

**Information note to the Press**  
**(Press Release No. 105/2008/QoS)**  
**Telecom Regulatory Authority of India**

**For Immediate release**

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**TRAI Releases Report of the independent agencies engaged for the Objective Assessment of Quality of Service and Customer Satisfaction Survey of Telecom Services in Delhi Metro service area**

New Delhi, 23<sup>rd</sup> December, 2008 - TRAI engaged [M/s. IMRB International](#) as independent agency for conducting an objective assessment of the Quality of Service provided by basic and cellular mobile telephone service providers and broadband service providers and [M/s Voluntary Organization in interest of Consumer Education \(VOICE\)](#) for conducting subjective customer satisfaction surveys for assessing the customers' perception of the service and to assess the implementation and effectiveness of Telecom Consumers Protection and Redressal of Grievances Regulations, 2007.

**2. Methodology**

2.1 The audit and objective assessment of QoS has been done with the following aspects in view: –

- The scope of the audit and assessment work included a three stage verification process. The first stage consisted of auditing the records of the service providers and verifying the Performance Monitoring Report (PMR) data submitted to TRAI. The second stage involved three days live measurement of all the network parameters and determination of busy hour. The third stage consisted of collection and verification of one month Quality of Service performance data.
- audit of telephone exchanges for basic service, Mobile Switching Centers (MSCs), network operating centre/point of presence for broadband service spread in the service area on sample basis;
- assessing the network conditions of each cellular mobile service provider through drive tests;
- inter-operator call assessment of cellular mobile operator through inter-network test calls;
- assessing the effectiveness of the customer care help lines of each operator through test calls;

**2.2** The subjective assessment of customer perception of service and assessment of implementation and effectiveness of Telecom Consumers Protection and Redressal of Grievances Regulations, 2007 was made through a survey using questionnaire approved by the Authority. The sample size of customers for survey was determined for confidence level of 95% and with a confidence interval of 3% for metro for each of the service provider. All the subscribers in the sample selected in the rural areas, were interviewed personally and in urban areas 75% were personally interviewed and 25% were interviewed telephonically.

## **Findings of the independent agency on Quality of Service**

### **3 Cellular Mobile Telephone Service:**

**3.1** In Delhi Metro service area the audit of quality of service data of service providers, namely, Bharti Airtel, MTNL (GSM&CDMA), Vodafone, TataTeleservices, Idea and Reliance Communications, was conducted.

**3.2 Objective Assessment/Audit of Quality of Service performance:** For almost all network parameters, all the service providers meet the TRAI specified benchmark. The Time Consistent Busy Hour (TCBH) reported by all the service providers matched the network busy hour calculated by IMRB auditors. Service Provider's performance in respect of cellular mobile telephone service based on one month data is given in Annex-`1A'. The areas of concern i.e. parameters, for which benchmark is not met by the service providers, are identified based on analysis of one month QoS performance data and live measurement.

**3.3 Drive Test:** The drive tests were conducted to verify parameters like Call Drop Rate, Call Set-up Success Rate, Blocked Call Rate and Percentage of Connections with Good Voice Quality. The areas of concerns (i.e. parameters) are identified as below:

- Call Drop Rate
- CSSR
- Connection with good voice quality.

**3.4 Customer perception of service:** Service Providers' performance in respect to the level of customer perception of service against the specified benchmark is given in Annex-`1B'.

**3.5 Percentage of Customers Satisfied:** The gradation on “Satisfaction” score scale i.e. scores of “Very Satisfied” to “Satisfied” is given in Table-1 below. The survey results reveal that there is a need to improve the satisfaction level of subscribers with respect to the Help services, billing performance and supplementary services across the service providers.

