EAST ZONE

TRAI AUDIT BROADBAND REPORT-ASSAM CIRCLE- AUDIT OF JFM QUARTER, 2014

Prepared By -

Prepared For-

IMRB International | eTech

TRAI

Telecom Regulatory Authority of India
(IS/ISO 9001-2008 Certified Organisation)

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1. INTRODUCTION

1.1 About TRAI

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

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

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

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

1.2 OBJECTIVES

The primary objective of the Audit module is to:

- ✋ Audit and Assess the Quality of Services being rendered by Basic (Wireline), Cellular Mobile (Wireless), and Broadband service against the parameters notified by TRAI. (The parameters of Quality of Services (QoS) have been specified by in the respective regulations published by TRAI).

This report covers the audit for Broadband operator BSNL in Assam circle for the JFM 2014 quarter. Monthly data was collected for month of June 2014.

1.3   AUDIT PROCESS

As per TRAI guidelines, the Broadband Audit for a circle is conducted once every year.

- This reports covers the audit for Broadband operator i.e. BSNL for the JFM 2014 quarter. PMR data was audited for JFM 2014.
- The data from the sample exchanges for one month verification was taken for the month of June 2014.

1.3.1   PMR REPORTS - SIGNIFICANCE AND METHODOLOGY

PMR or Performance Monitoring Reports are generated by operators to assess the various Quality of Service parameters involved in the Basic (Wireline) telephone services, which indicate the overall health of service for an operator.

The PMR is extracted in the following formats.

- Quarterly PMR
- Monthly PMR Verification

During audit, PMR is extracted from the server/NOC/exchange/OMC/customer service center etc. in the presence of the auditor. All the calculations are done during the audit by the operators and IMRB auditors verify the calculations done by the operators.

The verified PMR reports are then submitted in hard copy by the operators to the auditor with authorized signatures of the operator personnel. Sometimes, operators also submit a soft copy of the same report along with hard copy for the sake of convenience.

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

1.4   SAMPLING METHODOLOGY

- For BSNL, a minimum sample of 5% Point of Presence (POP) of ISP was spread across 10% of SDCA's in the telecom circle
- The sampling plan was finalized after receiving confirmation from TRAI RO, Kolkata which has been provided in the annexure (Section 6.9)
- BSNL is the only operational service provider providing Basic (Wireline) service in Assam circle
- Tata Teleservices no longer provides Broadband services to consumers in Assam. Hence, audit for the same has not been conducted.
- Sify does not have ample customer base in the circle, as per specifications to conduct the audit by TRAI
- Amtron provides Broadband service in the region; however, it is not listed as a Broadband operator in the tender.

	Name of Operator	Quarterly PMR	Audit Month
Operator 1	BSNL	JFM 2014	June 2014

1.5   COVERAGE

The audit was conducted in Assam circle maintain a geographical among the SDCAs.

Image Source: BSNL website

2. EXECUTIVE SUMMARY

2.1   PMR QUARTERLY DATA – JFM'14

The objective assessment of Quality of Service (QoS) carried out by IMRB gives an insight into the overall broadband performance of BSNL, the only operator in Assam circle, with a parameter wise performance evaluation as compared to TRAI benchmark.

Parameters	Benchmarks	BSNL-Quarter
Service provsioning uptime		
Percentage connections provided within 15 days	100%	100.00%
Fault repair restoration time		
Percentage faults repaired by next working days	> 90%	92.03%
Percentage faults repaired within three working days	> 99%	99.45%
Billing performance		
Billing complaints per 100 bills issued	< 2%	0.00%
%age of billing complaints resolved in 4 weeks	100%	NA
%age cases in which refund of deposits after closure was made in 60 days	100%	100.00%
Customer care/helpline assessment (Voice to Voice)		
Percentage calls answered within 60 seconds	> 60%	25.47%
Percentage calls answered within 90 seconds	> 80%	51.94%
Bandwidth utilisation/Throughput		
Intra network links (POP to ISP Node)		5
Total number of intra network links > 90%		0
Upstream Bandwidth (ISP Node to NIXI/NAP/IGSP)		NA
Percentage bandwidth utilised on upstream links	< 80%	NA
Broadband download speed	> 80%	NA
Service availability/uptime	> 98%	99.99%
Packet loss	< 1%	NA
Network Latency		
POP/ISP Node to NIXI	< 120 msec	15.18
ISP node to NAP port (Terresrtrial)	< 350 msec	NA

From the audit data collected for JFM 2014, it can be seen that BSNL met the TRAI benchmark for all parameters except customer service parameters. Following are the parameter wise observations for BSNL in Assam circle.

2.1.1 SERVICE PROVISIONING/ ACTIVATION TIME

The audit showed that all connections registered with BSNL were provided within the TRAI stipulated timeline of 15 days.

2.1.2 FAULT REPAIR/ RESTORATION

BSNL met the TRAI benchmark of repairing 90% faults within the next 24 hours of receiving complaint by resolving 92.03% complaints.

The benchmark of repairing 99% faults within 3 working days was also met by BSNL by resolving 99.45% complaints within the stipulated time.

2.1.3   BILLING PERFORMANCE

BSNL reported zero billing complaints during the audit quarter.

All the subscribers requesting closure of service received refund within a period of 60 days.

2.1.4   CUSTOMER CARE/ HELPLINE PROMPTNESS

Customer care parameters are key concern areas for BSNL as it failed to meet the benchmark for both the parameters by a substantial margin as given below.

- Calls answered within 60 seconds (voice to voice) – 25.47% (Benchmark 60%)
- Calls answered within 90 seconds (voice to voice) – 51.94% (Benchmark 80%)

2.1.5   BANDWIDTH UTILIZATION AND THROUGHPUT

There were 5 intra network links reported by BSNL (ISP to Node)

BSNL was able to meet the benchmark service availability/uptime, with no packet loss reported.

