

**Last Date of Submission of Bid  
By 03.00 PM on 4<sup>th</sup> March 2013**

**TELECOM REGULATORY AUTHORITY OF INDIA**

**Mahanagar Doorsanchar Bhavan,  
Jawaharlal Nehru Marg (Old Minto Road),  
New Delhi – 110 002**

**TENDER DOCUMENT FOR AUDIT**

**Audit & Assessment of Quality of Service**

**5<sup>th</sup> February 2013**

## CONTENTS

<b>Sl</b>	<b>Section</b>	<b>Title</b>	<b>Page No.</b>
1		Notice inviting tender	1
2	Section- I	Tender Conditions and Instructions to Bidders	3
3	Section- II	Terms of Reference	15
4	Section- III	Schedule for Financial Bid	38
5	Section- IV	Technical Proposal – Sample Formats	41
6	Annexure-1	Format of Performance Bank Guarantee	47
7	Annexure-2 A	Details of Telecom Circle/Metro Service Area, service provider (licensees) and subscriber base for Basic and Cellular Mobile Telephone service providers	49
8	Annexure-2 B	Details of Broadband service provider (licensees) and subscriber base	55
9	Annexure-2 C	Details of telephone exchanges of Basic (wireline) service providers	57
10	Annexure-2 D	Details of MSCs and BTS' of Cellular Mobile Telephone service providers	61

# **TENDER DOCUMENT FOR AUDIT**

## **Invitation of Bids for Audit & Assessment of Quality of Service**

### **Notice Inviting Tender**

1. Telecom Regulatory Authority of India, Mahanagar Doorsanchar Bhavan, Jawaharlal Nehru Marg (Old Minto Road), New Delhi – 110002 (hereinafter referred to as TRAI) invites sealed tender from companies/ firms (hereinafter referred to as audit agency), who satisfy the following eligibility conditions, for conducting audit and assessment of quality of service of service providers, in terms of the benchmarks specified in the “The Standards of Quality of Service of Basic Telephone Service (Wireline) and Cellular Mobile Telephone Service Regulations, 2009 (7 of 2009) dated 20<sup>th</sup> March, 2009 and the Quality of Service of Broadband Service Regulations, 2006 (11 of 2006) dated 6<sup>th</sup> October, 2006 on zonal basis (East zone, West Zone, North Zone and South Zone), namely:-

(i) the audit agency should have a turnover of not less than rupees one crore during the financial year 2011-12 and should have a minimum cumulative turnover of rupees three crores in the last three consecutive financial years;

(ii) the audit agency should have similar experience of at least two years in conducting audit /assessment of Quality of Service and should have sufficient staff and infrastructure to carry out the audit and assessment of Quality of Service as per the Terms of Reference; and

2. (i) The Zones shall comprise of the following Telecom Circle/Metro Service Areas:

**North Zone:** Delhi, Jammu & Kashmir, Himachal Pradesh, Punjab, Haryana, Rajasthan, Uttar Pradesh-East and Uttar Pradesh-West (including Uttarakhand). For the cellular mobile telephone service the service area of Delhi includes Ghaziabad, Faridabad, Noida and Gurgaon.

**South Zone:** Chennai, Andhra Pradesh, Karnataka, Tamilnadu (excluding Chennai) and Kerala.

**West Zone:** Mumbai, Maharashtra (including Goa and excluding Mumbai), Gujarat and Madhya Pradesh (including Chhattisgarh).

**East Zone:** Kolkata, West Bengal (including Andaman & Nicobar, Sikkim and excluding Kolkata), Bihar (including Jharkhand), Orissa, Assam and North East which includes Arunachal Pradesh, Meghalaya, Mizoram, Nagaland, Manipur and Tripura.

(ii) Details of the areas covered under each Telecom Circle/ Metro Service Area are given in the tender document:

3. A copy of the Tender Document is available at TRAI's website [www.trai.gov.in](http://www.trai.gov.in) and may be downloaded for submission purpose. **The audit agencies shall submit technical as well as financial bids each in separate sealed covers.** The bidder shall submit, for both Technical and Financial bid, one set marked as 'Original Bid' along with 4 copies of the same marking as 'Copy No.1, Copy No.2, Copy No.3, Copy No.4'. In the event of any discrepancy between the copies, the Original shall govern. Each page of the tender document and clarifications/corrigendum issued, if any, is to be signed in token of the companies/firms having read and accepted the terms and conditions. The name, address, Fax number, telephone/mobile number and e-mail of the bidder should clearly appear on the envelope. The Tender number and date of Tender opening should also appear on the envelope. Any cutting/overwriting in the technical and financial bid should be attested by the person signing the bid. Bid received with cutting/overwriting without such attestation will not be considered.

4. An audit agency can submit bids for one or more Zones in separate sealed covers. The bids in separate sealed covers for each Zone must be accompanied by earnest money of Rs.3,00,000/- (Rupees three lakh only), as per the details given in clause 3 of the section-I of the tender document.

5. The bid, complete in all respects, should be submitted, not later than 3.00 PM on the **4<sup>th</sup> March, 2013**, to Joint Advisor (QoS), Telecom Regulatory Authority of India, Room No.521, 5th Floor, Mahanagar Doorsanchar Bhavan, Jawaharlal Nehru Marg (Old Minto Road), New Delhi-110 002. The technical proposals will be opened at **3.30 PM on 4<sup>th</sup> March, 2013**. If they so desire, the bidders may be present at the time of opening of the bids. A pre-tender conference will be held with the prospective bidders on **22<sup>nd</sup> February, 2013 at 3.00 PM** in the Conference Hall of TRAI on 3rd Floor, Mahanagar Doorsanchar Bhavan Jawaharlal Nehru Marg (Old Minto Road), New Delhi-110002. The prospective audit agency may, on their own, attend the said conference without waiting for any further communication.

**6. Unsealed bids or bids without the earnest money deposit shall be summarily rejected.**

7. **Late Bids:** The bids received, either by post or in person, after the due date and time of submission of bids shall be summarily rejected and will be returned unopened.

8. The audit agencies may be required to give a presentation on the technical aspects and their ability to perform the work for which date will be advised separately.

**(Sandeep Kumar Singhal)**  
**Joint Advisor (QOS)**

## SECTION- I

### TENDER CONDITIONS AND INSTRUCTIONS TO BIDDERS

#### 1. Background

1.1 Telecom Regulatory Authority of India has vide its Regulations “The Standards of Quality of Service of Basic Telephone Service (Wireline) and Cellular Mobile Telephone Service, 2009 (7 of 2009) Regulations, 2009” dated the 20<sup>th</sup> March, 2009 published in the Gazette of India Extraordinary Part-III-Section 4 dated the 23<sup>rd</sup> March, 2009, laid down the Quality of Service parameters applicable to the basic telephone service (wireline) and cellular mobile telephone service. A copy of the said regulations is available at TRAI website [www.trai.gov.in](http://www.trai.gov.in). These regulations are applicable to all the Basic Telephone Service Providers/ Unified Access Service Providers and Cellular Mobile Telephone Service Providers, including BSNL and MTNL. Regulations 3 and 4 of these regulations provide Quality of Service (QoS) parameters pertaining to Basic Telephone Service and regulations 5 and 6 provide for QoS parameters pertaining to Cellular Mobile Telephone Service.

1.2 Telecom Regulatory Authority of India has vide its Regulations “Quality of Service for Broadband Service Regulations, 2006” dated the 6<sup>th</sup> Oct. 2006 (11 of 2006) published in the Gazette of India Extraordinary Part-III-Section 4 dated the 6<sup>th</sup> Oct, 2006, laid down the Quality of service parameters applicable to the broadband services. A copy of the said regulations is available at TRAI website [www.trai.gov.in](http://www.trai.gov.in). These regulations are applicable to all the Internet Service Providers, Basic Telephone Service Providers and Unified Access Service Providers providing broadband services. S. No. (i) to (viii) of regulation 3 of these regulations provide for QoS parameters, other than the parameters relating to customer perception of service, to be achieved by service providers.

#### 2. Clarification on Tender Document and Pre-Tender Conference

2.1 A prospective bidder, requiring any clarification on the tender document, may submit in writing the request for any clarification not **later than 4.00 PM of 18<sup>th</sup> February, 2013 to Joint Advisor (QoS)**, Telecom Regulatory Authority of India, 5th Floor, Mahanagar Door Sanchar Bhavan, Jawaharlal Nehru Marg (Old Minto Road), New Delhi-110002 (FAX No.011-23213036). Copies of the query (without identifying the source) and clarifications by TRAI shall be uploaded on TRAI website.

2.2 Any clarification issued by TRAI in response to query raised by prospective bidders shall form an integral part of tender document and it may amount to an amendment of relevant clauses of the tender document.

2.3 The bidders are required to keep a watch on the TRAI Website [www.trai.gov.in](http://www.trai.gov.in) for any amendment to the tender document or for clarifications in response to the queries raised by the bidders up to a day prior to the last date for submission of bids. TRAI reserves the right to reject

any bids if the bids are submitted without taking into account these amendments/ clarifications. Further, the prospective bidders shall be fully responsible for downloading of the amendments, if any, made in the tender document and clarifications, if any issued by TRAI and TRAI accepts no responsibility whatsoever in this regard.

2.4 The request for clarification received as per para 2.1 above shall be, to the extent possible, clarified in the pre-tender conference. The pre-tender conference will be held with the prospective audit agencies, for technical discussion/clarifications on technical and other matters regarding terms and conditions of the tender document. This conference will be held on **22<sup>nd</sup> February, 2013 at 3.00 PM** in the Conference Room of TRAI located on the 3rd Floor, Mahanagar Doorsanchar Bhavan, New Delhi-110002. As a result of the discussion in this pre-tender conference, if any modifications to the tender document are considered necessary, suitable corrigenda/addenda to the tender document will be issued. A copy of such corrigenda/addenda will be uploaded on TRAI website. The prospective audit agencies should, on their own, attend the said conference without waiting for any further communication.

### **3. Earnest Money Deposit (EMD)**

3.1 The prospective audit agency shall submit along with their bid a bank draft for a sum of **Rs.3,00,000 (Rupees Three Lakhs only)** drawn on any scheduled bank in favour of "TRAI" payable at Delhi as earnest money for each Zone separately. Any bid not accompanied by earnest money shall be summarily rejected. **The EMD shall be submitted with the Technical Bid.** No interest shall be payable on the EMD submitted with TRAI. The earnest money will be refunded to the unsuccessful bidders after finalisation of the tender. The EMD will be returned to the successful bidder after signing of the agreement.

3.2 The EMD may be forfeited in any of the following circumstances:

- (a) If the bidder withdraws his bid during the period of validity of bids.
- (b) In the case of successful bidder, if the bidder fails:
  - (i) to sign the agreement; or
  - (ii) to furnish Performance Bank Guarantee in accordance with Clause 9 of this Section.

### **4. Eligibility**

4.1 The companies/firms (hereinafter referred to as audit agency) who satisfy the following conditions are eligible for bidding, namely:

- (i) The audit agency should have a turnover of not less than rupees one crore during the financial year 2011-12 and should have a minimum cumulative turnover of rupees three crores in the last three consecutive financial years.

- (ii) The audit agency should have experience of at least two years in conducting audit /assessment of Quality of Service and should have sufficient staff and infrastructure to carry out the audit and assessment of Quality of Service as per the Terms of Reference.

4.2 The audit agency should submit documentary evidence regarding fulfilment of the above eligibility conditions including the income tax clearance/ IT Certificate and PAN Number.

## **5. Terms of Reference**

The Terms of Reference for audit and assessment of Quality of Service provided by service providers is given in **Section-II**.

## **6. Schedule for Financial Bids**

Schedule for Financial Bids is available at **Section-III**. The quotation shall include all levies, duties and taxes including service tax.

## **7. Technical Proposal**

Standard formats for technical proposal are given in **Section-IV**. All the necessary details are required to be filled by the bidders and submitted before the last date and time of submission.

## **8. Last date (due date) for submission of bids**

The bid should be submitted not later than **03.00 PM** on 4<sup>th</sup> March, **2013**. Any bid received after this specified date shall be rejected and returned unopened to the bidder.

## **9. Performance Bank Guarantee Bond**

9.1 The selected audit agency shall furnish a Performance Bank Guarantee in the proforma given at **Annexure-1** from any scheduled Bank in India within 15 (fifteen) days from the date of receipt of the letter of acceptance by the audit agency for an amount equivalent to 10% (ten per cent) of the value of the contract before signing of the agreement. In case the furnishing of an acceptable Performance Bank Guarantee is delayed by the audit agency beyond the afore-mentioned period, TRAI may cancel the said letter of acceptance and forfeit the Earnest Money Deposit (EMD) submitted by the audit agency. Initially, the bank guarantee shall be valid for a period of one year and six months. The Audit agency on its own shall extend the validity period of the bank guarantee on similar terms at least one month prior to the day of its expiry without any demand or notice from the TRAI. The bank guarantees shall be kept valid for an extended period of six months beyond the period of agreement. Any failure to do so, shall amount to violation of the terms of the agreement and entitle the TRAI to encash the bank guarantee and to convert it into a cash security without any reference

to the Audit agency at its risk and cost. No interest or compensation whatsoever shall be payable by the TRAI on such encashment. On satisfactory completion of the contract in all respects, as per the terms and conditions specified in the tender document and contract agreement, the Performance Bank Guarantee shall be returned to the audit agency. No interest in any form shall be payable by TRAI to the audit agency before or after expiry of the Performance Bank Guarantee

9.2 In case the agreement is extended to cover audit & assessment work for one more year, the audit agency shall submit, within 15 (fifteen) days of intimation about such extension by TRAI, a fresh Performance Bank Guarantee for amount equivalent to 10% (ten per cent) of the value of the contract for the extended period or extended work, as the case may be, in similar manner and shall also extend by one year, the validity of such performance bank guarantee one month before its expiry in the same manner as indicated in clause 9.1 above.

9.3 Without prejudice to its rights to terminate the agreement and to pursue any other remedy available to it under the law, TRAI may forfeit full or part of the Performance Bank Guarantee in case –

- (i) the audit agency fails to carry out the assigned task as per the terms and conditions specified in the tender document and agreement; or
- (ii) the report is not as per the format approved by TRAI; or
- (iii) the report contains information, which is found to be factually incorrect or materially wrong by TRAI.

## **10. TRAI's right to accept or reject a bid without assigning any reason**

TRAI reserves the right to accept or reject any bid without assigning any reason.

## **11. Opening and evaluation of the Bid**

11.1 The bids shall be evaluated by the Tender Evaluation Committee based on both techno-commercial and financial aspects as stipulated in this tender document.

11.2 The technical bids will be technically evaluated giving due consideration to the audit agency's conformity with the tender conditions, its capability to perform the assignment, past experience in carrying out works of similar nature, profile of personnel to be engaged for this assignment and financial capability. The audit agencies may be called to make presentation to the tender evaluation committee constituted for this purpose. They shall furnish the clarifications/ detailed explanations on the technical proposals, if sought by TRAI or by the tender evaluation committee.



