

SURVEY CONDUCTED BY TRAI TO ASSESS QOS PROVIDED BY TELECOM SERVICES PROVIDERS

SUMMARISED RESULTS: October 2003–December 2003



सत्यमेव जयते

TELECOM REGULATORY AUTHORITY OF INDIA



TELECOM REGULATORY AUTHORITY OF INDIA

April , 2004, NEW DELHI

INTRODUCTION

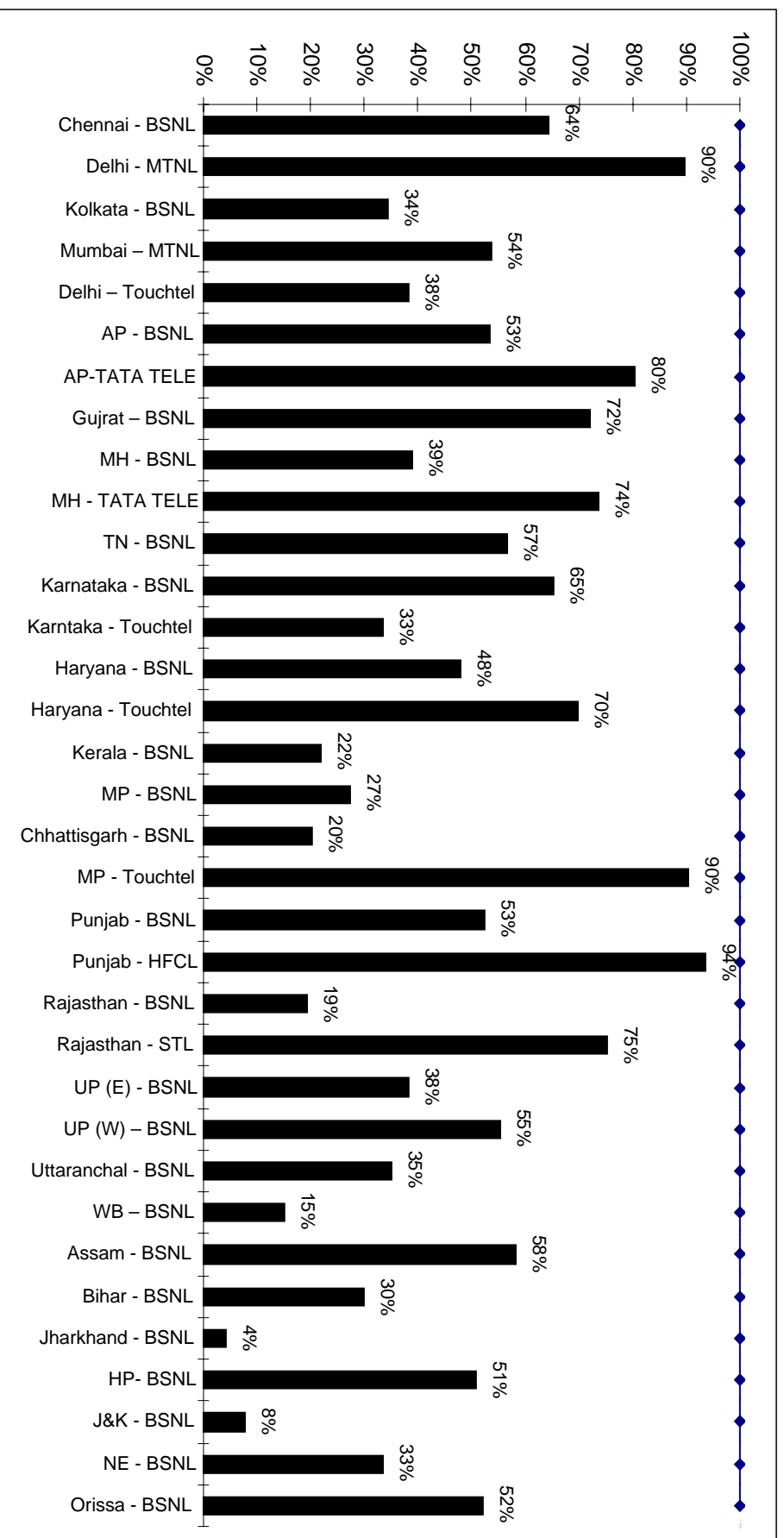
- 1.1. In exercise of the powers vested in the **Telecom Regulatory Authority of India (TRAI)** under the TRAI Act, 1997, the Authority has been conducting periodical survey of the quality of basic and cellular telephone services provided by different telecommunication service providers all over the country. The survey also covers an assessment of the level of satisfaction with the services received by subscribers of these telephone service providers. The survey, spread over 14 months from November 2003 to December 2004 covers a performance period of one year from October 2003 to September 2004. **M/s. IMRB International**, the authorised survey agency, is to submit four quarterly reports at the end of each quarter and one annual report at the end of the survey.
- 1.2. The study is being conducted broadly in two modules. They are:
 - (1) **Objective assessment:** To assess the quality of service of telecom operators by auditing the service level records maintained by the operators, conducting drive tests as well as live measurements and comparing them with quality of service benchmarks stipulated by TRAI
 - (2) **Subjective survey:** To obtain subscriber feedback on quality of services by way of primary survey
- 1.3. The following pages present a summary of Quarter 1 (Oct-Dec. 2003) findings from the audit and primary survey work undertaken by IMRB International during the period November 2003 - January 2004. The audit was conducted for the month of October 2003.
- 1.4. To verify the accuracy and authenticity of QoS performance monitoring reports submitted to TRAI by the various operators, IMRB's officials visited 466 basic telephone exchanges while auditing 34 basic operators. 110 urban and 356 rural exchanges were covered as part of the basic telecom service operators. Further, the operations of 70 GSM and 25 CDMA operators were audited as part of this exercise. In the case of basic operators, a sample mix of urban and rural exchanges (that are representative of the circle) was selected across 10% of SDCAs (Short Distance Charging Area) of operator. Also, for basic operators, the exchanges were selected on basis of their equipped capacity (large, medium and small). All GSM and CDMA operators in the country were covered during the exercise. During this visit IMRB officials verified and validated the source data used by the operators for calculation of QoS parameters, collected supporting documents, made live measurements and recorded observations, if any.
- 1.5. In the subjective assessment of the QoS, a large sample of 24,208 basic, 12,912 cellular and 4,929 CDMA service subscribers were met to assess their satisfaction levels with the quality of the services that were delivered by the telecom services providers.