No data has been provided by the operator for bandwidth utilized on upstream links and download speed. A supporting document has been added to the annexure for the same.

2.1.6   NETWORK LATENCY

Network latency for POP/ISP Node to NIXI remained within the benchmark of 120 msec by recording 15.18 msec.

No data has been provided by the operator for ISP node to NAP port (Terrestrial) network latency parameter. A supporting document has been added to the annexure for the same (Section 6.10.1).

2.2   PMR MONTHLY DATA – JUNE'14

The objective assessment of Quality of Service (QoS) carried out by IMRB gives an insight into the overall broadband performance of BSNL, the only operator in Assam circle, with a parameter wise performance evaluation as compared to TRAI benchmark.

Parameters	Benchmarks	BSNL-Month
Service provsioning uptime		
Percentage connections provided within 15 days	100%	100.00%
Fault repair restoration time		
Percentage faults repaired by next working days	> 90%	90.91%
Percentage faults repaired within three working days	> 99%	99.15%
Billing performance		
Billing complaints per 100 bills issued	< 2%	0.00%
%age of billing complaints resolved in 4 weeks	100%	NA
%age cases in which refund of deposits after closure was made in 60 days	100%	100.00%
Customer care/helpline assessment (Voice to Voice)		
Percentage calls answered within 60 seconds	> 60%	96.85%
Percentage calls answered within 90 seconds	> 80%	96.85%
Bandwidth utilisation/Throughput		
Intra network links (POP to ISP Node)		5
Total number of intra network links > 90%		0
Upstream Bandwidth (ISP Node to NIXI/NAP/IGSP)		NA
Percentage bandwidth utilised on upstream links	< 80%	NA
Broadband download speed	> 80%	83.78%
Service availability/uptime	> 98%	100.00%
Packet loss	< 1%	0.00%
Network Latency		
POP/ISP Node to NIXI	< 120 msec	15.18
ISP node to NAP port (Terresrtrial)	< 350 msec	NA

From the audit data collected for June 2014, it can be seen that BSNL met the TRAI benchmark for all parameters. Following are the parameter wise observations for BSNL in Assam circle.

2.2.1   SERVICE PROVISIONING/ ACTIVATION TIME

The audit showed that all connections registered with BSNL were provided within the TRAI stipulated timeline of 15 days.

2.2.2 FAULT REPAIR/ RESTORATION

BSNL met the TRAI benchmark of repairing 90% faults within the next 24 hours of receiving complaint by resolving 90.91% complaints.

The benchmark of repairing 99% faults within 3 working days was also met by BSNL.

2.2.3 BILLING PERFORMANCE

BSNL reported zero billing complaints during the month of audit.

All the subscribers requesting closure of service received refund within a period of 60 days.

2.2.4 CUSTOMER CARE/ HELPLINE PROMPTNESS

BSNL met the benchmark of calls answered within 60 as well as 90 seconds.

2.2.5 BANDWIDTH UTILIZATION AND THROUGHPUT

The benchmark of 80% for download speed was also met by BSNL with 83.78% of the times, subscribers received the committed speed.

BSNL was able to meet the benchmark service availability/uptime, with no packet loss reported.

No data was received from the operator for bandwidth utilized on upstream links.

2.2.6 NETWORK LATENCY

Network latency for POP/ISP Node to NIXI remained within the benchmark of 120 msec by recording 15.18 msec.

No data has been provided by the operator for ISP node to NAP port (Terrestrial) network latency parameter. A supporting document has been added to the annexure for the same (Section 6.10.1).

3. DETAILED FINDINGS - PMR DATA

3.1 SERVICE PROVISIONING/ ACTIVATION TIME

3.1.1 PARAMETER EXPLANATION

3.1.1.1 AUDIT PROCEDURE

IMRB Auditors verified and collected data pertaining to number of applications received at the service provider's level in the following time frames:-

- ✤ Number of applications received at the service provider's level
- ✤ Number of connections provided within 15 days
- ✤ Number of connections provided after 15 days

3.1.1.2 COMPUTATIONAL METHODOLOGY

- ✤ Technically Non Feasible (TNF) cases such as unavailability of Broadband infrastructure/ equipment in the Area or Spare Capacity i.e. Broadband Ports including equipment to be installed at the customer premises for activating Broadband connection were excluded from the calculation of this parameter.

- ✤ Also, problems relating to customer owned equipment such as PC, LAN Card/ USB Port and internal wiring or non-availability of such equipment were excluded from the calculation of this parameter.

Percentage connections provided within X working days = *No of connections provided within X working days/ Total number of connections registered during the period * 100*

3.1.1.3 BENCHMARK

100 % cases in =<15 working days.

