

**Last Date of Submission of Bid  
By 03.00PM on 28<sup>th</sup> April, 2017**

**TELECOM REGULATORY AUTHORITY OF INDIA**

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

**TENDER DOCUMENT FOR AUDIT AND ASSESSMENT OF  
QUALITY OF SERVICE**

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# **TENDER DOCUMENT FOR AUDIT**

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

### **Notice Inviting Tender**

1. The Telecom Regulatory Authority of India, Mahanagar Doorsanchar Bhawan, 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 eligibility conditions in the Tender Document, for conducting audit and assessment of quality of service provided by service providers, in terms of the benchmarks specified in the (i) “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, as amended from time to time; and the “Quality of Service of Broadband Service Regulations”, 2006 (11 of 2006) dated 6<sup>th</sup> October, 2006, as amended from time to time, on Zonal basis, namely East Zone, West Zone, North Zone and South Zone:-

2. (i) The Zones shall comprise of the following Telecom Circles/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 Gurugram.

**South Zone:** Andhra Pradesh (including Telangana), Karnataka, Tamil Nadu (including 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 on TRAI’s website [www.trai.gov.in](http://www.trai.gov.in) and may be downloaded for the purpose of bid submission.

4. The audit agencies shall submit the bid, before the last date and time of submission, in a sealed envelope containing –

- (i) two sets of technical bid, in separate sealed covers - one set marked as 'Original Bid' and the other set marked as 'True Copy', containing the following:-
  - (i) a copy of the tender document and clarifications/corrigendum issued, if any with signature of the authorised representative of the bidder in each page of the tender document and clarifications/corrigendum issued, if any, as token of the fact that the bidder having read and accepted the terms and conditions.
  - (ii) standard formats for technical proposal given at Section-IV, with all the necessary details filled by the bidders;
  - (iii) Pre Contract Integrity pact signed by the Bidder as per Form given in the Annexure 5;
  - (iv) Documents relating to eligibility as prescribed in this tender document;
- (ii) earnest money of Rs.3, 00,000/- (Rupees three lakhs only) for each zone separately; and
- (iii) Financial bid, in sealed cover, as per the Schedule for Financial Bid for Audit and Assessment of Quality of Service in Section III.

5. In the event of any discrepancy between the copies, the Original bid shall be treated as authentic notwithstanding the discrepancy in other copy. 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 corrections or overwriting in the technical and financial bid should be attested by the person signing the bid. Any bid with corrections or overwriting without such attestation shall be liable to be rejected.

6. An audit agency may submit bids for one or more Zones, the bid for each zone shall be submitted in separate sealed envelope. The bids in separate sealed envelope for each Zone must be accompanied by earnest money of Rs.5, 00,000/- (Rupees five lakhs only), as per the details given in clause 3 of the section-I of the tender document.

7. The bid, complete in all respects, shall be submitted, not later than 3.00 PM on the **28<sup>th</sup> April, 2017**, to Joint Advisor (QoS), Telecom Regulatory Authority of India, Room No.707, 7th Floor, Mahanagar Doorsanchar Bhawan, Jawaharlal Nehru Marg (Old Minto Road), New Delhi-110 002. The technical proposals will be opened at **3.30PM on 28<sup>th</sup> April, 2017**. The bidders, if they so desire, may be present at the time of opening of the bids. A pre-tender conference will be held with the prospective bidders on **7<sup>th</sup> April, 2017 at 3.00 PM** in the Conference Hall of TRAI on 3<sup>rd</sup> Floor, Mahanagar Doorsanchar Bhawan 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.

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

9. **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.

10. 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 intimated separately.

11. Any change in the schedule of tender submission or opening etc. shall be communicated through e-mail provided by the audit agency at the time of submission of bid.

**(Shaji Abraham)**  
**Joint Advisor (QOS)**

## SECTION- I

### TENDER CONDITIONS AND INSTRUCTIONS TO BIDDERS

#### 1. Background

1.1 The Telecom Regulatory Authority of India has, vide its regulations “the Standards of Quality of Service of Basic Telephone Service (Wire line) and Cellular Mobile Telephone Service, Regulations, 2009” (7 of 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 (wire line) and cellular mobile telephone service. A copy of the said regulations is available on the website of TRAI ([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 The Telecom Regulatory Authority of India has vide its regulations the “Standards of Quality of Service for Wireless Data Services Regulations, 2012” (26 of 2012) dated 4<sup>th</sup> December 2012 laid down the quality of Service parameters applicable to the wireless data services. A copy of the said regulations is available on the website of TRAI ([www.trai.gov.in](http://www.trai.gov.in)). These regulations are applicable to all the cellular mobile telecom service providers providing data services. S. No. 3.1 to 3.8 of regulation 3 of these regulations provides for QoS parameters to be achieved by service providers.

1.3 The 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> October, 2006, laid down the Quality of service parameters applicable to the broadband services. A copy of the said regulations is available on the website of TRAI [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 3<sup>rd</sup> April, 2017 to Joint Advisor (QoS)**, Telecom Regulatory Authority of India, 7<sup>th</sup> Floor, Mahanagar Doorsanchar Bhawan, Jawaharlal Nehru Marg (Old Minto Road), New Delhi-110002 (FAX No.011-23213036). Copy of the queries (without identifying the source) and clarifications by TRAI will be uploaded on the website of TRAI ([www.trai.gov.in](http://www.trai.gov.in)).

2.2 Any clarification issued by TRAI in response to any 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 website of TRAI ([www.traigov.in](http://www.traigov.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 **7<sup>th</sup> April, 2017 at 3.00 PM** in the Conference Room of TRAI located on the 3rd Floor, Mahanagar Doorsanchar Bhawan, 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.** 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 the expiry of the contract period. No interest shall be payable on the EMD submitted to TRAI.

3.2 The EMD may be forfeited by the TRAI 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 the Clause 9 of this Section or
  - (iii) to perform the work as per the Terms of Reference

#### **4. Eligibility**

4.1 The audit agency satisfying the following conditions shall be eligible for bidding, namely:

- (i) the audit agency should have a turnover of not less than rupees two crore during the financial year 2015-16 and should have a minimum cumulative turnover of rupees five crores in the last three consecutive financial years;
- (ii) the audit agency should have at least three years experience in conducting similar work of audit and assessment of Quality of Service as given in the detailed scope of work at para 2 of Section-II. Audit agencies who have undertaken audit and assessment of Quality of Service for the Authority in the past shall not be eligible in case the work done by them for the Authority was found not satisfactory by the Authority;
- (iii) the audit agency should have sufficient staff, including technical and managerial staff, and infrastructure to carry out the audit and assessment of Quality of Service as per the Terms of Reference, including technical, manpower and infrastructure capability to undertake drive test of cellular mobile networks.

4.2 The audit agency shall submit along with the standard format for technical proposal ----

- (a) documentary evidence regarding fulfilment of turnover conditions, including income tax returns for the last three consecutive years of 2013-14, 2014-15 and 2015-16 and a copy of PAN;
- (b) documentary evidence regarding similar experience of at least three years in conducting audit and assessment of Quality of Service;
- (c) documentary evidence showing that the audit agency has sufficient staff, including technical and managerial staff, and infrastructure to carry out the audit and assessment of Quality of Service as per the Terms of Reference, and such documentary evidence shall include proof of employment of staff along with proof of payment of salary, Provident Fund etc.;
- (d) a declaration that the agency shall earmark at least one technical staff member for each Service area exclusively for this project and such officials will not be changed during the project period, without the prior written approval of TRAI.

#### **5. Terms of Reference**

The Terms of Reference for audit and assessment of Quality of Service provided by service providers are provided 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 at Section-IV. All the necessary details are required to be filled by the bidders and submitted before the last date and time of submission. The Bidder shall sign a Pre Contract Integrity pact as per Form given in the Annexure 5 and submit the same along with Technical bid.

## **8. Last date for submission of bids**

The bid should be submitted not later than **03.00 PM** on **28<sup>th</sup> April, 2017**. 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 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 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 or more quarter, but not more than four quarters, 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 the validity of such performance bank guarantee beyond one year and six months by the extended period of the agreement, 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 –

- (i) the audit agency's conformity with the tender conditions;
- (ii) the audit agency's capability to perform the assignment;
- (iii) past experience in carrying out works of similar nature;
- (iv) past experience in carrying out similar project for TRAI:

Provided that in case the Tender Evaluation Committee finds that the past experience of the bidder in carrying out similar project for TRAI is not satisfactory in terms of quality of execution of the project, quality of the reports, adherence to timeline for completion of the project, adherence to the scope of the work under the project, it may disqualify the bid;

- (v) profile of personnel to be engaged for this assignment; and
- (vi) financial capability of the audit agency.

11.3 The audit agencies may be called to give a presentation to the Tender Evaluation Committee constituted for this purpose. They shall furnish the clarifications/detailed explanations on the technical proposals sought by TRAI or by the Tender Evaluation Committee, if any.

11.4 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 (Wire line), 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”.

11.5 The lowest valid offer shall be declared successful. 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. Also in case the bidder who has quoted the lowest in the financial bid does not accept the bid award or failed to submit the Performance Bank Guarantee, the bid may be awarded to the second lowest quoted (L2) bidder.

## **12. Validity of Contract**

The agreement for undertaking audit and assessment of Quality of Service shall be valid for a period of 18 (eighteen) months from the date of signing of the agreement, covering audit and 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 or more quarter, but not more than four quarter, 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, 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 Without prejudice to its right to impose penalty and to forfeit the Performance Bank Guarantee, TRAI reserves the right to terminate the agreement (i) if the audit agency fails to carry out the task as per the terms and conditions specified in the tender documents and agreement; or (ii) if the report is not as per the format approved by TRAI; or (iii) if the report contains information, which is found to be factually incorrect or materially wrong by TRAI. 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 within 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 the 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 Bhawan, 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 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 (wire line), 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 (wire line), 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 (wire line), 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
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 (wire line), 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

17.2 In case the validity of the agreement is extended for one more quarter, but not more than four quarters, in accordance with clause 12

hereinbefore, payment for the extended period will be made as per the above schedule detailed in clause 17.1.

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 shall be audited four times in a year. However, in respect of Basic telephone service (wire line) and Broadband service, a service area/Circle shall be audited only once in a year. The reports of audit and assessment of Basic (wire line) 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 Terms of Reference. No extension of time for completion of the audit and assessment work and for submission of the report thereof shall be given, except for situation arising out of force majeure events specified under clause 13 of the Tender Document.

**Acceptance of the reports and 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) additional 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; and
- (c) 20% (twenty 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:

Provided that TRAI may, at its discretion, considering the circumstances of delay and timely submission of the reports in the past, accept a report which is delayed by more than four weeks, but not later than six weeks, subject to levy of a penalty at the rate of 30% (thirty per cent) of the value of quarterly contracted work for audit and assessment of Quality of Service.