**Table-1 (Cellular Mobile Telephone Service) - Delhi Service Area**

S. No.	%Customer Satisfied	Bharti Airtel	Vodafone	IDEA	RCOM	TATA	MTNL
1	% satisfied with the provision of service	97.7%	96.5%	97.6%	95.6%	95.8%	96.9%
2 a	% satisfied with the billing performance (Postpaid customers)	91.0%	91.1%	90.5%	95.1%	90.9%	89.8%
2 b	% satisfied with the billing performance (Prepaid customers)	95.4%	94.1%	93.5%	94.3%	95.3%	96.9%
3	% satisfied with help services	86.4%	81.8%	81.8%	81.0%	82.7%	83.1%
4	% satisfied with network performance, reliability and availability	93.8%	90.3%	86.4%	90.4%	85.8%	83.8%
5	% satisfied with maintainability	93.9%	92.7%	88.1%	89.9%	86.7%	88.8%
6	Overall customer satisfaction	95.3%	93.3%	90.1%	91.6%	91.2%	88.5%
7	Customer satisfaction with offered supplementary services % satisfied	92.5%	94.7%	93.9%	89.8%	91.4%	90.1%

#### 4. Basic Service (wire line)

**4.1 Objective Assessment/Audit of QOS performance:** Basic (Wire line) services audit for Delhi Metro circle broadly indicates that most of the service providers are not meeting the benchmarks for some of the Parameters. Service Provider’s performance in respect of basic service (wire line) based on one month data is given in Annex-`2A`. The areas of concern i.e. parameters, for which benchmark is not met by the service providers, are identified based on analysis of one month QoS performance data and live measurement as below:

- Fault incidences (No. of faults/100 subscribers/month),
- Fault repaired by next working day,
- Mean time to repair (MTTR),

**4.2 Customer perception of service:** Service Providers’ performance in respect to the level of customer perception of service against the specified benchmark is given in Annex-`2B`.

**4.3 Percentage of Customers Satisfied:** The gradation on “Satisfaction” score scale i.e. scores of “Very Satisfied” to “Satisfied” is given in Table-2 below. The survey results reveal that there is a need to improve the satisfaction level of subscribers with respect to the help services and maintainability.

**Table-2 {Basic Service (Wire line) - Delhi Service Area }**

S. N.	Customer Perception of Services	Bharti	R.Com	TATA	MTNL
1	%age subscribers satisfied with the provision of service	95.2%	92.2%	94.4%	94.2%
	%age subscribers satisfied with the billing performance (Post paid customers)	93.4%	92.6%	93.4%	94.7%
	%age subscribers satisfied with the billing performance (Pre paid customers)	98.5%	97.8%	93.5%	91.2%
3	%age subscribers satisfied with help services	92.6%	86.6%	87.9%	90.6%
4	%age subscribers satisfied with network performance, reliability and availability	95.9%	94.0%	93.3%	95.4%
5	%age subscribers satisfied with maintainability	88.2%	83.3%	74.6%	80.0%
6	Overall customer satisfaction	95.8%	93.4%	90.2%	95.7%
7	%age subscribers satisfied with offered supplementary services	97.9%	95.3%	89.8%	98.7%

## 5. Broadband Service

**5.1 Objective Assessment/Audit of QOS performance:** The audit for Broadband Service Providers was conducted at their respective network operating centre/point of presence (POPs) in the Delhi Metro circle. Service Provider's performance based on one month data is given in Annex - `3A'. The area of concern (i.e. parameters) for which benchmark is not met by the service provider is identified based on analysis of one month QoS performance data and live measurement as below:

- Percentage connections provided within 15 days,
- Fault repaired by next working day,
- Bandwidth utilized on upstream links.

**5.2 Customer perception of service:** Service Providers' performance in respect to the level of customer perception of service against the specified benchmark is given in Annex-`3B'.

**5.3 Percentage of Customers Satisfied:** The gradation on "Satisfaction" score scale i.e. scores of "Very Satisfied" to "Satisfied" is given in Table-3 below. The survey results reveal that Help Services, Maintainability, Network performance are areas where all service providers have scored relatively lower score as compared to other parameters.

**Table-3 (Broadband Service) - Delhi Service Area**

S. N.	Customer Perception of Services	Bharti Airtel	Rel Com	MTNL	VSNL	Sify
1	% satisfied with the provision of service	94.2%	89.6%	89.0%	90.9%	95.7%
2a	% satisfied with the billing performance (Prepaid customers)	99.4%	98.8%	96.6%	98.4%	99.4%
2b	% satisfied with the billing performance (Postpaid customers)	94.5%	84.2%	93.2%	91.9%	93.9%
3	% satisfied with help services	85.5%	64.9%	76.7%	76.1%	79.5%
4	% satisfied with network performance, reliability and availability	81.3%	82.6%	83.6%	76.1%	81.5%
5	% satisfied with maintainability	92.8%	85.6%	82.8%	79.3%	88.8%
6	% satisfied Overall customer satisfaction	96.8%	93.2%	93.0%	90.3%	94.4%
7	% satisfied with customer satisfaction with offered supplementary services such as allocation of static / fixed IP addresses, email ids etc.	98.7%	99.3%	95.6%	90.7%	91.5%