3.1.2 DETAILED FINDINGS - SERVICE PROVISONING

Service provisioning Provisioning / Activation Time

TRAI Benchmark =100%

- BSNL-Month: 100.00%
- BSNL-Quarter: 100.00%

(Y-axis: %age connections provided in 15 days)
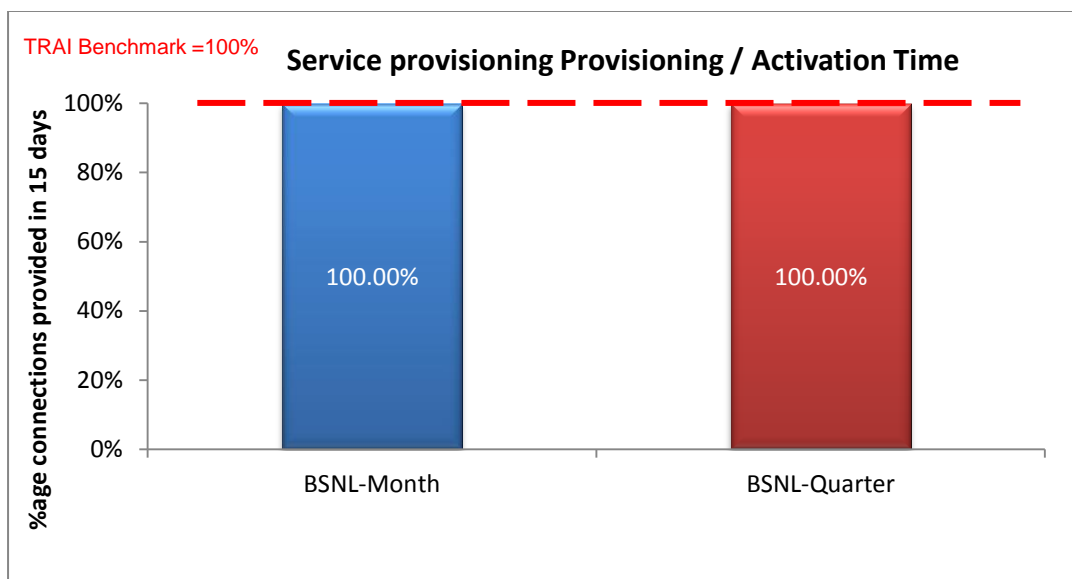
The audit data showed that all connections registered with BSNL were provided within the TRAI stipulated timeline of 15 days.

3.2   FAULT REPAIR/ RESTORATION TIME

3.2.1   PARAMETER EXPLANATION

3.2.1.1   AUDIT PROCEDURE

IMRB Auditors to verify and collect data pertaining to number of fault received and also number of faults cleared at the service provider's level in the following time frames:-

- ✤ Number of faults cleared within 24 hours
- ✤ Number of cleared in more than 1 day but less than 3 days
- ✤ Number of cleared in more than 3 days

3.2.1.2   COMPUTATIONAL METHODOLOGY

- ✤ The time period for fault repair starts from the time when the fault is reported to the service provider either through customer care help line or in person by the subscriber

- ✤ Only the complaints registered till the close of the business hours of the day are to be taken into account. All the complaints registered after the business hours are to be considered as being registered in the next day business hours

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Fault incidence = (Total no of faults repaired in X working days /Total number of faults reported during the period)*100

3.2.1.3   BENCHMARK

✍ By next working day: > 90% and within 3 working days: 99%.

3.2.2   DETAILED FINDINGS - FAULT REPAIR WITHIN NEXT WORKING DAY
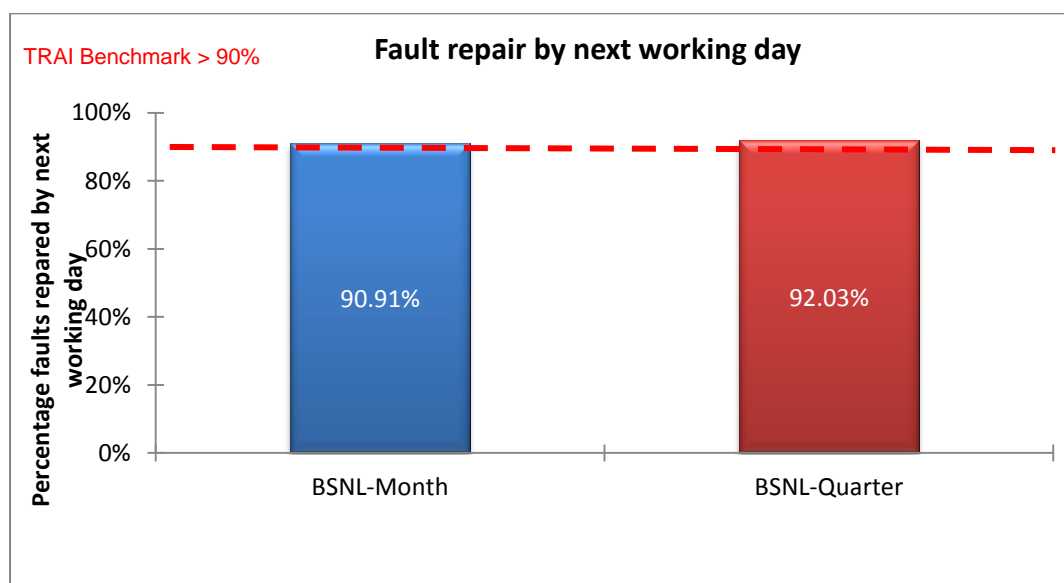
BSNL met the TRAI benchmark of repairing 90% faults within the next 24 hours of receiving complaint by resolving 92.03% and 90.91% complaints during quarterly as well as monthly audit.

3.2.3   DETAILED FINDINGS - FAULT REPAIR WITHIN 3 WORKING DAYS

Fault repair within three working days

TRAI Benchmark > 99%

[Bar chart: Percentage faults repaired within three working days]
- BSNL-Month: 99.15%
- BSNL-Quarter: 99.45%

The benchmark of repairing 99% faults within 3 working days was met by BSNL.