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 or all the service providers are not covered for audit and assessment of Quality of Service and the number of such service providers not covered for audit and assessment of Quality of Service exceed 25% of the number of service providers to be covered for a service (rounded off to the nearest

whole number), the report for such service shall be liable to be rejected and no payment shall be made for such contracted work if rejected by TRAI. 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 a service area for any quarterly period is found by TRAI to be incomplete in respect of any of the activities specified in this tender document or all the service providers are not covered for an activity and the number of such service providers not covered for such activity does not exceed 25% of the total number of service providers to be covered for such activity, TRAI may, at its discretion, accept such a report and payment for such incomplete report shall be reduced from the amount payable for such report in the concerned service area in the following manner:-

S. No.	Activity	Sub-activity incomplete	% of reduction for non-completion of activity per monthly/quarterly report	% of reduction if $\leq$ 25% service providers not covered in a monthly/quarterly report
1	3 day live measurement of Quality of Service (Voice) – Monthly	Cellular 2G	1.25%	0.75%
		Cellular 3G	1.00%	0.50%
		Cellular 4G VOLTE	0.40%	0.20%
2	3 day live measurement of Quality of Service (Data) – Monthly	Cellular 2G	1%	0.50%
		Cellular 3G	0.75%	0.40%
		Cellular 4G	0.75%	0.40%
3	Generation of Monthly PMRs - Voice	Cellular 2G	1.25%	0.50%
		Cellular 3G	1%	0.50%
		Cellular 4G VOLTE	0.40%	0.20%
4	Generation of Monthly PMRs – Wireless Data	Cellular 2G	1%	0.50%
		Cellular 3G	0.75%	0.40%
		Cellular 4G	0.75%	0.40%
5	Generation of Quarterly PMRs and comparison with PMRs submitted by operators - Voice	Cellular 2G	1%	0.50%
		Cellular 3G	0.75%	0.40%
		Cellular 4G VOLTE	0.40%	0.20%
6	Generation of Quarterly PMRs and comparison with PMRs submitted by operators – Wireless Data	Cellular 2G	1%	0.50%
		Cellular 3G	0.75%	0.40%
		Cellular 4G	0.75%	0.40%

7	Quarterly audit of customer parameters of cellular; all parameters of Basic and Broadband Service (excluding live calling)	Cellular Service (2G, 3G and 4G)	5%	2.50%
		Basic Service (wireline)	25%	12.50%
		Broadband Service	35%	17.50%
8	Quarterly audit of customer parameters of cellular; all parameters of Basic and Broadband Service - live calling)	Cellular Service (2G, 3G and 4G)	2.50%	1.25%
		Basic Service (wireline)	10%	5%
		Broadband Service	15%	7.50%
9	Quarterly audit of wireless data services	Cellular 2G	2%	1%
		Cellular 3G	1.50%	0.75%
		Cellular 4G	1.50%	0.75%
		Basic Service (wireline)	20%	10%
		Broadband Service	20%	10%
10	Audit of availability of Level-1 services - Quarterly	Cellular service (common for 2G, 3G and 4G)	5%	2.50%
		Basic Service (wireline)	15%	7.50%
11	Operator assisted drive test - Quarterly	Cellular service 2G voice	5%	2.50%
		Cellular service 3G voice	4%	2%
		Cellular service 4G	4%	2%

Provided that in case the audit agency continuously not completed any activity for a service in a service area or continuously not covered all the service providers in a service area TRAI may, at its discretion, reject the report 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 may 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 TRAI as confidential and shall not share this information without the written permission of 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 shall be the sole property of TRAI. The audit agency shall 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, 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.

## **19. Laws governing contract**

The laws of India for the time being in force 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 TRAI and the audit agency, the matter shall be referred to the Secretary, TRAI who may himself act as sole arbitrator or may nominate, as sole arbitrator , an officer of 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 there under 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 and bid cost:**

The bid shall be submitted in English language. 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 bid.

**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 the 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 the 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, if 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.

**27. Peer Audit or re-verification of the report:**

TRAI may, at its discretion, undertake peer audit of the report submitted by the audit agency through a different audit agency or undertake verification of the report through its officers, and in case the report is found to be materially incorrect, the audit agency shall be liable for penalty as per clause 17.5 and 17.6 of Section I of this Tender Document:

*Provided* that the terms and conditions of peer audit through audit agency from other zone shall be as decided by TRAI with such agency in accordance with the contract with such agency.

## **SECTION-II**

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

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

1.1 The 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 telecommunication services.

1.2 The regulations -- the Standards of Quality of Service of Basic Telephone Service (Wire line) and Cellular Mobile Telephone Service, Regulations, 2009 (7 of 2009) dated 20<sup>th</sup> March, 2009 , the Standards of Quality of Service for Wireless Data Services Regulations, 2012 (26 of 12) dated 4<sup>th</sup> December 2012 and Quality of Service of Broadband Service Regulations, 2006 (11 of 2006) dated 6<sup>th</sup> 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.trai.gov.in](http://www.trai.gov.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 (Wire line) Telephone Services, Broadband and Cellular Mobile Telephone Services (2G, 3G, 4G), as per the scope of work indicated in clause 2.

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

(a) Live measurements of the performance of Service Providers (SPs) against the benchmarks for three days every month during each quarterly period. Live measurement shall be done for all the Network Service Quality Parameters for 2G service, 3G Service, 4G VOLTE service; and Wireless Data Services (2G, 3G and 4G services) for parameters relating to PDP Context Activation Success Rate and Drop Rate.

(b) Preparation of monthly Performance Monitoring reports (PMRs) with the raw data taken from the service providers for all the Network Service Quality Parameters for 2G service, 3G Service, 4G VOLTE service; and Wireless Data Services (2G, 3G and 4G services) for parameters relating to Service Activation/Provisioning, PDP Context Activation Success Rate and Drop Rate;

(c) Preparation of Quarterly Performance Monitoring reports (PMRs) for all the Network Service Quality Parameters for 2G service, 3G Service, 4G VOLTE service; and Wireless Data Services (2G, 3G and 4G services) for parameters relating to Service Activation/Provisioning, PDP Context Activation Success Rate and Drop Rate and up-loading of the PMRs in the system of TRAI.

- (d) Verification and comparison of Quarterly PMRs prepared based on raw data taken from service providers and the Quarterly PMRs submitted by service providers to TRAI.
- (e) Audit of the Customer Service Quality Parameters for cellular mobile telephone service (common for 2G, 3G and 4G services); audit of the Quality of Service parameters for basic telephone service (wireline) and Broadband service with reference to the records maintained by service providers, including records maintained at the complaint centres/ 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) Audit of the Wireless Data Services (2G, 3G and 4G services) for all parameters, except Service Activation/Provisioning, PDP Context Activation Success Rate and Drop Rate, through test measurement procedures specified in the Explanatory Memorandum to the Standards of Quality of Service for Wireless Data Services Regulations, 2012(26 of 12) dated 4<sup>th</sup> December 2012;
- (g) Transfer of data generated by the live measurements and monthly PMR to the server located at TRAI premises immediately on completion of each activity;
- (h) Comparison of generated PMRs with the PMRs submitted by telecom service providers to TRAI.
- (i) Audit of the availability of level '1' services, including emergency services;
- (j) Operator assisted drive test of mobile networks.

1.4 S. No. (i) to (xii) of regulation 3 under Section II pertaining to Quality of Service (QoS) parameters for Basic Telephone Service (Wireline), S. No. (i) to (x) of regulation 5 under Section III pertaining to QoS parameters for Cellular Mobile Telephone Service specified under the Standards of Quality of Service of Basic Telephone Service (Wire line) and Cellular Mobile Telephone Service Regulations, 2009 (7 of 2009) dated the 20<sup>th</sup> March, 2009, S. No. 3.1 to 3.8 under Section II of the Standards of Quality of Service for Wireless Data Services Regulations, 2012 dated 4<sup>th</sup> December 2012(26 of 12) 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, 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 (post-paid and prepaid), resolution of billing/charging complaints, and 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.

1.7 The parameters of Quality of Service for Wireless Data Services specified in the regulation – of the Standards of Quality of Service for Wireless Data Services Regulations, 2012 dated 4<sup>th</sup> December 2012, include Service Activation/ Provisioning, Successful data transmission download attempts, Successful data transmission upload attempts, Minimum download speed, Latency, PDP Context Activation Success Rate and Drop Rate.

1.8 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.

1.9 TRAI may notify the Quality of Service parameters and benchmarks for 4G VOLTE service during the currency of contract and the bidder shall be bound by it. Also, TRAI may amend/ 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.

1.10 The detailed explanation and measurement methodology of each parameters and benchmarks for Basic Telephone Service (Wire line), Cellular Mobile Telephone Service, Wireless data 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:  
(A) 2G

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)	≤ 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	$\leq 3\%$	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) 3G

Serial Number	Name of Parameter	Benchmark	Averaged over a period
A	Network Service Quality Parameters:		
(i)	Network Availability		
	(a) Node Bs' Accumulated downtime (not available for service)	$\leq 2\%$	One Month
	(b) Worst affected Node Bs 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) RRC Congestion	$\leq 1\%$	One Month
	(c) Circuit Switched RAB Congestion	$\leq 2\%$	One Month
(iii)	Connection Maintenance (Retainability)		
	(a) Circuit switched Voice Drop Rate	$\leq 2\%$	One Month
	(b) Worst affected cells having more than 3% Circuit switched Voice Drop rate	$\leq 3\%$	One Month
	(c) connections with good Circuit switched voice quality	$\geq 95\%$	One Month
(iv)	Point of Interconnection (POI) Congestion ( on individual POI)	$\leq 0.5\%$	One Month

(C) Customer Service Quality Parameters: (Includes 2G, 3G and 4G)

(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	$\geq 98\%$ within four weeks and 100% within six 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	$\geq 95\%$	One Quarter
	(b) Percentage of calls answered by the operators (voice to	$\geq 95\%$	One Quarter

	voice) within 90 seconds		
(ix)	Termination/ closure of service	≤ 7 days	One Quarter
(x)	Time taken for refund of deposits after closures	100% within 60 days	One Quarter

D. 4G VOLTE Service:

TRAI will be notifying the parameters and benchmarks for 4G VOLTE service and the audit agency shall undertake audit and assessment of Quality of Service of such parameters.

(ii) Basic Service (wire line):

Serial Number	Name of Parameter	Benchmark	Averaged over a period
(i)	Fault incidences (No. of faults/100 subscribers /month)	≤ 7	One Quarter
(ii)	Fault repair by next working day	For urban areas: By next working day: ≥ 85% and within 5 days: 100%. For rural and hilly areas: By next working day: ≥ 75% and within 7days: 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. Faults pending for >15 days: rent rebate for one month.	One Quarter
(iii)	Mean Time To Repair (MTTR)	≤ 10 Hrs	One Quarter
(iv)	Deleted		
(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	Not more than 1 complaint	One



	credibility -- pre-paid	per 1000 customers, i.e., 0.1% complaints for metering, charging, credit, and validity	Quarter
(viii)	Resolution of billing/ charging complaints	≥ 98% within 4 weeks 100% within 6 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 ninety seconds	≥ 95%	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

(iii) Broadband Service:

S.N	Parameters	Benchmark	Averaged over a period of
(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	One Month

		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	One Month
(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	One Month
(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%	One month
(v)	Bandwidth utilization/ Throughput		One month

	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	<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.	
	b) Broadband Connection Speed (download)	Subscribed Broadband Connection Speed to be met >80% from ISP Node to User.	
(vi)	Service Availability / Uptime(for all users)	> 90% quarter ending June 2007; > 98% with effect from quarter ending September 2007 and onwards	One quarter
(vii)	Packet Loss(for broadband access)	<1%	One month
(vii)	Network Latency (for wired broadband access)		One month
	User reference point at POP / ISP Gateway Node to International Gateway (IGSP/NIXI)	<120 msec	
	User reference point at ISP Gateway Node to International nearest NAP port abroad (Terrestrial)	<350 msec	
	User reference point at ISP Gateway Node to International nearest NAP port abroad (Satellite)	<800 msec	

(iv) Wireless Data Service (2G, 3G and 4G):

Serial Number	Name of Parameter	Benchmark	Averaged over a period
(i)	Service Activation/ Provisioning	Within 4 hrs. With 95% success rate	One month
(ii)	Successful data transmission download attempts	>80%	One month
(iii)	Successful data transmission upload attempts	>75%	One month
(iv)	Minimum download	To be measured for each	One month

	speed	service	
(v)	Latency	Data <250ms	One month
(vi)	PDP Context Activation Success Rate	≥ 95%	One month
(vii)	Drop Rate	≤ 5%	One month

## 2. Detailed 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 (wire line), cellular mobile telephone service, wireless data service and broadband service. 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 (wire line), cellular mobile telephone service including wireless data service and broadband service.

2.2 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:** Andhra Pradesh (including Telangana), Karnataka, Tamil Nadu (including 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.

2.3 The details of the areas covered under each Telecom Circle/ Metro Service Area under the respective zones are given in **Annexure-2A**. The details of service providers (licensees) operating in each Telecom Circle/ Metro Service Area in respect of Basic Telephone Service (wire line) & Cellular Mobile Telephone Service (2G, 3G and 4G) are given in **Annexure-2B**. The subscriber base of these service providers are published periodically on TRAI website [www.trai.gov.in](http://www.trai.gov.in). The details of Broadband Service Providers who have more than 10000 subscribers as of 31<sup>st</sup> December, 2016, along with details of service areas are given in **Annexure-2C**, respectively. TRAI will provide details of any Broadband service provider who have later on acquired subscriber base of more than 10000 customers.

2.4 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 including wireless data, all the service areas/circles in each Zone shall be audited in every quarter of the year i.e. a service area shall be audited four times in a year. 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**. Service providers may install new GMSC/ MSC and the audit agency shall cover such new GMSC/ MSC.

