to undersea cable cut.

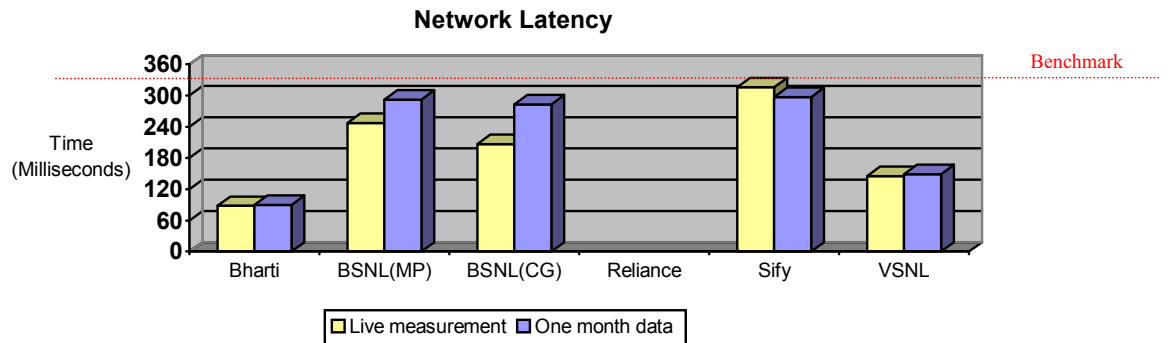


4. **Network Latency:**

- User reference point at POP / ISP Gateway Node to International Gateway (IGSP/NIXI): (Benchmark <120ms): All the operators meet the benchmark.



- User reference point at ISP Gateway Node to International nearest NAP port abroad (Terrestrial): (Benchmark <350ms): All the operators meet the benchmark.



CHAPTER – 8

DRIVE TEST FINDING

8.1 Drive Test Procedure :

TCIL have conducted individual drive test for each operator. TCIL auditors have selected 3 types of clutter in city on the basis of population & clutter. The clutters are dense population, medium population & low population. Auditors have covered more than 100 Kms in each city.

During the drive test, auditors have taken short calls of 120 second call duration & 10 second waits after end of call & covered all routes in selected clutters. At the drive test moment, vehicle speed was 20- 30 km/hr.

For GSM operators, auditors have taken Rx quality & in case of CDMA operators, FER has been taken. The range of Rx quality is 0-5 with respect to hopping & 0-4 with respect to without hopping. Rx quality sample should be 95 % with respect to 0-5 & FER samples should be 95% with respect to 0-4 as per the benchmark.

8.2 Drive Test Data Analysis (Operator assisted Drive Test)

8.2.1 BHOPAL

| S.N. | Parameters | Airtel | IDEA | BSNL | Reliance Telecom | Reliance Comm. | TTSL |
|------|--|--------|-------|-------|------------------|----------------|--------|
| 1 | Drive Test | | | | | | |
| 1.1 | Call Attempts | 402 | 205 | 176 | 182 | 161 | 198 |
| 1.2 | Blocked Call Rate (<3%) | 1.9% | 0.98% | 2.27% | 2.19% | 1.8% | 0% |
| 1.3 | Dropped Call Rate (<3%) | 1.9% | 1.46% | 2.27% | 3.29% | 0% | 0% |
| 1.4 | Percentage of connections with good voice quality (>95%) | | | | | | |
| | (i) 0-4 (w/o frequency hopping) | NA | NA | NA | NA | 91.8% | 97.3% |
| | (ii) 0-5 (with frequency hopping) | 91.13% | 95.3% | 95.4% | 88% | NA | NA |
| 1,5 | Service Coverage | | | | | | |
| | In door (>= -75dBm) | 56.9% | 98.7% | 80.9% | 63.3% | 87.3% | 98.8% |
| | In-vehicle (>= -85dBm) | 89.4% | 99.6% | 96.1% | 96.6% | 99.5% | 99.15% |
| | Out door- in city (>= -95dBm) | 99% | 100% | 100% | 100% | 100% | 100% |
| 1.6 | Call Setup Success Rate (>95%) | 98.1% | 97.5% | 97.1% | 97.8% | 98.2% | 100% |

Indicates deviation from benchmark of TRAI.


NA – Not Applicable.