11.3 The financial bids, of only those bidders who qualify in the evaluation of the technical bids, will be opened and evaluated giving due consideration to the total quoted price on Zonal basis i.e. as a package covering all three services viz Basic Telephone Service (Wireline), Cellular Mobile Telephone Service and Broadband service in all service areas/circles in respective Zone. Total quoted price for a zone only will be taken for ranking of bids from lowest quoted to highest quoted. Arithmetical errors shall be rectified on the following basis:-

“If there is a discrepancy between words and figures, the amount in words shall prevail. If there is discrepancy in the total arrived at and the rates quoted for each service area of a zone, the total shall be corrected taking into account the rates quoted for the service areas within the zone. If the bidder does not accept the correction of the errors, his bid shall be rejected”.

11.4 In situations where lowest quoted rates (L1) of two or more bidders for a Zone are same, in such cases fresh round of financial bidding from such bidders shall be called. The lowest valid offer shall be declared successful.

11.5 TRAI reserves the right to award the audit work for any service area/ circle in the tendered Zone to any other audit agency or organization at its discretion and the successful bidder for the Zone shall have no objection to the awarding of such audit work in respect of such service area/ circle to such audit agency or organization on the ground that such audit agency or organization has not participated in the tender process and to the corresponding reduction in the total bid amount quoted by the successful bidder for the entire Zone.

## **12. Validity of Contract**

The agreement for undertaking audit & assessment of Quality of Service will be valid for a period of 18 (eighteen) months from the date of signing of the agreement, covering audit & assessment of Quality of Service for one year covering four quarters as specified in the tender. The quarter is defined as a period of three continuous calendar months ending 31<sup>st</sup> March, 30<sup>th</sup> June, 30<sup>th</sup> September and 31<sup>st</sup> December. The contract period may be extended for one more year at the same rate and terms & conditions as per the agreement, at the sole discretion of TRAI, to cover the audit and assessment of Quality of Service in the next year.

## **13. Force Majeure**

13.1 If the performance in full or part as specified in the agreement is prevented, restricted, delayed or interfered by reasons of-

- i) fire, explosion, cyclone, floods;
- ii) war, revolution, acts of public enemies, blockage, or embargo;

- iii) any law, order, proclamation, ordinance, demand or requirements of any Government, or authority or representative of any Government;
- iv) strikes, shut-downs or labour disputes which are not instigated for the purpose of avoiding obligations herein; or
- v) any other circumstances beyond the control of the party affected;

then, notwithstanding anything contained hereinbefore, the party affected may be excused from its performance to the extent such performance relates to such prevention, restriction, delay or interference, provided the party so affected uses its best efforts to remove such cause of non-performance, and when removed, the party shall continue performance with utmost urgency.

13.2 If at any time during the performance of the contract, the audit agency should encounter condition impeding timely completion of the work, the audit agency shall promptly notify to the TRAI in writing the fact of the delay, its likely duration and its causes. As soon as practicable after receipt of the notice of audit agency, the TRAI may evaluate the situation and may at its discretion extend the period for performance of the contract after mutual discussion with the audit agency.

#### **14. Termination:**

14.1 TRAI reserves the right to terminate the agreement (i) if the audit agency fails to carry out the work as per the terms and conditions in the tender documents/agreement or (ii) if the reports are delayed or (iii) if the reports are materially incorrect. The decision of TRAI as regards such material incorrectness of the report shall be final and binding on the audit agency.

14.2 Delivery of the performance of the work shall be made by the audit agency in accordance with the time schedule specified by TRAI. In case the work is not completed in the stipulated delivery period, as indicated in the agreement, TRAI reserves the right to foreclose/terminate the agreement and/or impose a penalty as per clause 17. The termination/foreclosing of the agreement shall be at the risk and responsibility of the audit agency and TRAI reserves the right to get the work completed for the remaining part at the risk and cost of the defaulting audit agency.

#### **15. Indemnity**

In no event shall TRAI be liable to audit agency for special, direct, indirect or any other damages in connection with or arising out of the performance or use of services provided by the audit agency under this agreement. The audit agency shall indemnify TRAI in respect of any damages, claim, loss or action against TRAI for act of commission or omission on the part of the audit agency, its agents or servants.

## 16. Coordination

16.1 The audit agency shall appoint one of its employees as coordinator who shall represent the audit agency in all dealings with TRAI.

16.2 All correspondence relating to the Tender shall be addressed to Joint Advisor (QOS), Telecom Regulatory Authority of India, Mahanagar Doorsanchar Bhavan, New Delhi-110 002.

## 17. Payment terms:

17.1 Payment shall be made after completion of audit and assessment of quality of service and submission of the reports as per the following schedule and after TRAI is satisfied that the report submitted by the audit agency complies with the formats, norms and quality specified in the agreement:-

<b>Sl. No.</b>	<b>Schedule</b>	<b>% payment in terms of total payment for one year</b>
1.	Submission of all final reporting formats by the audit agency for audit and assessment of quality of service incorporating modifications /corrections suggested by TRAI and its acceptance	Ten percent (10%) of the total contract price.
2.	Submission of the audit and assessment of Quality of Service reports conducted during the first quarter for the specified service areas in all the zones for basic telephone service (wireline), cellular mobile telephone service and broadband service and acceptance of the report by TRAI	Ninety percent (90%) of the contract price for each of the service areas covered for basic telephone service and broadband service; and Twenty Two and Half percent (22.50%) of the contract price for each of the service areas covered for cellular mobile telephone service
3.	Submission of the audit and assessment of Quality of Service reports conducted during the second quarter for the specified service areas in all the zones for basic telephone service (wireline), cellular mobile telephone service and broadband service and acceptance of the report by TRAI	Ninety percent (90%) of the contract price for each of the service areas covered for basic telephone service and broadband service; and Twenty Two and Half percent (22.50%) of the contract price for each of the service areas covered for cellular mobile telephone service
4	Submission of the audit and assessment of Quality of Service reports conducted during the	Ninety percent (90%) of the contract price for each of the service areas covered for basic

	third quarter for the specified service areas in all the zones for basic telephone service (wireline), cellular mobile telephone service and broadband service and acceptance of the report by TRAI	telephone service and broadband service; and Twenty Two and Half percent (22.50%) of the contract price for each of the service areas covered for cellular mobile telephone service
5.	Submission of the audit and assessment of Quality of Service reports conducted during the fourth quarter for the specified service areas in all the zones for basic telephone service (wireline), cellular mobile telephone service and broadband service and acceptance of the report by TRAI	Ninety percent (90%) of the contract price for each of the service areas covered for basic telephone service and broadband service; and Twenty Two and Half percent (22.50%) of the contract price for each of the service areas covered for cellular mobile telephone service

17.2 In case the validity of the agreement is extended for one more year, in accordance with clause 12 hereinbefore, payment for the extended period will be made as follows:

<b>Sl. No.</b>	<b>Schedule</b>	<b>% payment in terms of total payment for one year</b>
1.	Submission of the audit and assessment of Quality of Service reports conducted during the first quarter for the specified service areas in all the zones for basic telephone service (wireline), cellular mobile telephone service and broadband service and acceptance of the report by TRAI	Hundred percent (100%) of the contract price for each of the service areas covered for basic telephone service and broadband service; and Twenty Five percent (25%) of the contract price for each of the service areas covered for cellular mobile telephone service
2.	Submission of the audit and assessment of Quality of Service reports conducted during the second quarter for the specified service areas in all the zones for basic telephone service (wireline), cellular mobile telephone service and broadband service and acceptance of the report by TRAI	Hundred percent (100%) of the contract price for each of the service areas covered for basic telephone service and broadband service; and Twenty Five percent (25%) of the contract price for each of the service areas covered for cellular mobile telephone service
3.	Submission of the audit and assessment of Quality of Service reports conducted during the third quarter for the specified service areas in all the zones for basic telephone service (wireline), cellular mobile telephone service	Hundred percent (100%) of the contract price for each of the service areas covered for basic telephone service and broadband service; and Twenty Five percent (25%) of the contract price for each of the

	and broadband service and acceptance of the report by TRAI	service areas covered for cellular mobile telephone service
4	Submission of the audit and assessment of Quality of Service reports conducted during the fourth quarter for the specified service areas in all the zones for basic telephone service (wireline), cellular mobile telephone service and broadband service and acceptance of the report by TRAI	Hundred percent (100%) of the contract price for each of the service areas covered for basic telephone service and broadband service; and Twenty Five percent (25%) of the contract price for each of the service areas covered for cellular mobile telephone service

17.3 The audit work shall be completed and all the reports shall be submitted within the respective time limits as specified in the tender or agreement. **In respect of Cellular Mobile Telephone service, all the license service areas/Circles shall be audited in every quarter of the year i.e. a service area will be audited four times in a year. However, In respect of Basic telephone service (wireline) and Broadband service, a service area/Circle shall be audited only once in a year.** The reports of audit and assessment of Basic (wireline) and Broadband services are to be submitted on quarterly basis along with the Cellular Mobile Telephone Service audit reports as specified in para 5.4 of TOR. No extension of time for completion of the audit and assessment work and for submission of the report thereof shall be given, except in exceptional circumstances which, in the opinion of TRAI, necessitate such extension.

**Penalty:**

17.4 In case the **quarterly** consolidated reports of the audit and assessment of Quality of Service is delayed, a penalty shall be levied by TRAI at the rate of –

- (a) 5% (five per cent) of the value of **quarterly** contracted work for audit and assessment of Quality of Service, for the first week of delay;
- (b) 5% (five per cent) of the value of **quarterly** contracted work for audit and assessment of Quality of Service, for the second week of delay;
- (c) 40% (forty per cent) of the value of **quarterly** contracted work for audit and assessment of Quality of Service, for delay beyond two weeks and up to four weeks;

which shall be deducted from the amount payable to the Audit agency by TRAI. In case the **quarterly** consolidated report for audit and assessment of Quality of Service is delayed beyond four weeks, the report shall not be accepted and no payment shall be made by TRAI for such delayed report submitted after four weeks of due date for submission of the report.

17.5 In case the audit report is found by TRAI to be materially or factually incorrect or is not as per the format of report approved by TRAI, the report shall be liable to be rejected and no payment will be made for such contracted work if rejected by TRAI and TRAI may also forfeit and encash the Performance Bank Guarantee. The decision of TRAI as regards such material or factual incorrectness of the report shall be final and binding on the audit agency.

17.6 Without prejudice to the provisions contained in Clause 17.5, in any specific case where the report submitted by the Audit agency for any **quarterly** period is found by TRAI to be incomplete in respect of any of the parameters specified in the format of the report approved by TRAI or the extent of work as carried out by the audit agency falls short of the prescribed quantum and the parameters or the quantum of work so left incomplete does not exceed ten per cent of the total parameters or quantum of work, as the case may be, laid down for all Service Areas in the Zone which are covered in the **quarterly** period and the non-completion of such parameters/quantum of work does not impact the report in general and it is possible to make comparison of performance of all the service providers in the respective Service Area for various parameters of quality of service covered under the assignment, or where such comparison of performance of all the service providers is impacted by such incompleteness of the work/report in only one service area, TRAI may, at its discretion, accept such a report:

Provided that the payment for such incomplete report shall be reduced by-

- (a) ten percent of the total amount payable for the Service Areas which are covered in that **quarterly** period to which such report pertains, if the report does not impact the comparison of performance of the service providers in all service areas covered in the **quarterly** period;
- (b) a sum equivalent to the proportionate value of the quarterly payment attributable to the particular Service Area, in case if the deficiency or incompleteness of any parameters or quantum of work in such report impacts the report itself and it is not possible to make a comparison of the performance of all the service providers in that Service Area.

Provided further that in case such deficiency as referred to in clause (b) of the first proviso is noticed in the report for more than one Service Area or the uncompleted portion of the audit work is more than ten percent in the service areas covered in the **quarterly** period, such report shall not be accepted by TRAI and no payment whatsoever will be made for the entire **quarterly** report and such non-payment for the **quarterly** report shall be without prejudice to the rights of TRAI to foreclose or cancel the agreement and that such foreclosure or cancellation of the contract shall be at the risk and responsibility of the audit agency and that TRAI shall be free to get the work completed for the remaining part of the contract at the risk and cost of

the audit agency. The Performance Bank Guarantee of the audit agency shall also be forfeited in such cases.

Provided also that the decision of TRAI as regards the acceptability of such **quarterly** reports and the quantum of payment for such **quarterly** report shall be final and binding on the audit agency.

## **18. Confidentiality**

- 18.1 The bidder shall treat all the information provided by the TRAI as confidential and shall not share this information without the written permission of the TRAI. The reports, data, etc. submitted by the bidder shall be the exclusive property of TRAI and the bidder shall not disclose the contents of such reports, data, results, etc. to any third party without the written consent of TRAI. This condition shall survive the termination of the contract with the bidder.
- 18.2 All information gathered during the audit and assessment of Quality of Service and reports will be the sole property of TRAI. The audit agency will not transfer / pass on the information of one service provider to another service provider or to any third party under any circumstances.
- 18.3 The Bidder shall not publish, disclose any information about, make available or otherwise dispose of the document /data / software or any part or parts thereof to any third party, directly or indirectly without prior written consent of TRAI.
- 18.4 The bidder shall restrict access to the documents / data / software only to those of their employees to whom it will be felt necessary and relevant for this project and shall draw the provision of this undertaking to the personal attention of those of its employees to whom access to the document/data/software will be granted.
- 18.5 The bidder shall bear all costs associated with the preparation and submission of the bid. The Authority will, in no case, be responsible or liable for these costs, regardless of the conduct or outcome of the bidding

## **19. Laws governing contract**

The laws of India in force for the time being shall govern the agreement.

## **20. Jurisdiction of courts**

The courts of law located at New Delhi/Delhi shall alone have the jurisdiction to decide any dispute arising out of or in respect of the agreement entered into pursuant to this tender.

## **21. Arbitration**

In the event of any dispute arising between the TRAI and the Audit agency, the matter shall be referred to the Secretary, TRAI who may himself act as sole arbitrator or may name as sole arbitrator an officer of the TRAI notwithstanding the fact that such officer has been directly or indirectly associated with the tender process or the contract between the parties. The Audit agency shall not be entitled to raise any objection to the appointment of such officer of TRAI as the sole arbitrator. The award of the arbitrator shall be final and binding on both the parties, subject to the provisions of the Arbitration and Conciliation Act, 1996 and rules made thereunder for the time being in force. The parties expressly agree that the arbitration proceedings shall be held at New Delhi. The language of arbitration shall be English.

## **22. Language of the bid:**

The bid shall be submitted in English language.

## **23. Currency for the financial bid:**

The financial bid shall be quoted in Indian Rupees (INR). The bid shall be inclusive of all taxes, levies and duties including service tax etc. Any change in any prevailing tax structure or imposition of any new tax by the competent authority shall be borne by the audit agency.

## **24. Bid validity period:**

The bid shall remain valid for 120 (one hundred twenty) days from the date of submission of the bid.

## **25. Further assigning of tender in whole or part:**

The audit agency shall not assign or make over contract, the benefit or burden thereof to any other person or persons or body corporate. No under letting or subletting to any person or body corporate for the execution of the contract or any other part thereof is permitted under any circumstances.