**6. Telecom Consumers Protection and Redressal of Grievances score:**

The Authority noted with concern that the awareness of subscribers of all the service providers regarding the three stage grievance redressal mechanism is still very low. The summary of survey results for assessment of implementation and effectiveness of Telecom Consumer Protection and Redressal of Grievances Regulations in respect of Cellular Mobile Service, Basic (Wire line) Service and Broadband Service is given in Annex-`1C`, Annex `2C` and Annex `3C` respectively.

**.7. The detailed Report on Quality of Service – Audit/Objective Assessment and Customer Satisfaction Survey, including grievance redressal mechanism, conducted during the period February, 2008 to May, 2008 is placed at TRAI Website ([www.traigov.in](http://www.traigov.in)).**

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### Annex-`1A`

#### Objective Assessment of Quality of Service - Service Provider's Performance in respect of Cellular Mobile Telephone Service- Delhi Service Area

Parameters	Benchmark	Bharti	MTNL - GSM	Vodafone	TATA	Idea	RCOM	MTNL - CDMA
Accumulated downtime for community isolation	< 24 hrs.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Call Set Up Success Rate (CSSR)	> 95%	98.92%	92.76%	98.96%	98.31%	99.86%	97.38%	98.35%
Service Access Delay*	9 to 20 seconds (< = 15 seconds for 100 calls)	8.60	4.05	6.97	8.30	9.00	3.98	Not Measured
Blocked Call Rate								
<i>SDCCH /Paging Channel Congestion</i>	<1%	0.23%	0.05%	0.33%	0.00%	0.26%	0.00%	0.00%
<i>TCH Congestion</i>	< 2%	0.21%	2.47%	0.86%	0.05%	1.09%	0.00%	0.34%
Call drop rate	< 3%	1.00%	1.57%	0.71%	0.69%	0.66%	0.49%	1.67%
Percentage connections with good voice quality*	> 95%	96.49%	94.49%	95.94%	95.41%	94.53%	98.57%	93.80%
POI congestion	< 0.5%	0%	0%	0%	0%	0%	0%	Not Measured
Calls answered electronically								
Percentage calls answered within 20 seconds	80%	100%	98%	DNP	100%	100%	100%	100%
Percentage calls answered within 40 seconds	95%	100%	100%	DNP	100%	100%	100%	100%
Calls Answered by the operator								
Percentage calls answered within 60 seconds	80%	95%	55%	DNP	45%	91%	93%	99%
Percentage calls answered within 90 seconds	95%	98%	65%	DNP	49%	98%	95%	100%
Billing Complaints								
Billing complaints per 100 bills issued	<0.1%	0.04%	0.07%	0.01%	0.03%	0.00%	0.07%	0.08%
Percentage billing complaints resolved within 4 weeks	100%	100%	100%	100%	100%	100%	100%	100%
Period of refunds/payments due to customers from the date of resolution of complaints	<4 weeks	100%	100%	100%	NA	100%	100%	NA

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

NA: Not Applicable

**Annex-`1B`  
Customers Perception of Service for Cellular Mobile Telephone Service  
through Survey- Delhi Service Area**

S. N.	Customer Perception of Services	Benchmark	Bharti Airtel	Vodafone	Idea	R. Com	TATA	MTNL
1	%age subscribers satisfied with the provision of service	>95%	77.0%	76.8%	77.4%	74.3%	71.2%	75.0%
2a	%age subscribers satisfied with the billing performance (postpaid)	>90%	66.0%	65.7%	65.1%	66.5%	64.3%	64.0%
2b	%age subscribers satisfied with the billing performance (prepaid)	>90%	69.6%	68.2%	66.7%	67.4%	68.0%	68.2%
3	%age subscribers satisfied with help services	>90%	66.2%	63.4%	62.6%	62.1%	62.4%	62.3%
4	%age subscribers satisfied with network performance, reliability and availability	>95%	71.6%	68.9%	66.7%	67.5%	64.5%	64.7%
5	%age subscribers satisfied with maintainability	>95%	70.5%	68.7%	66.6%	66.5%	64.9%	65.4%
6	Overall customer satisfaction	>95%	71.1%	67.8%	65.6%	67.1%	69.1%	65.1%
7	%age subscribers satisfied with offered supplementary services	>95%	66.7%	67.8%	67.3%	66.1%	66.4%	65.2%