8.2.2 INDORE

| S.N. | Parameters | Airtel | IDEA | BSNL | Reliance Telecom | Reliance Comm. | TTSL |
|------|--|--------|-------|--------|------------------|----------------|--------|
| 1 | Drive Test | | | | | | |
| 1.1 | Call Attempts | 251 | 240 | 165 | 120 | 157 | 258 |
| 1.2 | Blocked Call Rate (<3%) | 0% | 0% | 0% | 1.6% | 0% | 0% |
| 1.3 | Dropped Call Rate (<3%) | 2.7% | 1.1% | 1.8% | 0.83% | 0% | 0% |
| 1.4 | Percentage of connections with good voice quality (>95%) | | | | | | |
| | (i) 0-4 (w/o frequency hopping) | NA | NA | NA | NA | 98.8% | 97.28% |
| | (ii) 0-5 (with frequency hopping) | 98.4% | 95.5% | 85.12% | 92.2% | NA | NA |
| 1,5 | Service Coverage | | | | | | |
| | In door (>= -75dBm) | 53% | 79.7% | 78.3% | 63.6% | 30.4% | 98.7% |
| | In-vehicle (>= -85dBm) | 87% | 97.5% | 99.3% | 99.4% | 65.13% | 99.8% |
| | Out door- in city (>= -95dBm) | 100% | 100% | 100% | 100% | 100% | 100% |
| 1.6 | Call Setup Success Rate (>95%) | 96.4% | 99.2% | 100% | 98.4% | 100% | 100% |

8.2.3 RAIPUR

| S.N. | Parameters | Airtel | IDEA | BSNL | Reliance Telecom | Reliance Comm. | TTSL |
|------|--|--------|-------|--------|------------------|----------------|--------|
| 1 | Drive Test | | | | | | |
| 1.1 | Call Attempts | 205 | 284 | 221 | 141 | 191 | 180 |
| 1.2 | Blocked Call Rate (<3%) | 2.4% | 0.4% | 5.4% | 4.9% | 0% | 0% |
| 1.3 | Dropped Call Rate (<3%) | 1.95% | 0% | 2.7% | 8.5% | 0.52% | 0% |
| 1.4 | Percentage of connections with good voice quality (>95%) | | | | | | |
| | (i) 0-4 (w/o frequency hopping) | NA | NA | NA | NA | 95.9% | 97.34% |
| | (ii) 0-5 (with frequency hopping) | 96.3% | 97% | 82.24% | 80.2% | NA | NA |
| 1,5 | Service Coverage | | | | | | |
| | In door (>= -75dBm) | 77.12% | 88% | 42.6% | 90.6% | 97.2% | 98.18% |
| | In-vehicle (>= -85dBm) | 93.2% | 98.7% | 91.4% | 99.7% | 100% | 99.25% |
| | Out door- in city (>= -95dBm) | 100% | 100% | 100% | 100% | 100% | 100% |
| 1.6 | Call Setup Success Rate (>95%) | 97.6% | 99.6% | 94.6% | 95.1% | 100% | 100% |

 Indicates deviation from benchmark of TRAI.

NA – Not Applicable.

Observation:

The Operator Assisted Drive Test was conducted at Bhopal, Indore and Raipur cities for all the operators. The operator wise observations based on drive test are as follows:

Airtel

Airtel is meeting all the benchmarks in all the three cities (Bhopal, Indore & Raipur). However, Airtel is deviating in the %age of connections with good quality voice (91.13%) in Bhopal.

Idea

Idea is meeting all the benchmarks in all the three cities (Bhopal, Indore & Raipur).

BSNL

BSNL is meeting all the benchmarks in all the three cities (Bhopal, Indore & Raipur). However, BSNL has shown deviation in Blocked call rate (5.4%), percentage of connections with good voice quality (82.24%) & CSSR in Raipur city. However, in Indore city deviation is seen in the %age of connections with good voice quality (85.12%).

Reliance Telecom

Reliance has shown deviation in the benchmarks for drop call rate (3.29%) & %age of connections with good voice quality (88%) in Bhopal and deviation in blocked call rate (4.9%), drop call rate (8.5%) & %age of connections with good voice quality (80.2%) in Raipur. However, in Indore city deviation is seen in the %age of connections with good voice quality (92.2%).

RCOM

Reliance Comm. is meeting all the benchmarks in all the three cities (Bhopal, Indore & Raipur), except for percentage of connections with good voice quality (91.8%) in Bhopal city.

TTSL

TTSL is meeting all the benchmarks in all the three cities (Bhopal, Indore and Raipur).