**Overall performance of Basic service operators
on some selected service parameters**

PERCENTAGE OF NEW CONNECTIONS PROVIDED WITHIN 7 DAYS
Prescribed QoS Standard: 100% within 7 days

Oct 03-Dec 03

Annex-I

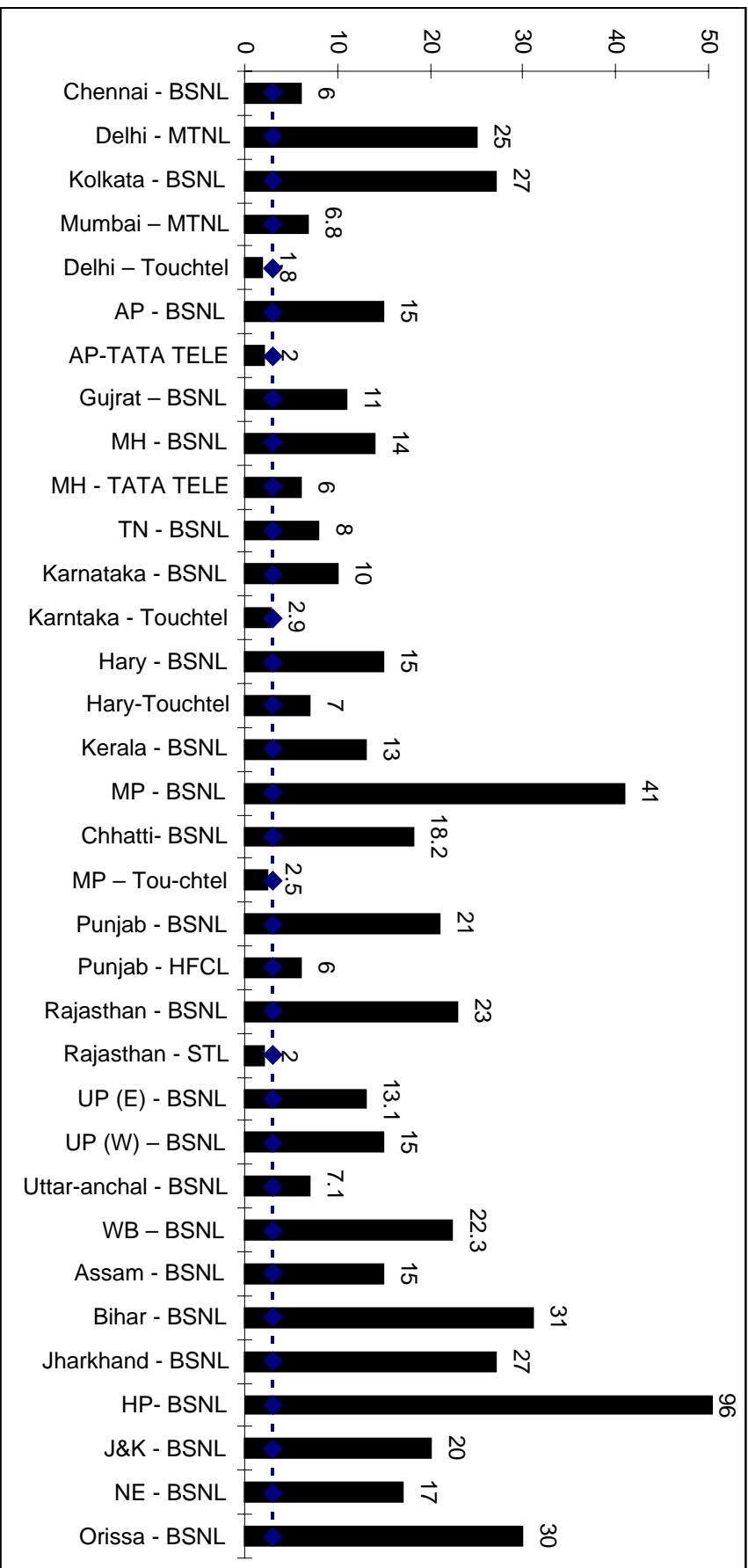


CUSTOMER COMPLAINTS OF PHONE FAULT (NO. OF FAULTS PER 100 SUBSCRIBERS PER MONTH)