## **26. False information:**

In the event of furnishing false/incorrect information by the audit agency the EMD in respect of such agency shall be forfeited. Further, during the performance of the contract, it is detected that the contract has been obtained by furnishing the false/incorrect information in the tender, the agreement is liable to be terminated and performance bank guarantee and other payments due to audit agency shall be forfeited and the audit agency shall be liable to be blacklisted.



## **SECTION-II**

### **TERMS OF REFERENCE FOR AUDIT AND ASSESSMENT OF QUALITY OF SERVICE OF SERVICE PROVIDERS**

#### **1. Objective:**

1.1 Telecom Regulatory Authority of India has been entrusted to lay-down the standards of quality of service to be provided by the service providers and ensure the quality of service and conduct the periodical audit of such services provided by the service providers so as to protect the interest of the consumers of telecommunications service.

1.2 The Standards of Quality of Service of Basic Telephone Service (Wireline) and Cellular Mobile Telephone Service, Regulations, 2009 (7 of 2009) dated 20<sup>th</sup> March, 2009 and Quality of Service of Broadband Service Regulations, 2006 (11 of 2006) dated 6th October, 2006 specify benchmarks for the parameters on Quality of Service (QoS) to be achieved by service providers. A copy of the said regulations is available at TRAI's website [www.traigov.in](http://www.traigov.in). The objective of the Terms of Reference is to carry out audit and assessment of quality of service of service providers. For this purpose, TRAI wants to engage an audit agency for audit and assessment of Quality of Service of service providers for Basic (Wireline) Telephone Services, Broadband and Cellular Mobile Telephone Services, as per the scope of work indicated in clause 2.

1.3 The scope of work Audit and Assessment of Quality of Service of service providers includes:

- (a) Preparation of Performance Monitoring reports (PMRs) and up-loading in the system.
- (b) Live measurements of the performance of Service Providers (SPs) against the benchmarks for three days during each audit.
- (c) Monthly audit based on one month data of the SPs.
- (d) Drive test of the RF networks.
- (e) Audit of the performance of call centres with respect to their accessibility and percentage of calls answered by the operators and random customer feedback by calling the customers to get feedback of the services provided by the service providers.
- (f) Transfer of data generated by the RF drive test / Live measurements / PMR/ monthly audit to the server located at TRAI premises on real time basis.

1.4 S. No. (i) to (xii) of regulation 3 pertaining to Quality of Service (QoS) parameters for Basic Telephone Service, S. No. (i) to (x) of regulation 5 pertaining to QoS parameters for Cellular Mobile Telephone Service specified under the Standards of Quality of Service of Basic Telephone Service (Wireline) and Cellular Mobile Telephone Service Regulations, 2009 (7 of

2009) dated the 20<sup>th</sup> March, 2009 and S. No. (i) to (viii) of regulation 3 of Quality of Service of Broadband service Regulations, 2006 (11 of 2006) contain the parameters and benchmarks of the Quality of Service to be achieved by the service providers.

1.5 The parameters for Basic Telephone Service (Wireline) consist of various QoS indicators, which can be audited and assessed objectively. The list contains parameters like fault incidences, call completion rates/answer to seizure ratio, POI congestion and customer service parameters viz. mean time to repair faults, metering and billing credibility (post paid and pre paid), resolution of billing/charging complaints, period of applying credit/waiver/adjustment to customer's account, response time to the customer for assistance, termination/closure of service, time taken for refund of security deposit after closures; provision of a telephone after registration of demand, shift of telephone connection, etc.

1.6 The parameters of Quality of Service for cellular mobile telephone services are specified under the head (A) Network Service Quality Parameters (B) Customer Service Quality Parameters. The Network Service Quality Parameters include the parameters related to (i) Network Availability (ii) Connection Establishment, (iii) Connection Maintenance (iv) POI Congestion. The Customer Service Quality Parameters include metering and billing credibility (postpaid and prepaid), resolution of billing/charging complaints, period of applying credit/waiver/adjustment to customer's account, response time to the customer for assistance, termination/closure of service and time taken for refund of security deposit after closures. The parameter related to the Service coverage is to be audited and monitored during drive test.

1.7 The parameters of Quality of Service for broadband services, specified in the regulation 3 of Quality of Service of Broadband Services Regulations, 2006, include service provisioning/activation time, fault repair and restoration time, billing performance, response time to customer for assistance, bandwidth utilization/ throughput, service availability, packet loss and network latency.

1.8 TRAI may modify the above parameters and benchmarks and may also add new parameters from time to time during the currency of contract and the bidder shall be bound by it.

1.9 The detailed explanation and measurement methodology of each parameters and benchmarks for Basic Telephone Service (Wireline), Cellular Mobile Telephone Service and Broadband Service are given in the Explanatory Memorandum of the regulations mentioned in Clause 1.2. The parameters, whose data is to be monitored, verified and audited, but not limited to, are as follows:

(i) Cellular Mobile Telephone Service:

Serial Number	Name of Parameter	Benchmark	Averaged over a period
A	Network Service Quality Parameters:		
(i)	Network Availability		
	(a) BTSs Accumulated downtime (not available for service)	$\leq 2\%$	One Month
	(b) Worst affected BTSs due to downtime	$\leq 2\%$	One Month
(ii)	Connection Establishment (Accessibility)		
	(a) Call Set-up Success Rate(within licensee's own network)	$\geq 95\%$	One Month
	(b) SDCCH/ Paging Channel Congestion	$\leq 1\%$	One Month
	(c) TCH Congestion	$\leq 2\%$	One Month
(iii)	Connection Maintenance (Retainability)		
	(a) Call Drop Rate	$\leq 2\%$	One Month
	(b) Worst affected cells having more than 3% TCH drop (call drop) rate	$\leq 5\%$ upto 31.03.2011 $\leq 3\%$ From 01.04.2011	One Month
	(c) connections with good voice quality	$\geq 95\%$	One Month
(iv)	Point of Interconnection (POI) Congestion ( on individual POI)	$\leq 0.5\%$	One Month
B	Customer Service Quality Parameters:		
(v)	Metering and billing credibility – post paid	Not more than 0.1% of bills issued should be disputed over a billing cycle	One Billing Cycle
(vi)	Metering and billing credibility -- pre-paid	Not more than 1 complaint per 1000 customers i.e. 0.1% complaints for metering, charging, credit, and validity	One Quarter

(vii)	(a) Resolution of billing/ charging complaints	100% within 4 weeks	One Quarter
	(b) Period of applying credit/ waiver/ adjustment to customer's account from the date of resolution of complaints	within 1 week of resolution of complaint	One Quarter
(viii)	Response Time to the customer for assistance		
	(a) Accessibility of call centre/ customer care	≥ 95%	One Quarter
	(b) Percentage of calls answered by the operators (voice to voice) within 60 seconds	≥ 90%	One Quarter
(ix)	Termination/ closure of service	≤ 7 days	One Quarter
(x)	Time taken for refund of deposits after closures	100% within 60 days	One Quarter

(ii) Basic Service (wireline):

Serial Number	Name of Parameter	Benchmark	Averaged over a period
(i)	Fault incidences (No. of faults/100 subscribers /month)	≤ 5	One Quarter
(ii)	Fault repair by next working day	For urban areas: By next working day: ≥ 90% and within 3 days: 100%. For rural and hilly areas: By next working day: ≥ 90% and within 5 days: 100%. Rent Rebate Faults pending for >3 days and ≤7 days: Rent rebate for 7 days. Faults pending for >7 days and ≤15 days: Rent rebate for 15 days.	One Quarter

		Faults pending for >15 days: rent rebate for one month.	
(iii)	Mean Time To Repair (MTTR)	≤ 8 Hrs	One Quarter
(iv)	(a) Call Completion Rate within a local network shall be better than	≥ 55%	One Quarter
	or, (b) Answer to Seizure Ratio (ASR)	≥ 75 %	One Quarter
(v)	Point of Interconnection (POI) Congestion (on individual POI)	≤ 0.5%	One month
(vi)	Metering and billing credibility – post paid	Not more than 0.1% of bills issued should be disputed over a billing cycle	One Billing Cycle
(vii)	Metering and billing credibility -- pre-paid	Not more than 1 complaint per 1000 customers, i.e., 0.1% complaints for metering, charging, credit, and validity	One Quarter
(viii)	Resolution of billing/ charging complaints	100% within 4 weeks	One Quarter
(ix)	Period of applying credit/ waiver/ adjustment to customer's account from the date of resolution of complaints	within 1 week of resolution of complaint	One Quarter
(x)	Response Time to the customer for assistance		
	(a) Accessibility of call centre/ customer care	≥ 95%	One Quarter
	(b) Percentage of calls answered by the operators (voice to voice) within 60 seconds	≥ 90%	One Quarter
(xi)	Termination/ closure of service	≤ 7 days	One Quarter

(xii)	Time taken for refund of deposits after closures	100% within 60 days.	One Quarter
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(iii) Broadband Service:

S.N	Parameters	Benchmark
(i)	Service Provisioning/ Activation time	100% cases in =<15 working days (subject to technical feasibility). 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.
(ii)	Fault Repair/ Restoration Time	By next working day: > 90% and within 3 working days: 99%  Rebate: (a) Faults Pending for > 3 working days and < 7 working days: rebate equivalent to 7 days of minimum monthly charge or equivalent usage allowance  (b) Faults Pending for > 7 working days and < 15 working days: rebate equivalent to 15 days of minimum monthly charge or equivalent usage allowance  (c) Faults Pending for > 15 working days: rebate equivalent to one month of minimum monthly charge or equivalent usage allowance
(iii)	Billing Performance Billing complaints per 100 bills issued  %age of Billing Complaints resolved  Time taken for refund of deposits after closure:	< 2%  100% within 4 weeks  100% within 60 days

(iv)	Response time to the customers for assistance	% age of calls answered by operator (Voice to Voice) Within 60 seconds > 60% Within 90 seconds > 80%
(v)	Bandwidth Utilization/ Throughput:  a) Bandwidth Utilization  i) POP to ISP Gateway Node [Intra-network] Link(s)  ii) ISP Gateway Node to IGSP / NIXI Node upstream Link(s) for International connectivity  b) Broadband Connection Speed (download)	<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.  Subscribed Broadband Connection Speed to be met >80% from ISP Node to User.
(vi)	Service Availability / Uptime	> 90% quarter ending June 2007; > 98% with effect from quarter ending September 2007 and onwards
(vii)	Packet Loss	<1%
(viii)	Network Latency (for wired broadband access)  User reference point at POP / ISP Gateway Node to International Gateway (IGSP/NIXI)  User reference point at ISP Gateway Node to International nearest NAP port abroad (Terrestrial)	<120 msec  <350 msec

	User reference point at ISP Gateway Node to International nearest NAP port abroad (Satellite)	<800 msec
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## 2. Scope of work:

2.1 The main purpose of the tender is to audit and assess the Quality of Service rendered by the service providers providing basic telephone service (wireline), cellular mobile telephone service and broadband service.

2.2 The audit agency shall undertake audit and assessment of Quality of Service provided by every service provider (licensee) in each of the telecom circles/metro service areas under the respective Zone in the following manner:-

**(a) In respect of Cellular Mobile Telephone service, all the service areas/circles in each Zone shall be audited in every quarter of the year i.e. a service area will be audited four times in a year.**

**(b) In respect of Basic service (wireline) and Broadband service, a service area/circle in the contracted Zone shall be audited only once in a year.**

2.3 The Audit agency shall undertake the audit work as follows: -

(a) generation of reports at service providers site as part of QoS monitoring reports i.e. quarterly Performance Monitoring Reports (PMRs) and monthly Point of Interconnect (POI) Congestion Reports for Basic and Cellular Mobile Services with reference to the records maintained by the service provider and the system logs for the period. The Audit agency shall generate the quarterly PMR at site and upload it on real time basis to the server at TRAI, Delhi. The PMR report formats and parameters are tentative and any modifications or additions of parameters should also be taken. The scope should cover all future PMR parameters as and when defined by TRAI during the duration of the contract. The PMRs are to be generated on monthly basis for Network Service Quality Parameters of cellular mobile telephone services and on quarterly basis for Customer Service Quality Parameters of cellular mobile telephone services, basic (wireline) services and broadband services as per the parameters specified in clause 1.9. PMR of previous quarters are available on TRAI's website [www.traigov.in](http://www.traigov.in) and may be referred to. The PMRs so generated shall be up-loaded on the server latest by 7<sup>th</sup> of the following month;



(b) verification of the performance of service providers against the Quality of Service benchmarks laid down by TRAI using live measurement for three days for the parameters for the services as specified in clause 1.9 during the month in which the audit and assessment is carried out. The results should be uploaded live to the server;

(c) verification of the performance of service providers against the Quality of Service benchmarks, for the parameters and for the services as specified in clause 1.9, laid down by TRAI using the data for the entire month during which the live measurement as per clause (b) above is carried out; the results should be uploaded live to the server;

(d) drive tests of the mobile networks of service providers; the results should be uploaded live to the server. The audit agency shall be required to carry out an analysis of the drive test and load the results giving such information and in such format as may be agreed by TRAI. The Audit agency shall preserve the complete log files for a period of six months after the expiry of the contract and shall produce the same to TRAI as and when required to do so;

(e) audit of the performance of call centres with respect to their accessibility and percentage of calls answered by the operators, test calling and random customer feedback by calling the customers to get feedback of the services of the service providers. The Automatic Call Distribution (ACD) records shall also to be verified for the calls answered by the operators within 60 seconds.

2.4 The consolidated data for every quarter (in formats approved by TRAI) needs to be preserved or stored for future references, trend analysis and other requirements.

2.5 The tentative details of data storage requirement shall be worked out so as to preserve the data for a minimum of four months with due redundancies. The details of such calculations shall be submitted. The data storage space will be provided by TRAI.

2.6 The Telecom Licensed Service Areas/Circle for the purpose of this tender comprise of the following:

**North Zone:** Delhi, Jammu & Kashmir, Himachal Pradesh, Punjab, Haryana, Rajasthan, Uttar Pradesh-East and Uttar Pradesh-West (including Uttaranchal). For the cellular mobile telephone service the service area of Delhi includes Ghaziabad, Faridabad, Noida and Gurgaon.

**South Zone:** Chennai, Andhra Pradesh, Karnataka, Tamilnadu (excluding Chennai) and Kerala.

**West Zone:** Mumbai, Maharashtra (including Goa and excluding Mumbai), Gujarat and Madhya Pradesh (including Chattisgarh).

**East Zone:** Kolkata, West Bengal (including Andaman & Nicobar, Sikkim and excluding Kolkata), Bihar (including Jharkhand), Orissa, Assam and North East which includes Arunachal Pradesh, Meghalaya, Mizoram, Nagaland, Manipur and Tripura.

2.7 The details of the areas covered under each Telecom Circle/ Metro Service Area, details of service providers (licensees) operating in each Telecom Circle/ Metro Service Area and details of subscriber base in respect of Basic Telephone Service (wireline) & Cellular Mobile Telephone Service Providers and Broadband Service Providers are given in **Annexure-2A and 2B**, respectively.