8.3 Drive Test Data Analysis (Independent Drive Test)

8.3.1 RAIPUR

| S.N. | Parameters | Airtel | IDEA | BSNL | Reliance Telecom |
|------|--|--------|-------|-------|------------------|
| 1 | Drive Test | | | | |
| 1.1 | Call Attempts | 70 | 71 | 69 | 78 |
| 1.2 | Blocked Call Rate (<3%) | 5.7% | 2.8% | 4.3% | 6.4% |
| 1.3 | Dropped Call Rate (<3%) | 1.4% | 0% | 4.3% | 8.9% |
| 1.4 | Percentage of connections with good voice quality (>95%) | | | | |
| | (i) 0-4 (w/o frequency hopping) | NA | NA | NA | NA |
| | (ii) 0-5 (with frequency hopping) | 97% | 92.2% | 93.8% | 86% |
| 1,5 | Service Coverage | | | | |
| | In door (>= -75dBm) | 93.5% | 80.5% | 50.2% | 99.8% |
| | In-vehicle (>= -85dBm) | 100% | 98.8% | 93.6% | 100% |
| | Out door- in city (>= -95dBm) | 100% | 100% | 100% | 100% |
| 1.6 | Call Setup Success Rate (>95%) | 94.3% | 97.2% | 95.7% | 93.6% |

8.3.2 INDORE

| S.N. | Parameters | Airtel | IDEA | BSNL | Reliance Telecom |
|------|--|--------|-------|-------|------------------|
| 1 | Drive Test | | | | |
| 1.1 | Call Attempts | 161 | 148 | 138 | 150 |
| 1.2 | Blocked Call Rate (<3%) | 6.8% | 0% | 1.4% | 3.3% |
| 1.3 | Dropped Call Rate (<3%) | 1.2% | 2.7% | 0% | 2.0% |
| 1.4 | Percentage of connections with good voice quality (>95%) | | | | |
| | (i) 0-4 (w/o frequency hopping) | NA | NA | NA | NA |
| | (ii) 0-5 (with frequency hopping) | 90.9% | 93.4% | 81% | 91.6% |
| 1,5 | Service Coverage | | | | |
| | In door (>= -75dBm) | 70.6% | 68.9% | 84.9% | 51.8% |
| | In-vehicle (>= -85dBm) | 95.1% | 95.9% | 99.2% | 92.9% |
| | Out door- in city (>= -95dBm) | 100% | 100% | 100% | 100% |
| 1.6 | Call Setup Success Rate (>95%) | 90.6% | 97.9% | 97.1% | 94% |

NA – Not Applicable. ■ Indicates deviation from benchmark of TRAI.

Observation:

The Independent Drive Test was conducted at Indore and Raipur cities. The operator wise observations based on drive test are as follows:

Airtel

Airtel is meeting all the benchmarks except blocked call rate (5.7%) & CSSR (94.3%) in Raipur and is meeting all benchmarks except blocked call rate (6.8%), %age of connections with good voice quality (90.9%) & CSSR(90.6%) in Indore.

Idea

Idea is meeting all the benchmarks except for connections with good voice quality (92.2%) in Raipur and connections with good voice quality (93.4%) in Indore.

BSNL

BSNL is meeting all the benchmarks except Blocked call rate (4.3%), drop call rate (4.3%) & %age of connections with good voice quality (93.8%) in Raipur and has shown deviation in the percentage of connections with good voice quality (81%) in Indore.

Reliance Telecom

Reliance is deviating in all the benchmarks, blocked call rate (6.4 %%), drop call rate (8.9%), %age of connections with good voice quality (86%) & CSSR (93.6%) in Raipur and has shown deviation in blocked call rate (3.3%), %age of connections with good voice quality (91.6%) & CSSR (94%) in Indore.

CHAPTER – 9

POI CONGESTION: VOICE CALL TEST

9.1 INTER OPERATOR CALL CONGESTION ASSESSMENT

9.1.1 Summary of Successful Calls

| Calling Operator | Called Operator | | | | | |
|------------------|-----------------|------|--------|------------------|----------------|------|
| | Idea | BSNL | Airtel | Reliance Telecom | Reliance Comm. | TTSL |
| Idea | - | 100% | 100% | 100% | 100% | 100% |
| BSNL | 100% | - | 100% | 100% | 100% | 100% |
| Airtel | 100% | 99% | - | 100% | 100% | 100% |
| Reliance Telecom | 100% | 100% | 100% | - | 100% | 100% |
| Reliance Comm. | 100% | 100% | 100% | 100% | - | 100% |
| TTSL | 100% | 100% | 100% | 100% | 100% | - |