Oct 03-Dec 03

Annex-II

Prescribed QoS Standard: <3 faults per 100 subscribers

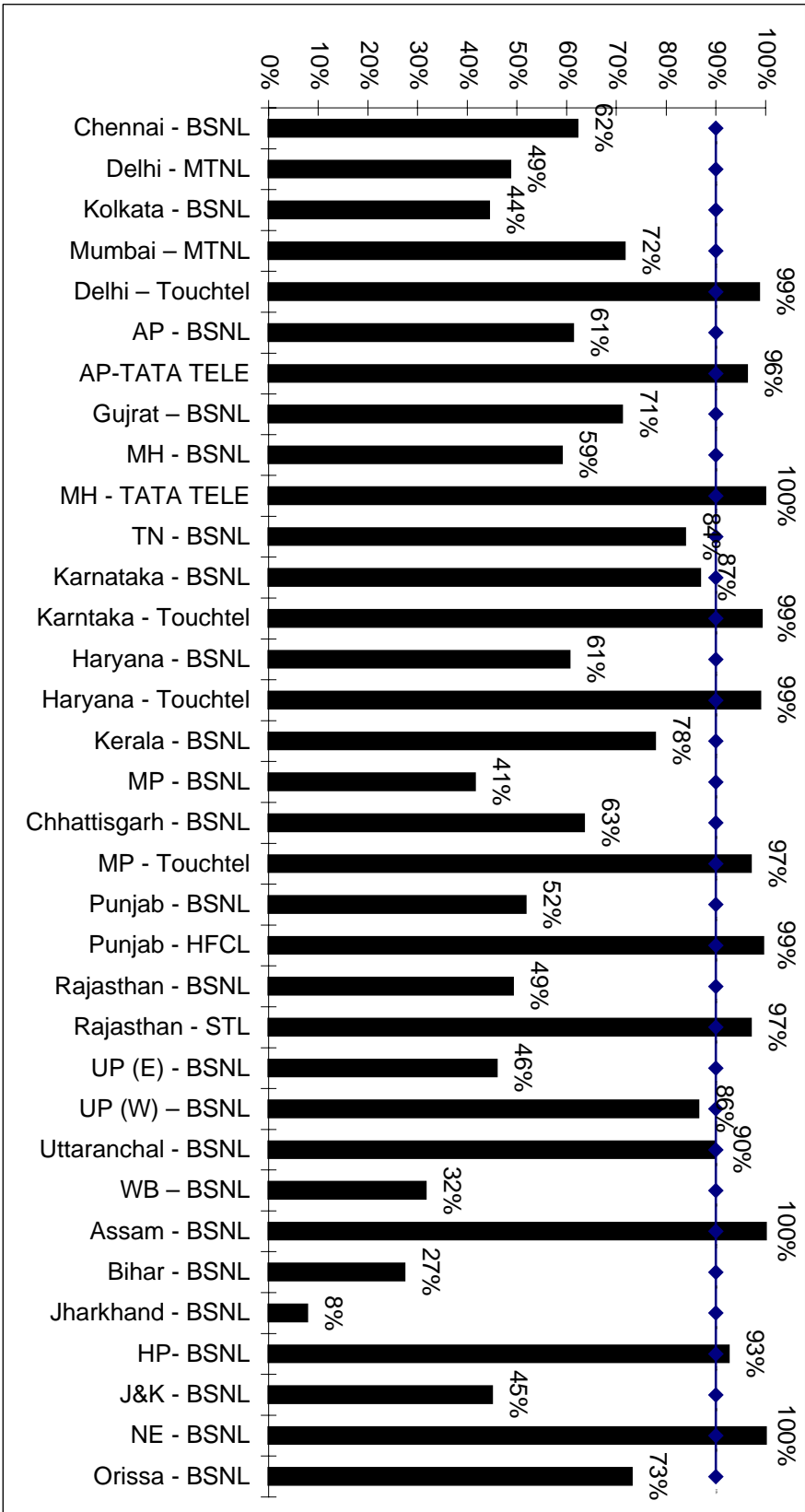


PERCENTAGE OF CUSTOMER FAULT COMPLAINTS REPAIRED BY NEXT WORKING DAY

Prescribed QoS Standard: > 90% by next working day

Oct. '03-Dec. '03