3.3 METERING AND BILLING CREDIBILITY

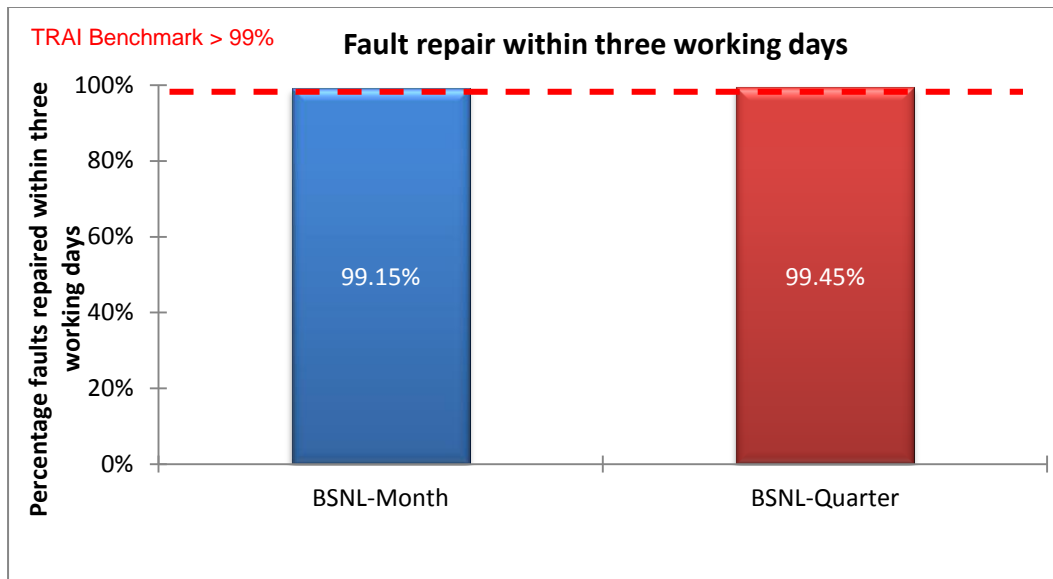### 3.3.1 PARAMETER EXPLANATION – INCIDENCE OF BILLING COMPLAINTS

3.3.1.1 AUDIT PROCEDURE

IMRB Auditors to verify and collect data pertaining to –

- Number of bills generated
- Number of billing complaints received
- %age complaints per 100 bills

3.3.1.2 COMPUTATIONAL METHODOLOGY

- All types of bills generated for customers i.e. printed bills, online bills and any other forms of bills generated are to be included

- Only dispute related issues (including those that may arise because of a lack of awareness at the subscribers' end) are to be included. It does not include any provisional issues (such as delayed dispatch of billing statements, etc.) in which the operator has opened a ticket internally.

Billing complaints per 100 bills issued = Total billing complaints** received during the relevant quarter / Total bills generated* during the relevant quarter

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3.3.1.3 BENCHMARK

- ↳ < 2% billing complaints per 100 bills

3.3.2 PARAMETER EXPLANATION - RESOLUTION OF BILLING COMPLAINTS

3.3.2.1 AUDIT PROCEDURE

IMRB Auditors collected and verified data pertaining to -

- ↳ Total number of billing complaints/bills disputed
- ↳ Number of complaints resolved in 4 weeks

3.3.2.2 COMPUTATIONAL METHODOLOGY

- ↳ Only dispute related issues (including those that may arise because of a lack of awareness at the subscribers' end) are to be included. It does not include any provisional issues (such as delayed dispatch of billing statements, etc.) in which the operator has opened a ticket internally.

- ↳ Date of resolution in this case would refer to the date when a communication has taken place from the operator's end to inform the complainant about the final resolution of the issue / dispute.

%age of billing complaints resolved within 4 weeks= (Complaints resolved*** in 4 weeks from date of receipt / Total billing complaints** received during the period 2008) x 100

3.3.2.3 BENCHMARK

- ↳ 100% cases to be resolved within 4 weeks

3.3.3 DETAILED FINDINGS - BILLING PERFORMANCE
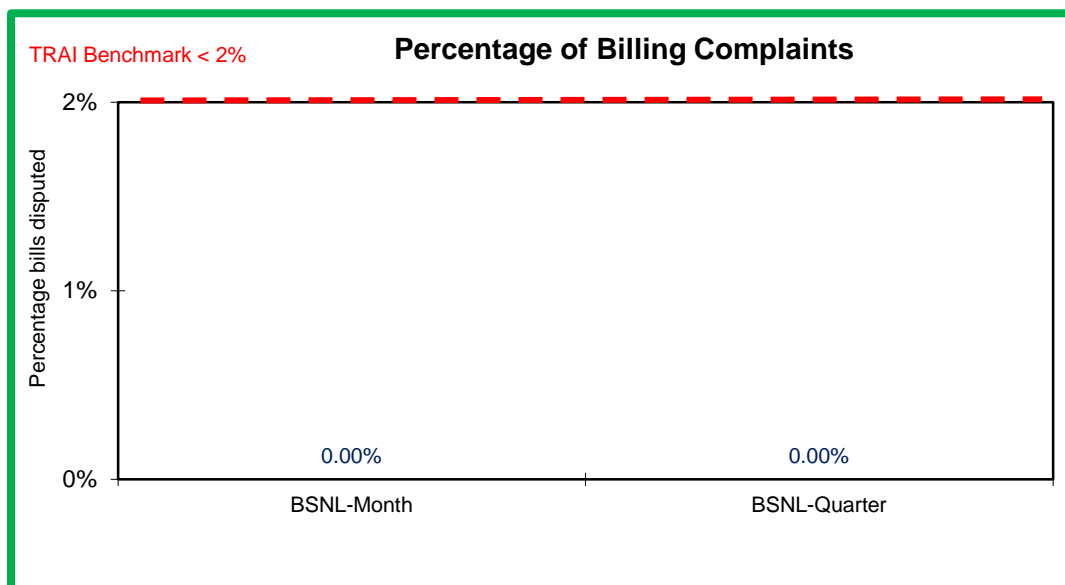
No bill disputes were reported both during quarterly and monthly audit.

3.4 TIME TAKEN TO REFUND AFTER CLOSURE

3.4.1 PARAMETER EXPLANATION

3.4.1.1 AUDIT PROCEDURE

IMRB Auditors collected and verified data pertaining to -

- Number of cases requiring refund of deposits
- Number of cases where refund was made within 60 days
- %age cases where refund was made within 60 days.