(b) In respect of Basic service (wire line), a service area/circle in the contracted Zone shall be audited for only one quarter in a year, i.e. a service area shall be audited once in a year. While the selection of Service Areas for each quarter can be finalised in consultation with TRAI, at least one circle is to be audited in each quarter. The Agency shall cover all the Service areas in a year.

Number of exchanges to be covered for Basic (Wire line) services:

Sampling shall be done for each service provider separately. In an LSA, sample shall include all exchanges, including rural exchanges, in 10% of SDCAs in the LSA or 10 SDCAs, whichever is more, subject to maximum of the number of SDCAs covered by the basic service provider in the LSA. SDCAs selected should be evenly spread over the LSA and should include major population centres. A service area/circle in the contracted Zone shall be audited only once in a year. 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-2E**.

(c) In respect of Broadband service, a service area/circle in the contracted Zone shall be audited for only one quarter in a year, i.e. a service area shall be audited once in a year. While the selection of Service Areas for each quarter can be finalised in consultation with TRAI, at least one circle is to be audited in each quarter. The Agency shall cover all the Service areas in a year. 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 areas taken together, including any broadband service provider who later on acquired subscriber base of more than 10000.

### Number of Points of Presence (POPs) to be covered for Broadband Services:

Sampling shall be done for each service provider separately. In an LSA, sample shall include all POPs located in 10% of Short Distance Charging Areas (SDCAs) in the Licensed Service Area (LSA) or 10 SDCAs, whichever is more, subject to maximum of the number of SDCAs covered by the service provider in the LSA. SDCAs selected should be evenly spread over the LSA and shall include major population centres. List and details of POPs shall be obtained from NOC/ISP Node of the operators. A service area/circle in the contracted Zone shall be audited only once in a year.

(d) 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.

(e) 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.

(f) 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.

(g) 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.

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

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 and MS Excel in windows environment. TRAI will issue suitable instructions to service providers in this respect after the award of this contract. The Audit agency shall undertake the audit work for the various activities as follows: -

**(a) Live measurement of Quality of Service:**

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

2.7 The 3 days live data provides a sample of 9 days in a quarter (3 days each month of a quarter) with hourly performance, which enables the auditor to identify and validate intra-day issues for an operator on the QoS network parameters.

2.8 Network Service Quality Parameters of Cellular Mobile Telephone Service (2G, 3G and 4G VOLTE services) and parameters relating to Service Activation/Provisioning, PDP Context Activation Success Rate and Drop Rate for Wireless Data Services (2G, 3G and 4G services) are to be evaluated for a period of 3 days in each month. 3 day live audit shall be conducted for 3 consecutive weekdays for each month of a quarter. The data shall be extracted from each operator's server/ NOC etc. at the end of the each day. The extracted data shall be used to create a report (similar to PMR report) to assess the various QoS parameters. The results shall be uploaded immediately on TRAI's server.

**(b) Generation of Performance Monitoring Reports:**

2.9 The detailed explanation and measurement methodology of each parameter and benchmark for cellular mobile telephone service and wireless data 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 all Network Service Quality Parameters for 2G service, 3G Service, 4G VOLTE service; and Wireless Data Services (2G, 3G and 4G services) for parameters relating to Service Activation/Provisioning, PDP Context Activation Success Rate and Drop Rate. 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.

2.10 To measure each quality of service parameter defined by TRAI, one of the two main sources of data collection is audit of MIS/System reports at exchanges (OMC or MSCs) of the service provider. It may be possible that in some cases the data is available centrally in one NOC which is away from the MSCs. In that case auditor shall arrange the data extraction from the central location. The audit will have to be conducted in each centre of study to generate various types of data.

2.11 TRAI has already suggested to the service providers to maintain the QoS source/raw data. The Agency with the help of Service Provider shall extract the raw data from the system in service Providers Data Center/OMC every month. Methodology adopted shall be checked against

instructions and standards to see if the measurements adhere to specifications.

2.12 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/ Node Bs' accumulated down time (b) Worst affected BTSs/ due to down time Node Bs'	The fault Alarm tracking details at the OMC (MSC) for the network outages (due to own network elements and infrastructure service provider end outages) shall 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 shall 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/ Circuit switched Voice Drop Rate	This parameter shall 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 with good voice quality	This parameter is to be measured from the 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.

2.13 Procedure to be followed by the audit agency for data generation, verification and audit of wireless data service:



S. No.	Parameter	Procedure
i)	Service Activation /Provisioning	The Audit agency should verify the 100% activation/provisioning in the Service Providers MIS system
ii)	PDP Context Activation Success Rate	This parameter is to be measured by the system generated data. (defined counters are available in the system for traffic measurement)
iii)	Drop rate	This parameter is to be measured by the system generated data (defined counters are available in the system for data traffic measurement)

2.14 From the source/raw data and verified data, the audit agency should generate the monthly performance Monitoring Reports (PMR) for the Network Service Quality Parameters for 2G service, 3G Service, 4G VOLTE service; and Wireless Data Services (2G, 3G and 4G services) for parameters relating to Service Activation/Provisioning, PDP Context Activation Success Rate and Drop Rate. The Audit agency shall generate the monthly PMR at site and upload it immediately to the server. The monthly PMRs so generated shall be up-loaded on the system latest by 7<sup>th</sup> of the following month.

2.15 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.

**(c) Preparation of Quarterly Performance Monitoring reports (PMRs):**

2.16 The quarterly PMR of the Network Service quality parameters has to be computed based on the monthly PMR generated. The Quarterly PMRs have to be generated for all the Network Service Quality Parameters for 2G service, 3G Service, 4G VOLTE service; and Wireless Data Services (2G, 3G and 4G services) for parameters relating to Service

Activation/Provisioning, PDP Context Activation Success Rate and Drop Rate and up-loading of the PMRs in the system of TRAI.

**(d) Verification of Quarterly Performance Monitoring Reports submitted by service providers to TRAI:**

2.17 TRAI shall provide to the audit agency the monthly/ quarterly Performance Monitoring Reports submitted by the service providers to TRAI. The audit agency shall verify the Performance Monitoring Reports submitted by the service providers for Cellular Mobile Telephone Service (2G, 3G, 4G VOLTE and 4G services), and Wireless Data Services vis-a-vis the Performance Monitoring Reports generated by the audit agency through audit and live measurement report and shall submit its report in the matter to TRAI.

2.18 In case TRAI could not provide the PMRs submitted by the service provider five days before the report submission date, the PMR comparison for the mobile services is to be submitted as an addendum to the main report on the day of submission of report or within 5 days of provision of PMRs by TRAI.

**(e) Audit of Customer Service Quality Parameters for Cellular Mobile Telephone Service; all parameters relating Basic Service (wireline) and Broadband Service; and Wireless Data Service:**

2.19 The activities include collection of MIS data of OMC or MSC or ISP Node, verification and audit of records, and check back calls (live observations done during the visits).

2.20 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
- 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.

2.21 The procedure to be followed by the audit agency for cellular mobile telephone service verification and audit are given below:-

S.No.	Parameter	Procedure
i)	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.
ii)	% of Billing	Audit of billing complaints resolved and the

	Complaints resolved	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.
iii)	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.
iv)	Termination/closure of service	The data should be verified for termination/closure of the services within 7 days from the date of request.
v)	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.

2.22 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.

2.23 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.

2.24 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.

2.25 Procedure to be followed by the audit agency for verification and audit of wireless data services:-

- Records relating to performance on the various Quality of Service Parameters, other than Service Activation/Provisioning, PDP Context Activation Success Rate and Drop Rate reported to TRAI, shall be obtained from the Test Server maintained by the service providers in accordance with the procedures specified in the Explanatory Memorandum to the Standards of Quality of Service for Wireless Data Services Regulations, 2012 (26 of 12) dated 4<sup>th</sup> December 2012 and verified by the audit agency with regard to the procedures specified by TRAI; and
- Measurement of performance on the various Quality of Service Parameters, other than Service Activation/Provisioning, PDP Context Activation Success Rate and Drop Rate on sample basis in accordance with the procedures specified by TRAI.

2.26 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 furnish 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 called upon by TRAI.

Audit of the performance of complaint centres/call centres:

2.27 The audit agency shall audit the performance of complaint centres/call centres of Cellular Mobile Telephone Service, basic service (wireline) and Broadband service with respect to their accessibility and percentage of calls answered by the operator. The Automatic Call Distribution (ACD) records shall also to be verified for the calls answered by the operators within 60 seconds or 90 seconds as applicable. The audit agency shall take random customer feedback by calling the customers to get feedback of the services provided by the service providers.

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

- in basic service (wire line) 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).

2.29 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:

2.30 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:

2.31 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:

2.32 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:

2.33 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.

2.34 Based on the test calls to sample customers and verification of records, the audit agency shall report on the effectiveness of complaint

redressal by the service providers, including adherence to the time limit for redressal of the complaint .

2.35 The Audit agency shall also 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  $\geq$  95%

(b) % age of calls answered by the operator = 95%  
within 90 seconds (voice to voice)

2.36 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.

2.37 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.

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

2.39 The procedure (IVR menu and sub-menu) and ease of accessing the operator within the benchmark laid down by TRAI, both for post-paid 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.

2.40 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:

2.41 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.

2.42 A log of the call records shall be maintained by the agency with called & calling Numbers and time of the call and shall present the same to TRAI when called upon by TRAI.

**(f) Audit of the availability of level '1' services, including emergency services:**

2.43 Level 1 Services such as police, fire, ambulance (Emergency services) in the case of both Mobile service providers (all technologies) and basic telephone service providers. The Level 1 Services essentially to be verified is at **Annexure-3**. Test calls shall be made from all the levels working in a particular SDCA visited. Again, the total sample size (300 per Licensed Service Area per quarter) would be equally distributed amongst the different SDCAs visited, and the distribution amongst the active levels would be in proportion to the capacity of each level in that SDCA. A log of the call records shall be maintained by the agency with called and calling Numbers and time of the call and shall present the same to TRAI, if called upon by TRAI.

2.44 All the data captured during the audit has to be stored for a period of six months. However, 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. It should also be possible to generate reports averaged over the year for the four quarters from the data so preserved, as required by TRAI.

**(g) Operator Assisted Drive Tests:**

2.45 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:-

2.46 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 in all the Long Distance Charging Areas (LDCAs) or Secondary Switching Areas (SSAs) in the country during a period of one year. These drive tests will be conducted in such a manner so as to enable identification of network element deficiency and initiation of improvements. **Drive Tests will be conducted for assessing Quality of Service for voice service of 2G, 3G, and 4G VOLTE technologies and data service of 2G, 3G and 4G technologies.** The operator will

provide necessary equipment along with assistance for carrying out such drive tests

2.47 Drive test shall be conducted in LDCAs/SSAs in each month so that all the SSAs in the region are covered during a year. LDCAs/SSAs are divided into two categories i.e. one normal and other difficult. In normal LDCAs drive test shall be conducted for 3 days covering a minimum distance of 250kilometres in city area and adjoining areas including important indoor sites. The drive test shall be held for 3 consecutive days in the select LDCA/SSA. Minimum distance of 80 km may be covered on each day. In large LDCAs/SSAs drive test shall be conducted for 6 days covering a distance of 500 km. The drive test shall be held for 6 consecutive days in the select LDCA/SSA. In this case also, a minimum distance of 80 km shall be covered on each day. In addition, drive test has to be done for data services for one day. The Number of total LDCAs/SSAs indicating the difficult LDCAs are at **Annexure-4**.

2.48 The Schedule of the drive test indicating the LDCAs/SSAs to be covered on each month will be intimated by TRAI. It is possible that to cover the entire LDCAs/SSAs during an year, drive test may be conducted in more than one SSAs in a Service area in a month. The drive test logs have to be collected by the audit agency immediately after completion of each day's drive test. 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 for processing and preparing report at the end of the drive test. The Audit Agency shall prepare a combined diagram for the LDCA/SSA indicating the drive test outputs for all the operators plotted in a map with proper label for road , places etc. in CAD or similar software.