**Annex-`1C`  
Assessment of implementation and effectiveness of Telecom Consumer  
Protection and Redressal of Grievances Regulations in respect of Cellular  
Mobile Telephone Service through Survey- Delhi Service Area**

S.N.	Sub Parameter	Airtel	Vodafone	Idea	Rel Comm	TATA	MTNL
1	Awareness of three stage grievance mechanism	20.7%	20.1%	15.4%	16.1%	9.5%	14.2%
2	For pre-paid customers, awareness about item-wise call charge details on request	17.6%	20.6%	26.0%	16.7%	13.3%	7.4%
3	If aware (for pre-paid customers), ever denied of item wise usage charge details for pre-paid connection	18.0%	8.3%	4.5%	7.6%	11.7%	26.9%
4	For new customers, provisioning of 'Manual of Practice' while taking the new connection	27.9%	40.4%	38.1%	46.8%	33.7%	46.1%
5	Awareness of Call center for redressing grievances	94.8%	96.8%	95.9%	91.9%	93.7%	96.5%
6	Penetration of consumers made any complaints to the toll free number within last 6 months	19.1%	20.3%	21.9%	21.9%	17.5%	22.5%
7	Call center informing about the action taken on complaints	75.5%	59.9%	59.8%	64.5%	61.5%	70.8%
8	Resolution of complaint by customer care within 4 weeks of lodging complaint	51.2%	57.6%	38.2%	27.5%	51.5%	25.3%
9	percentage satisfied with complaint resolution by call cente	84.8%	71.9%	74.3%	77.4%	73.8%	79.6%
10	Awareness of Nodal officer for redressing grievances	4.6%	2.5%	2.4%	1.1%	0.3%	1.6%
11	Awareness of Appellate authority for redressing grievances	0.6%	1.1%	0.9%	0.5%	0%	0.7%

**Annex-`2A`**  
**Objective Assessment of Quality of Service - Service Provider's**  
**Performance in respect of Basic Service (Wire line) - Delhi Service**  
**Area**

S.no	Parameters	B'mark	Bharti	MTNL	RCOM	TATA teleservices*
1	Provision of telephone after registration of demand					
1.1	Connections completed within 7 days	100%	100%	96%	17%	35%
2	Fault incidence/clearance statistics					
3	Fault incidences(No. of faults/100 subscribers/month)	<3	10.1	7.9	<3	15
3.1	Faults repaired within 24 hours	>90%	95%	80%	88%	90%
3.2	Faults repaired within three working days	100%	95%	96%	100%	90%
4	Mean time to Repair (MTTR)	<8 hours	9.9	6.5	5.53	7.6
5	Call Completion Rate (CCR)	>55%	60%	99%	DNA	100%
6	Metering and billing credibility					
6.1	Billing complaints per 100 bills issued	<0.1%	0.01%	0.09%	0.05%	0.00%
6.2	%age of billing complaints resolved within 4 weeks	100%	100%	84%	100%	NA
7	Customer care/helpline promptness					
7.1	<u>Shift requests attended</u>					
	Shift requests attended within 3 days	95%	96%	87%	NA	82%
7.2	<u>Closure request attended</u>					
	Closure within 24 hours	95%	100%	86%	95%	79%
7.3	<u>Supplementary (additional) service requests attended</u>					
	Additional facility provided within 24 hours	95%	100%	97%	100%	99%
8	Response time to customer for assistance					
8.1	% age call answered through IVR in 20 seconds	80%	Not recorded by the operator	Details not available at the exchanges	100%	100%
	% age call answered through IVR in 40 seconds	100%			100%	100%
8.2	% age calls answered by operator in 60 seconds	80%	95%		95%	90%
	% age calls answered by operator in 90 seconds	95%	97%		98%	94%
9	Time taken for refund of deposits after closure					
9.1	%age cases where refund received within 60 days	100%	100%	97%	NA	NA