3.4.1.2 COMPUTATIONAL METHODOLOGY

- Date of closure is considered to be the date on which the connection is discontinued in the service provider database of active customers

Time taken to refund = Date of refund – Date of closure

3.4.1.3 BENCHMARK

- 100% cases in less than 60 days

3.4.2 DETAILED FINDINGS - REFUND OF DEPOSITS
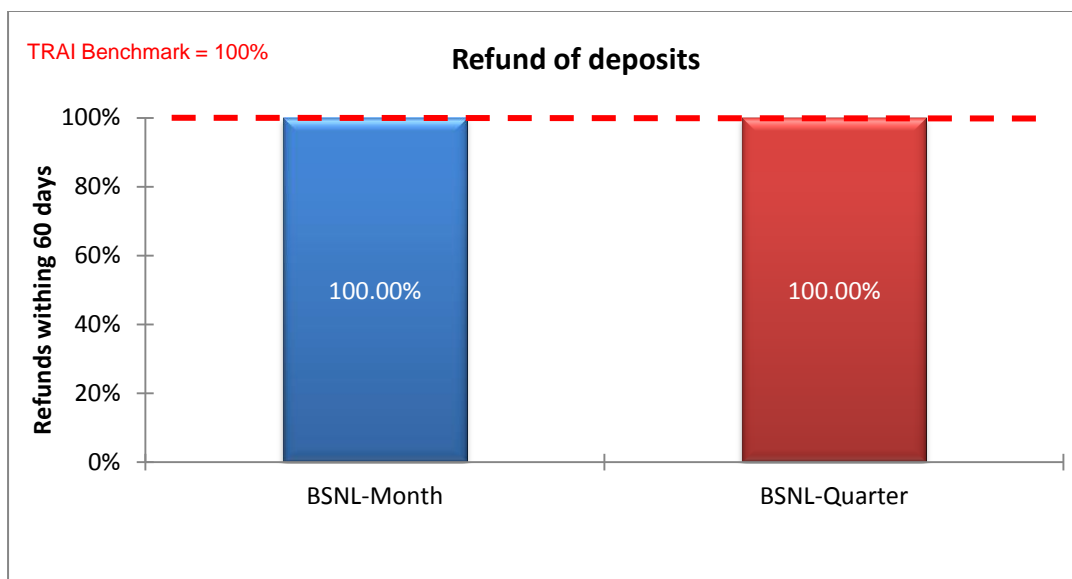
All the subscribers requesting closure of service received refund within a period of 60 days.

3.5 RESPONSE TIME TO CUSTOMER FOR ASSISTANCE

3.5.1 PARAMETER EXPLANATION

3.5.1.1 AUDIT PROCEDURE

- Number of calls received by the operator
- Number and %age calls answered within 60 seconds
- Number and percentage calls answered within 90 seconds

3.5.1.2 COMPUTATIONAL METHODOLOGY

%age of calls answered by operator (voice to voice) within n seconds = *(Number of calls where time taken for operator to respond* >= n sec / Total number of calls where an attempt to route to the operator was made) x 100)*.*

Time taken for operator to respond = Time when an operator responds to a call – Time when the relevant code to reach the operator is dialled

3.5.1.3 BENCHMARK

- Calls answered within 60 seconds > 60 %

✋ Calls answered within > 80% more

3.5.2   DETAILED FINDINGS - CALL ANSWERED WITHIN 60 SECONDS
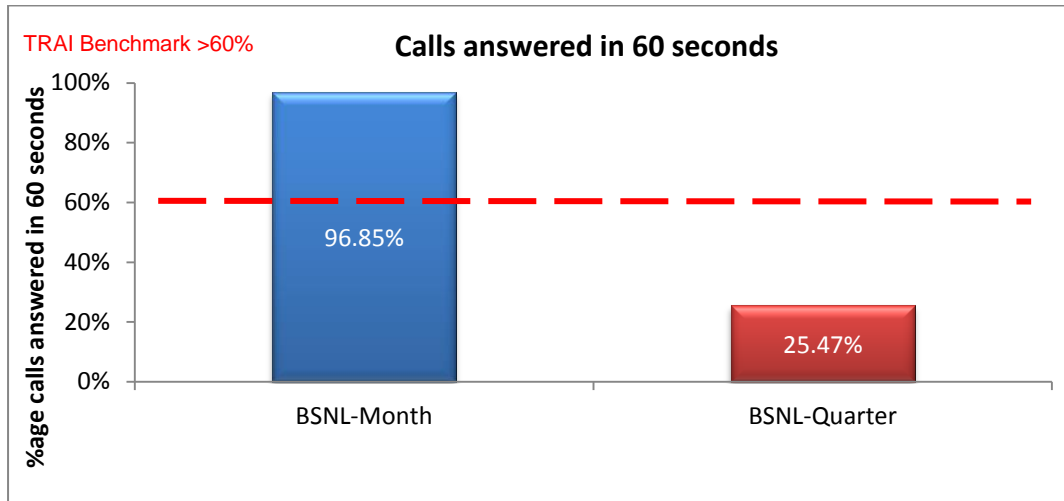
BSNL met the benchmark of calls answered within 60 seconds as per monthly audit; however, was unable to meet the benchmark during quarterly audit.