#### Drive Test Methodology:

2.49 For drive test, the following procedure shall be adopted, in addition to any guidelines TRAI may issue during the validity of the contract:-

- i. The audit agency shall discuss with Service provider about the coverage before starting the drive test (with coverage map) and study the coverage detail in terms of the signal strength. Based on the signal strength as depicted in the coverage map of the LSA divided into small grids, based on the population of the LSA, the drive test should be done to check the following parameters:

Voice :-

- a. Coverage-Signal strength
- b. Voice quality with actual audio recording of voice samples
- c. Call setup success rate
- d. Blocked calls
- e. Call drop rate

Data:-

- i. Median Throughput (Down link/uplink)
- ii. Success rate
- iii. Web page download time
- iv. Video streaming delay
- v. Latency



- ii. The audit agency shall analyse the network related complaints of concerned LDCA. The drive test shall be conducted using licensed tools/devices with more focus on areas where large numbers of network related complaints are received
- iii. The drive test shall cover cities and adjoining towns/ rural areas where the service provider has commenced service, including congested areas and indoor sites.
- iv. The drive test shall cover the routes including expressways, major and secondary roads / streets, Commercial, residential areas/Commercials estates to check the in-building (10-12 walk tests /stationary locations/ high footfall locations with engineering smart phones capable of capturing layer 3 messages, should be measured ) network performance. The walk test shall also cover key Metro stations and Metro and train services (Rajdhani, shtabdi express trains) and other public places as decided by TRAI.
- v. The drive tests of each mobile network shall be conducted between 9 am and 8 pm on weekdays.
- vi. 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.
- vii. The speed of the vehicle should be kept at around 30-50 km/hour (around 30 km/hr in case of geographically small cities)
- viii. The holding period of each test call will be 120/180 seconds.
- ix. Measurement using engineering handsets would not be acceptable.
- x. Data Test drive concurrent with voice test and in building / hot spots measurement for assessing the mobile data services for all technology across the concerned LDCA.
- xi. Data test should include the following:-
  - a) Data download/upload
  - b) On line video streaming
  - c) Web browsing with 3 links of e/m commerce website
  - d) Latency (Ping)
  - e) On line payments on hotspot

2.50 After the completion of the benchmarking activity, the audit agency is required to submit the report of the independent drive test in such a manner that all the metrics captured for different services (voice and data) and different service providers are displayed using a Graphical User Interface, data visualization dashboards and analytical based tools. The analytical based tool/ software shall internationally compatible and be used to show comparison of TSP performance/ comparison of TSP's at city level, with other TSP's, grid level, service area level and with global

TSP's. The format of report shall be provided by TRAI and the audit agency shall submit the report in such format.

#### 2.51 Post Processing and grid based Analysis:

- The Data Post Processing stage should be started immediately after completion of each day drive testing. Following practice shall be exercised to ensure the tamper proof results :-
- The team shall be able to load the data / Log files on the relevant post processing tool for analysis. All external connection to these desktops like CD ROM, flash drives and internet shall be disabled to avoid duplication of log files .
- The city under test shall be divided into smaller grids and narrow down at the grid level to identify and highlight the grid/ area level problems rather than looking at the complete city level. The highlighted grid/ area level problems shall clearly indicate the areas with poor service levels for each service provider.

### **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 shall be final.

All these reports shall 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 **Monthly Report:** The audit agency shall submit monthly Performance Monitoring Reports (PMR) for Network Service Quality Parameters of cellular mobile telephone service (2G, 3G and 4G VOLTE), and wireless data service. The Audit agency shall generate the monthly PMR at site and upload it immediately to the server. The monthly PMRs for network parameters of cellular mobile telephone service and wireless data service so generated shall be up-loaded on the system latest by 7<sup>th</sup> of the following month.

5.1 **Quarterly Reports:** The audit agency shall submit quarterly reports in the formats approved by TRAI for the purpose. The quarterly PMR of the Network Service quality parameters has to be computed based on the monthly PMR generated. Two 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 should 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.

## 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+2 weeks
2.	Submission of final design and reporting formats by the Audit agency incorporating modifications and corrections suggested by TRAI and its acceptance	D+4 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	From the end of

	Quality of Service for the first quarter for the extended period	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 (wire line) and Broadband, a service area/circle shall be audited only once in a year.**
- **The rates shall be inclusive of the online transfer of data generated by RF drive test/ live measurement/ PMR/audit & report generation as per the requirements of the tender document and all the taxes, levies, duties etc.**

**Zone: North 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	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 (including Chennai)	Cellular		
		Basic		
		Broadband		
2	Andhra Pradesh	Cellular		
		Basic		
		Broadband		
3	Kerala	Cellular		
		Basic		
		Broadband		
4	Karnataka	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. The audit agency shall 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-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.

**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 the telecom 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.

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

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

Dated, the.....day of .....2016

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 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): Completion Date(Month/Yr.): Approx. Value of Services contracted 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 ----- (hereinafter called “the Agreement”) to conduct audit and assessment of Quality of Service provided by the telecom service providers;

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 .....2016

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'.



**DETAILS OF ZONE WISE SERVICE AREA****NORTH ZONE**

<b>Sl. No.</b>	<b>Licensed Service Area and category</b>		<b>Areas covered</b>
01.	Jammu & Kashmir	C	Entire area falling within the State of Jammu & Kashmir including the autonomous council of Ladakh.
02.	Himachal Pradesh	C	Entire area falling within the State of Himachal Pradesh
03.	Rajasthan	B	Entire area falling within the State of Rajasthan.
04.	Punjab	B	Entire area falling within the State of Punjab and Union territory of Chandigarh.
05.	Haryana	B	Entire area falling within the State of Haryana except the local areas served by Faridabad and Gurgaon Telephone exchanges.
06.	Delhi	Metro	Local Areas served by Delhi, Ghaziabad, Faridabad, Noida, and Gurgaon Telephone Exchanges
07.	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.
08.	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 State of Uttarakhand.

**SOUTH ZONE**

<b>Sl. No.</b>	<b>Licensed Service Area and category</b>		<b>Areas covered</b>
1	Andhra Pradesh	A	Entire area falling within the State of Andhra Pradesh including the state (Telangna).
2	Karnataka	A	Entire area falling within the States of Karnataka
3	KERALA	B	Entire area falling within the State of Kerala and Union Territory of Lakshadweep and Minicoy
4	Tamilnadu (incl. Chennai)	A	Entire area falling within the State of Tamilnadu and Union Territory of Pondichery

**WEST ZONE**

<b>Sl. No.</b>	<b>Licensed Service Area and category</b>		<b>Areas covered</b>
1	Maharashtra	A	Entire area falling within the State of Maharashtra and Union Territory of Goa, excluding areas covered by Mumbai Metro Service Area.
2	Mumbai	Metro	Local Areas served by Mumbai, New Mumbai and Kalyan Telephone Exchanges
3	Gujarat	A	Entire area falling within the State of Gujarat and Union Territory of Daman and Diu, Silvassa (Dadra & Nagar Haveli).
4	Madhya Pradesh	B	Entire area falling within the re-organised State of Madhya Pradesh as well as the State of Chattisgarh.

**EAST ZONE**

<b>Sl. No.</b>	<b>Licensed Service Area and category</b>		<b>Areas covered</b>
1	Assam	C	Entire area falling within the State of Assam.
2	North East	C	Entire area falling within the States of Arunachal Pradesh, Meghalaya, Mizoram, Nagaland, Manipur and Tripura.

<b>Sl. No.</b>	<b>Licensed Service Area and category</b>	<b>Areas covered</b>	
3	West Bengal and Andaman & Nicobar	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.
4	Bihar & Jharkhand	C	Entire area falling within the re-organised State of Bihar and State of Jharkhand.
5	Orissa	C	Entire area falling within the State of Orissa.
6	Kolkata	Metro	Local Areas served by Calcutta Telephones.

**DETAILS OF ZONE-WISE SERVICE AREA AND SERVICE PROVIDERS PROVIDING BASIC SERVICE, 2G, 3G, 4G AND 4G VOLTE SERVICES**

**NORTH ZONE**

Sl. No.	Licensed Service Area	Name of Service Provider				
		Basic Services	2G Services	3G Services	4G Services	4G VOLTE Services
1	Jammu & Kashmir	BSNL	BSNL	Aircel	Reliance Jio	Reliance Jio
			Bharti Airtel	Bharti Airtel		
			Aircel	BSNL		
			Reliance Comm.	IDEA Cellular		
			Vodafone	Reliance Comm		
			IDEA Cellular			
2	Himachal Pradesh	BSNL	Bharti Airtel	Bharti Airtel	Bharti Airtel	Reliance Jio
		Tata Teleservices	IDEA Cellular	BSNL	IDEA Cellular	
		Reliance Comm.	Reliance Telecom	IDEA Cellular	Reliance Comm	
		Vodafone	BSNL	Reliance Telecom	Reliance Jio	
			Aircel			
			Tata Teleservices			
			Reliance Comm.			
			Vodafone			
3	Rajasthan	Vodafone	Vodafone	Bharti Airtel	Bharti Airtel	Reliance Jio
		BSNL	BSNL	BSNL	Reliance	
		Bharti Airtel	IDEA Cellular	Reliance Comm	Reliance Jio	
		Reliance Comm.	Bharti Airtel	Tata Teleservices	Vodafone	
		Tata Teleservices	Reliance Comm.	Vodafone		
		Sistema Shyam	Tata Teleservices			
			Sistema Shyam			
			Aircel			

Sl. No.	Licensed Service Area	Name of Service Provider				
		Basic Services	2G Services	3G Services	4G Services	4G VOLTE Services
4	Punjab	Quadrant (HFCL)	IDEA Cellular	Aircel	Bharti Airtel	Reliance Jio
		Bharti Airtel	Quadrant (HFCL)	Bharti Airtel	IDEA Cellular	
		Vodafone	Bharti Airtel	BSNL	Reliance Comm	
		BSNL	Vodafone	IDEA Cellular	Reliance Jio	
		Reliance Comm.	BSNL	Reliance Comm		
		Tata Teleservices	Reliance Comm.	Tata		
			Tata Teleservices			
			Aircel			
5	Haryana	BSNL	IDEA Cellular	Bharti Airtel	Bharti Airtel	Reliance Jio
		Bharti Airtel	Vodafone	BSNL	IDEA Cellular	
		Reliance Comm.	BSNL	IDEA Cellular	Reliance Jio	
		Tata Teleservices	Bharti Airtel	Tata Teleservices	Vodafone	
			Reliance Comm.	Vodafone		
			Tata Teleservices			
			Aircel			
			Videocon			
6	Delhi	Bharti Airtel	Bharti Airtel	Bharti Airtel	Bharti Airtel	Reliance Jio
		Vodafone	Vodafone	IDEA Cellular	Reliance Comm	
		MTNL	MTNL	MTNL	Reliance Jio	
		Tata Teleservices	IDEA Cellular	Reliance Comm	Vodafone	
		Reliance Comm.	Tata Teleservices	Vodafone		
			Reliance Comm.			
			Aircel			
			Sistema Shyam			
7	Uttar Pradesh –	Bharti Airtel	Bharti Airtel	Aircel	Bharti Airtel	Reliance Jio

Sl. No.	Licensed Service Area	Name of Service Provider				
		Basic Services	2G Services	3G Services	4G Services	4G VOLTE Services
	East	Vodafone	Vodafone	Bharti Airtel	Reliance Jio	
		BSNL	IDEA Cellular	BSNL	Telenor	
		Reliance Comm.	BSNL	IDEA Cellular	Vodafone	
		Tata Teleservices	Reliance Comm.	Vodafone		
			Tata Teleservices			
			Aircel			
			Telenor			
8	Uttar Pradesh-West	Vodafone	Vodafone	Bharti Airtel	Bharti Airtel	Reliance Jio
		BSNL	IDEA Cellular	BSNL	Reliance Jio	
		Bharti Airtel	BSNL	IDEA Cellular	Telenor	
		Reliance Comm.	Bharti Airtel	Tata	Vodafone	
		Tata Teleservices	Reliance Comm.	Vodafone		
			Tata Teleservices			
			Aircel			
			Sistema Shyam			
	Telenor					

### SOUTH ZONE

Sl. No.	Licensed Service Area	Name of Service Provider				
		Basic Services	2G Services	3G Services	4G Services	4G VOLTE Services
1	Andhra Pradesh	Bharti Airtel	IDEA Cellular	Aircel	Bharti Airtel	Reliance Jio
		BSNL	Bharti Airtel	Bharti Airtel	IDEA Cellular	
		Vodafone	BSNL	BSNL	Reliance Jio	
		Reliance Comm.	Vodafone	Idea Cellular	Telenor	
		Tata Teleservices	Reliance Comm.			
			Aircel			
			Tata Teleservices			
	Telewings					