2.8 The audit and assessment of Quality of Service shall be conducted for BSNL, MTNL, private basic service providers, unified access service providers, cellular mobile service providers and ISPs (providing broadband service) in various service areas for basic telephone service (wireline), cellular mobile telephone service and broadband service. The audit agency is required to conduct the audit and assessment of Quality of Service of Broadband Service only in respect of the service providers who are having broadband subscriber base of more than 10,000 subscribers in their licensed service area. The updated data in respect of licensees (service providers) who have commissioned service and their subscriber base/Mobile Switching Centres (MSCs)/BTS'/Exchanges/Internet Service Providers Central Nodes (ISP Nodes) shall be intimated by TRAI from time to time and the audit agency shall carry out the audit and assessment of Quality of Service accordingly thereafter. The audit agency should give a detailed composition of the proposed key team and tasks of each team member including supervisor that will be involved in the audit and assessment of quality of service at different service areas.

**2.9 The audit and assessment of Quality of Service for all the service providers in a Telecom Circle/ Metro Service Area / Licensed Service Area shall be completed in the same quarterly period.**

#### **Generation of performance reports against QOS benchmarks:**

2.10 The detailed explanation and measurement methodology of each parameters and benchmarks for basic telephone service (wireline), cellular mobile telephone service and broadband service are given in the Explanatory Memorandum in the said Regulations mentioned in Clause 1.2. The parameters whose data is to be generated at the service provider's site, verified and audited are given at clause 1.9. TRAI may modify these parameters and benchmarks and may also add new parameters from time to time during the currency of contract and the audit agency shall be bound by it.

#### **Sample size for cellular mobile services:**

2.11 100% Gateway MSCs (GMSC) and Mobile Switching Centres (MSC) of all the Cellular Mobile Service Provider (CMSP) or Unified Access Service

Providers (UASP) shall be covered in specified circles/ service areas in respective Zone in each of the **quarterly** period. **All the service areas are required to be covered in each quarterly period of the year.** The service area-wise details of the MSCs of all service providers are given in **Annexure-2D**.

#### **Number of exchanges to be covered for Basic (Wireline) services:**

2.12 The break-up of the total number of exchanges of BSNL, MTNL and private basic service operators circle/service area-wise, including urban and rural exchanges, and the number of exchanges, both urban and rural, that will be covered during the year (i.e. four quarters) for audit and assessment of the Quality of Service is indicated at **Annexure-2C**. As per the break-up of number of exchanges to be covered in a year, 556 urban exchanges and 1508 rural exchanges, totalling 2064 exchanges are to be covered. The exchanges shall evenly be spread over in about 10% of SDCAs to the extent possible with each service provider in specified circles/ service areas. A service area/circle in the contracted Zone shall be audited only once in a year.

#### **Number of POPs to be covered for Broadband Services:**

2.13 Audit agency shall first visit the ISP's Central Node in licensed service area and identify the total number of Point of Presence (POPs) in each service area. Thereafter, the sample for audit and assessment of Point of Presence will be decided in such a way that minimum 5% (five per cent) of the Points of Presence of ISP spread over in 10% (ten per cent) SDCAs in specified service area/telecom circle are covered. The POPs shall be evenly spread over in the licensed service area. A **service area/circle shall be audited only once in a year.**

2.14 The schedule for conducting the audit and assessment of Quality of Service shall be finalised by the audit agency, in consultation with TRAI, before the start of audit and assessment of the Quality of Service in each quarter. The audit agency is required to submit sample design based on the above criteria.

#### **Mode of conducting Audit and Assessment of Quality of Service:**

2.15 The generation and verification of performance of service providers against QOS benchmarks will involve measuring of specified reporting parameters, checking of complete records, analysis of procedure and method utilized by various service providers in measuring the parameters and method of averaging for the purpose of reporting. The audit agency shall include critical findings licensee-wise in each **quarterly** report. This will help to educate the service provider to follow uniform methodologies and utilizing same software preferably MS Word & MS Excel in windows environment. TRAI will issue suitable instructions to service providers in this respect after the award of this contract.

## **Audit methods and procedures:**

2.16 To measure each quality of service parameter defined by TRAI, the two main sources of data collection are:

- Audit of the MIS reports at exchanges (OMC or MSCs) or ISP Node of the service provider.
- Primary data collection and check back calls (live observations done during the visits)

The audit will have to be conducted in each centre of study to generate various types of data. Thus, for data collection, following activities will be undertaken during the appraisal exercise.

### **Collection of MIS data of OMC or MSC or ISP Node**

2.17 For this TRAI has already suggested to the service providers to maintain the QoS source data in a proper format. From the source data, the audit agency should generate the quarterly/monthly performance monitoring reports (PMR). Methodology adopted will be checked against instructions and standards to see if the measurements adhere to specifications.

### **Live Measurements and Live Data Collation**

2.18 During the audit and assessment, following activities would be undertaken for live measurements and live data collection.

#### **a) Audit and Assessment of complaint redressal and provisioning of new broadband connections**

2.19 Telephonic interviews shall be conducted among a sample of subscribers of telephone –

- in basic service (wireline) for those customers who reported a fault complaint, billing dispute;
- in case of Mobile operators, who have had a recent billing dispute;
- in case of Broadband service for those who requested for a new connection, reported a fault complaint, billing dispute, complaint of Broadband connection speed (download).

Data should be obtained on:

- Occurrence of fault complaints
- Clearance of fault within stipulated time
- Incidence of billing disputes
- Clearance of billing complaints within stipulated time
- Attendance to requests for closure/ termination of service

## **Sampling Procedure & quality control**

2.20 In order to get a correct and meaningful result from audit it is important to ensure that the right sampling procedure is followed. Equally important is the process of ensuring that quality control parameters are put in place. Care should also be taken to distribute the sample to obtain a random list. The distribution of sample sizes should be evenly distributed. The sampling procedure for various activities to be carried is given below:

### **Sample for telephonic interview for billing complaints**

2.21 The sample size for telephonic interview of billing complaints in each audit shall be 100 subscribers or the total number of complaints, whichever is less per service provider for each service in a licensed service area. All the complaints booked shall be treated as the total population for selection of samples.

### **Sample for telephonic interview for new connection for Broadband Service)**

2.22 The sampling frame would be for Point of Presence/ ISP Node of Broadband Service Provider. Here, the total sample size (10% of the applicants in the previous month or 100 whichever is less for every service provider) would be randomly selected from the records/registers to make check back calls.

### **Sample for telephonic interview for service complaints/ requests**

2.23 The operator is required to provide the details of the service complaints/ requests for the month previous to the audit month for Cellular Mobile Telephone Services, Basic (wireline) Services and Broadband Services. For broadband services, complaints related to download speed shall also be covered. From the list of these complaints/requests (10% or 100 per service provider per license service area, whichever is less) sample would be drawn randomly to make check back calls. A notice of minimum 3 (three) weeks will be provided to service provider by audit agency for arranging and supplying the data required for audit of exchanges, ISP nodes and MSCs to be covered.

## **b) Audit and Assessment of Call Centre/ customer care promptness and live measurement through test calls**

2.24 Test calls shall be made to assess the availability and efficiency of Level 1 services and complaint centre accessibility. The telephone/SIM Cards/Instruments for testing purposes shall be provided by the concerned service provider(s) in whose network the audit and assessment of Quality of Service is carried out. The details regarding test calls are given below:

(a) Testing of Level 1 Services:

2.25 Level 1 Services such as police, fire, ambulance (Emergency services) in the case of both Mobile service providers and basic telephone service providers. Test calls will be made from all the levels working in a particular SDCA visited. Again, the total sample size (150 per license service area per service per quarter) would be equally distributed among the different SDCAs visited, and the distribution among the active levels would be in proportion to the capacity of each level in that SDCA.

(b) Inter-operator call assessment:

2.26 Inter Network calls i.e. calls made from one operator to another within the same license area are required to be made to judge the ease of connectivity amongst the operators.

2.27 A sample of 2 X 50 test calls per service provider within the licensed service area shall be made at different point of time to the free test numbers of another service provider (50 calls between 1000 to 1300 Hrs. and 50 calls between 1500 to 1700 hrs. for basic service and between 1100 to 1400 hrs. and between 1600 to 1900 hrs.) for cellular mobile service. The results of these calls shall be compiled and reported separately for each service provider service area-wise.

2.28 The telephone/SIM Cards/Instruments for testing purposes shall be provided by the concerned service provider(s) in whose network the audit and assessment of Quality of Service is carried out.

(c) Testing of Complaint Centre Accessibility and response time:

(i) Basic Telephone Service (wireline) and Cellular Mobile Telephone Service:

2.29 The Audit agency shall measure the performance of both basic **telephone** service (wireline) & cellular mobile services against the benchmarks of the following Quality of Service parameters: -

**Response time to the customer for assistance:**  
**(a) Accessibility of call centre/customer care >= 95%**  
**(b) % age of calls answered by the operator (voice to voice):**  
**within 60 seconds = 90%**

2.30 The procedure for assessment of the performance in respect of above parameters shall be made using the traffic data at the point of termination to call centre from mobile/ basic telephone network. Traffic at the tandem or trunk or gateway MSC outgoing circuits to IVR of call centre shall be measured as per the traffic counter available in the respective switch to assess the accessibility of call centre.

2.31 In the case of parameter % of call answered by the operator voice to voice, assessment of IVR traffic data and CRM traffic data shall be analysed during the time consistent busy hour (TCBH) of call centre.

2.32 In addition, the audit agencies shall also make the test calls and correlate the results with the traffic data analysis.

2.33 The procedure (IVR menu and sub-menu) and ease of accessing the operator within the benchmark laid down by TRAI, both for postpaid and prepaid customers shall be assessed and reported. In this regard para 3.11.4 of the Explanatory Memorandum to the Standards of Quality of Service of Basic Telephone Service (Wireline) and Cellular Mobile Telephone Service Regulations, 2009 and provisions of the Telecom Consumers Complaint Redressal Regulations, 2012 shall be followed.

(ii) Broadband service:

2.34 The audit agency shall measure the performance of Broadband service against the benchmarks of the following Quality of Service parameters: -

Response time to the customer for assistance: % age of calls answered by operator (voice to voice):

within 60 seconds = 60%

within 90 seconds = 80%

Measurement:

2.35 A sample of 2 X 50 calls per service provider shall be made at different point of time to the call centre of each service provider from each licensed service area (50 calls between 1000 to 1300 Hrs. and 50 calls between 1500 to 1700 hrs.) for basic telephone service (wireline) and similarly, 2 X 50 calls to the call centre of each service provider (50 calls between 1100 to 1400 hrs. and 50 calls between 1600 to 1900 hrs.) for cellular mobile telephone service from each licensed service area to ensure statistical significance. The time to connect to IVR shall be noted for all these calls. This is the wait time before an automatic answer machine (IVR) message begins. The Audit agency shall then measure the gap between the time when the last digit of the number is dialled, and the time when the IVR message begins. Similarly the wait time before a Call Centre agent responds to a test call shall be measured for all such test calls.

### **Verification and audit of records**

2.36 The audit agency shall verify and audit the following records in respect of Basic Telephone Service (wireline):

- Call Centre records for complaints
- FRS details for fault complaints, fault repair and MTTR (Mean Time To Repair)
- Commercial records for billing details, billing disputes and redressal thereof

- Past traffic reports at local and TAX (Trunk Automatic exchanges) for Call Completion Rate/**Answer to Seizure Ratio** calculations
- Checking of customer complaint handling through live test at the call centre
- 100 Nos. of service complaints/ requests and 100 Nos. of billing related complaints shall be taken up by the auditing agency for verifying their redressal as per the record of the service provider.

2.37 The audit agency shall verify and audit the following records in respect of Cellular Mobile Telephone Service:

- Call Centre records for complaints
- Network maintenance and planning department (OMC and Drive Test) records for QOS parameters
- System/ Network outage details, Call Set-up Success Rate, Blocked Call Rate, Call Drop Rate, **worst affected cells having more than 3 % TCH drop rate**, Voice Quality, Service Coverage and POI congestion
- Commercial and customer care records for billing disputes, redressal and refunds of payment
- Checking of customer complaint handling through live test at the call centre
- 100 Nos. of service complaints/ requests and 100 Nos. of billing related complaints shall be taken up by the auditing Agency for verifying their redressal as per the record of the service provider.

2.38 The Audit agency shall verify and audit the records maintained by Broadband service providers relating to

- Call Centre records for complaints
- FRS details for fault complaints, fault repair
- Records for requests for new connection, and supplementary services
- Commercial records for billing details, billing disputes and redressal thereof
- Checking of customer complaint handling through live test at the call centre
- service complaints/ requests and billing related complaints shall be taken up by the auditing Agency for verifying their redressal as per the record of the service provider.
- Bandwidth Utilization/ Throughput
- Broadband connection speed
- Service Availability/Uptime
- Packet Loss and Latency measurements.

2.39 Network performance parameters like Bandwidth Utilisation/Throughput including Broadband Connection Speed, Packet Loss and Latency shall be measured on sample basis by the Audit agency.

2.40 The detailed methodology for each Quality of Service parameter is given in the Explanatory Memorandum to the Quality of Service of Broadband Service Regulations, 2006 dated 6<sup>th</sup> October, 2006 (11 of 2006).



**2.41 The signature of the Nodal Officer nominated by the service provider for coordination with the audit agency shall be taken on all the formats containing the verified data for all the parameters. The audit agency shall also produce these formats or records to TRAI, as and when called for by TRAI. The audit agency shall preserve all the data formats containing the observations made by the audit agency for a period of six months after the expiry of the contract and shall produce the same to TRAI as and when required to do so.**

**2.42 The network operation centre (NOC) or operation and maintenance centre (OMC) of service providers are generally on centralized basis either at service area as a whole or on regional basis. In some of the cases it is on national basis. Similarly, call centre and billing centres are also centralized. Audit agency shall have to take live measurements and collection of one month data or audit by actual visit to such NOC, OMC, call centre and billing centre.**

2.43 Procedure to be followed by the audit agency for cellular mobile telephone service data generation, verification and audit.

S. No.	Parameter	Procedure
i)	Network availability (a) BTS accumulated down time (b) Worst affected BTSs due to down time	The fault Alarm tracking details at the OMC (MSC) for the network outages (due to own network elements and infrastructure service provider end outages) will be verified by Audit agency for arriving at the figures reported to TRAI.
ii)	Call Set-up Success Rate	The cell wise data generated through counters/MMC available in the switch for traffic measurements to be verified by the Audit agency.
iii)	Blocked Call Rate	Both for SDCCH and TCH congestions the data in MSCs shall be verified and compared with the data reported to TRAI in the Quarterly PMRs.
iv)	Call Drop Rate	This parameter is to be measured by the system generated (defined counters are available in the system for traffic measurement) cell wise dropped call data and total calls established figures to arrive at the authenticity and accuracy of the benchmark reported to TRAI.
v)	% Connections	This parameter is to be measured from the

	with good voice quality	system generated data on a scale from 0 to 7 for GSM and FER value for CDMA technology. The Audit agency should also collect the relevant city wise drive log files for all drive tests conducted to verify the parameter.
vi)	Service coverage	The Audit agency should also collect the relevant city wise drive log files for all drive tests conducted to verify the parameter.
vii)	POI Congestion	The traffic data generated through Gateway MSCs (GMSCs) and reported to TRAI in POI congestion reports shall be verified.
viii)	Metering and Billing credibility	The Audit agency should audit the billing complaints details on complaints received during the quarter and used for arriving at the figures reported to TRAI.
ix)	% of Billing Complaints resolved	Audit of billing complaints resolved and the total complaints received should be carried out to check the figures reported to TRAI. At the same time, the Audit agency should also conduct random live back checks of complaints.
x)	Period of applying credit/waiver/adjustment to customers account from the date of resolution	The Audit agency should check the billing complaints for which credit/waiver/adjustment to be made on resolution of the complaints within one week.
xi)	Termination/closure of service	The data should be verified for termination/closure of the services within 7 days from the date of request.
xii)	Time taken for refund of deposits after closure	Audit agency should verify that 100 % deposits should be refunded within 60 days. At the same time, the Audit agency should also conduct random live back checks of all such subscribers entitled for a refund.