9.1.2 Detailed Records

A sample of 2x50 test calls per Service Providers with in the licensed service area (Madhya Pradesh & Chhatisgarh Circle) were made between 1100 to 1400 hrs and between 1600 to 1900 hrs.

| S. No | Calling Number Operator | Called operator | Total no of calls | Total no of Successful calls | Call Success % | |
|-------|-------------------------|-----------------|-------------------|------------------------------|----------------|--|
| 1 | Idea | BSNL, | 50 | 50 | 100% | |
| | | Tata | 50 | 50 | 100% | |
| | | Airtel | 50 | 50 | 100% | |
| | | RCOM | 50 | 50 | 100% | |
| | | RTL | 50 | 50 | 100% | |
| | | | | | | |
| | | BSNL | 50 | 50 | 100% | |
| | | Tata | 50 | 50 | 100% | |
| | | Airtel | 50 | 50 | 100% | |
| | | RCOM | 50 | 50 | 100% | |
| 2 | BSNL | Tata | 50 | 50 | 100% | |
| | | RCOM | 50 | 50 | 100% | |
| | | Idea | 50 | 50 | 100% | |
| | | Airtel | 50 | 50 | 100% | |
| | | RTL | 50 | 50 | 100% | |
| | | | | | | |
| | | TATA | 50 | 50 | 100% | |
| | | RCOM | 50 | 50 | 100% | |
| | | Idea | 50 | 50 | 100% | |
| | | Airtel | 50 | 50 | 100% | |
| | RTL | 50 | 50 | 100% | | |

| S. No | Calling Number Operator | Called operator | Total no of calls | Total no of Successful calls | Call Success % |
|-------|-------------------------|-----------------|-------------------|------------------------------|----------------|
| 3 | Airtel | Idea | 50 | 50 | 100% |
| | | BSNL | 50 | 50 | 100% |
| | | Tata | 50 | 50 | 100% |
| | | RCOM | 50 | 50 | 100% |
| | | RTL | 50 | 50 | 100% |
| | | | | | |
| | | Idea | 50 | 50 | 100% |
| | | BSNL | 50 | 49 | 98% |
| | | Tata | 50 | 50 | 100% |
| | | RCOM | 50 | 50 | 100% |
| | | RTL | 50 | 50 | 100% |
| | | | | | |
| 4 | Reliance Telecom | | | | |
| | | Idea | 50 | 50 | 100% |
| | | BSNL | 50 | 50 | 100% |
| | | Tata | 50 | 50 | 100% |
| | | RCOM | 50 | 50 | 100% |
| | | Airtel | 50 | 50 | 100% |
| | | | | | |
| | | Idea | 50 | 50 | 100% |
| | | BSNL | 50 | 50 | 100% |
| | | Tata | 50 | 50 | 100% |
| | | RCOM | 50 | 50 | 100% |
| | | Airtel | 50 | 50 | 100% |
| | | | | | |
| 5 | Reliance Comm. | Idea | 50 | 50 | 100% |
| | | BSNL | 50 | 50 | 100% |
| | | Tata | 50 | 50 | 100% |
| | | RTL | 50 | 50 | 100% |
| | | Airtel | 50 | 50 | 100% |
| | | | | | |
| | | Idea | 50 | 50 | 100% |
| | | Vodafone | 50 | 50 | 100% |
| | | Tata | 50 | 50 | 100% |
| | | RTL | 50 | 50 | 100% |
| | | Airtel | 50 | 50 | 100% |
| | | | | | |
| 6 | TTSL | Idea | 50 | 50 | 100% |
| | | Vodafone | 50 | 50 | 100% |
| | | RCOM | 50 | 50 | 100% |
| | | RTL | 50 | 50 | 100% |
| | | Airtel | 50 | 50 | 100% |
| | | | | | |
| | | Idea | 50 | 50 | 100% |
| | | Vodafone | 50 | 50 | 100% |
| | | RCOM | 50 | 50 | 100% |
| | | RTL | 50 | 50 | 100% |
| | | Airtel | 50 | 50 | 100% |