Annex-III

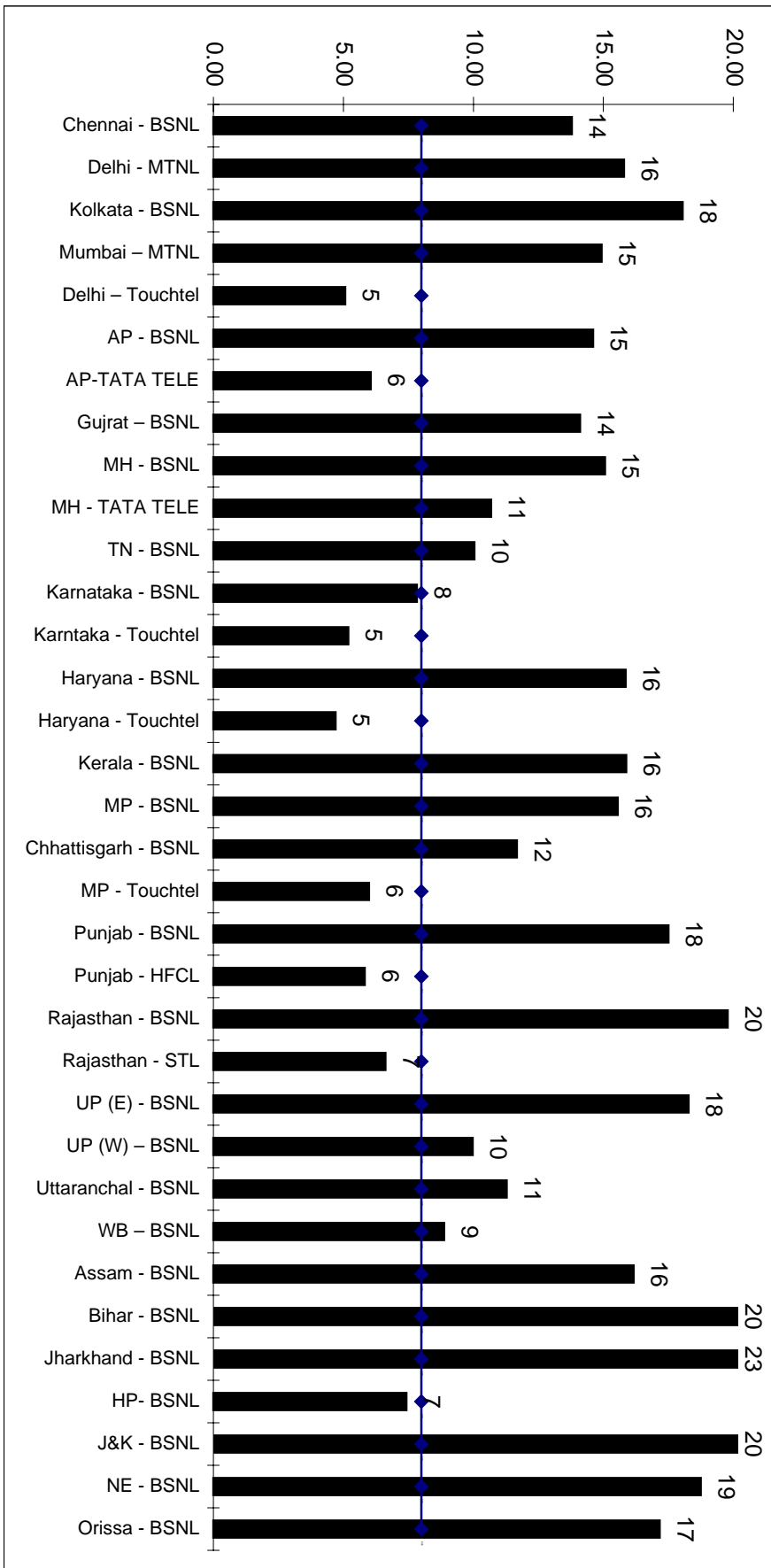


AVERAGE TIME (HOURS) TAKEN TO ATTEND THE CUSTOMER FAULT COMPLAINTS

Oct.'03-Dec.'03

Annex-IV

Prescribed QoS Standard: < 8 Hours

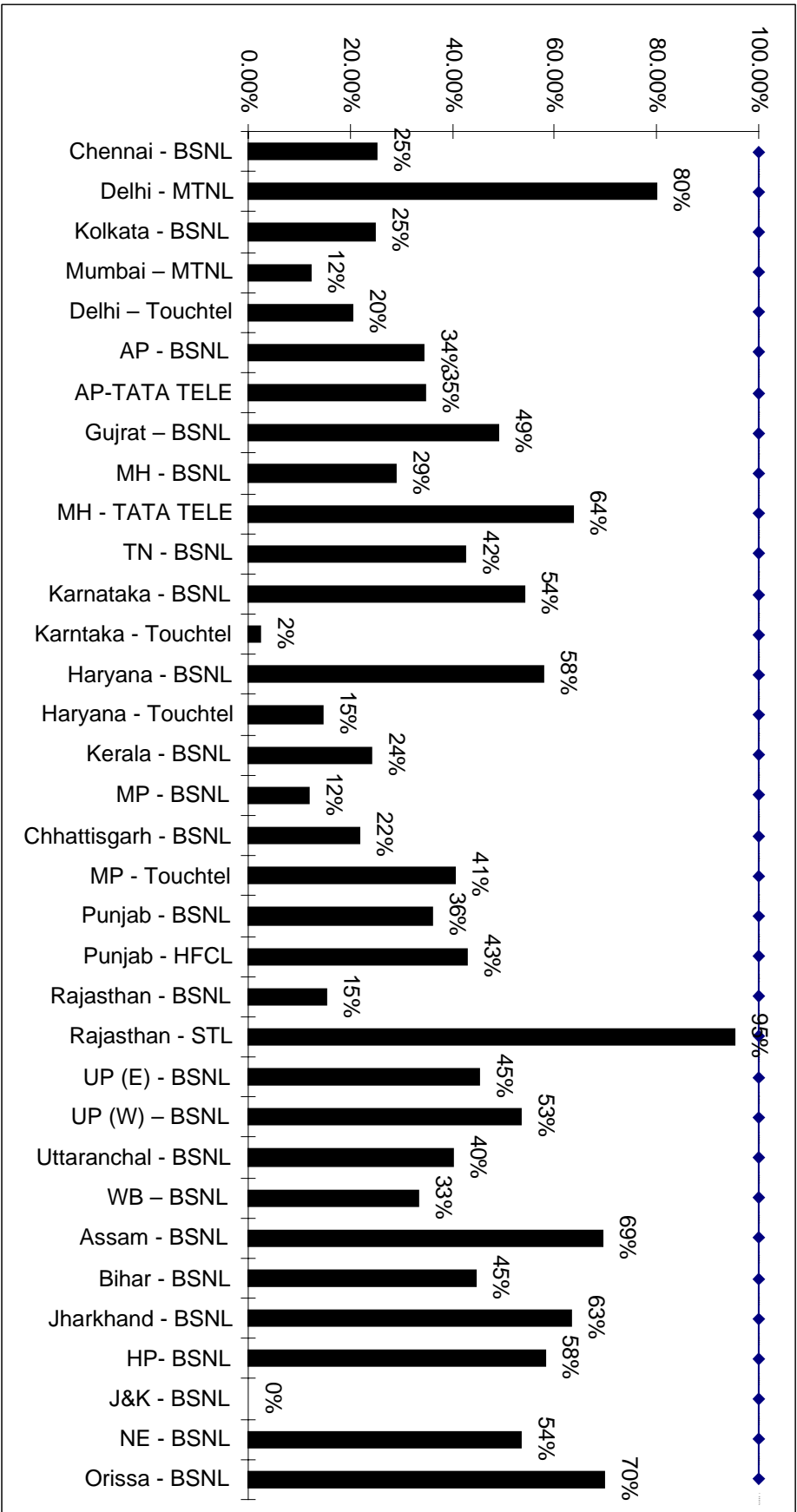


PERCENTAGE OF TELEPHONE SHIFTING COMPLETED WITHIN 3 DAYS