(\*Note: For MTNL data pertains to the sample 5% of exchanges audited during the period of April to July 2008, whereas for rest of the operators figures pertain to all the exchanges present in the circle)

**Annex-`2B`  
Customers Perception of Service for Basic Service (Wire line)  
through Survey- Delhi Service Area**

S. N.	Customer Perception of Services	Benchmark	Bharti Airtel	R. Com	TATA	MTNL
1	% Subscribers satisfied with the provision of service	>95%	67.3%	65.9%	67.5%	67.3%
2a	% Subscribers satisfied with the billing performance (Post paid customers)	>90%	65.9%	65.6%	65.0%	67.8%
2b	% Subscribers satisfied with the billing performance (Pre paid customers)		66.7%	67.0%	63.2%	64.0%
3	% Subscribers satisfied with help services	>90%	65.3%	64.1%	63.2%	65.7%
4	% Subscribers satisfied with network performance, reliability and availability	>95%	66.6%	66.3%	65.3%	67.8%
5	% Subscribers satisfied with maintainability	>95%	63.3%	63.0%	59.8%	63.2%
6	Overall customer satisfaction	>95%	67.1%	67.3%	68.5%	68.5%
7	% Subscribers satisfied with offered supplementary services	>95%	67.0%	69.8%	67.4%	69.8%

**Annex-`2C`  
Assessment of implementation and effectiveness of Telecom Consumer  
Protection and Redressal of Grievances Regulations in respect Basic  
Service (Wire line) through Survey- Delhi Service Area**

S. N.	Sub-parameter	Airtel	R. Com	TATA	MTNL
1	Awareness of three stage grievance mechanism	11.4%	13.5%	6.4%	14.0%
2	For pre-paid customers, awareness about item-wise call charge details on request	3.0%	6.6%	8.8%	27.3%
3	If aware (for pre-paid customers), ever denied of item wise usage charge details for pre-paid connection	0.0%	0.0%	6.7%	33.3%
4	For new customers, provisioning of 'Manual of Practice' while taking the new connection	38.1%	31.1%	25.0%	46.9%
5	Awareness of Call center for redressing grievances	97.1%	95.6%	99.0%	96.0%
6	Penetration of consumers made any complaints to the toll free number within last 6 months	51.7%	43.7%	52.6%	45.5%
7	Call center informing about the action taken on complaints	68.1%	64.4%	67.9%	72.4%
8	Resolution of complaint by customer care within 4 weeks of lodging complaint	31.1%	32.7%	44.9%	58.4%
9	% subscribers satisfied with the complain resolution by call center	90.6%	83.5%	85.5%	91.4%
10	Awareness of Nodal officer for redressing grievances	0.4%	0.6%	0.4%	0.2%
11	Awareness of Appellate authority for redressing grievances	0.1%	0.2%	0.2%	0.1%

## Annex-`3A`

### Objective Assessment of Quality of Service - Service Provider's Performance in respect of Broadband Service- Delhi Service Area