Sl. No.	Licensed Service Area	Name of Service Provider				
		Basic Services	2G Services	3G Services	4G Services	4G VOLTE Services
2	Karnataka	Bharti Airtel	Bharti Airtel	Aircel	Bharti Airtel	Reliance Jio
		BSNL	BSNL	Bharti Airtel	IDEA Cellular	
		Vodafone	Vodafone	BSNL	Reliance Jio	
		Reliance Comm.	Sistema Shyam	Tata Teleservices	Vodafone	
		Tata Teleservices	Reliance Comm.	Vodafone		
			Aircel			
			IDEA Cellular			
			Tata Teleservices			
3	Kerala	Vodafone	IDEA Cellular	Aircel	Bharti Airtel	Reliance Jio
		BSNL	Vodafone	BSNL	IDEA Cellular	
		Bharti Airtel	BSNL	IDEA Cellular Ltd.	Reliance Jio	
		Tata Teleservices	Bharti Airtel	Tata Teleservices	Vodafone	
		Reliance Comm.	Tata Teleservices	Vodafone		
			Reliance Comm.			
			Sistema Shyam			
			Aircel			
4	Tamilnadu (incl Chennai)	Vodafone	Vodafone	Aircel	Bharti Airtel Ltd.	Reliance Jio
		BSNL	Aircel	Airtel	IDEA Cellular	
		Bharti Airtel	IDEA Cellular	BSNL	Reliance Jio	
		Reliance Comm.	BSNL	Vodafone	Vodafone	
		Tata Teleservices	Bharti Airtel			
			Reliance Comm.			
			Sistema Shyam			
			Tata Teleservices			

**WEST ZONE**

Sl. No.	Licensed Service Area	Name of Service Provider				
		Basic Services	2G Services	3G Services	4G Services	4G VOLTE Services
1	Maharashtra	Vodafone	Vodafone	Bharti Airtel	Bharti Airtel	Reliance Jio
		BSNL	IDEA Cellular	BSNL	IDEA Cellular	
		Bharti Airtel	BSNL	IDEA Cellular	Reliance Jio	
		Reliance Comm.	Bharti Airtel	Tata Teleservices	Telenor	
		Tata Teleservices	Reliance Comm.	Vodafone	Vodafone	
			Tata Teleservices			
			Aircel			
			Telewings			
2	Mumbai	Vodafone	Vodafone	AIRTEL	Bharti Airtel	Reliance Jio
		MTNL	MTNL	MTNL	Reliance	
		Bharti Airtel	Bharti Airtel	Reliance Comm	Reliance Jio	
		Reliance Comm.	Reliance Comm.	Vodafone	Vodafone	
		Tata Teleservices	Tata Teleservices			
			IDEA Cellular			
			Aircel			
3	Gujarat	Vodafone	Vodafone	Bharti Airtel	Bharti Airtel	Reliance Jio
		BSNL	IDEA Cellular	BSNL	Reliance Jio	
		Bharti Airtel	BSNL	IDEA Cellular	Telenor	
		Reliance Comm.	Bharti Airtel	Tata Teleservices	Vodafone	
		Tata Teleservices	Reliance Comm.	Vodafone		
			Tata Teleservices			
			Aircel			
			Telewings			
			Sistema Shyam			



Sl. No.	Licensed Service Area	Name of Service Provider				
		Basic Services	2G Services	3G Services	4G Services	4G VOLTE Services
4	Madhya Pradesh	Reliance Comm.	IDEA Cellular	Bharti Airtel	Bharti Airtel	Reliance Jio
		BSNL	Reliance Comm.	BSNL	IDEA Cellular	
		Bharti Airtel	BSNL	Idea Cellular Ltd.	Reliance	
		Tata Teleservices	Bharti Airtel	Reliance Telecom	Reliance Jio	
		Vodafone	Tata Teleservices	Tata Teleservices		
			Aircel			
			Vodafone			

### **EAST ZONE**

Sl. No.	Licensed Service Area	Name of Service Provider				
		Basic Services	2G Services	3G Services	4G Services	4G VOLTE Services
1	Assam	BSNL	Bharti Airtel	Aircel	Reliance	Reliance Jio
		Vodafone	BSNL	Bharti Airtel	Reliance Jio	
			Aircel	BSNL	Telenor	
			Vodafone	Reliance Telecom Ltd.	Vodafone	
			IDEA Cellular	Vodafone		
2	North East	BSNL	BSNL	Aircel	Bharti Airtel	Reliance Jio
		Vodafone	Bharti Airtel	Bharti Airtel	IDEA Cellular	
			Aircel	BSNL	Reliance	
			Vodafone	Reliance Telecom	Reliance Jio	
			IDEA Cellular	Vodafone	Vodafone	
3	West Bengal & Andaman & Nicobar	Reliance	Sistema Shyam	Aircel	Bharti Airtel	Reliance Jio
		BSNL	Bharti Airtel	Bharti Airtel	Reliance	
		Tata Teleservices	BSNL	BSNL	Reliance Jio	
		Vodafone	Tata Teleservices	Reliance Telecom	Vodafone	
			Vodafone	Vodafone		
			Aircel			
			IDEA Cellular			

Sl. No.	Licensed Service Area	Name of Service Provider				
		Basic Services	2G Services	3G Services	4G Services	4G VOLTE Services
4	Bihar & Jharkhand	Reliance	BSNL	Aircel	Bharti Airtel	Reliance Jio
		BSNL	IDEA Cellular	Bharti Airtel	Reliance	
		Tata Teleservices	Bharti Airtel	BSNL	Reliance Jio	
		Vodafone	Tata Teleservices	Reliance Telecom	Telenor	
			Telewings			
			Vodafone			
5	Orissa	Reliance Comm.	BSNL	Aircel	Bharti Airtel	Reliance Jio
		BSNL	Bharti Airtel	Bharti Airtel	IDEA Cellular	
		Vodafone	Vodafone	BSNL	Reliance	
		Tata Teleservices	Tata Teleservices	Reliance Telecom	Reliance Jio	
			IDEA Cellular		Vodafone	
			Aircel			
6	Kolkata	Bharti Airtel	Bharti Airtel	Aircel	Bharti Airtel	Reliance Jio
		Vodafone	Vodafone	Bharti Airtel	Reliance	
		BSNL	BSNL	BSNL	Reliance Jio	
		Reliance	Reliance Telecom	IDEA Cellular	Vodafone	
		Tata Teleservices	IDEA Cellular	Reliance Telecom		
			Aircel	Vodafone		
			Tata Teleservices			
	Sistema Shyam					

**Annexure-2 C**

<b>Wireline Broadband Subscribers (more than 10,000) as of 31<sup>st</sup> December, 2016</b>			
<b>S.No.</b>	<b>Name of the Service Provider:</b>	<b>Service Area</b>	<b>Broadband Subscribers</b>
1	Bharat Sanchar Nigam Ltd.	All India (Except Delhi, Mumbai)	9952726
2	Bharti Airtel Ltd.	All India	2035672
3	Atria Convergence Technologies Pvt. Ltd.	All India	1121726
4	Mahanagar Telephone Nigam Ltd.	Delhi & Mumbai	1044786
5	You Broadband India Pvt. Ltd.	All India	602021
6	Hathway Cable & Datacom Pvt. Ltd.	All India	573406
7	GPL Broadband Pvt. Ltd.	All India	224149
8	Quadrant Televentures Ltd.(HFCL Infotel Ltd.)	Punjab	215348
9	Syscon Infoway Pvt Ltd	Maharashtra & Mumbai	194565
10	Asianet Satellite Communications Ltd.	Kerala	192817
11	D-Vois Broadband Private Limited	All India	175293
12	Alliance Broadband Services Pvt. Ltd.	Kolkata & WB	163454
13	Indinet Service Pvt. Ltd.	PAN India	134380
14	DEN Networks Ltd	All India	115147
15	Reliance Communications Limited	All India	114056
16	Tata Teleservices(Maharashtra) Ltd.	Mah & Mumbai	101308
17	RailTel Corporation of India Ltd.	Pan India	98801
18	Excitel Broadband Private Limited	Delhi	90211
19	Five Network Solution (India) Ltd.	All India	79898
20	Ortel Communication Ltd.	All India	72502
21	Honesty Net Solutions (I) Pvt Ltd	Mumbai	68822
22	Planet E-Shop Holdings India Ltd.	All India	55348
23	Tata Teleservices Limited	All India	48102
24	R.K. Infratel Limited	Gujarat	47623
25	Nextra Teleservices Pvt. Ltd.	Delhi	45811
26	Meghbela Cable & Broadband Servies (P) Ltd	Kolkata & WB	42014
27	SITI Broadband Services Pvt. Ltd.	All India	39564
28	Home Systems Pvt. Ltd.	Mumbai	35408
29	Citycom Networks Pvt. Ltd.	All India	33289
30	Wish Net Pvt. Ltd.	Kolkata & WB	30892
31	Broadband Pacenet (I) Pvt. Ltd.	All India	27887
32	Vasai Cable Pvt. Ltd.	Mumbai	25581
33	DNA Infotel Pvt Ltd	Maharashtra	23339
34	Wan and Lan Internet Pvt. Ltd.	Mumbai	22622
35	Rajesh Multi Channel Pvt. Ltd.	Mumbai	20047
36	Tata Communications Limited	All India	17337
37	Limras Eronet Broadband Service Pvt Ltd	Chennai	16204
38	GBPS Networks Pvt. Ltd.	Maharashtra	13654
39	North East Dataa Network Pvt Ltd.	Karnataka	13008
40	Yashash Cable Network Pvt Ltd	Karnataka	12276
41	Geocity Network Solutions Pvt. Ltd.	Delhi	11778
42	Quest Consultancy Pvt. Ltd.	Gujarat	10799
43	Southern Online Bio Technologies Ltd.	Andhra Pradesh	10406
	<b>Total</b>		<b>17974077</b>

**Annexure-2D****List of No. of Mobile Switching Centres (MSC) as on 30th Sept. 2016 and BTS as on 31st Dec., 2016**

Sl. No.	Name of Service Provider	Service Area	No. of MSCs	Number of BTS			
				2G	3G	4G	CDMA
<b>NORTH ZONE</b>							
1	Bharti Airtel Ltd	Delhi	16	6912	7158	7269	
2	Vodafone Essar Mobile Services Ltd	Delhi	6	6845	6702	4853	
3	MTNL	Delhi	4	1104	748	0	
4	IDEA Cellular Ltd	Delhi	9	5406	4427	0	
5	Aircel	Delhi	6	4079	0	0	
6	Reliance Com. Ltd.	Delhi	4	2340	2258	3946	
7	Reliance Jio	Delhi	2			12288	
8	Tata Teleservices Ltd	Delhi	8	0	0	0	1444
9	Sistema Shyam	Delhi	1	0	0	0	1028
10	IDEA Cellular Ltd	Punjab	9	5453	4809	3250	
11	Bharti Airtel Ltd	Punjab	16	6098	5641	4470	
12	BSNL	Punjab	10	3507	1683	0	
13	Vodafone Essar South Ltd	Punjab	4	5478	0	0	
14	Dishnet wireless Ltd	Punjab	1	656	383	0	
15	Reliance Com. Ltd.	Punjab	1	1524	896	4455	
16	Reliance Jio	Punjab	2			9020	
17	Tata Teleservices Ltd	Punjab	4	1627	1007	0	395
18	IDEA Cellular Ltd	Haryana	6	3366	2642	1500	
19	Vodafone Essar India Ltd	Haryana	5	3336	2389	697	
20	BSNL	Haryana	10	2180	1311	0	249
21	Bharti Airtel Ltd	Haryana	3	3098	2355	1170	
22	Dishnet wireless Ltd	Haryana	1	28	0	0	
23	Reliance Com. Ltd.	Haryana	1	887	0	2007	
24	Reliance Jio	Haryana	2			6033	
25	Tata Teleservices Ltd	Haryana	4	1734	1270	0	200
26	IDEA Cellular Ltd	UP (W)	19	8530	5642	0	
27	Bharti Airtel Ltd	UP (W)	19	7002	4522	1444	
28	BSNL	UP (W)	17	3919	1878	0	
29	Vodafone Essar South Ltd	UP (W)	7	7264	2499	0	
30	Dishnet wireless Ltd	UP (W)	2	675	0	0	
31	Telenor	UP (W)	7	4056	0	1017	
32	Reliance Com. Ltd.	UP (W)	3	1727	0	4696	
33	Reliance Jio	UP (W)	2			9462	
34	Sistema Shyam	UP (W)	1	0	0	0	444
35	Tata Teleservices Ltd	UP (W)	7	1765	980	0	451
36	Vodafone Essar India Ltd	UP (E)	13	10324	4688	1120	
37	Bharti Airtel Ltd	UP (E)	38	11018	5011	1482	
38	BSNL	UP (E)	32	6073	1987	0	418
39	IDEA Cellular Ltd	UP(E)	14	9039	4787	0	