## **Drive Tests:**

2.44 In the case of Cellular Mobile Service, the exercise of QoS assessment should not be limited to generation, verification and audit of data but the audit agency shall also verify the parameters by conducting extensive drive test in all service areas, as per the details given below, to assess the network performance.

2.45 There would be two types of drive tests. One is operator assisted drive test and the other is independent drive tests. The details of these drive tests are given below:

**2.46 Operator Assisted Drive Tests:** The primary aim of these drive tests would be to cross-check/validate the data on Quality of Service being provided by the telecom service providers to TRAI. These drive tests will be conducted in such a manner so as to enable identification of network element deficiency and initiation of improvements. The operator assistance would be desired to ensure a greater audit transparency.

2.47 In each licensed service area drive test in three cities, having high population, medium population and low population, shall be conducted every month for each service provider covering a minimum distance of 100 kilometres in city area and adjoining areas including important indoor sites. ***These cities would be proposed by the Audit agency and finalised by TRAI.*** The results of analysis of data generated during such drive tests shall be uploaded, immediately on completion of the drive test, to the central server at TRAI.

**2.48 Independent Drive Tests:** TRAI has been receiving complaints from subscribers relating to the poor network coverage in certain areas of the cities. Such complaints may need to be checked and verified by way of a drive test to be conducted independently by audit agency with own personnel/equipment or leased or hired from supplier of such equipment /manpower. ***Thus, the audit agency could be asked to do independent drive tests spread across the contracted zone limited to a maximum of 10 drive tests per licensed service area, in a year.*** For example say for West zone comprising of 4 license service areas, all the 40 independent drive tests could be spread in one licensed service area or spread across the entire West zone. The location for these drive tests would be selected based on the subscriber complaints being received by TRAI ***or as decided by TRAI.*** Independent drive test shall cover a city and adjoining areas covering a minimum distance of 100 kilometres including congested areas and important indoor sites. The results of analysis of data generated during such drive tests shall be uploaded, immediately on completion of the drive test, to the central server at TRAI.

## **Drive Test Methodology**

2.49 For drive test following procedure will be adopted:

- i. The audit agency shall obtain a coverage map from the service provider before starting the drive test and study the coverage detail in terms of the signal strength. Based on the signal strength as depicted in the coverage map, the drive test should be done to check the following parameters:
  - a. Coverage-Signal strength
  - b. Voice quality
  - c. Call setup success rate
  - d. Blocked calls
  - e. Call drop rate
- ii. The drive test shall cover selected cities and adjoining towns/ rural areas where the service provider has commenced service, including congested areas and indoor sites.
- iii. The drive test shall cover the routes including expressways, major and secondary roads / streets, Commercial, residential areas/Commercials estates to check the in-building network performance.
- iv. The drive tests of each mobile network shall be conducted between 10 am and 8 pm on weekdays.
- v. The Vehicle to be used in the drive tests shall be equipped with the test tool that automatically generates calls on the mobile telephone networks.
- vi. The speed of the vehicle should be kept at around 30-50 km/hour (around 30 km/hr in case of geographically small cities)
- vii. The holding period of each test call will be 120 seconds.
- viii. A test call will be generated 10 seconds after the previous test call is completed.
- ix. Measurement using engineering handsets would not be acceptable.
- x. The dedicated originating and terminating mobile unit's antenna shall be placed at the same height and in the same vehicle. Moreover, the height of the antenna should be uniform in case of all service providers.

### **3. Miscellaneous:**

3.1 Expenses towards boarding, lodging and travelling for conducting audit and assessment of Quality of Service shall be borne by the audit

agency itself. This work is required to be conducted at the premises of the service providers such as exchanges, MDFs, MSCs/GMSCs, call centres, FRS, help desk, Customer Relations Management system and billing centres where it is possible to measure the parameters. The service provider will extend all facilities including instruments/testing telephones /mobile phones/SIM cards, technical support, equipment and other material for conducting audit and assessment of Quality of Service.

3.2 TRAI at any point of time can ask for authenticity of any observation furnished for service providers. TRAI has the right to verify authenticity of each of the observations. This may also involve contacting any service provider again for this purpose. Expenses towards boarding, lodging and travelling for the staff of the Audit agency for this purpose shall also be borne by the Audit agency itself.

#### **4. Reporting Formats:**

4.1 The audit agency is required to develop data formats including executive summary, critical findings and detailed data analysis thereof for reporting the results of such audit and assessment. The audit agency may utilise software for reporting, preferably MS Word & MS Excel in Window environment.

4.2 The audit agency shall submit to TRAI sample design and sample reporting formats within 4 weeks of signing of the agreement. TRAI may suggest modifications to the sample design and sample reporting formats and the audit agency shall modify the sample design and sample reporting formats, as suggested by TRAI, and final approval shall be taken before taking up the job in hand. The final approved design and reporting format shall be submitted by the audit agency within time period as specified in the delivery schedule at clause 7, after incorporating modifications/ corrections suggested by TRAI. TRAI's decision in this matter will be final.

All these reports should be enabled as online reports with sufficient flexibility of querying against various parameters.

4.3 If representative) of TRAI is deputed for verification, the Audit agency shall extend all cooperation with such representative of TRAI in the verification/ audit process and he shall be supplied with all the information needed for such verification.

4.4 TRAI may also suggest changes to the reporting format at any point of time, in case it feels that such a change is necessary and the Audit agency shall carry out such changes in the reporting format.

#### **5. Deliverables**

5.1 **Quarterly Reports:** The audit agency shall submit quarterly reports in the formats approved by TRAI for the purpose. Five copies of such report covering all service areas/ circles which are audited during the quarterly

period shall be submitted to TRAI within the time period given in the delivery schedule at clause 7 below.

5.2 The reports may also be generated on line through TRAI's MIS system or such other system as available at TRAI which had taken various inputs from different audit activities as per the scope of work for all the service areas. The soft copies of each report shall also be submitted by the Audit agency along with the hard copies.

5.3 The report shall contain the Audit results of service areas including executive summary, critical findings and comparison of performance of the service providers on various quality of service parameters for which Audit work was undertaken during the **quarter**.

5.4 Reports shall be submitted for approval within one month of the completion of each **quarter** for audit and assessment of QoS parameters for basic service, cellular mobile service and broadband service. The report shall contain the findings on audit and assessment of QOS provided by service providers carried out in accordance with Clause 2 above. The report shall contain performance of each service provider for each licensed service area against the Quality of Service parameters. The report shall also contain a comparative analysis of performance of all the service providers in a licensed service area. The report shall also contain an Executive Summary and critical finding along with detailed analysis.

5.5 A separate report is also required to be submitted for each company/group of companies covering each circle/service area at the end of the year. The report shall also contain an Executive Summary and critical finding along with detailed analysis to share with the service provider and take further follow-up action.

## 6. TRAI's Inputs:

6.1 TRAI will make available the relevant Quality of Service Regulations of Basic (wireline), Cellular Services and Broadband Service. TRAI will also make available details of contact persons of service providers and such other information requested by the audit agency which is available in TRAI and which is necessary for carrying out the audit and assessment of Quality of Service of service providers.

6.2 Data storage space in server shall be provided by TRAI for uploading of information as per scope of work for audit.

## 7. Delivery Schedule

S. No.	Deliverable	Period
	<b>Date of award of work as per the contract say (D)</b>	
1.	Submission of all sample design and reporting formats by the Audit agency	D+4 weeks

2.	Submission of final design and reporting formats by the Audit agency incorporating modifications and corrections suggested by TRAI and its acceptance	D+8 weeks
3.	Commencement of audit and assessment of Quality of Service	Beginning of - the quarter following date of award of work (D) or any subsequent quarter, as decided by TRAI
4.	Submission of first quarterly report	One month from the end of the first quarter
5.	Submission of second quarterly report	One month from the end of the second quarter
6.	Submission of third quarterly report	One month from the end of the third quarter
7.	Submission of fourth quarterly report	One month from the end of the fourth quarter
8.	Commencement of audit and assessment of Quality of Service for the first quarter for the extended period	From the end of the fourth quarter or any later period as decided by TRAI
9.	Submission of first quarterly report for the extended period , if any	One month from the end of the first quarter of extended period
10.	Submission of second quarterly report for the extended period , if any	One month from the end of the second quarter of extended period
11.	Submission of third quarterly report for the extended period , if any	One month from the end of the third quarter of extended period
12.	Submission of fourth quarterly report for the extended period , if any	One month from the end of the fourth quarter of extended period

### SECTION-III

#### Schedule for Financial Bid for Audit and Assessment of Quality of Service

The Audit agency shall submit the Financial Bid in the format given below:

**Note: In respect of Cellular Mobile Telephone service, all the service areas/circles shall be audited in every quarter of the year i.e. a service area will be audited four times in a year. In respect of Basic service (wireline) and Broadband, a service area/circle shall be audited only once in a year. The rates should be inclusive of the online updating requirements of the audit and assessment and report generation inclusive of all the taxes, levies, duties, service taxes etc.**

**Zone: North zone**

Sl. No.	Name of the Service Area	Services	Quotation for a year (Rupees in figures)	Quotation for a year (Rupees in words)
1	Delhi (for the cellular mobile telephone service the service area of Delhi includes Ghaziabad, Faridabad, Noida and Gurgaon)	Cellular		
		Basic		
		Broadband		
2	Jammu & Kashmir	Cellular		
		Basic		
		Broadband		
3	Himachal Pradesh	Cellular		
		Basic		
		Broadband		
4	Punjab	Cellular		
		Basic		
		Broadband		
5	Haryana	Cellular		
		Basic		
		Broadband		
6	Rajasthan	Cellular		
		Basic		
		Broadband		
7	Uttar Pradesh-East	Cellular		
		Basic		
		Broadband		
8	Uttar Pradesh-West(including Uttarakhand)	Cellular		
		Basic		
		Broadband		
<b>Total</b>				



**Zone: South zone**

<b>Sl. No.</b>	<b>Name of the Service Area</b>	<b>Services</b>	<b>Quotation for a year (Rupees in figures)</b>	<b>Quotation for a year (Rupees in words)</b>
1	Tamilnadu (excluding Chennai)	Cellular		
		Basic		
		Broadband		
2	Andhra Pradesh	Cellular		
		Basic		
		Broadband		
3	Kerala	Cellular		
		Basic		
		Broadband		
4	Karnataka	Cellular		
		Basic		
		Broadband		
5	Chennai	Cellular		
		Basic		
		Broadband		
	<b>Total</b>			

**Zone: West zone**

<b>Sl. No.</b>	<b>Name of the Service Area</b>	<b>Services</b>	<b>Quotation for a year (Rupees in figures)</b>	<b>Quotation for a year (Rupees in words)</b>
1	Maharashtra (including Goa and excluding Mumbai)	Cellular		
		Basic		
		Broadband		
2	Madhya Pradesh (including Chattisgarh)	Cellular		
		Basic		
		Broadband		
3	Gujarat	Cellular		
		Basic		
		Broadband		
4	Mumbai	Cellular		
		Basic		
		Broadband		
	<b>Total</b>			

**Zone: East zone**

<b>Sl. No.</b>	<b>Name of the Service Area</b>	<b>Services</b>	<b>Quotation for a year (Rupees in figures)</b>	<b>Quotation for a year (Rupees in words)</b>
1	West Bengal (including Andaman & Nicobar, Sikkim and excluding Kolkata)	Cellular		
		Basic		
		Broadband		
2	North East which includes Arunachal Pradesh, Meghalaya, Mizoram, Nagaland, Manipur and Tripura.	Cellular		
		Basic		
		Broadband		
3	Orissa	Cellular		
		Basic		
		Broadband		
4	Assam	Cellular		
		Basic		
		Broadband		
5	Kolkata	Cellular		
		Basic		
		Broadband		
6	Bihar (including Jharkhand)	Cellular		
		Basic		
		Broadband		
	<b>Total</b>			

## **SECTION-IV**

### **TECHNICAL PROPOSAL – SAMPLE FORMATS**

The sample formats for the following are given in Form - 1 to 5 below.

- Form-1      Proposal submission form.
- Form-2      Audit agency's (Firm's) references- indicating past experience of the audit agency in undertaking works of similar nature as given in the Terms of Reference in Section-II.
- Form-3      Approach paper on methodology including sample audit design and work plan for performing the assignment indicating how the audit agency is equipped to perform the task, particularly their manpower and infrastructure capability.
- Form-4      Composition of the proposed key team and tasks of each team member including supervisor.
- Form-5      Curriculum Vitae of proposed professional staff.

The audit agency should submit the documentary evidence regarding fulfilment of the eligibility conditions as per clause 4 of Section-I of tender document, including the income tax clearance/ IT Certificate and PAN Number.

**Form-1**

**PROPOSAL SUBMISSION FORM**

*(To be submitted on Agency's letter head)*

From

(Name and address of the agency)

\_\_\_\_\_  
\_\_\_\_\_

To:

Joint Advisor (QOS)  
Telecom Regulatory Authority of India,  
Mahanagar Door Sanchar Bhawan  
Jawaharlal Nehru Marg,  
New Delhi-110002

**Subject:** Invitation of bids for undertaking Audit and Assessment of Quality of Service for basic telephone service (wireline); cellular mobile telephone service; and Broadband service on zonal basis (**specify the Zone--**-----)

Sir,

We, the undersigned offer to provide our services for the work of audit & assessment of Quality of Service of service providers for the above subject in accordance with your tender document. We are hereby submitting our Proposal which includes both technical & financial proposals, sealed under separate envelope for the Zone (specify the Name of Zone.....) along with EMD as per the clause 3.0 of section- I of the tender document.

Our proposal is binding upon us and subject to the modifications resulting from contract negotiations.

Our proposal is binding upon us.

We understand that you are not bound to accept any bid you receive.

Dated, the.....day of .....2013

Yours faithfully,

Witness:

Signature.....

Address.....

Authorized signatory:

Name and Title of Signatory

Tel. No.

Fax No.