Prescribed QoS Standard: 100%

Oct.'03-Dec.'03

Annex-V

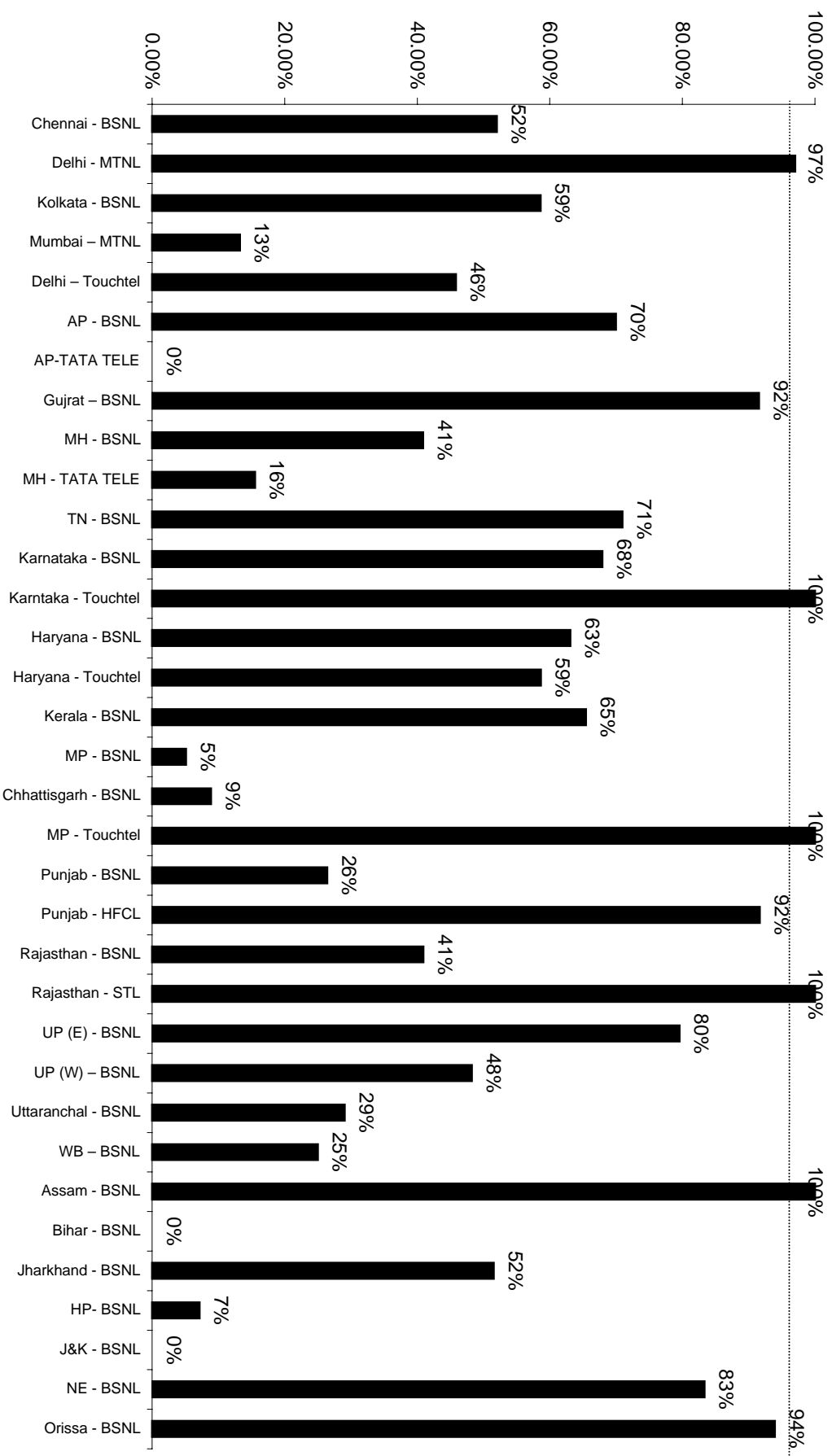


PERCENTAGE OF CLOUSERS IN 24 HOURS

Prescribed QoS Standard: 95% within 24 Hours

Oct.'03-Dec.'03

Annex-VI

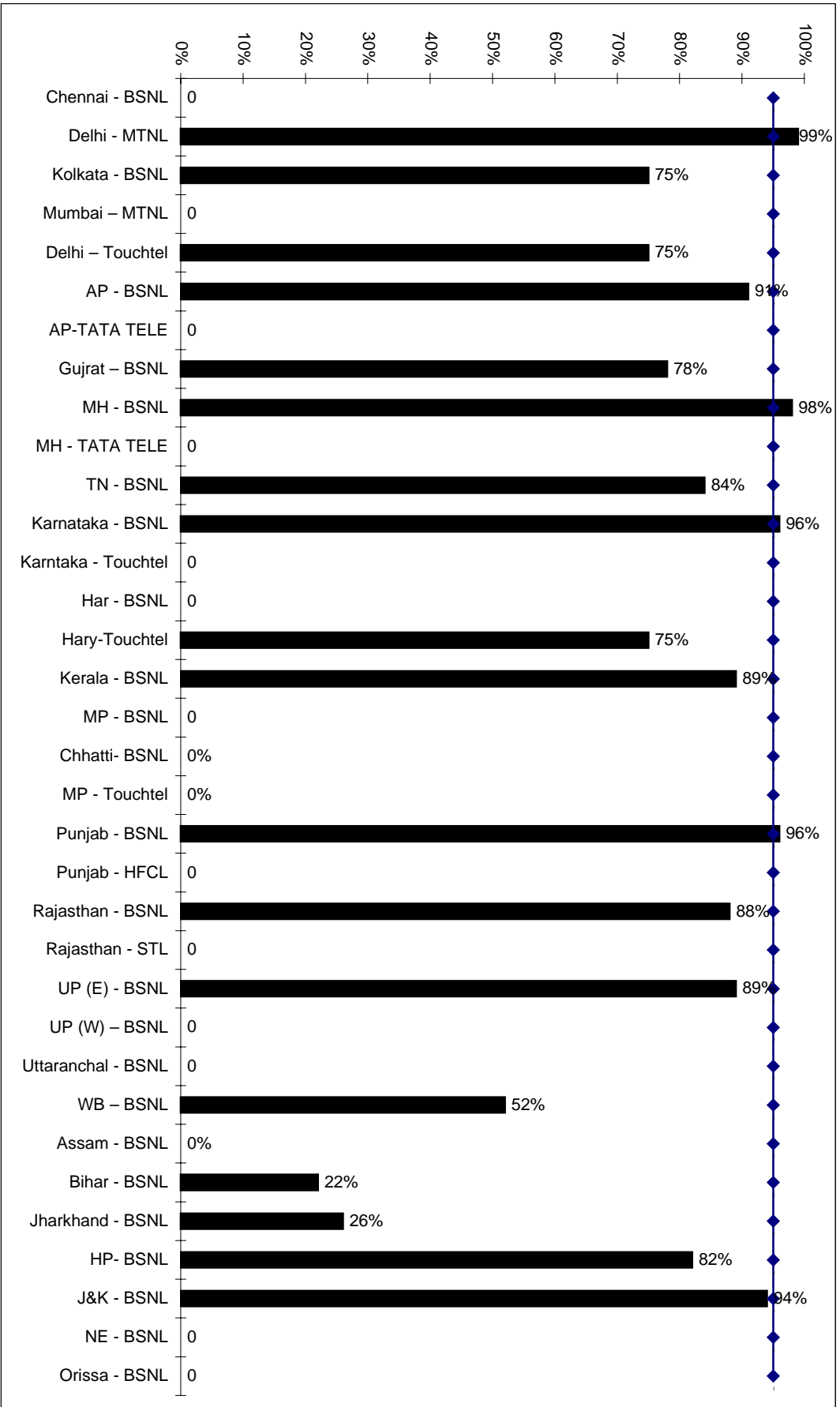