Sl. No.	Name of Service Provider	Service Area	No. of MSCs	Number of BTS			
				2G	3G	4G	CDMA
40	Dishnet wireless Ltd	UP(E)	2	3547	1186	0	
41	Telenor	UP(E)	11	4894	0	765	
42	Reliance Com. Ltd.	UP(E)	3	2055	0	5061	
43	Reliance Jio	UP(E)	2			14397	
44	Tata Teleservices Ltd	UP (E)	8	2215	0	0	367
45	Vodafone Essar India Ltd	Rajasthan	8	7915	3448	0	
46	Bharti Hexacom Ltd	Rajasthan	34	8670	6413	1759	
47	BSNL	Rajasthan	19	4297	1677	0	536
48	IDEA Cellular Ltd	Rajasthan	13	6937	0	0	
49	Dishnet wireless Ltd	Rajasthan	4	2569	0	0	
50	Reliance Com. Ltd.	Rajasthan	3	2927	701	5096	
51	Reliance Jio	Rajasthan	2			12920	
52	Tata Teleservices Ltd	Rajasthan	8	1391	46	0	512
53	Sistema Shyam	Rajasthan	2	0	0	0	1535
54	Bharti Airtel Ltd	HP	4	1646	1605	423	
55	Reliance Telecom Ltd	HP	2	751	187	995	
56	Reliance Jio	HP	2			2991	
57	BSNL	HP	7	1246	477	0	332
58	IDEA Cellular Ltd	HP	3	1202	850	405	
59	Dishnet wireless Ltd	HP	2	734	0	0	
60	Vodafone	HP	1	879	0	0	
61	Tata Teleservices Ltd	HP	2	5	0	0	108
62	BSNL	J & K	10	1197	479	0	304
63	Bharti Airtel Ltd	J & K	10	2990	2352	0	
64	Dishnet wireless Ltd	J & K	8	2378	811	0	
65	Vodafone	J & K	1	1714	0	0	
66	IDEA Cellular Ltd	J & K	2	1405	659	0	
67	Reliance Jio	J & K	1			3157	
68	Reliance Com. Ltd.	J & K	2	868	495	0	
<b>Total North Zone</b>			<b>492</b>	<b>201482</b>	<b>99059</b>	<b>128148</b>	<b>8323</b>
<b>SOUTH ZONE</b>							
1	IDEA Cellular Ltd	AP	19	10542	7672	4600	
2	Bharti Airtel Ltd	AP	48	12590	11716	3367	
3	BSNL	AP	20	7937	4043	0	1014
4	Vodafone Essar South Ltd	AP	7	8794	0	0	
5	Aircel	AP	3	1983	1490	0	
6	Telenor	AP	5	3391	0	1776	
7	Reliance Com. Ltd.	AP	3	3107	0	7395	
8	Reliance Jio	AP	2	0	0	22359	
9	Tata Teleservices Ltd	AP	11	4728	0	0	1185
10	Bharti Airtel Ltd	Karnataka	61	12153	15067	7732	
11	IDEA Cellular Ltd	Karnataka	11	8873	0	4500	
12	BSNL	Karnataka	19	5750	2951	0	504
13	Vodafone Essar South Ltd	Karnataka	7	9430	5460	3285	

Sl. No.	Name of Service Provider	Service Area	No. of MSCs	Number of BTS			
				2G	3G	4G	CDMA
14	Aircel	Karnataka	3	2522	1801	0	
15	Reliance Jio	Karnataka	2			16203	
16	Reliance Com. Ltd.	Karnataka	2	2826	0	5375	
17	Tata Teleservices Ltd	Karnataka	9	5986	3697	0	762
18	Sistema Shyam	Karnataka	2		0	0	1180
19	Vodafone Essar Cellular Ltd	TN incl. Chennai	12	11105	9069	0	
20	Aircel	TN incl. Chennai	38	9258	4861	0	
21	BSNL	TN incl. Chennai	29	7716	3628	0	761
22	Bharti Airtel Ltd	TN incl. Chennai	35	13261	11067	4098	
23	IDEA Cellular Ltd	TN incl. Chennai	4	7599	0	4500	
24	Reliance Com. Ltd.	TN incl. Chennai	3	3443	0	6959	
25	Reliance Jio	TN incl. Chennai	2			20942	
26	Sistema Shyam	TN incl. Chennai	2		0	0	1220
27	Tata Teleservices Ltd	TN incl. Chennai	9	4982	0	0	816
28	IDEA Cellular Ltd	Kerala	15	7185	6655	4500	
29	Vodafone Essar Cellular Ltd	Kerala	6	5881	3304	1179	
30	BSNL	Kerala	21	5384	3628	0	1129
31	Bharti Airtel Ltd	Kerala	10	5803	0	2720	
32	Dishnet wireless Ltd	Kerala	1	659	401	0	
33	Reliance Com. Ltd.	Kerala	2	1552	0	5016	
34	Reliance Jio	Kerala	2			15140	
35	Sistema Shyam	Kerala	1		0	0	679
36	Tata Teleservices Ltd	Kerala	4	2037	789	0	291
<b>Total South Zone</b>			<b>430</b>	<b>186477</b>	<b>97299</b>	<b>141646</b>	<b>9541</b>
<b>WEST ZONE</b>							
1	Vodafone Essar Ltd	Mumbai	13	5054	5375	3530	
2	MTNL	Mumbai	5	984	695	0	
3	Bharti Airtel Ltd	Mumbai	11	4307	4192	4330	
4	IDEA Cellular Ltd	Mumbai	9	3800	0	0	
5	Aircel	Mumbai	1	1970	0	0	
6	Reliance Com. Ltd.	Mumbai	4	2181	2075	2596	
7	Reliance Jio	Mumbai	2			7838	
8	Tata Teleservices (Maharashtra) Ltd	Mumbai	8	2780	0	0	919
9	Vodafone Essar Cellular Ltd	Maharashtra	12	12023	7518	0	
10	IDEA Cellular Ltd	Maharashtra	46	12294	8841	4985	
11	BSNL	Maharashtra	33	7417	2648	0	
12	Bharti Airtel Ltd	Maharashtra	25	11045	7005	2448	
13	Aircel	Maharashtra	3	1980	0	0	
14	Telenor	Maharashtra	6	4542	0	75	

Sl. No.	Name of Service Provider	Service Area	No. of MSCs	Number of BTS			
				2G	3G	4G	CDMA
15	Reliance Com. Ltd.	Maharashtra	5	2771	0	6184	
16	Reliance Jio	Maharashtra	2			18733	
17	Tata Teleservices Ltd	Maharashtra	14	4618	3091	0	
18	Vodafone Essar Gujarat Ltd	Gujarat	13	8867	6906	2129	
19	IDEA Cellular Ltd	Gujarat	21	7533	6436	0	
20	BSNL	Gujarat	20	4643	2378	0	519
21	Bharti Airtel Ltd	Gujarat	17	7759	5722	1948	
22	Telenor	Gujarat	6	3864	0	52	
23	Dishnet wireless Ltd	Gujarat	1	818	0	0	
24	Reliance Com. Ltd.	Gujarat	5	2509	0	5664	
25	Reliance Jio	Gujarat	2			17122	
26	Sistema Shyam	Gujarat	1		0	0	651
27	Tata Teleservices Ltd	Gujarat	7	1895	1335	0	657
28	IDEA Cellular Ltd	MP	36	10838	7336	4409	
29	Reliance Telecom Ltd	MP	11	4192	1128	5280	
30	Reliance Jio	MP	2			15935	
31	BSNL	MP	28	5853	1818	0	1077
32	Bharti Airtel Ltd	MP	18	9999	5541	1810	
33	Vodafone	MP	4	6002	0	0	
34	Dishnet wireless Ltd	MP	1	128	0	0	
35	Tata Teleservices Ltd	MP	7	2961	1639	0	361
<b>Total West Zone</b>			<b>399</b>	<b>155627</b>	<b>81679</b>	<b>105068</b>	<b>4184</b>
<b>EAST ZONE</b>							
1	Bharti Airtel Ltd	Kolkata	10	2935	2493	1839	
2	Vodafone Essar East Limited	Kolkata	4	2765	2618	1497	
3	BSNL	Kolkata	8	1275	743	0	
4	Reliance Telecom Ltd	Kolkata	4	1613	1307	2367	
5	Reliance Jio	Kolkata	2			7161	
6	Dishnet wireless Ltd	Kolkata	5	2410	1871	0	
7	IDEA Cellular Ltd	Kolkata	2	2363	1995	0	
8	Sistema Shyam	Kolkata	1		0	0	571
9	Tata Teleservices Ltd	Kolkata	5	1779	0	0	585
10	Reliance Telecom Ltd	WB	3		927	2820	
11	Reliance Jio	WB	2			7677	
12	BSNL	WB	18	2695	681	0	424
13	Bharti Airtel Ltd	WB	25	7135	4388	633	
14	Vodafone Essar South Ltd	WB	13	7945	4035	412	
15	Dishnet wireless Ltd	WB	3	3226	774	0	
16	IDEA Cellular Ltd	WB	6	5390	0	0	
17	Sistema Shyam	WB	1		0	0	908
18	Tata Teleservices Ltd	WB	3	255	0	0	25
19	Reliance Telecom Ltd	Bihar	6		785	4936	
20	Reliance Jio	Bihar	2			9945	
21	BSNL	Bihar	23	5034	1779	0	

Sl. No.	Name of Service Provider	Service Area	No. of MSCs	Number of BTS			
				2G	3G	4G	CDMA
22	Bharti Airtel Ltd	Bihar	55	10134	5644	2054	
23	Dishnet wireless Ltd	Bihar	11	3251	1162	0	
24	Vodafone	Bihar	6	8907	0	0	
25	IDEA Cellular Ltd	Bihar	11	8718	0	0	
26	Telenor	Bihar	6	4202	0	795	
27	Tata Teleservices Ltd	Bihar	6	962	0	0	362
28	Reliance Telecom Ltd	Orissa	2		617	2038	
29	Reliance Jio	Orissa	2			6147	
30	BSNL	Orissa	16	3252	1477	0	238
31	Bharti Airtel Ltd	Orissa	14	5508	2725	932	
32	Dishnet Wireless Ltd	Orissa	9	2685	906	0	
33	Vodafone Essar Spectel Limited	Orissa	3	4201	495	0	
34	IDEA Cellular Ltd	Orissa	2	2728	0	855	
35	Tata Teleservices Ltd	Orissa	3	1416	0	0	288
36	Reliance Telecom Ltd	Assam	2		562	1749	
37	Reliance Jio	Assam	2			5261	
38	BSNL	Assam	10	1443	868	0	79
39	Bharti Airtel Ltd	Assam	12	3694	2514	0	
40	Dishnet Wireless Ltd	Assam	11	2886	960	0	
41	Vodafone Essar Spectel Limited	Assam	2	3473	1460	0	
42	IDEA Cellular Ltd	Assam	1	1961	0	0	
43	Reliance Telecom Ltd	NE	1		144	866	
44	Reliance Jio	NE	2			2616	
45	Bharti Airtel Ltd	NE	8	2372	1645	566	
46	BSNL	NE	15	1538	718	0	384
47	Dishnet Wireless Ltd	NE	7	1885	632	0	
48	Vodafone Essar Spectel Limited	NE	1	1823	994	0	
49	IDEA Cellular Ltd	NE	1	1143	0	450	
<b>Total East Zone</b>			<b>367</b>	<b>125002</b>	<b>47919</b>	<b>63616</b>	<b>3864</b>
<b>Total All Zone</b>			<b>1688</b>	<b>668588</b>	<b>325956</b>	<b>438478</b>	<b>25912</b>