CHAPTER – 10**CUSTOMER CARE & GRIEVANCES REDRESSAL****10.1 Basic Service (Wireline)**

| S.N. | Parameters | Airtel | BSNL(MP) | BSNL(CG) | Reliance Comm. |
|------|---|--------|----------|----------|----------------|
| 1 | Parameters | | | | |
| 1.1 | Complaints per 100 bills issued | 0.03% | 0.23% | 0.01% | 0.01% |
| 1.2 | Percentage of billing complaints resolved within 4 weeks | 100% | 87% | 100% | 100% |
| 1.3 | Response time to customer for assistance: % of calls answered by operator within 90 seconds | 100% | 98.51% | 100% | 100% |
| 2 | Call Centre | | | | |
| 2.1 | Total no of complaints received in the call centre | 39081 | 1246 | 989 | 511 |
| 2.2 | Complaints per 100 customers per months | 14% | 0.11% | 0.09% | 1.64% |
| 2.3 | Total no of complaints redressed by the call centre within the specified time limit | 29279 | 214 | 917 | 511 |
| 3 | Nodal Officer | | | | |
| 3.1 | Total no of complaints received by the nodal officers | 71 | 25 | 12 | 0 |
| 3.2 | Percentage of complaints with reference to total no of complaints received at the call centre | 0.18% | 2.01% | 14.65% | 0 |
| 3.3 | Total no of complaints redressed within the specified time limit | 71 | 25 | 12 | 0 |
| 4 | Appellate Authority | | | | |
| 4.1 | Total no of appeals received by the appellate authority | 5 | 0 | 0 | 0 |
| 4.2 | Percentage of appeal received with reference to total no of complaints received by the nodal officers | 7% | 0 | 0 | 0 |
| 4.3 | Total no of appeals decided within 3 months | 5 | 0 | 0 | 0 |

Note :

It is found that there are many instances where customers directly approach to Nodal Officer without approaching to Call Center for redressal. Similarly there are many instances where customers directly approach to Appellate Authority without approaching to Nodal Officer for their grievances redressal.

10.2 Basic Service (Wireless) and Cellular Mobile Services

| S.N. | Parameters | Airtel | BSNL (MP) | BSNL (CG) | Idea | TTSL | Reliance Telecom | Reliance Comm. |
|------|---|---------|-----------|-----------|--------|-------|------------------|----------------|
| 1 | Parameters | | | | | | | |
| 1.1 | Complaints per 100 bills issued | 0.0023% | 0% | 0.54% | 0.02% | 0.01% | 0.08% | 0.09% |
| 1.2 | Percentage of billing complaints resolved within 4 weeks | 100% | 100% | 99.9% | 100% | 100% | 100% | 100% |
| 1.3 | Response time to customer for assistance: % of calls answered by operator within 90 seconds | 98% | 96.13% | 96.23% | 99% | 98% | 100% | 96.5% |
| 2 | Call Centre | | | | | | | |
| 2.1 | Total no of complaints received in the call centre | 0 | 14903 | 3608 | 11 | 1649 | 12230 | 537 |
| 2.2 | Complaints per 100 customers per months | 0 | 0.97% | 0.49% | 0.009% | 1.99% | 0.8% | 0.02% |
| 2.3 | Total no of complaints redressed by the call centre within the specified time limit | 0 | 14436 | 3602 | 11 | 1518 | 12230 | 537 |
| 3 | Nodal Officer | | | | | | | |
| 3.1 | Total no of complaints received by the nodal officers | 0 | 0 | 0 | 0 | 103 | 4 | 6 |
| 3.2 | Percentage of complaints with reference to total no of complaints received at the call centre | 0 | 0 | 0 | 0 | 6.24% | 0.0327% | 1.12% |
| 3.3 | Total no of complaints redressed within the specified time limit | 0 | 0 | 0 | 0 | 92 | 4 | 6 |
| 4 | Appellate Authority | | | | | | | |
| 4.1 | Total no of appeals received by the appellate authority | 0 | 0 | 0 | 1 | 0 | 0 | 2 |
| 4.2 | Percentage of appeal received with reference to total no of complaints received by the nodal officers | 0 | 0 | 0 | 0 | 0% | 0 | 33.33% |
| 4.3 | Total no of appeals decided within 3 months | 0 | 0 | 0 | 1 | 0 | 0 | 2 |

Note :

It is found that there are many instances where customers directly approach to Nodal Officer without approaching to Call Center for redressal. Similarly there are many instances where customers directly approach to Appellate Authority without approaching to Nodal Officer for their grievances redressal.