OPERATOR SERVICE RESPONSE LEVEL (%AGE OF CUSTOMER CALLS RESPONDED IN 10 SEC.)

Prescribed QoS Standard: At least 95% answered within 10 Sec.

Oct.'03-Dec.'03

Annex-VII



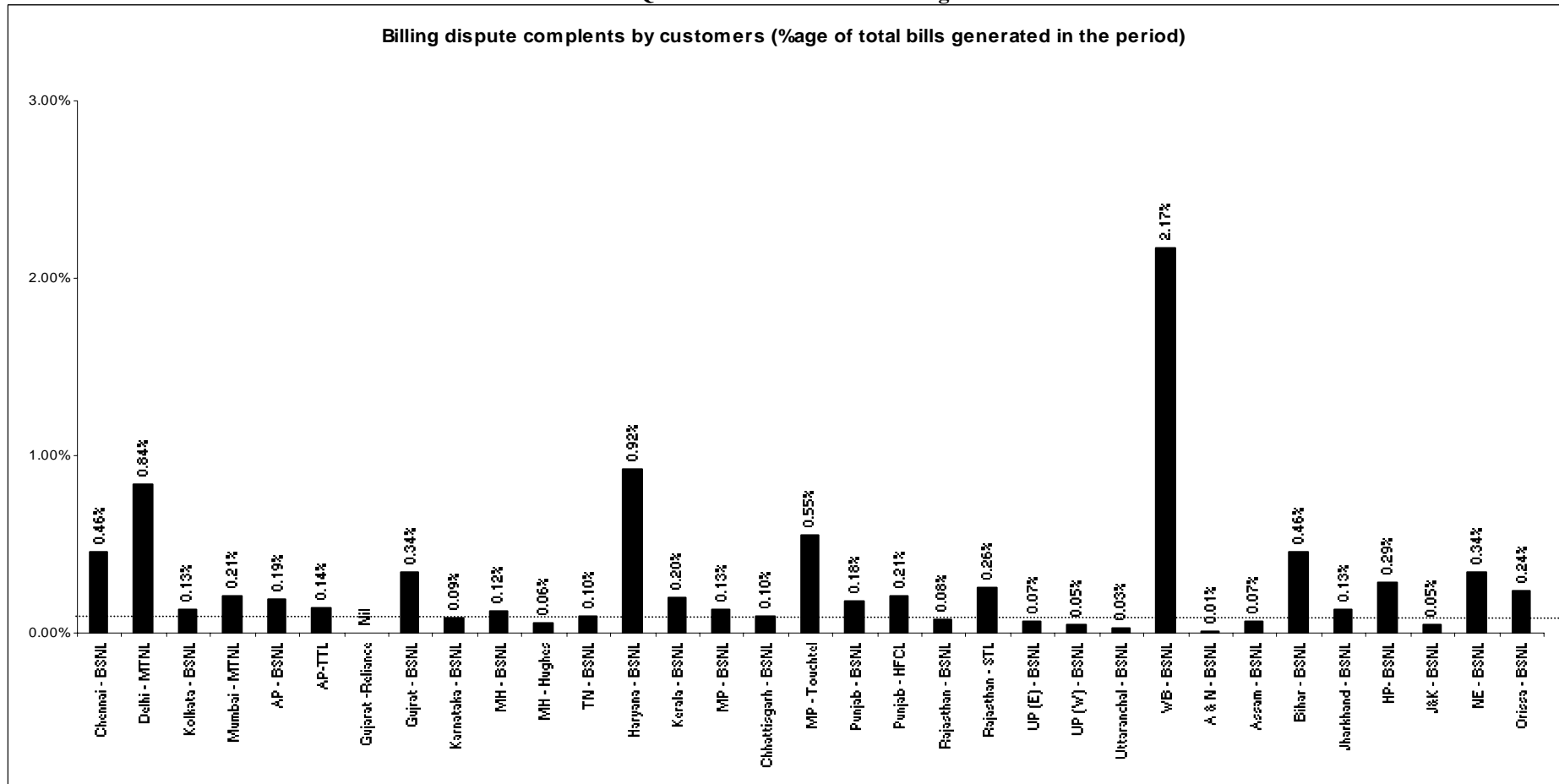
Please note: those marked 0 above have not reported the data.