3.5.3   DETAILED FINDINGS - CALL ANSWERED WITHIN 90 SECONDS
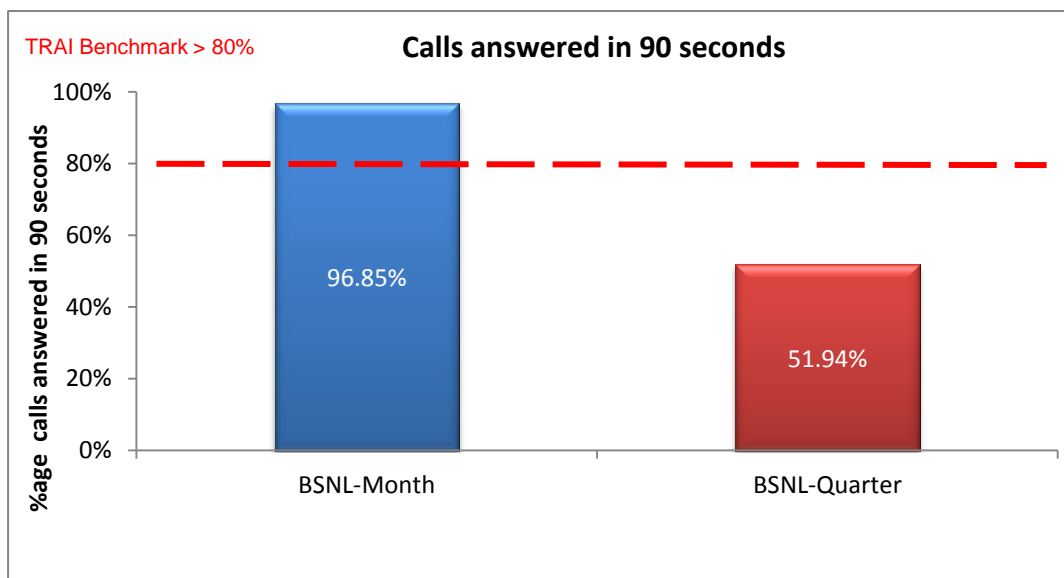
BSNL met the benchmark of calls answered within 90 seconds as per monthly audit, however, was unable to meet the benchmark during quarterly audit.

3.6 BANDWIDTH UTILIZATION

3.6.1 PARAMETER EXPLANATION – BANDWIDTH UTILIZATION

3.6.1.1 AUDIT PROCEDURE

IMRB Auditors verified and collected data pertaining to –

POP to ISP gateway Node [Intra – network] Links

- ✤ Auditors to verify and collect data pertaining to Total Bandwidth available and Total Bandwidth utilized during TCBH at some of the sample intra network links (POP to ISP Node)
- ✤ Total Bandwidth available and Total bandwidth utilized during at the sample links TCBH for the complete month of audit
- ✤ Total number of intra network links having >90% bandwidth utilization during the month of Audit

ISP Gateway Node to IGSP / NIXI Node upstream Link's) for international connectivity

- ✤ Total number of upstream links for International connectivity
- ✤ Total number of links having Bandwidth > 90%Total Bandwidth available and Total Bandwidth utilized on all the upstream links during TCBH (POP to ISP Node)
- ✤ Total Bandwidth available and Total bandwidth utilized at all the international links during TCBH for the complete month of audit (Also obtain details separately for the days)

3.6.1.2 COMPUTATIONAL METHODOLOGY

Percentage Bandwidth available on the link = *Total Bandwidth* utilised in TCBH for the period/ Total Bandwidth Available during the period*100*

3.6.1.3 BENCHMARK

- ✤ < 80% link(s)/route bandwidth utilization during peak hours (TCBH).
- ✤ 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.

3.6.2 DETAILED FINDINGS - BANDWIDTH UTILISATION

Bandwidth Utilisation (One month)	B'mark	BSNL-Month
Total number of intra network links		5
No of Intra network found to be above 90%		0

3.7 SERVICE AVAILABILITY/UPTIME

3.7.1.1 AUDIT PROCEDURE

IMRB Auditors verified and collected data pertaining to –

- Total operational hrs.
- Total downtime hrs.

3.7.1.2 COMPUTATIONAL METHODOLOGY

- Total downtime for all users, including the LAN switches, Routers, Servers, etc. at ISP Node and connectivity to upstream service provider are to be included
- Planned outages for routine maintenance of the system are excluded from the calculation of service availability/uptime

Service availability/Uptime = (Total operational hours – Total Downtime hrs)*100 / Total operational hours

3.7.1.3 BENCHMARK

- 98% with effect from quarter ending September 2007 and onwards

3.7.2 DETAILED FINDINGS - SERVICE AVAILABILITY
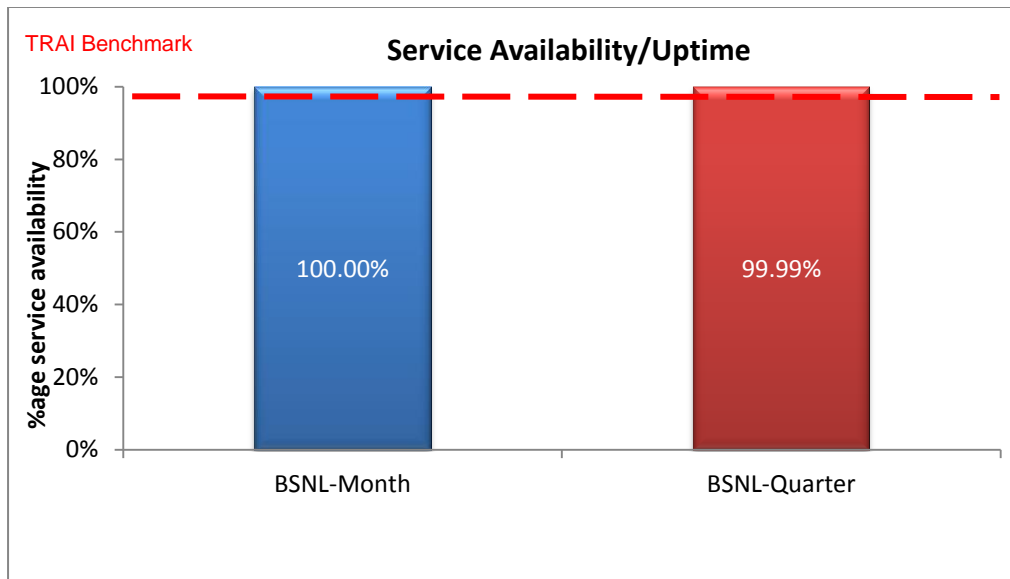
BSNL was able to meet the benchmark service availability/uptime at the time of audit.