E-mail address

**Form-2**

**AUDIT AGENCY REFERENCES**

**Work of similar nature carried out in the last five years  
that best illustrate experience for eligibility to bid**

Using the format below, provide information on each reference assignment for which your organisation was legally contracted. **(Please attach a copy of the documentary evidence supporting the assignment/ experience)**

Assignment	Country
Location within Country	Professional Staff Provided by Your Firm/entity(Profiles):
Name of Client:	No. of Staff:
Address:	No. of Staff-Months; duration of assignment
Start Date (Month/Year): Approx. Value of Services contracted	Completion Date(Month/Yr.): Rs.
Name of Associated Firm, if any	No. of Months of Professional Staff, provided by Associated Firms
Name of Senior Staff (Project Director/Coordinator, Team Leader) involved and functions performed:	
Narrative Description of Project	
Description of Actual Services Provided by Your Staff:	

Authorised signatory:  
Name and Title of Signatory

**Form-3**

**DESCRIPTION OF THE METHODOLOGY INCLUDING SAMPLE  
DESIGN AND WORK PLAN FOR PERFORMING THE AUDIT AND  
ASSESSMENT OF QUALITY OF SERVICE**

Authorised signatory:  
Name and Title of Signatory

**Form-4**

**COMPOSITION OF THE TEAM PERSONNEL AND  
TASK(S) OF EACH TEAM MEMBER**

**1. Technical/Managerial Staff**

Sl.No	Name	Position	Task
.			
1.			
2.			
3.			
4.			
..			
..			

**2. Support Staff**

Sl.No	Name	Position	Task
.			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
..			
..			
..			

Authorised signatory:  
Name and Title of Signatory

**Form-5**

**FORMAT OF CURRICULUM VITAE (CV) FOR  
EACH PROPOSED PROFESSIONAL STAFF**

Proposed Position: \_\_\_\_\_

Name of Firm: \_\_\_\_\_

Name of Staff: \_\_\_\_\_

Profession: \_\_\_\_\_

Date of Birth: \_\_\_\_\_

Years with Firm/Entity: \_\_\_\_\_ Nationality: \_\_\_\_\_

Membership in Professional Societies: \_\_\_\_\_

Detailed Tasks Assigned: \_\_\_\_\_

---

**Key Qualifications:**

*[Give an outline of staff member's experience and training most pertinent to tasks on assignment. Describe degree of responsibility held by staff member on relevant previous assignment and give dates and locations. Use about half a page.]*

---

**Education:**

*[Summarize college/university and other specialized education of staff member, giving names of schools, dates attended, and degrees obtained. Use about one quarter of page]*

**Employment Record:**

*[Starting with present position, list reverse order every employment held. List all positions held by staff member in last 10 years, giving dates, names of employing organizations, titles of positions held, and locations of assignment. Also give types of activities performed and client references, where appropriate. Use about three-quarters of a page].*

---

**Languages:**

*[For each language indicate proficiency: excellent, good fair, or poor; in speaking, reading and writing]*

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe me, my qualifications, and my experience.

\_\_\_\_\_ Date: \_\_\_\_\_

***[Signature of staff member]***

Authorised signatory:  
Name and Title of Signatory



**PERFORMANCE BANK GUARANTEE**

(To be stamped in accordance with the Stamp Act)

To

The Secretary,  
Telecom Regulatory Authority of India,  
Mahanagar Door Sanchar Bhawan,  
Jawahar Lal Nehru Marg  
New Delhi – 110002.

WHEREAS ----- (Name and address of the firm) (hereinafter called “the Audit Agency”) has undertaken, in pursuance of agreement No.--- ----- dated ----- to conduct audit and assessment of Quality of Service provided by service providers (hereinafter called “the Agreement”).

AND WHEREAS it has been stipulated by you in the said Agreement that the Audit Agency shall furnish you with a Bank Guarantee from a scheduled Bank in India for the sum specified herein as security for compliance with his obligations in accordance with the Agreement;

AND WHEREAS we (Insert name and address of Bank) have agreed to give the Audit Agency such a Bank Guarantee:

NOW THEREFORE we (Insert name of Bank) hereby affirm that we are the Guarantors and responsible to you, on behalf of the Audit Agency up to a total of -----(amount of Guarantee)----- (in words and figures), and we hereby unconditionally, irrevocably and without demur undertake to immediately pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of ----- (amounts of guarantee) as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We (Insert name of Bank) hereby waive the necessity of your demanding the said debt from the Audit Agency before presenting us with the demand.

We (Insert name of Bank) further agree that no change or addition to or other modification of the terms of the Agreement or of the works to be performed thereunder or of any of the contract documents which may be made between you and the Audit Agency shall in any way release us from any liability under the guarantee and we hereby waive notice of any such change, addition or modification.

We (Insert name of Bank) further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the assignment under the Agreement and that it shall continue to be enforceable till all the dues of TRAI, by virtue of the said Agreement have been fully paid and its claims satisfied or discharged and till TRAI, accordingly, discharges this guarantee.

We (Insert name of Bank) lastly undertake not to revoke this guarantee during its currency except with the previous consent of the TRAI in writing.

This guarantee shall be valid upto and including the day of ..... The pendency of any dispute or arbitration or other proceedings shall not affect this guarantee in any manner.

Dated, the.....day of .....2013

SIGNATURE AND SEAL OF THE  
AUTHORISED OFFICER OF THE BANK  
Name & Designation of the Officer-----  
NAME OF BANK -----  
ADDRESS -----  
  
DATE -----

**Note:** The stamp papers of appropriate value shall be purchased in the name of the Bank, who issues the 'Bank Guarantee'.

**Annexure-2 A****DETAILS OF ZONE WISE SERVICE AREA**

<b>NORTH ZONE</b>						
<b>SI</b>	<b>Licensed Service Area and Category</b>		<b>Areas covered</b>	<b>Name of licensees</b>	<b>Subscriber base as on 30th Sept 2012</b>	
				<b>(Service Provider)</b>	<b>Mobile</b>	<b>Basic Wireline</b>
1	Jammu & Kashmir	C	Entire area falling within the State of Jammu & Kashmir including the autonomous council of Ladakh.	BSNL	1150546	201151
				Bharti Airtel	2269768	-
				Aircel Limited	1770577	-
				Tata Teleservices	113194	353
				Reliance Comm.	597315	-
				Vodafone India Ltd.	685776	-
				MTS	19	-
				Idea cellular	201974	-
				Uninor	314	-
2	Himachal Pradesh	C	Entire area falling within the State of Himachal Pradesh	Bharti Airtel	1907002	-
				Idea cellular	482365	-
				Reliance Telecom	1559429	4462
				BSNL	1543633	291091
				Aircel Limited	720753	-
				Tata Teleservices	259023	2166
				Reliance Comm.	1559429	-
				Vodafone India Ltd.	483741	-
				MTS	69	-
3	Rajasthan	B	Entire area falling within the State of Rajasthan.	Vodafone India Ltd.	9236120	180
				BSNL	5788870	987884
				Idea cellular	4521563	-
				BhartiAirtel	14739264	39320
				Reliance Comm.	6450463	26081
				Tata Teleservices	3585454	6694
				Aircel Limited	2625234	-
				Videocon	7619	-
				MTS	2473791	48876
4	Punjab	B	Entire area falling within the State of Punjab and Union territory of Chandigarh.	HFCL	1604699	188934
				Idea cellular	5599541	-
				BhartiAirtel	6894188	105809
				Vodafone India Ltd.	4459595	240
				BSNL	4449876	1067742
				Reliance Comm	3292577	27770
				Uninor	434	-
				Aircel Limited	1117329	-
				MTS	1120	-
Tata Teleservices	2755698	15690				

5	Haryana	B	Entire area falling within the State of Haryana except the local areas served by Faridabad and Gurgaon telephone exchanges.	Idea cellular	3687543	-
				Vodafone India Ltd.	4492681	-
				BSNL	3073463	524784
				BhartiAirtel	2338293	23916
				Reliance Comm	2592520	4982
				Tata Teleservices	2806789	24700
				Aircel Limited	652062	-
				Videocon	849452	-
				MTS	231421	-
6	Delhi	Metro	Local Areas served by Delhi, Ghaziabad, Faridabad, Noida, and Gurgaon Telephone Exchanges	BhartiAirtel	9105718	1080689
				Vodafone India Ltd.	8749701	6480
				MTNL	2582787	1578914
				Idea cellular	4801988	-
				Tata Teleservices	4051470	85484
				Aircel Limited	2928704	-
				Reliance Comm	8489637	184533
				MTS	1261197	-
7	Uttar Pradesh - East	B	Entire area covered by Eastern Uttar Pradesh with the following as its boundary districts towards Western Uttar Pradesh: Shahjahanpur, Farrukhabad, Kanpur and Jalaun.	BhartiAirtel	15081912	50492
				Vodafone India Ltd.	14820952	270
				Idea cellular	7237189	-
				BSNL	10257908	977493
				Aircel Limited	3398510	-
				Reliance Comm.	10943984	39956
				Tata Teleservices	4629635	13379
				Uninor	7527122	-
				Videocon	14865	-
MTS	672831	-				
8	Uttar Pradesh- West	B	Entire area covered by Western Uttar Pradesh with the following as its boundary districts towards Eastern Uttar Pradesh: Pilibhit, Bareilly, Badaun, Etah, Mainpuri and Etawah. It will exclude the local telephone area of Ghaziabad and Noida. However, it will also include the newly created State of Uttaranchal pursuant to the Uttar Pradesh Re-organisation Act, 2000 (No.29 of 2000) dated 25 <sup>th</sup> August, 2000.	Vodafone India Ltd.	9352384	-
				Idea cellular	10265870	-
				BSNL	4986563	743084
				BhartiAirtel	6677180	24283
				Aircel Limited	2153133	-
				Reliance Comm	7808720	5352
				Tata Teleservices	4624780	8044
				MTS	698580	-
				Videocon	5581	-
Uninor	4888479	-				

<b>SOUTH ZONE</b>						
<b>SI</b>	<b>Licensed Service Area and category</b>		<b>Areas covered</b>	<b>Name of licensees</b>	<b>Subscriber base as on 30th Sept 2012</b>	
				<b>(Service Provider)</b>	<b>Mobile</b>	<b>Basic Wireline</b>
1	Andhra Pradesh	A	Entire area falling within the State of Andhra Pradesh.	Idea Cellular	10728762	-
				BhartiAirtel	18693692	125531
				BSNL	9154603	1899997
				Vodafone India Ltd.	6398393	3840
				Reliance Comm	8045285	88870
				Aircel Limited	1975021	-
				Tata Teleservices	7889542	170359
				MTS	700753	-
				Videocon	9763	-
				Uninor	3996512	-
2	Karnataka	A	Entire area falling within the State of Karnataka	BhartiAirtel	16162382	491187
				Idea Cellular	6225658	-
				BSNL	7026569	1722087
				Vodafone India Ltd.	6860316	2760
				Reliance Comm	7329696	111207
				Aircel Limited	1485942	-
				Uninor	1098040	-
				MTS	2392347	-
				Videocon	8189	-
				Tata Teleservices	7387161	133810
3	Kerala	B	Entire area falling within the State of Kerala and Union Territory of Lakshadweep and Minicoy.	Idea Cellular	7712256	-
				Vodafone India Ltd.	6062344	-
				BSNL	7496684	3013134
				BhartiAirtel	3506105	55848
				Tata Teleservices	2257475	12411
				Aircel Limited	1777913	-
				Uninor	404750	-
				Reliance Comm.	3449810	56031
				Videocon	49756	-
MTS	614243	-				
4	Tamilnadu including Chennai	A	Entire area falling within the State of Tamilnadu and Union Territory of Pondichery excluding the areas covered by Chennai Metro Service Area.	Vodafone India Ltd.	12339851	1230
				Aircel Limited	22235152	-
				Idea Cellular	2284356	-
				Uninor	1112982	-
				BSNL	9487722	2454009
				BhartiAirtel	13695130	485316
				Reliance Comm	8027261	148400
				MTS	1506155	-
				Videocon	876259	-
Tata Teleservices	6248503	72374				

**EAST ZONE**

SI	Licensed Service Area and category		Areas covered	Name of licensees	Subscriber base as on 30th Sept 2012	
				(Service Provider)	Mobile	Basic Wireline
1	Assam	C	Entire area falling within the State of Assam.	Bharti Airtel	3875298	-
				Vodafone India Ltd.	2319970	-
				BSNL	1267958	195873
				Aircel Limited	3778274	-
				Idea cellular	372559	-
				Tata Teleservices	128314	2765
				MTS	1286	-
				Uninor	673	-
				Reliance Telecom	3247231	-
2	North East	C	Entire area falling within the States of Arunachal Pradesh, Meghalaya, Mizoram, Nagaland, Manipur and Tripura.	BSNL (NE-I)	1740227	249688
				BSNL (NE-II)		
				Bharti Airtel	2519084	-
				Reliance Telecom	1110159	-
				Aircel Limited	2495094	-
				Vodafone India Ltd.	980574	-
				Idea cellular	250036	-
				MTS	176	-
				Tata Teleservices	80105	243
3	West Bengal	B	Entire area falling within the Union Territory of Andaman & Nicobar Islands and area falling within the State of West Bengal and the State of Sikkim excluding the areas covered by Kolkata Metro Service Area.	Bharti Airtel	9313894	-
				Reliance Comm	7170932	2077
				BSNL - (GSM)	3643432	603908
				BSNL - A&N		-
				Tata Teleservices	2606399	6231
				Vodafone India Ltd.	11709129	-
				MTS	2005219	-
				Aircel Limited	3042615	-
				Uninor	4119373	-
				Videocon	16506	-
				Idea cellular	2411507	-
				Reliance Telecom	8758805	4802
4	Bihar & Jharkhand	C	Entire area falling within the re-organised State of Bihar and newly created State of Jharkhand pursuant to the Bihar Reorganisation Act,	Idea Cellular	5494988	-
				BSNL	6067495	546547
				Bharti Airtel	18047516	-
				Tata Teleservices	4321480	11118
				Vodafone India Ltd.	6502289	-
				Aircel Limited	5288139	-

			2000 (No.30 of 2000) dated 25 <sup>th</sup> August, 2000.	Uninor	4942685	-
				Videocon	18726	-
				MTS	1633546	-
5	Orissa	C	Entire area falling within the State of Orissa.	Reliance	4377698	3486
				BSNL	4470492	385444
				Idea Cellular	1011626	-
				Bharti Airtel	6622129	-
				Tata Teleservices	2481142	7568
				Vodafone India Ltd.	2814753	180
				Aircel Limited	2894773	-
				MTS	814	-
				Videocon	10673	-
				Uninor	745951	-
6	Kolkata	Metro	Local Areas served by Calcutta Telephones.	Bharti Airtel	3754168	93790
				Vodafone India Ltd.	4304010	1020
				BSNL	2328283	946547
				Aircel Limited	1884904	-
				Reliance	5223735	80633
				Tata Teleservices	3048968	34456
				MTS	910611	-
				Idea cellular	1355899	-
				Videocon	4096	-
				Uninor	2056696	-

WEST ZONE						
SI	Licensed Service Area and category	Areas covered	Name of licensees (Service Provider)	Subscriber base as on 30th Sept 2012		
				Mobile	Basic Wireline	
1	Maharashtra	A	Entire area falling within the State of Maharashtra and Union Territory of Goa, excluding areas covered by Mumbai Metro Service Area.	Vodafone India Ltd.	13290535	480
				IDEA Cellular	15219023	-
				BSNL	6540974	2157874
				BhartiAirtel	10007457	70234
				Reliance Comm	8574645	102379
				Tata Teleservices	7082709	241645
				MTS	710690	-
				Videocon	8814	-
				Uninor	5399721	-
				Aircel Ltd.	1191470	-
2	Mumbai	Metro	Local Areas served by Mumbai, New Mumbai and Kalyan Telephone Exchanges	Loop Mobile India	3028539	-
				Vodafone India Ltd.	6061281	6240
				MTNL	2711138	1874897
				BhartiAirtel	3587060	331357