S.no	Parameters	B'mark	Bharti	MTNL	Sify	Hathaway	VSNL	RCOM
1	<b>Service provisioning time</b>							
1.1	Percentage connections provided within 15 days	100%	94%	70%	100%	100%	100%**	75%**
2	<b>Fault repair restoration time</b>							
2.1	Percentage faults repaired by next working days	> 90%	97%	78%	91%	100%	78%**	94%
2.2	Percentage faults repaired within three working days	> 99%	99%	94%	100%	100%	90%**	99%
3	<b>Billing performance</b>							
3.1	Billing complaints per 100 bills	<2%	0.02%	0.08%		1.39%	2.43%	0.35%
3.2	%age of billing complaints resolved within 4 weeks	100%	94%	100%		100%	100%	100%
3.3	Time taken for refund of deposits after closure	100%	99%	100%	100%	100%	100%	100%
4	<b>Customer care/helpline</b>							
4.1	Percentage calls answered within 60 seconds	> 60%	78%	98%	100%	88%	93%	94%
4.2	Percentage calls answered within 90 seconds	>80%	86%	98%	100%	100%	98%	96%
5	<b>Bandwidth utilization/Throughput</b>							
5.1	Total number of intra network links (POP to ISP Node) <i>Upstream Bandwidth (ISP</i>		684	7	400	61	5 (POP's in Delhi)	3 (POP's in Delhi)
5.2	Total number of upstream links		2	7	28	4	35	1 (Delhi to NIXI)
5.3	Number of links > 90%		0	0	0	0	0	0
5.4	Percentage bandwidth utilised on upstream links	<80%	75%	86%	64%	81%	74%	51%
6	<b>Broadband download speed</b>	>80%	Complied	Complied	Complied	Complied	Complied	Complied
7	<b>Service availability/uptime</b>	>98%	99.78%	99.85%	100.00%	99.65%	97.78%	98.85%
8	<b>Packet loss</b>	<1%	<1%	<1%	<1%	<1%	<1%	1%**
9	<b>Network Latency</b>							
9.1	POP/ISP Node to NIXI/ IGSP	<120msec	< 30	<120	<45	<20	<90	<30
9.2	ISP node to nearest NAP port	<350msec	< 100	<300	<300	< 100	<200	<290

\*For Sify all the connections provided to retail broadband customers are prepaid, hence the service provider claims that there are no billing related complaints

**Annex-`3B`  
Customers Perception of Service for Broadband Service through Survey-  
Delhi Service Area**

S. N.	Customer Perception of Services	Benchmark	Airtel	Rel Com	MTNL	VSNL	Sify
1	% subscribers satisfied with the provision of service	>90%	67.7%	65.7%	64.9%	65.1%	69.7%
2a	% subscribers satisfied with the billing performance (Prepaid customers)	>90%	68.0%	68.8%	69.0%	68.3%	68.5%
2b	% subscribers satisfied with the Billing performance (Postpaid customers)	>90%	65.2%	60.9%	65.7%	65.5%	67.1%
3	% subscribers satisfied with help services	>90%	61.4%	51.5%	59.9%	58.1%	59.3%
4	% subscribers satisfied with network performance, reliability and availability	>85%	60.8%	60.3%	62.1%	58.8%	61.3%
5	% subscribers satisfied with maintainability	>85%	67.3%	63.4%	63.8%	60.7%	63.8%
6	Overall level of customer satisfaction	>85%	67.1%	65.9%	65.5%	64.2%	66.4%
7	% subscribers satisfied with offered supplementary services	>85%	67.9%	72.0%	66.6%	63.7%	68.5%

**Annex-`3C`  
Assessment of implementation and effectiveness of Telecom Consumer  
Protection and Redressal of Grievances Regulations in respect Broadband  
Service through Survey- Delhi Service Area**

S. N.	Sub-parameters	Airtel	Rel Com	MTNL	VSNL	Sify
1	Awareness of three stage grievance mechanism	4.6%	16.7%	8.2%	5.0%	1.8%
2	For pre-paid customers, awareness about item-wise call charge details on request	9.6%	39.4%	17.2%	21.1%	12.3%
3	If aware (for pre-paid customers), ever denied of item-wise usage charge details for pre-paid connection	0.0%	1.5%	0.0%	4.8%	4.8%
4	For new customers, provisioning of 'Manual of Practice' while taking the new connection	71.1%	38.3%	74.1%	28.8%	12.0%
5	Awareness of Call center for redressing grievances	99.9%	99.5%	99.5%	99.9%	99.9%
6	Penetration of consumers made any complaints to the toll free number within last 6 months	59.5%	38.3%	55.3%	65.3%	36.6%
7	Call center informing about the action taken on complaints	67.7%	57.3%	60.8%	48.7%	39.4%
8	Resolution of complaint by customer care within 4 weeks of lodging complaint	31.9%	35.1%	50.4%	39.6%	44.0%
9	Percentage satisfied with the complaint resolution by call center	84.7%	56.3%	71.4%	76.4%	68.0%
10	Awareness of Nodal officer for redressing grievances	2.3%	1.1%	2.4%	2.9%	0.7%
11	Awareness of Appellate authority for redressing grievances	0.7%	0.1%	0.8%	0.8%	0.0%