**Annexure – 2E**

**No. of Telephone Exchanges (Wireline) Service Area/ Circle wise as on December' 2016**

Service Provider	Zone	Name of the Circle/ Service Area	No. of Wire line Telephone Exchanges		
			Urban	Rural	Total
<b>North Zone</b>					
MTNL	N	Delhi	338	0	338
Bharti	N	Delhi(NCR)	8	0	8
TTL	N	Delhi	3	0	3
RCL	N	Delhi	2	0	2
Vodafone	N	Delhi	10	0	10
<b>Total (DEL)</b>			<b>361</b>	<b>0</b>	<b>361</b>
BSNL	N	Haryana	239	796	1035
Bharti	N	Haryana	1	0	1
TTL	N	Haryana	1	0	1
RCL	N	Haryana	1	0	1
Vodafone	N	Haryana	1	0	1
<b>Total (HR)</b>			<b>243</b>	<b>796</b>	<b>1039</b>
BSNL	N	Himachal Pradesh	127	946	1073
TTL	N	Himachal Pradesh	1	0	1
RCL	N	Himachal Pradesh	1	0	1
Vodafone	N	Himachal Pradesh	1	0	1
<b>Total (HP)</b>			<b>130</b>	<b>946</b>	<b>1076</b>
BSNL	N	J&K	111	205	316
<b>Total (J&amp;K)</b>			<b>111</b>	<b>205</b>	<b>316</b>
BSNL	N	Punjab	289	1194	1483
Bharti	N	Punjab	2	0	2
Quadrant	N	Punjab	4	0	4
Tata	N	Punjab	1	0	1
RCL	N	Punjab	1	0	1
Vodafone	N	Punjab	1	0	1
<b>Total (PB)</b>			<b>298</b>	<b>1194</b>	<b>1492</b>
BSNL	N	Rajasthan	399	1671	2070
Bharti	N	Rajasthan	1	0	1
Sistema	N	Rajasthan	3	0	3
TTL	N	Rajasthan	1	0	1
RCL	N	Rajasthan	1	0	1
Vodafone	N	Rajasthan	1	0	1
<b>Total (RAJ)</b>			<b>406</b>	<b>1671</b>	<b>2077</b>
BSNL	N	UP(East)	571	1542	2113
Bharti	N	UP(East)	1	0	1
TTL	N	UP(East)	1	0	1
RCL	N	UP(East)	1	0	1
Vodafone	N	UP(East)	3	0	3
<b>Total (UPE)</b>			<b>577</b>	<b>1542</b>	<b>2119</b>
BSNL	N	UP(West) & Uttarakhand	609	817	1426
Bharti	N	UP(West) & Uttarakhand	1	0	1
TTL	N	UP(West) & Uttarakhand	1	0	1
RCL	N	UP(West) & Uttarakhand	1	0	1
Vodafone	N	UP(West) & Uttarakhand	5	0	5
<b>Total (UPW)</b>			<b>617</b>	<b>817</b>	<b>1434</b>
<b>Total North Zone</b>			<b>2743</b>	<b>7171</b>	<b>9914</b>
<b>South Zone</b>					
BSNL	S	Andhra Pradesh	599	2511	3110

Service Provider	Zone	Name of the Circle/ Service Area	No. of Wire line Telephone Exchanges		
			Urban	Rural	Total
Bharti	S	Andhra Pradesh	1	0	1
TTL	S	Andhra Pradesh	5	0	5
Vodafone	S	Andhra Pradesh	2	0	2
RCL	S	Andhra Pradesh	2	0	2
<b>Total (AP)</b>			<b>609</b>	<b>2511</b>	<b>3120</b>
BSNL	S	Chennai	250	80	330
RCL	S	Chennai	1	0	1
Tata	S	Chennai	2	0	2
Vodafone	S	Chennai	1	1	2
<b>Total (CHN)</b>			<b>254</b>	<b>81</b>	<b>335</b>
BSNL	S	Karnataka	596	2199	2795
Bharti	S	Karnataka	4	0	4
TTL	S	Karnataka	2	0	2
RCL	S	Karnataka	1	0	1
Vodafone	S	Karnataka	3	0	3
<b>Total (KTK)</b>			<b>606</b>	<b>2199</b>	<b>2805</b>
BSNL	S	Kerala	258	1049	1307
Bharti	S	Kerala	1	0	1
TTL	S	Kerala	1	0	1
RCL	S	Kerala	1	0	1
Vodafone	S	Kerala	1	0	1
<b>Total (KER)</b>			<b>262</b>	<b>1049</b>	<b>1311</b>
BSNL	S	Tamil Nadu	808	1196	2004
RCL	S	Tamilnadu	1	0	1
Bharti	S	Tamilnadu	5	0	5
Vodafone	S	Tamilnadu	2	0	2
<b>Total (TN)</b>			<b>816</b>	<b>1196</b>	<b>2012</b>
<b>Total South Zone</b>			<b>2547</b>	<b>7036</b>	<b>9583</b>
<b>WEST ZONE</b>					
BSNL	W	Chattisgarh	202	357	559
<b>Total (CG)</b>			<b>202</b>	<b>357</b>	<b>559</b>
BSNL	W	Gujarat	546	1879	2425
Bharti	W	Gujarat	1	0	1
TTL	W	Gujarat	2	0	2
RCL	W	Gujarat	2	0	2
Vodafone	w	Gujarat	1	0	1
<b>Total (GJ)</b>			<b>552</b>	<b>1879</b>	<b>2431</b>
BSNL	W	Madhya Pradesh	670	1793	2463
Bharti	W	Madhya Pradesh & Chattisgarh	5	0	5
TTL	W	Madhya Pradesh & Chattisgarh	1	0	1
RCL	W	Madhya Pradesh	1	0	1
Vodafone	W	Madhya Pradesh	8	0	8
<b>Total (MP)</b>			<b>685</b>	<b>1793</b>	<b>2478</b>
BSNL	W	Maharashtra	691	3831	4522
Bharti	W	Maharashtra	1	0	1
RCL	W	Maharashtra & Goa	2	0	2
TTL	W	Maharashtra	3	0	3
Vodafone	W	Maharashtra & Goa	2	0	2
<b>Total (MH)</b>			<b>699</b>	<b>3831</b>	<b>4530</b>
MTNL	W	Mumbai	255	0	255
Bharti	W	Mumbai	3	0	3
TTL	W	Mumbai	6	0	6

Service Provider	Zone	Name of the Circle/ Service Area	No. of Wire line Telephone Exchanges		
			Urban	Rural	Total
RCL	W	Mumbai	2	0	2
Vodafone		Mumbai	4	0	4
Total(MUM)			270	0	270
<b>Total West Zone</b>			<b>2408</b>	<b>7860</b>	<b>10268</b>
<b>EAST ZONE</b>					
BSNL	E	A & N	6	44	50
Total (A&N)			6	44	50
BSNL	E	Assam	170	400	570
Vodafone	E	Assam	1	0	1
Total (ASM)			171	400	571
BSNL	E	Bihar	233	963	1196
RCL	E	Bihar	1	0	1
Vodafone	E	Bihar	1	0	1
Total (BH)			235	963	1198
BSNL	E	Jharkhand	192	293	485
Tata	E	Jharkhand	1	0	1
Vodafone	E	Jharkhand	1	0	1
Total (JHR)			194	293	487
BSNL	E	Kolkata	486	0	486
Bharti	E	Kolkata	1	0	1
TTL	E	Kolkata	1	0	1
RCL	E	Kolkata	1	0	1
Vodafone	E	Kolkata	1	0	1
Total (Kolkata)			490	0	490
BSNL	E	North East	136	271	407
Vodafone	E	North East	1	0	1
Total (NE-I & II)			137	271	408
BSNL	E	Orissa	272	811	1083
TTL	E	Orissa	1	0	1
RCL	E	Orissa	1	0	1
Vodafone	E	Orissa	1	0	1
Total (OR)			275	811	1086
BSNL	E	West Bengal	237	1128	1365
RCL	E	West Bengal	1	0	1
Tata	E	West Bengal	1	0	1
Vodafone	E	West Bengal	1	0	1
Total (WB)			240	1128	1368
<b>Total East Zone</b>			<b>1748</b>	<b>3910</b>	<b>5658</b>
<b>Total All Zones</b>			<b>9446</b>	<b>25977</b>	<b>35423</b>

**List of level -1s**  
**(This list is not exhaustive and additional level 1s also needs to be verified as per the direction of TRAI)**

1	100	Police
2	101	Fire
3	102	Ambulance
4	104	Health Information Helpline
5	108	Emergency and Disaster Management Helpline
6	138	All India Helpline for Passangers
7	149	Public Road Transport Utility Service
8	181	Chief Minister Helpline
9	182	Indian Railway Security Helpline
10	1033	Road Accident Management Service
11	1037	Public Grievance Cell DoT Hq as 'Telecom Consumer Grievance Redressal Helpline'
12	1056	Emergency Medical Services
13	106X	State of the Art Hospitals
14	1063	Public Grievance Cell DoT Hq
15	1064	Anti Corruption Helpline
16	1070	Relief Commission for Natural Calamities
17	1071	Air Accident Helpline
18	1072	Rail Accident Helpline
19	1073	Road Accident Helpline
22	1077	Control Room for District Collector
25	1090	Call Alart ( Crime Branch)
26	1091	Women Helpline
27	1097	National AIDS Helpline to NACO
28	1099	Central Accident and Trauma Services (CATS)
29	10580	Educational& Vocational Guidance and Counselling
30	10589	Mother and Child Tracking ( MCTH)
31	10740	Central Pollution Control Board
32	10741	Pollution Control Board
33	1511	Police Related Service for all Metro Railway Project
34	1512	Prevention of Crime in Railway
35	1514	National Career Service(NCS)
36	15100	Free Legal Service Helpline

<b>37</b>	<b>155304</b>	<b>Municipal Corporations</b>
<b>38</b>	<b>155214</b>	<b>Labour Helpline</b>
<b>39</b>	<b>1903</b>	<b>Sashastra Seema Bal (SSB)</b>
<b>40</b>	<b>1909</b>	<b>National Do Not Call Registry</b>
<b>41</b>	<b>1912</b>	<b>Complaint of Electricity</b>
<b>42</b>	<b>1916</b>	<b>Drinking Water Supply</b>
<b>43</b>	<b>1950</b>	<b>Election Commission of India</b>

**Details of service area-wise Long Distance Charging Areas  
or Secondary Switching Areas**

	<b>Service Area</b>	<b>Total SSAs</b>	<b>Difficult SSAs</b>
<b>East</b>	AN	1	
	Assam	7	
	Bihar	18	2
	NE	6	6
	Orissa	12	1
	West Bengal	14	1
	<b>Total</b>	<b>58</b>	<b>10</b>
<b>North</b>	Haryana	8	
	HP	6	
	JK	5	
	Delhi	1	1
	Punjab	11	
	Rajasthan	24	3
	UPE	32	
	UPW	19	
	<b>Total</b>	<b>106</b>	<b>4</b>
	<b>South</b>	AP	22
Kerala		11	
Karnataka		19	
TamilNadu		18	1
<b>Total</b>		<b>70</b>	<b>5</b>
<b>West</b>	Mumbai	1	1
	Gujarat	17	
	Maharashtra	30	2
	MP	40	5
	<b>Total</b>	<b>88</b>	<b>8</b>

**PRE-CONTRACT INTEGRITY PACT**

**General**

This pre-bid pre-contract Agreement (hereinafter called the Integrity Pact) is made on \_\_\_\_\_ day of the month of \_\_\_\_\_ 2015, between, the Telecom Regulatory Authority of India, Mahanagar Doorsanchar Bhawan, Jawaharlal Nehru Marg (Old Minto Road), New Delhi – 110002, hereinafter called the AUTHORITY acting through Joint Advisor (QoS), which expression shall mean and include, unless the context otherwise requires, his successors in office and assigns) of the First Part and M/s. \_\_\_\_\_ represented by Shri \_\_\_\_\_, Chief Executive Officer (hereinafter called the “BIDDER” which expression shall mean and include, unless the context otherwise requires, his successors and permitted assigns) of the Second Part.

WHEREAS the AUTHORITY proposes to get the work for Audit and Assessment of Quality of Service and the BIDDER is willing to offer/has offered its services for conducting assessment of quality of service provided by the telecom service providers in terms of the benchmarks specified in the “ Standards of Quality of Service of Basic Telephone Service (Wire line) and Cellular Mobile Telephone Service Regulations, 2009 (7 of 2009) dated 20th March, 2009, the “Standards of Quality of Service for Wireless Data Services Regulations , 2012 dated 4th December 2012 (26 of 2012) and the “Quality of Service of Broadband Service Regulations”, 2006 (11 of 2006) dated 6th October, 2006.