				IDEA Cellular	2953838	-
				Reliance Comm	7280826	233431
				Tata Teleservices	4070004	543667
				Aircel Ltd.	1413290	-
				Videocon	634284	-
				Uninor	1795446	-
				MTS	537860	-
3	Gujarat	A	Entire area falling within the State of Gujarat and Union Territory of Daman and Diu, Silvassa (Dadra & Nagar Haveli).	Vodafone India Ltd.	16241892	150
				IDEA Cellular	8216677	-
				BSNL	4216537	1558974
				BhartiAirtel	7196491	55335
				Reliance Comm	7575497	103907
				MTS	238828	-
				Uninor	4054136	-
				Videocon	950766	-
				Aircel Ltd.	791597	-
				Tata Teleservices	3464499	65953
4	Madhya Pradesh	B	Entire area falling within the re-organised State of Madhya Pradesh as well as the newly created State of Chattisgarh pursuant to the Madhya Pradesh Reorganisation Act, 2000 (No:28 of 2000) dated 25 <sup>th</sup> August, 2000.	IDEA Cellular	14429519	-
				Reliance Comm	12943010	29532
				BSNL	4941372	835738
				Bharti Airtel	9928758	241505
				Vodafone India Ltd.	4498480	60
				Aircel Ltd.	986875	-
				Uninor	1289	-
				MTS	2978	-
				Videocon	941265	-
				Tata Teleservices	4463235	13910



**Broadband Subscriber Base**

<b>S. No.</b>	<b>ISPs</b>	<b>Service Area</b>	<b>Subscribers Base (Sept'12)</b>
1	BSNL	Andhra Pradesh, Assam, Bihar, Chhattisgarh, Chennai, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Karnataka, Kerala, Kolkata, Maharashtra, Madhya Pradesh, NEI NEII, Orissa Punjab, Rajasthan, Tamilnadu, UP East, UP West, Uttaranchal, WB, A&N	9584365
2	MTNL	Delhi, Mumbai	1060543
3	Airtel	Andhra Pradesh, Delhi, Gujarat, Haryana, Karnataka, Kerala, Kolkata, Madhya Pradesh, Maharashtra, Mumbai, Punjab, Rajasthan, Tamilnadu, UP East, UP West	1389803
4	Tata Communication	Andhra Pradesh, Assam, Delhi & NCR, Gujarat & Daman & Du, Haryana, Himachal Pradesh, Jammu& Kashmir, Karnataka, Kerala & Lakshadweep, Madhya Pradesh & Chhattisgarh, Maharashtra & Goa, Mumbai, North Eastern, Orissa, Punjab, Rajasthan, Tamilnadu & Pondicherry, Uttar Pradesh (East), Uttar Pradesh (West), West Bengal, Kolkata, Bihar & Jharkhand	116496
5	Hathway	Andhra Pradesh, Delhi, Gujarat, Haryana, Karnataka, Maharashtra, Punjab, Tamilnadu, Uttar Pradesh, Chhattisgarh, Goa	371839
6	You Broadband	All India, Andhra Pradesh, Gujarat, Haryana, Karnataka, Maharashtra, Tamilnadu	287065
7	Sify	All India	50539
8	Reliance	All India	181189
9	Asia Net	Kerala	112987
10	Quadrant Televentures	Punjab	103196
11	Ortel	Orissa	50989
12	Tata Teleservices	Maharashtra & Goa	110641
13	Alliance	Kolkata	29335
14	Spectra Net	All India (Delhi, Bangalore & Mumbai)	39343

15	Syscon Infoway	Maharashtra	69938
16	Beam Cables	Hyderabad	241793
17	Tikona Digital Networks Pvt Ltd	Mumbai	289931
18	D-Vois Broadband Pvt. Ltd.	Hyderabad	59791
19	Indusland Media & Communications Ltd	All India	27732
20	Five Network Solution(India) Ltd	All India	53160
21	Zylog Systems (India Ltd.	Tamilnadu, Chennai, Andhra Pradesh, Karnataka, Punjab, Gujarat	43187
22	Softeng Computers Pvt Ltd.	All India	25171
23	Broadband Pacenet(I) Pvt. Ltd.	Mumbai	36289
24	Chandranet Pvt Ltd	Gujarat	27140
25	Rajesh Multichannel	Mumbai	14413
26	Gujarat Telelink Pvt. Ltd.	Gujarat	40151
27	Vasai Cable Pvt Ltd.	Mumbai	13141
28	Wishnet Pvt. Ltd	Kolkata	14171
29	Noida Software Technology Pvt.Ltd.	All India	14638
30	Meghbela cable & Broadband Ser(p)	Kolkatta	13658
31	Atria Convergence Tech.	Karnataka	24198
32	Honesty Net Solution	Mumbai	17360
33	Home Systems pvt.Ltd	Mumbai	12278

**No. of Telephone Exchanges (Wireline) Service Area/Circle wise as on  
September'12**

Service Provider	Zone	Name of the Circle/Service Area	No. of Wire line Telephone Exchanges			No. of Exchanges to be covered in each Quarter		
			Urban	Rural	Total	Urban	Rural	TOTAL
<b>North Zone</b>								
MTNL	N	Delhi	364	0	364	18	0	18
Bharti	N	Delhi(NCR)	7	0	7	2	0	2
TTL	N	Delhi	3	0	3	1	0	1
RCL	N	Delhi	2	0	2	1	0	1
Vodafone	N	Delhi	6	0	6	2	0	2
<b>Total (DEL)</b>			<b>382</b>	<b>0</b>	<b>382</b>	<b>24</b>	<b>0</b>	<b>24</b>
BSNL	N	Haryana	380	926	1306	19	46	65
Bharti	N	Haryana	2	0	2	1	0	1
TTL	N	Haryana	1	0	1	1	0	1
RCL	N	Haryana	1	0	1	1	0	1
<b>Total (HR)</b>			<b>384</b>	<b>926</b>	<b>1310</b>	<b>22</b>	<b>46</b>	<b>68</b>
BSNL	N	Himachal Pradesh	126	1032	1158	6	52	58
TTL	N	Himachal Pradesh	1	0	1	1	0	1
RCL	N	Himachal Pradesh	1	0	1	1	0	1
<b>Total (HP)</b>			<b>128</b>	<b>1032</b>	<b>1160</b>	<b>8</b>	<b>52</b>	<b>60</b>
TTL	N	J&K	1	0	1	1	0	1
BSNL	N	J&K	112	261	373	6	13	19
<b>Total (J&amp;K)</b>			<b>113</b>	<b>261</b>	<b>374</b>	<b>7</b>	<b>13</b>	<b>20</b>
BSNL	N	Punjab	295	1213	1508	15	61	76
Bharti	N	Punjab	2	0	2	1	0	1
HFCL	N	Punjab	5	0	5	2	0	2
TTL	N	Punjab	2	0	2	1	0	1
RCL	N	Punjab	1	0	1	1	0	1
<b>Total (PB)</b>			<b>305</b>	<b>1213</b>	<b>1518</b>	<b>20</b>	<b>61</b>	<b>81</b>
BSNL	N	Rajasthan	393	1862	2255	16	91	107
Bharti	N	Rajasthan	1	0	1	1	0	1
Sistema	N	Rajasthan	3	0	3	1	0	1
TTL	N	Rajasthan	8	0	8	2	0	2
RCL	N	Rajasthan	1	0	1	1	0	1
Vodafone	N	Rajasthan	1	0	1	1	0	1
<b>Total (RAJ)</b>			<b>407</b>	<b>1862</b>	<b>2269</b>	<b>22</b>	<b>91</b>	<b>113</b>

BSNL	N	UP(East)	596	1570	2166	26	76	102
Bharti	N	UP(East)	1	0	1	1	0	1
TTL	N	UP(East)	1	0	1	1	0	1
RCL	N	UP(East)	1	0	1	1	0	1
Vodafone	N	UP(East)	1	0	1	1	0	1
<b>Total (UPE)</b>			<b>600</b>	<b>1570</b>	<b>2170</b>	<b>30</b>	<b>76</b>	<b>106</b>
BSNL	N	UP(West)	490	542	1032	25	27	52
Bharti	N	UP(West)	1	0	1	1	0	1
TTL	N	UP(West)	1	0	1	1	0	1
RCL	N	U P (West) & Uttarakhand	1	0	1	1	0	1
<b>Total (UPW)</b>			<b>493</b>	<b>542</b>	<b>1035</b>	<b>28</b>	<b>27</b>	<b>55</b>
BSNL	N	Uttarakhand	137	340	477	7	17	24
<b>Total (UTT)</b>			<b>137</b>	<b>340</b>	<b>477</b>	<b>7</b>	<b>17</b>	<b>24</b>
<b>Total North Zone</b>			<b>2949</b>	<b>7746</b>	<b>10695</b>	<b>168</b>	<b>383</b>	<b>551</b>
<b>South Zone</b>								
BSNL	S	Andhra Pradesh	857	3406	4263	42	213	255
Bharti	S	Andhra Pradesh	1	0	1	1	0	1
TTL	S	Andhra Pradesh	6	0	6	2	0	2
Vodafone	S	Andhra Pradesh	2	0	2	1	0	1
RCL	S	Andhra Pradesh	2	0	2	1	0	1
<b>Total (AP)</b>			<b>868</b>	<b>3406</b>	<b>4274</b>	<b>47</b>	<b>213</b>	<b>260</b>
BSNL	S	Chennai	245	80	325	12	4	16
RCL	S	Chennai	1	0	1	0	1	1
Vodafone	S	Chennai	5	0	5	0	2	2
<b>Total (CHN)</b>			<b>251</b>	<b>80</b>	<b>331</b>	<b>12</b>	<b>7</b>	<b>19</b>
BSNL	S	Karnataka	573	2231	2804	29	112	141
Bharti	S	Karnataka	3	0	3	1	0	1
TTL	S	Karnataka	3	0	3	1	0	1
RCL	S	Karnataka	1	0	1	1	0	1
Vodafone	S	Karnataka	2	0	2	1	0	1
<b>Total (KTK)</b>			<b>582</b>	<b>2231</b>	<b>2813</b>	<b>33</b>	<b>112</b>	<b>145</b>
BSNL	S	Kerala	250	999	1249	13	50	63
Bharti	S	Kerala	1	0	1	1	0	1
TTL	S	Kerala	1	0	1	1	0	1
RCL	S	Kerala	1	0	1	1	0	1

<b>Total (KER)</b>			<b>253</b>	<b>999</b>	<b>1252</b>	<b>16</b>	<b>50</b>	<b>66</b>
BSNL	S	Tamil Nadu	826	1195	2021	41	60	101
RCL	S	Tamilnadu	1	0	1	1	0	1
Bharti	S	Tamilnadu	5	0	5	2	0	2
TTL	S	Tamilnadu (included Chennai)	4	0	4	2	0	2
<b>Total (TN)</b>			<b>836</b>	<b>1195</b>	<b>2031</b>	<b>46</b>	<b>60</b>	<b>106</b>
<b>Total South Zone</b>			<b>2790</b>	<b>7911</b>	<b>10701</b>	<b>154</b>	<b>442</b>	<b>596</b>
<b>WEST ZONE</b>								
BSNL	W	Chattisgarh	220	339	559	10	17	27
<b>Total (CG)</b>			<b>220</b>	<b>339</b>	<b>559</b>	<b>10</b>	<b>17</b>	<b>27</b>
BSNL	W	Gujarat	545	2425	2970	27	121	148
Bharti	W	Gujarat	1	0	1	1	0	1
TTL	W	Gujarat	3	0	3	1	0	1
RCL	W	Gujarat	2	0	2	1	0	1
Vodafone	w	Gujarat	1	0	0	1	0	1
<b>Total (GJ)</b>			<b>552</b>	<b>2425</b>	<b>2976</b>	<b>31</b>	<b>121</b>	<b>152</b>
BSNL	W	MP	600	1786	2386	30	89	119
Bharti	W	MP & Chattisgarh	5	0	5	2	0	2
TTL	W	MP & Chattisgarh	1	0	1	1	0	1
RCL	W	MP	1	0	1	1	0	1
Vodafone	W	MP	1	0	1	1	0	1
<b>Total (MP)</b>			<b>608</b>	<b>1786</b>	<b>2394</b>	<b>35</b>	<b>89</b>	<b>124</b>
Bharti	W	Maharashtra	1	0	1	1	0	1
RCL	W	Maharashtra & Goa	2	0	2	1	0	1
TTL	W	Maharashtra	4	0	4	2	0	2
BSNL	W	Maharashtra	671	4126	4797	33	240	273
Vodafone	w	Maharashtra & Goa	2	0	2	1	0	1
<b>Total (MH)</b>			<b>680</b>	<b>4126</b>	<b>4806</b>	<b>38</b>	<b>240</b>	<b>278</b>
MTNL	W	Mumbai	233	0	233	12	0	12
Bharti	W	Mumbai	2	0	2	1	0	1
TTL	W	Mumbai	6	0	6	2	0	2
RCL	W	Mumbai	2	0	2	1	0	1
Vodafone		Mumbai	4	0	4	2	0	2
<b>Total(MUM)</b>			<b>247</b>	<b>0</b>	<b>247</b>	<b>18</b>	<b>0</b>	<b>18</b>
<b>Total West Zone</b>			<b>2307</b>	<b>8676</b>	<b>10983</b>	<b>132</b>	<b>467</b>	<b>599</b>

<b>EAST ZONE</b>								
BSNL	E	A & N	6	41	47	2	4	6
<b>Total (A&amp;N)</b>			<b>6</b>	<b>41</b>	<b>47</b>	<b>2</b>	<b>4</b>	<b>6</b>
BSNL	E	Assam	170	417	587	8	22	30
TTL	E	Assam	1	0	1	1	0	1
<b>Total (ASM)</b>			<b>171</b>	<b>417</b>	<b>588</b>	<b>9</b>	<b>22</b>	<b>31</b>
BSNL	E	Bihar	229	964	1193	12	48	60
TTL	E	Bihar	1	0	1	1	0	1
RCL	E	Bihar	1	0	1	1	0	1
<b>Total (BH)</b>			<b>231</b>	<b>964</b>	<b>1195</b>	<b>14</b>	<b>48</b>	<b>62</b>
BSNL	E	Jharkhand	190	297	487	10	14	24
<b>Total (JHR)</b>			<b>190</b>	<b>297</b>	<b>487</b>	<b>10</b>	<b>14</b>	<b>24</b>
BSNL	E	Kolkata	510	0	510	26	0	26
Bharti	E	Kolkata	1	0	1	1	0	1
TTL	E	Kolkata	1	0	1	1	0	1
RCL	E	Kolkata	1	0	1	1	0	1
Vodafone	E	Kolkata	1	0	1	1	0	1
<b>Total (Kolkata)</b>			<b>514</b>	<b>0</b>	<b>514</b>	<b>30</b>	<b>0</b>	<b>30</b>
BSNL	E	North East-I	71	287	358	5	15	20
BSNL	E	North East-II	66	154	220	4	6	10
TTL	E	North East	1	0	1	1	0	1
<b>Total (NE-I &amp; II)</b>			<b>138</b>	<b>441</b>	<b>579</b>	<b>10</b>	<b>21</b>	<b>31</b>
BSNL	E	Orissa	236	910	1146	13	46	59
TTL	E	Orissa	2	0	2	1	0	1
RCL	E	Orissa	1	0	1	1	0	1
<b>Total (OR)</b>			<b>239</b>	<b>910</b>	<b>1149</b>	<b>15</b>	<b>46</b>	<b>61</b>
BSNL	E	West Bengal	238	1129	1367	13	57	70
TTL	E	West Bengal	3	0	3	2	0	2
RCL	E	West Bengal	1	0	1	1	0	1
<b>Total (WB)</b>			<b>242</b>	<b>1129</b>	<b>1371</b>	<b>16</b>	<b>57</b>	<b>73</b>
<b>Total East Zone</b>			<b>1731</b>	<b>4199</b>	<b>5930</b>	<b>106</b>	<b>212</b>	<b>318</b>
<b>Total All Zones</b>			<b>9777</b>	<b>28532</b>	<b>38309</b>	<b>556</b>	<b>1508</b>	<b>2064</b>