Annex-VIII

BILLING DISPUTES COMPLAINTS FROM CUSTOMERS (%AGE OF TOTAL BILLS ISSUED IN THE PERIOD)

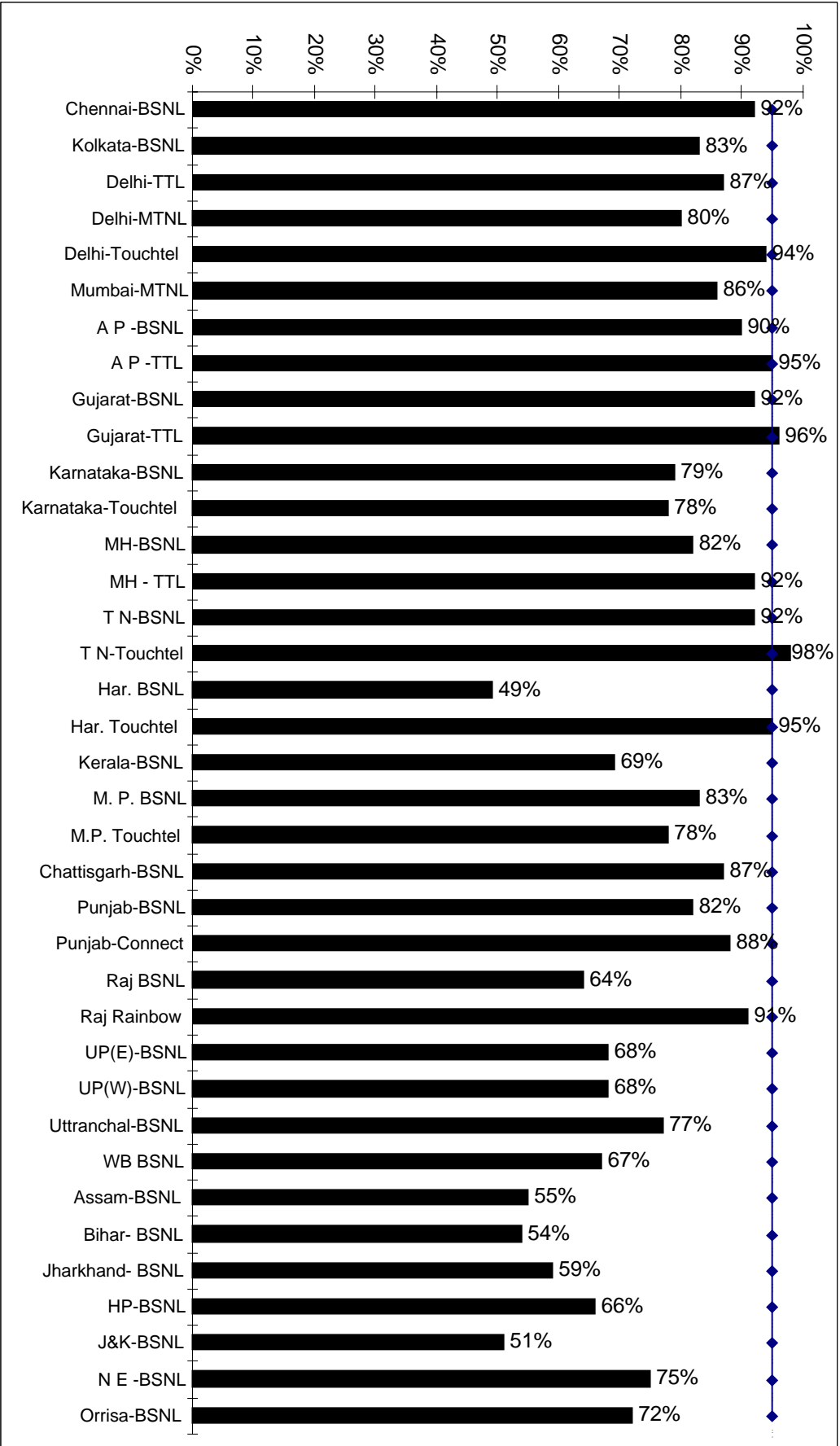
Oct.'03-Dec.'03

Prescribed QoS Standard: <0.10% of bills generated



CUSTOMER SURVEY SCORES ON SERVICE PROVISION – BASIC SERVICES

Prescribed QoS standard: > 95% score

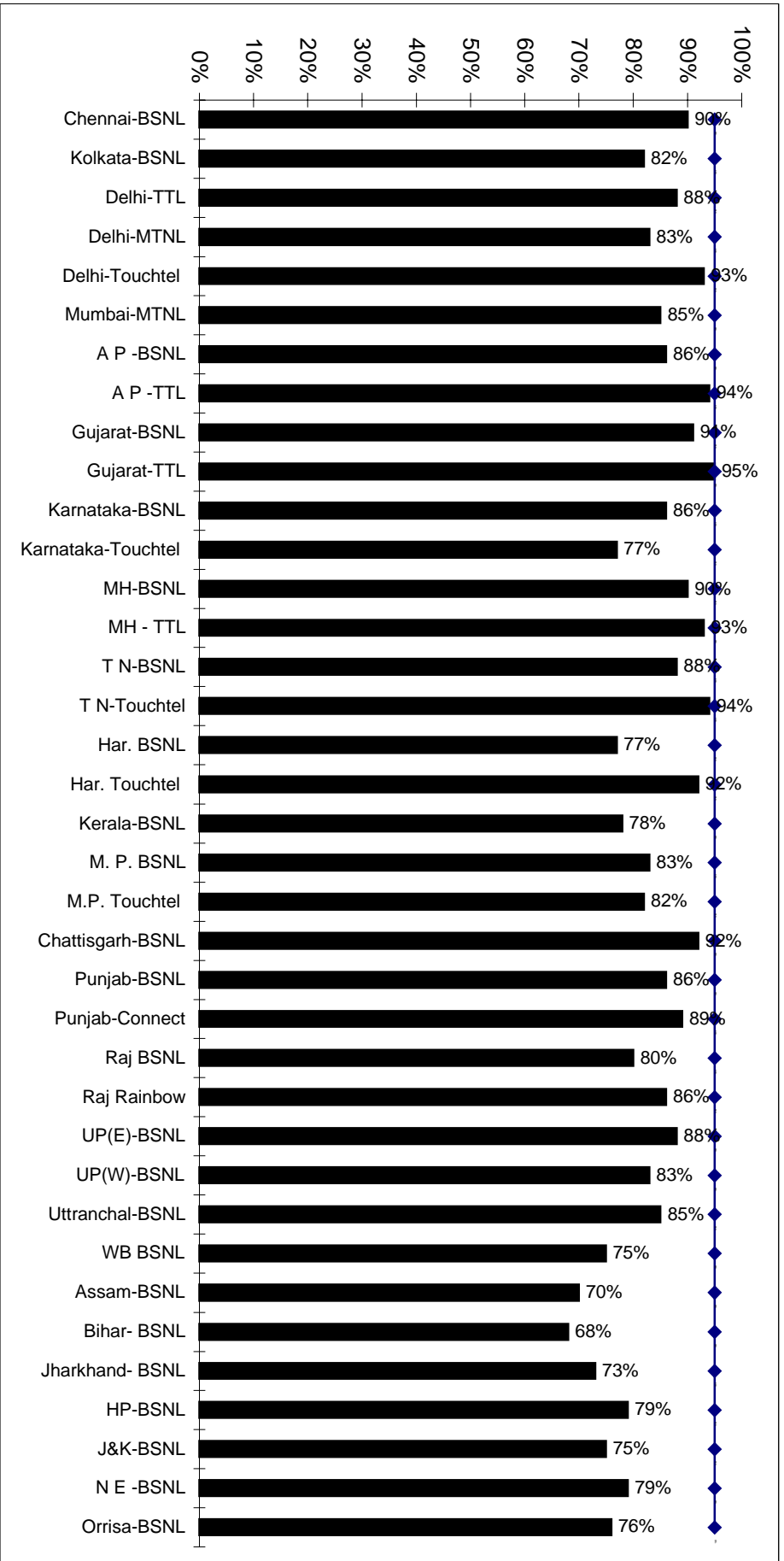