10.3 Broadband Services

| S.N. | Parameters | Airtel | BSNL (MP) | BSNL (CG) | Sify | Reliance Comm. | VSNL |
|------|---|--------|-----------|-----------|--|----------------|--------|
| 1 | Parameters | | | | | | |
| 1.1 | Complaints per 100 bills issued | 0.33% | 0.25% | 0.20% | Not Applicable as SIFY is under Prepaid Module | 0.18% | 0.49% |
| 1.2 | Percentage of billing complaints resolved within 4 weeks | 100% | 100% | 100% | | 100% | 100% |
| 1.3 | Response time to customer for assistance: % of calls answered by operator within 90 seconds | 100% | 97.27% | 92.80% | | 95% | 96% |
| 2 | Call Centre | | | | | | |
| 2.1 | Total no of complaints received in the call centre | 7469 | 3461 | 1747 | 71 | 2736 | 451 |
| 2.2 | Complaints per 100 customers per months | 8% | 4.27% | 6.76 | 10.30% | 2.70% | 63.88% |
| 2.3 | Total no of complaints redressed by the call centre within the specified time limit | 5553 | 3461 | 100% | 71 | 2736 | 447 |
| 3 | Nodal Officer | | | | | | |
| 3.1 | Total no of complaints received by the nodal officers | 71 | 0 | 0 | 0 | 0 | 0 |
| 3.2 | Percentage of complaints with reference to total no of complaints received at the call centre | 0.95% | 0 | 0 | 0 | 0 | 0 |
| 3.3 | Total no of complaints redressed within the specified time limit | 71 | 0 | 0 | 0 | 0 | 0 |
| 4 | Appellate Authority | | | | | | |
| 4.1 | Total no of appeals received by the appellate authority | 5 | 0 | 0 | 0 | 0 | 0 |
| 4.2 | Percentage of appeal received with reference to total no of complaints received by the nodal officers | 7% | 0 | 0 | 0 | 0 | 0 |
| 4.3 | Total no of appeals decided within 3 months | 5 | 0 | 0 | 0 | 0 | 0 |

Note :

It is found that there are many instances where customers directly approach to Nodal Officer without approaching to Call Center for redressal. Similarly there are many instances where customers directly approach to Appellate Authority without approaching to Nodal Officer for their grievances redressal.

ANNEXURE - I

List of Exchanges / Switches

1. BASIC SERVICE (WIRELINER):

AIRTEL: Bhopal, Indore, Jabalpur, Gwalior and Raipur

RELAINCE COMM.: Bhopal

BSNL (MP): 130 Exchanges Covering Bhopal, Indore, Ujjain, Hosangabad, Jabalpur, Katni, Guna and Gwalior.

BSNL (CG): 30 Exchanges Covering Raipur, Bilaspur and Jagdalpur.

2. BASIC (WIRELESS) AND CELLULAR MOBILE SERVICE:

AIRTEL: Indore MSC, Bhopal GMSC, Bhopal MSC, MSS3, Raipur MSC, MSS7,

IDEA: MSC Bhopal, MSC Raipur, MSC Gwalior, MSC Indore,

TTSL: Bhopal MSC 1, Bhopal MSC 2, Bhopal MSC 3, Raipur MSC

RELAINCE TELECOM: GMSC, HMSC1, HMSC 2, HMSC 3

RELAINCE COMM.: GMSC Bhopal, Bhopal MSC 1, Bhopal MSC 3

BSNL (GSM): MSC Bhopal, MSC Indore, MSC Raipur

3. BROADBAND SERVICE:

AIRTEL: Bhopal

SIFY : Bhopal

BSNL (MP) : Bhopal, Indore

BSNL (CG): Raipur

RELIANCE : Bhopal

TATA COMM (VSNL) : Bhopal, Indore

ANNEXURE - II

DRIVE TEST LOCATIONS

A. BHOPAL

Dense : Barkhedi, Jahangirabad, Ashoka Garden, Kohefija, Idgah hill, Budhwara

Medium Dense 1: MP Nagar, New Market, Shahapura, Mata mandir, Rachana Nagar

Low Dense: Bijli colony, Govindpura, Ayodhya Nagar, Sonagiri

B. INDORE

Dense : Rajwada, Sarafa, M.G.Road, Siyaganj, Jail Road

Medium Dense : Regal, YN Road, RNT Marg, Narayan Kithi, New Palasiya

Low Dense : Vijay Nagar, Scheme no 54, Scheme no 74, Sawer Industrial area

C. RAIPUR

Dense : Katora Talab, Bayron Bazar, Ghandhi Chowk, Sadar Market, Rathod Chowk

Medium Dense 1 : Telebandha, civil line Shankar Nagar, Akash Nagar, Anupam Nagar, Paras Nagar

Low Dense : Ring Road, Tatibandh, Saraswati Nagar, Ekta Nagar, Tikra pada