WHEREAS the BIDDER is a private company/public company/ Government undertaking/ partnership , constituted in accordance with the relevant law in the matter and the AUTHORITY is an Autonomous organisation under the Government of India.

NOW, THEREFORE,

To avoid all forms of corruption by following a system that is fair, transparent and free from any influence/prejudiced dealings prior to, during and subsequent to the currency of the contract to be entered into with a view to:-

- Enabling the AUTHORITY to obtain desired services at a competitive price in conformity with defined specifications avoiding high cost and distortionary impact of corruption on public services, and
- Enabling BIDDERS to abstain from bribing or indulging in any corrupt practice in order to secure the contract by providing assurance to them that their competitors will also abstain

from bribing and other corrupt practices and the AUTHORITY will commit to prevent corruption, in any form, by its officials by following transparent procedures.

The parties hereto hereby agree to enter into this Integrity Pact and agree as follows:

### **Commitments of the AUTHORITY**

1.1 The AUTHORITY undertakes that no official of the AUTHORITY, connected directly or indirectly with the contract, will demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favour or any material or immaterial benefit or any other advantage from the BIDDER, either for themselves or for any person, organization or third party related to the contract in exchange for an advantage in the bidding process, bid evaluation, contracting or implementation process related to the contract.

1.2 The AUTHORITY will, during the pre-contract stage, treat all BIDDERS alike, and will provide to all BIDDERS the same information and will not provide any such information to any particular BIDDER which could afford an advantage to that particular BIDDER in comparison to other BIDDERS.

1.3 All the officials of the AUTHORITY will report to the appropriate Government office any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach.

2. In case of any such preceding misconduct on the part of an official(s) is reported by the BIDDER to the AUTHORITY with full and verifiable facts and the same is *prima facie* found to be correct by the AUTHORITY, necessary disciplinary proceedings, or any other action as deemed fit, including criminal proceedings may be initiated by the AUTHORITY and such a person shall be debarred from further dealings related to the contract process. In such a case while an enquiry is being conducted by the AUTHORITY the proceedings under the contract would not be stalled.

### **Commitment of BIDDERS**

3. The BIDDERS commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its bid or during any pre-contract or post-contract stage in order to secure the contract or in furtherance to secure it and in particular commits itself to the following:-

3.1 The BIDDER will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the AUTHORITY, connected directly



or indirectly with the bidding process, or to any person, organization or third party related to the contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the contract.

3.2 The BIDDER further undertakes that it has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the AUTHORITY or otherwise in procuring the contract or forbearing to do or having done any act in relation to the obtaining or execution of the contract or any other contract with the Government for showing or forbearing to show favour or disfavour to any person in relation to the contract or any other contract with the Government.

3.3 BIDDER shall disclose the name and address of all its native and foreign agents, representatives, principles and associates.

3.4 BIDDER shall disclose the payments to be made by them to agents/brokers or any other intermediary, in connection with this bid/contract.

3.5 The BIDDER further confirms and declares to the AUTHORITY that the BIDDER is the original company/ firm and has not engaged any individual or firm or company whether Indian or foreign to intercede, facilitate or in any way to recommend to the Authority or any of its functionaries, whether officially or unofficially to the aware of the contract to the BIDDER, nor has any amount been paid, promised or intended to be paid to any such individual, firm or company in respect of any such intercession, facilitation or recommendation.

3.6 The BIDDER, either while presenting the bid or during pre-contract negotiations or before signing the contract, shall disclose any payments has made, is committed to or intends to make to officials of the AUTHORITY or their family members, agents, brokers or any other intermediaries in connection with the contract and the details of services agreed upon for such payments.

3.7 The BIDDER will not collude with other parties interested in the contract to impair the transparency, fairness and progress of the bidding process, bid evaluation, contracting and implementation of the contract.

3.8 The BIDDER will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.

3.9 The BIDDER shall not use improperly, for purposes of competition or personal gain, or pass on to others, any information provided by the AUTHORITY as part of the business

relationship, regarding plans, technical proposals and business details, including information contained in any electronic data carrier. The BIDDER also undertakes to exercise due and adequate care lest any such information is divulged.

3.10 The BIDDER commits to refrain from giving any complaint directly or indirectly through any other manner without supporting it with full and verifiable facts.

3.11 The BIDDER shall not instigate or cause to instigate any third person to commit any of the actions mentioned above.

3.12 If the BIDDER or any employee of the BIDDER or any person acting on behalf of the BIDDER, either directly or indirectly, is a relative of any of the officers of the AUTHORITY, or alternatively, if any relative of an officer of the AUTHORITY has financial interest/stake in the BIDDER's firm, the same shall be disclosed by the BIDDER at the time of filing of tender.

The term 'relative' for this purpose shall have the same meaning as defined in Section 2 of the Companies Act, 2013.

3.13 The BIDDER shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee of the AUTHORITY.

#### **4. Previous Transgression**

4.1 The BIDDER declares that no previous transgression occurred in the last three years immediately before signing of this Integrity Pact, with any other company in any country in respect of any corrupt practices envisaged hereunder or with any Public Sector Enterprise in India or any Government Department in India that could justify BIDDER's exclusion from the tender process.

4.2 If the BIDDER agrees that it makes incorrect statement on this subject, BIDDER can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

#### **5. Earnest Money (Security Deposit)**

5.1 While submitting Financial bid, the BIDDER shall deposit Bank guarantee for an amount (specified in RFP) as Earnest Money/Security Deposit, with the Authority through any of the following instruments:-

- (i) Bank Draft or a Pay Order in favour of TRAI, New Delhi

- (ii) A confirmed guarantee by a Scheduled Commercial Bank, promising payment of the guaranteed sum to the Authority on demand within three working days without any demur whatsoever and without seeking any reasons whatsoever. The demand for payment by the AUTHORITY shall be treated as conclusive proof for payment.
- (iii) Any other mode or through any other instrument (to be specified in the RFP).

5.2 In the case of successful BIDDER a clause would also be incorporated in the Article pertaining to Performance Bond in the agreement that the provisions of Sanctions for Violation shall be applicable for forfeiture of Performance Bond in case of a decision by the AUTHORITY to forfeit the same without assigning any reason for imposing sanction for violation of this Pact.

5.3 No interest shall be payable by the AUTHORITY to the BIDDER on Earnest Money/Security Deposit for the period of its currency.

## **6. Sanctions for Violations**

6.1 Any breach of the aforesaid provisions by the BIDDER or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER) shall entitle the AUTHORITY to take all or any one of the following actions, wherever required:-

(i) To immediately call off the pre-contract negotiations without assigning any reason or giving any compensation to the BIDDER. However, the proceedings with the other BIDDER(s) would continue.

(ii) The Earnest Money Deposit (in pre-contract stage) and/or Security Deposit/Performance Bond (after the contract is signed) shall stand forfeited either fully or partially, as decided by the Authority and the AUTHORITY shall not be required to assign any reason therefore.

(iii) To immediately cancel the contract, if already signed, without giving any compensation to the BIDDER.

(iv) To recover all sums already paid by the AUTHORITY, and in case of an Indian BIDDER with interest thereon at 2% higher than the prevailing Prime Lending Rate of State Bank of India, while in case of a BIDDER from a country other than India with interest thereon at 2% higher than the LIBOR. If any outstanding payment is due to the BIDDER from the AUTHORITY in connection with any other contract for any other stores, such outstanding payment could also be utilized to recover the aforesaid sum and interest.

(v) To encash the advance bank guarantee and performance bond/warranty bond, if furnished by the BIDDER, in order to recover the payments, already made by the AUTHORITY, along with interest.

(vi) To cancel all or any other Contracts with the BIDDER. The BIDDER shall be liable to pay compensation for any loss or damage to the AUTHORITY resulting from such cancellation/rescission and the AUTHORITY shall be entitled to deduct the amount so payable from the money(s) due to the BIDDER.

(vii) To debar the BIDDER from participating in future bidding processes of the Government of India for a minimum period of five years, which may be further extended at the discretion of the Authority.

(viii) To recover all sums paid in violation of this Pact by BIDDER(s) to any middleman or agent or broker with a view to securing the contract.

(ix) In cases where irrevocable Letters of Credit have been received in respect of any contract signed by the AUTHORITY with the BIDDER, the same shall not be opened.

(x) Forfeiture of Performance Bond in case of a decision by the AUTHORITY to forfeit the same without assigning any reason for imposing sanction for violation of this Pact.

6.2 The AUTHORITY will be entitled to take all or any of the actions mentioned at Para 6.1(i) to (x) of this Pact also on the Commission by the BIDDER or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER), of an offence as defined in Chapter IX of the Indian Penal Code, 1860 or Prevention of Corruption Act, 1988 or any other statute enacted for prevention of corruption.

6.3 The decision of the AUTHORITY to the effect that a breach of the provisions of this Pact has been committed by the BIDDER shall be final and conclusive on the BIDDER. However, the BIDDER can approach the Independent Monitor(s) appointed for the purposes of this Pact.

## **7. Fall Clause**

7.1 The BIDDER undertakes that he has not supplied/is not supplying similar product/systems or subsystems and having same scope of work, quantity, specifications, schedule for delivery, payment terms and all other applicable terms and conditions at a price lower than that offered in the present bid in respect of any other Ministry/ Department of the Government of India or PSU and if it is found at any stage that similar product/system or sub-system and having same scope of work, quantity, specifications, schedule for delivery, payment terms and all other applicable

terms and conditions was supplied by the BIDDER to any other Ministry/Department of the Government of India or a PSU at a lower price, then that very price, with due allowance for elapsed time, will be applicable to the present case and the difference in the cost would be refunded by the BIDDER to the AUTHORITY, if the contract has already been concluded.

## **8. Independent Monitors**

8.1 The AUTHORITY may appoint Independent Monitors (hereinafter referred to as Monitors) for this Pact in consultation with the Central Vigilance Commission.

8.2 The task of the Monitors shall be to review independently and objectively, whether and to what extent the parties comply with the obligations under this Pact.

8.3 The Monitors shall not be subject to instructions by the representations of the parties and perform their functions neutrally and independently.

8.4 Both the parties accept that the Monitors have the right to access all the documents relating to the project/procurement, including minutes of meetings.

8.5 As soon as the Monitor notices, or has reason to believe, a violation of this Pact, he will so inform the AUTHORITY designated by the AUTHORITY.

8.6 The BIDDER(s) accept(s) that the Monitor has the right to access without restriction to all Project documentation of the AUTHORITY including that provided by the BIDDER. The BIDDER will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to Subcontractors. The Monitor shall be under contractual obligation to treat the information and documents of the BIDDER/Subcontractor(s) with confidentiality.

8.7 The AUTHORITY will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the parties. The parties will offer to the Monitor the option to participate in such meetings.

## **9. Facilitation of Investigation**

In case of any allegation of violation of any provisions of this Pact or payment of commission, the AUTHORITY or its agencies shall be entitled to examine all the documents including the Books of Accounts of the BIDDER and the BIDDER shall provide necessary information and documents in English and shall extend all possible help for the purpose of such examination.

**10. Law and Place of Jurisdiction**

This Pact is subject to Indian Law. The place of performance and jurisdiction is Delhi.

**11. Other Legal Actions**

The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the extant law in force relating to any civil or criminal proceedings.

**12. Validity**

12.1 The validity of this Integrity Pact shall be from date of its signing and extend up to 5 years or the complete execution of the contract to the satisfaction of both the AUTHORITY and the BIDDER, including warranty period, whichever is later. In case BIDDER is unsuccessful, this Integrity Pact shall expire after six months from the date of the signing of the contract.

12.2 Should one or several provisions of this Pact turn out to be invalid; the remainder of this Pact shall remain valid. In this case, the parties will strive to come to an agreement to their original intentions.

13. The Parties hereby sign this Integrity Pact at \_\_\_\_\_ on \_\_\_\_\_ .

AUTHORITY

BIDDER

Name of the Officer

CHIEF EXECUTIVE OFFICER

Designation

TRAI

Witness

Witness

1. \_\_\_\_\_

1. \_\_\_\_\_

2. \_\_\_\_\_

2. \_\_\_\_\_