3.8 NETWORK LATENCY & PACKET LOSS

3.8.1 PARAMETER EXPLANATION - NETWORK LATENCY

3.8.1.1 AUDIT PROCEDURE

IMRB Auditors verified and collected data pertaining to:

- ✤ Records maintained for ping tests conducted during the period
- ✤ Smoked ping test (wherever available) results for the period

3.8.1.2 COMPUTATIONAL METHODOLOGY

- ✤ Latency is the measure of duration of a round trip for a data packet between specific source and destination Router Port/Customer Premises Equipment (CPE). The round trip delay for the ping packets from ISP premises to the IGSP premises to the IGSP/NIXI gateway and to the nearest NAP port abroad are measured by computing delay for 1000 pings of 64 bytes each (Pings are to be sent subsequent to acknowledgement received for the same for previous ping)
- ✤ Service provider needs to carry out such tests daily during Time Consistent Busy Hour(TCBH) and report the average results for the month in the performance monitoring report to TRAI
- ✤ Minimum sample reference points for each service area shall be three in number or multiple reference points if required

Hence the formula for network latency would be Network latency for X days= *Total round trip time for all the ping packets transmitted in X days /No of days during the period*

3.8.1.3   BENCHMARK

- ↳ < 120 msec from user reference point at POP/ISP Node to International Gateway
- ↳ < 350 msec from User reference point at ISP Gateway Node to International nearest NAP port (Terrestrial)
- ↳ < 800 msec from User reference point at ISP Gateway Node to International nearest Nap port (Satellite)

3.8.2   PARAMETER EXPLANATION - NETWORK LATENCY

3.8.2.1   AUDIT PROCEDURE

IMRB Auditors verified and collected data pertaining to –

- ↳ Records maintained for ping tests conducted during the period
- ↳ Smoked ping test (wherever available) results for the period

3.8.2.2   COMPUTATIONAL METHODOLOGY

- ↳ Packet loss is the percentage of packets lost to total packets transmitted between two designated Customer Premises Equipment's/Router ports. It is the measurement of packet lost from the broadband customer (User) configuration/User reference point at POP/ISP Node to IGSP/NIXI Gateway and to the nearest NAP port abroad
- ↳ The packet loss is measured by computing the percent packet loss of 1000 pings of 64 byte packet each.
- ↳ Service provider needs to carry out such tests daily during Time Consistent Busy Hour(TCBH) and report the average results for the month in the performance monitoring report to TRAI
- ↳ Minimum sample reference points for each service area were three in number or multiple reference points if required

Hence Packet loss is computed by the formula: *(Total number of ping packets lost during the period/Total number of ping packets transmitted)* 100*

3.8.2.3   BENCHMARK

- ↳ Packets Loss <1 %

3.8.3   DETAILED FINDINGS - NETWORK LATENCY / PACKET LOSS

8.1 Audit results for Latency and packet loss		
Network Latency and Packet Loss	Benchmark	BSNL-Month
Packet Loss (Percentage)	< 1%	0.00%
Network Latency		
From user reference point at POP/ISP Node to IGSP/ NIXI (msec)	<120msec	15.18
From user reference point at ISP Gateway Node to nearest NAP Port (Terrestrial) (In msec)	<350msec	NA

0% packet loss was reported during audit.

Network latency for POP/ISP Node to NIXI remained within the benchmark of 120 msec by recording 15.18 msec during audit.

No data has been provided by the operator for ISP node to NAP port (Terrestrial) network latency parameter. A supporting document has been added to the annexure for the same (Section 6.10.1).

4. CRITICAL FINDINGS

Fault Repair

BSNL was able to meet the benchmark for the fault clearance parameters during monthly as well as quarterly audit.

Response Time for Customer Assistance

Customer care parameters are key concern areas for BSNL as it failed to meet the benchmark for both the parameters by a substantial margin as given below.

- Calls answered within 60 seconds (voice to voice) – (Benchmark 60%)

  o Quarterly Audit – 25.47%

- Calls answered within 90 seconds (voice to voice) – (Benchmark 80%)

  o Quarterly Audit – 51.94%

Bandwidth Utilization, Download Speed and Network Latency

BSNL met the benchmark for all audited Bandwidth Utilization, Download Speed and Network Latency parameters during audit.

5. ANNEXURE – JFM'14

Parameters	Benchmarks	BSNL-Quarter
Service provsioning uptime		
Percentage connections provided within 15 days	100%	100.00%
Fault repair restoration time		
Percentage faults repaired by next working days	> 90%	92.03%
Percentage faults repaired within three working days	> 99%	99.45%
Billing performance		
Billing complaints per 100 bills issued	< 2%	0.00%
%age of billing complaints resolved in 4 weeks	100%	NA
%age cases in which refund of deposits after closure was made in 60 days	100%	100.00%
Customer care/helpline assessment (Voice to Voice)		
Percentage calls answered within 60 seconds	> 60%	25.47%
Percentage calls answered within 90 seconds	> 80%	51.94%
Bandwidth utilisation/Throughput		
Intra network links (POP to ISP Node)		5
Total number of intra network links > 90%		0
Upstream Bandwidth (ISP Node to NIXI/NAP/IGSP)		NA
Percentage bandwidth utilised on upstream links	< 90%	NA
Broadband download speed	> 80%	NA
Service availability/uptime	> 98%	99.99%
Packet loss	< 1%	NA
Network Latency		
POP/ISP Node to NIXI (in msec)	< 120 msec	15.18
ISP node to NAP port (Terresrtrial) (in msec)	< 350 msec	NA