**Annexure-2D**

<b>List of No. of Mobile Switching Centres (MSC) and BTS' as on 30th Sept, 2012</b>				
<b>Sl.</b>	<b>Name of service provider</b>	<b>Service Area</b>	<b>No. of MSCs</b>	<b>BTS as on 30.9.2012</b>
	<b>NORTH ZONE</b>			
1	Bharti Airtel Ltd	Delhi	28	5086
2	Vodafone Essar Moile Services Ltd	Delhi	18	5161
3	MTNL	Delhi	6	1105
4	IDEA Cellular Ltd	Delhi	9	3754
5	Aircel	Delhi	3	2826
6	MTNL	Delhi	2	222
7	Reliance Infocomm Ltd	Delhi	10	3778
8	Tata Teleservices Ltd	Delhi	7	1224
9	Sistema Shyam	Delhi	1	897
10	IDEA Cellular Ltd	Punjab	9	3850
11	Bharti Airtel Ltd	Punjab	24	4554
12	BSNL	Punjab	13	2847
13	Vodafone Essar South Ltd	Punjab	17	4365
14	Dishnet wireless Ltd	Punjab	1	607
15	Unitech	Punjab	1	42
16	Reliance Infocomm Ltd	Punjab	5	2861
17	Tata Teleservices Ltd	Punjab	6	2287
18	HFCL	Punjab	2	1755
19	Sistema Shyam	Punjab	1	13
20	IDEA Cellular Ltd	Haryana	7	2379
21	Vodafone Essar India Ltd	Haryana	7	2731
22	BSNL	Haryana	8	1571
23	Bharti Airtel Ltd	Haryana	7	2742
24	Videocon	Haryana	1	1236
25	Dishnet wireless Ltd	Haryana	1	166
26	Unitech	Haryana	2	36
27	Reliance Infocomm Ltd	Haryana	3	2239
28	Sistema Shyam	Haryana	1	196
29	Tata Teleservices Ltd	Haryana	6	2075
30	IDEA Cellular Ltd	UP (W)	28	6140
31	Bharti Airtel Ltd	UP (W)	18	6621
32	BSNL	UP (W)	15	2869
33	Vodafone Essar South Ltd	UP (W)	21	6115
34	Dishnet wireless Ltd	UP (W)	2	2556
35	Unitech	UP (W)	6	2664
36	Videocon	UP(W)	1	91
37	Reliance Infocomm Ltd	UP (W)	8	4089

38	Sistema Shyam	UP (W)	1	323
39	Tata Teleservices Ltd	UP (W)	8	2540
40	Vodafone Essar India Ltd	UP (East)	49	8665
41	Bharti Airtel Ltd	UP (East)	41	8925
42	BSNL	UP East	25	6090
43	IDEA Cellular Ltd	UP(East)	8	5927
44	Dishnet wireless Ltd	UP(East)	2	2748
45	Unitech	UP(East)	8	3217
46	Videocon	UP(East)	1	55
47	Reliance Infocomm Ltd	UP(East)	13	6157
48	Sistema Shyam	UP(East)	1	383
49	Tata Teleservices Ltd	UP (East)	9	3138
50	Vodafone Essar India Ltd	Rajasthan	8	6504
51	Bharti Hexacom Ltd	Rajasthan	42	7393
52	BSNL	Rajasthan	15	3587
53	IDEA Cellular Ltd	Rajasthan	10	3778
54	Dishnet wireless Ltd	Rajasthan	1	1221
55	Videocon	Rajasthan	1	13
56	Unitech	Rajasthan	1	61
57	Reliance Infocomm Ltd	Rajasthan	8	4790
58	Tata Teleservices Ltd	Rajasthan	11	2308
59	Sistema Shyam	Rajasthan	1	1611
60	Bharti Airtel Ltd	Himachal Pradesh	5	1306
61	Reliance Telecom Ltd	Himachal Pradesh	2	930
62	BSNL	Himachal Pradesh	3	1149
63	IDEA Cellular Ltd	Himachal Pradesh	1	645
64	Dishnet wireless Ltd	Himachal Pradesh	1	661
65	Vodafone	Himachal Pradesh	1	707
66	Videocon	Himachal Pradesh	1	8
67	Unitech	Himachal Pradesh	1	27
68	Reliance Infocomm Ltd	Himachal Pradesh	1	400
69	Sistema Shyam	Himachal Pradesh	1	11
70	Tata Teleservices Ltd	Himachal Pradesh	2	164
71	BSNL	Jammu & Kashmir	7	1115



72	Bharti Airtel Ltd	Jammu & Kashmir	11	2519
73	Dishnet wireless Ltd	Jammu & Kashmir	6	2021
74	Vodafone	Jammu & Kashmir	2	1254
75	IDEA Cellular Ltd	Jammu & Kashmir	1	491
76	Unitech	Jammu & Kashmir	1	25
77	Reliance Infocomm Ltd	Jammu & Kashmir	3	1039
78	Sistema Shyam	Jammu & Kashmir	1	14
79	Tata Teleservices Ltd	Jammu & Kashmir	2	256
<b>Total North Zone</b>			<b>622</b>	<b>187926</b>
<b>SOUTH ZONE</b>				
1.	IDEA Cellular Ltd	Andhra Pradesh	15	7495
2.	Bharti Airtel Ltd	Andhra Pradesh	43	10940
3.	BSNL	Andhra Pradesh	16	5846
4.	Vodafone Essar South Ltd	Andhra Pradesh	7	8268
5.	Aircel	Andhra Pradesh	2	2945
6.	Unitech	Andhra Pradesh	2	2620
7.	Videocon	Andhra Pradesh	1	25
8.	Reliance Infocomm Ltd	Andhra Pradesh	13	7099
9.	Sistema Shyam	Andhra Pradesh	1	540
10.	Tata Teleservices Ltd	Andhra Pradesh	15	5699
11.	Bharti Airtel Ltd	Karnataka	57	9183
12.	IDEA Cellular Ltd	Karnataka	9	5215
13.	BSNL	Karnataka	37	5016
14.	Vodafone Essar South Ltd	Karnataka	7	7744
15.	Aircel	Karnataka	2	2903
16.	Unitech	Karnataka	1	24
17.	Videocon	Karnataka	1	30
18.	Reliance Infocomm Ltd	Karnataka	11	5951

19.	Tata Teleservices Ltd	Karnataka	14	6308
20.	Sistema Shyam	Karnataka	2	1195
21.	Vodafone Essar Cellular Ltd	Tamil Nadu	14	7049
22.	Aircel Ltd	Tamil Nadu	33	6175
23.	BSNL	Tamil Nadu	11	5325
24.	Bharti Airtel Ltd	Tamil Nadu including Chennai	36	11723
25.	IDEA Cellular Ltd	Tamil Nadu including Chennai	18	3383
26.	Unitech	Tamil Nadu including Chennai	1	74
27.	Videocon	Tamil Nadu including Chennai	1	2640
28.	Reliance Infocomm Ltd	Tamil Nadu	9	6371
29.	Sistema Shyam	Tamil Nadu including Chennai	2	1266
30.	Tata Teleservices Ltd	Tamil Nadu including Chennai	5	3764
31.	IDEA Cellular Ltd	Kerala	12	5433
32.	Vodafone Essar Cellular Ltd	Kerala	10	4360
33.	BSNL	Kerala	17	4705
34.	Bharti Airtel Ltd	Kerala	11	4982
35.	Dishnet wireless Ltd	Kerala	1	2346
36.	Unitech	Kerala	1	62
37.	Videocon	Kerala	1	84
38.	Reliance Infocomm Ltd	Kerala	7	3443
39.	Sistema Shyam	Kerala	1	692
40.	Tata Teleservices Ltd	Kerala	6	2567
<b>Total South Zone</b>			<b>438</b>	<b>171490</b>
<b>WEST ZONE</b>				
1	Loop Mobile India Ltd	Mumbai	3	2158
2	Vodafone Essar Ltd	Mumbai	21	3630
3	MTNL	Mumbai	5	1003
4	Bharti Airtel Ltd	Mumbai	12	3592

5	IDEA Cellular Ltd	Mumbai	7	2719
6	Aircel	Mumbai	2	2189
7	Unitech	Mumbai	2	1508
8	MTNL	Mumbai	2	220
9	Reliance Infocomm Ltd	Mumbai	12	3888
10	Tata Teleservices (Maharashtra) Ltd	Mumbai	8	3440
11	Sistema Shyam	Mumbai	1	492
12	Aircel Cellular Ltd	Chennai	12	1980
13	BSNL	Chennai	6	1886
14	Vodafone Essar South Ltd	Chennai	2	1964
15	Vodafone Essar Cellular Ltd	Maharashtra	12	8656
16	IDEA Cellular Ltd	Maharashtra	41	9175
17	BSNL	Maharashtra	18	6895
18	Bharti Airtel Ltd	Maharashtra	22	9719
19	Aircel	Maharashtra	3	2194
20	Unitech	Maharashtra	3	3078
21	Videocon	Maharashtra	1	21
22	Reliance Infocomm Ltd	Maharashtra	14	6291
23	Sistema Shyam	Maharashtra	1	709
24	Tata Teleservices Ltd	Maharashtra	17	6501
25	Vodafone Essar Gujarat Ltd	Gujarat	17	7342
26	IDEA Cellular Ltd	Gujarat	22	5596
27	BSNL	Gujarat	10	4481
28	Bharti Airtel Ltd	Gujarat	15	6907
29	Unitech	Gujarat	2	2489
30	Videocon	Gujarat	2	1749
31	Dishnet wireless Ltd	Gujarat	1	896
32	Reliance Infocomm Ltd	Gujarat	9	5092
33	Sistema Shyam	Gujarat	1	572
34	Tata Teleservices Ltd	Gujarat	10	3070
35	IDEA Cellular Ltd	MP	30	7815
36	Reliance Telecom Ltd	MP	8	4979
37	BSNL	MP	6	6481
38	Bharti Airtel Ltd	MP	12	8918
39	Vodafone	MP	5	4571
40	Dishnet wireless Ltd	MP	1	128
41	Videocon	MP	1	1476
42	Unitech	MP	1	73
43	Reliance Infocomm Ltd	MP	6	2133

44	Sistema Shyam	MP	1	43
45	Tata Teleservices Ltd	MP	7	3361
	<b>Total West Zone</b>		<b>394</b>	<b>162080</b>
	<b>EAST ZONE</b>			
1	Bharti Airtel Ltd	Kolkata	8	2172
2	Vodafone Essar East Limited	Kolkata	7	2340
3	BSNL	Kolkata	8	1232
4	Reliance Telecom Ltd	Kolkata	3	1716
5	Dishnet wireless Ltd	Kolkata	2	2092
6	IDEA Cellular Ltd	Kolkata	1	1676
7	Unitech	Kolkata	2	1172
8	Videocon	Kolkata	1	125
9	Reliance Infocomm Ltd	Kolkata	3	492
10	Sistema Shyam	Kolkata	1	534
11	Tata Teleservices Ltd	Kolkata	6	2233
12	Reliance Telecom Ltd	West Bengal	5	2825
13	BSNL	West Bengal	10	3307
14	Bharti Airtel Ltd	West Bengal	17	5309
15	Vodafone Essar South Ltd	West Bengal	19	6474
16	Dishnet wireless Ltd	West Bengal	3	2700
17	IDEA Cellular Ltd	West Bengal	2	2139
18	Unitech	West Bengal	3	1935
19	Videocon	West Bengal	1	31
20	Reliance Infocomm Ltd	West Bengal	5	1325
21	Sistema Shyam	West Bengal	1	905
22	Tata Teleservices Ltd	West Bengal	6	1663
23	Reliance Telecom Ltd	Bihar	8	4506
24	BSNL	Bihar	21	3353
25	Bharti Airtel Ltd	Bihar	44	7744
26	Dishnet wireless Ltd	Bihar	8	3566
27	Vodafone	Bihar	5	7245
28	IDEA Cellular Ltd	Bihar	20	5372
29	Unitech	Bihar	2	2401
30	Videocon	Bihar	1	52
31	Reliance Infocomm Ltd	Bihar	8	2370
32	Tata Teleservices Ltd	Bihar	9	2845
33	Sistema Shyam	Bihar	1	1184
34	Reliance Telecom Ltd	Orissa	3	2237
35	BSNL	Orissa	10	1987
36	Bharti Airtel Ltd	Orissa	12	4045

37	Dishnet Wireless Ltd	Orissa	7	2650
38	Vodafone Essar Spectel Limited	Orissa	3	3400
39	IDEA Cellular Ltd	Orissa	1	1165
40	Unitech	Orissa	2	945
41	Videocon	Orissa	1	40
42	Reliance Infocomm Ltd	Orissa	3	886
43	Tata Teleservices Ltd	Orissa	6	2052
44	Sistema Shyam	Orissa	1	37
45	Reliance Telecom Ltd	Assam	4	1682
46	BSNL	Assam	8	1331
47	Bharti Airtel Ltd	Assam	10	2762
48	Dishnet Wireless Ltd	Assam	10	2386
49	Vodafone Essar Spectel Limited	Assam	1	2510
50	IDEA Cellular Ltd	Assam	1	768
51	Unitech	Assam	1	83
52	Tata Teleservices Ltd	Assam	1	226
53	Sistema Shyam	Assam	1	27
54	Reliance Telecom Ltd	North East	2	789
55	Bharti Hexacom Ltd	North East	6	1625
56	BSNL	North East	8	1369
57	Dishnet Wireless Ltd	North East	7	1704
58	Vodafone Essar Spectel Limited	North East	1	1143
59	IDEA Cellular Ltd	North East	1	491
60	Unitech	North East	1	95
61	Sistema Shyam	North East	1	63
62	Tata Teleservices Ltd	North East	1	189
<b>Total East Zone</b>			<b>355</b>	<b>123722</b>