6. ANNEXURE – JUNE'14

6.1 SERVICE PROVISIONING

Service Provisioning		
Audit Results for Service provisioning		
	Benchmark	BSNL-Month
Total connections registered during the period		451
Number of connections provided within 15 days		451
Percentage of connections provided within 15 days	100%	100.00%
Number of connections provided after 15 days of registration of demand		NA
Number of customers to whom credit is given for delayed connections		NA
Percentage of customers to whom credit is given for delayed connections	100%	NA

6.2 FAULT REPAIR/ RESTORATION

Fault Incidence / Clearance Statistics		
Audit Results for Fault repair		
Fault repair	Benchmark	BSNL-Month
Total No. of faults registered during the month		1640
No. of faults repaired by next working day during the month		1491
Percentage of faults repaired by next working day during the month	> 90%	90.91%
No. of faults repaired within 3 days during the month		1626
Percentage of faults repaired within 3 days during the month	>99%	99.15%
Rent rebate	Benchmark	BSNL-Month
No. of cases with faults pending for >3 days and ≤7 days		0
Out of these number of cases where rent rebate for 7 days was given		0
Percentage of cases where rent rebate for 7 days was given	100%	100.00%
No. of cases with faults pending for >7 days and ≤15 days		0
Out of these number of cases where rent rebate for 15 days was given		0
Percentage of cases where rent rebate for 15 days was given	100%	100.00%
No. of cases with faults pending for ≥15 days		0
Out of these number of cases where rent rebate for 30 days was given		0
Percentage of cases where rent rebate for 30 days was given	100%	100.00%

6.3 BILLING PERFORMANCE

Billing performance		
‣		
Audit Results for Billing performance		
Billing Performance	**Benchmark**	**BSNL-Month**
Billing diputes		
Total bills generated during the period		29563
Total number of bills disputed		0
Percentage bills disputed	< 2%	0.00%
Resolution of billing complaints		
Total number of complaints		0
Total complaints resolved in 4 weeks from date of receipt		0
Percentage complaints resolved within 4 weeks of date of receipt	100%	NA
Period of refund		
Total number of cases requiring refund		0
Total number of cases where credit/waiver was made within 60 days		0
Percentage cases in which credit/waiver was received within 60 days	100%	NA

6.4 RESPONSE TIME TO THE CUSTOMER FOR ASSISTANCE

Response time to the customer for assistance		
‣		
Audit results for customer care (Voice to Voice)		
Customer Care Assessment	**Benchmark**	**BSNL-Month**
Total Number of calls received		3714
Total Number of calls answered within 60 seconds		3597
Percentage calls answered within 60 seconds	> 60%	96.85%

Audit results for customer care (Voice to Voice)		
Customer Care Assessment	**Benchmark**	**BSNL-Month**
Total Number of calls received		3714
Total Number of calls answered within 90 seconds		3597
Percentage calls answered within 90 seconds	> 80%	96.85%

6.5 BANDWIDTH UTILIZATION

Bandwidth utilization		
Audit results for Bandwidth Utilization		
Bandwidth utilization	Benchmark	BSNL-Month
Intra-network links (POP to ISP Node)		
Total number of intra network links		5
No of Intra network found to be above 90%		0
International Bandwidth		
Total number of upstream links		NA
Total International Bandwidth available from ISP Node to IGSP/NIXI/NAP (In mpbs)		NA
Total International Bandwidth utilised during peak hours		NA
Percentage Bandwidth utilisation during peak hours (In mpbs)	<80%	NA
No of Intra network found to be above 90%		NA

International Bandwidth data was not provided by operator. A supporting document has been added to the annexure (6.10.1).

6.6 BROADBAND DOWNLOAD SPEED

Broadband download speed		
Audit results for broadband download speed		
Broadband download speed	Benchmark	BSNL-Month
Total committed download speed to the sample subscribers (In mpbs) (A)		2
Total average download speed observed during TCBH (In Mpbs) (B)		1.76
%age subscribed speed available to the subscriber during TCBH (B/A)*100	>80%	83.78%

6.7 SERVICE AVAILABILITY/ UPTIME

Service availability/uptime		
Audit results for service availability		
Service Availability	Benchmark	BSNL-Month
Total Operational Hours		2184
Total Downtime		7
Total time when the service was available		2177
Service Availability Uptime in Percentage	>98%	100.00%

6.8 NETWORK LATENCY / PACKET LOSS

Audit results for Latency and packet loss		
Network Latency and Packet Loss	Benchmark	BSNL-Month
Packet Loss (Percentage)	< 1%	0.00%
Network Latency		
From user reference point at POP/ISP Node to IGSP/ NIXI (msec)	<120msec	15.18
From user reference point at ISP Gateway Node to nearest NAP Port (Terrestrial) (In msec)	<350msec	NA

Terrestrial data was not provided by operator. A supporting document has been added to the annexure (6.10.1).

6.9   SAMPLING METHODOLOGY

Telecom Circle	ASSAM
Total No of DSLAM SITE	587
No of SDCA	46
No of LDCA (SSA)	7
No of SDCA	46
NO of PoP	7
30% of PoP	2.1
Rounded	3
ZONAL REPRESENTATION	
WEST ASSAM	BONGAIGAON
NORTH ASSAM	TEZPUR
CENTRAL ASSAM	KAMRUP

6.10 SUPPORTING DOCUMENTS

6.10.1 BANDWIDTH UTILZATION AND NETWORK LATENCY PARAMETERS

Mail Sent by IMRB to BSNL NOC – 04/09/2014

Dear Sir

We have received the attached data in soft copy format from you for Assam and North East LSA.

- Bandwidth Utilization (Section 7.1 in Audit Format)
- Network Latency (Section 11.1 in Audit Format)

Also, we are still waiting for the following data points that you have mentioned as MPLS data.

- International Bandwidth (Section 7.2 in Audit Format)
- From user reference point at ISP Gateway Node to nearest NAP Port (Terrestrial) (In msec) (Section 11.2 and 11.3 in Audit Format)