CUSTOMER SCORES ON SATISFACTION WITH NETWORK PERFORMANCE, RELIABILITY AND AVAILABILITY - BASIC SERVICES

Annex-X

Oct.'03-Dec.'03

Prescribed QoS Standard: > 95% scores

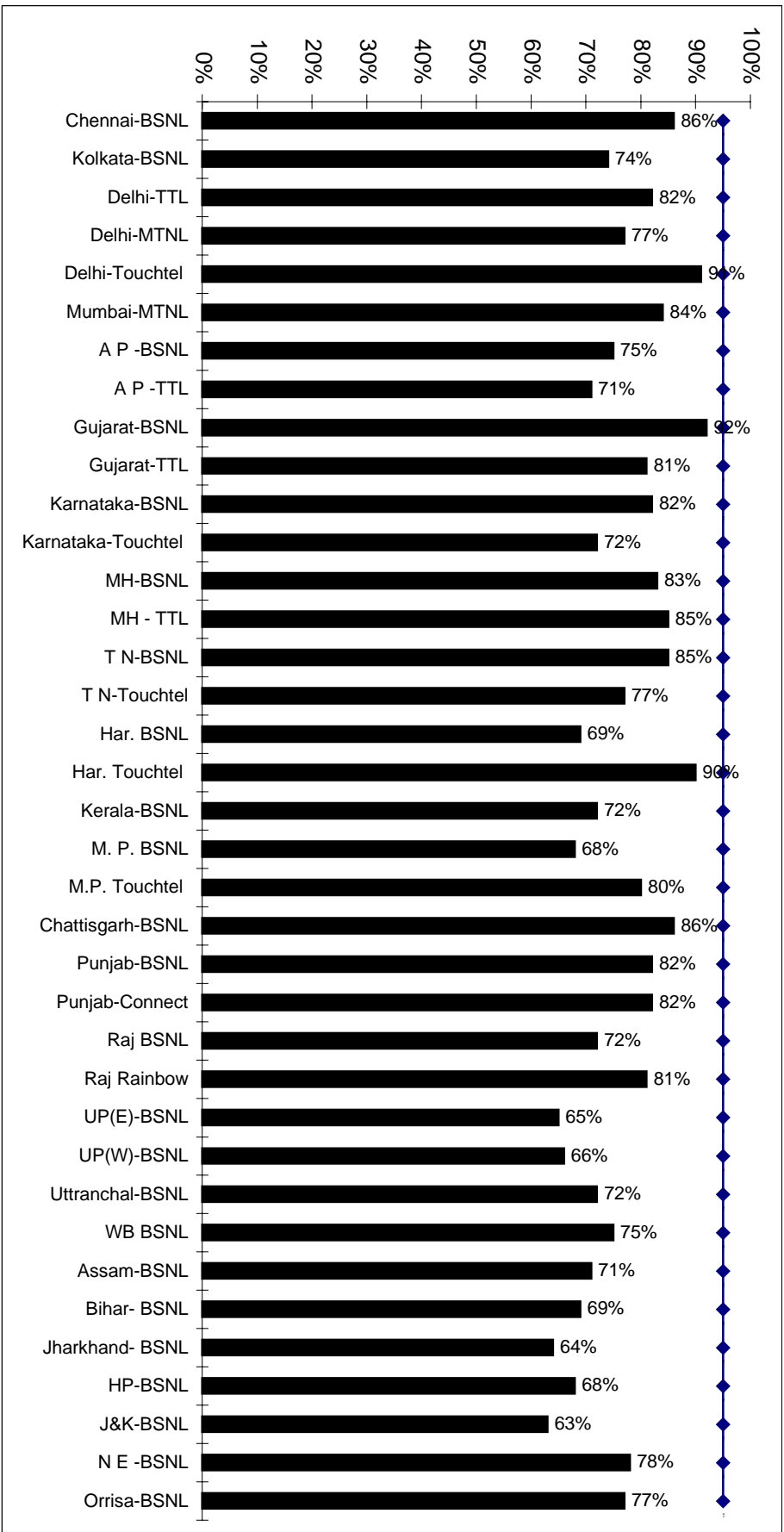


CUSTOMER SURVEY SCORES ON SATISFACTION WITH MAINTAINABILITY – BASIC SERVICES

Prescribed QoS Standard: > 95% scores

Oct.'03-Dec.'03

Annex-XI

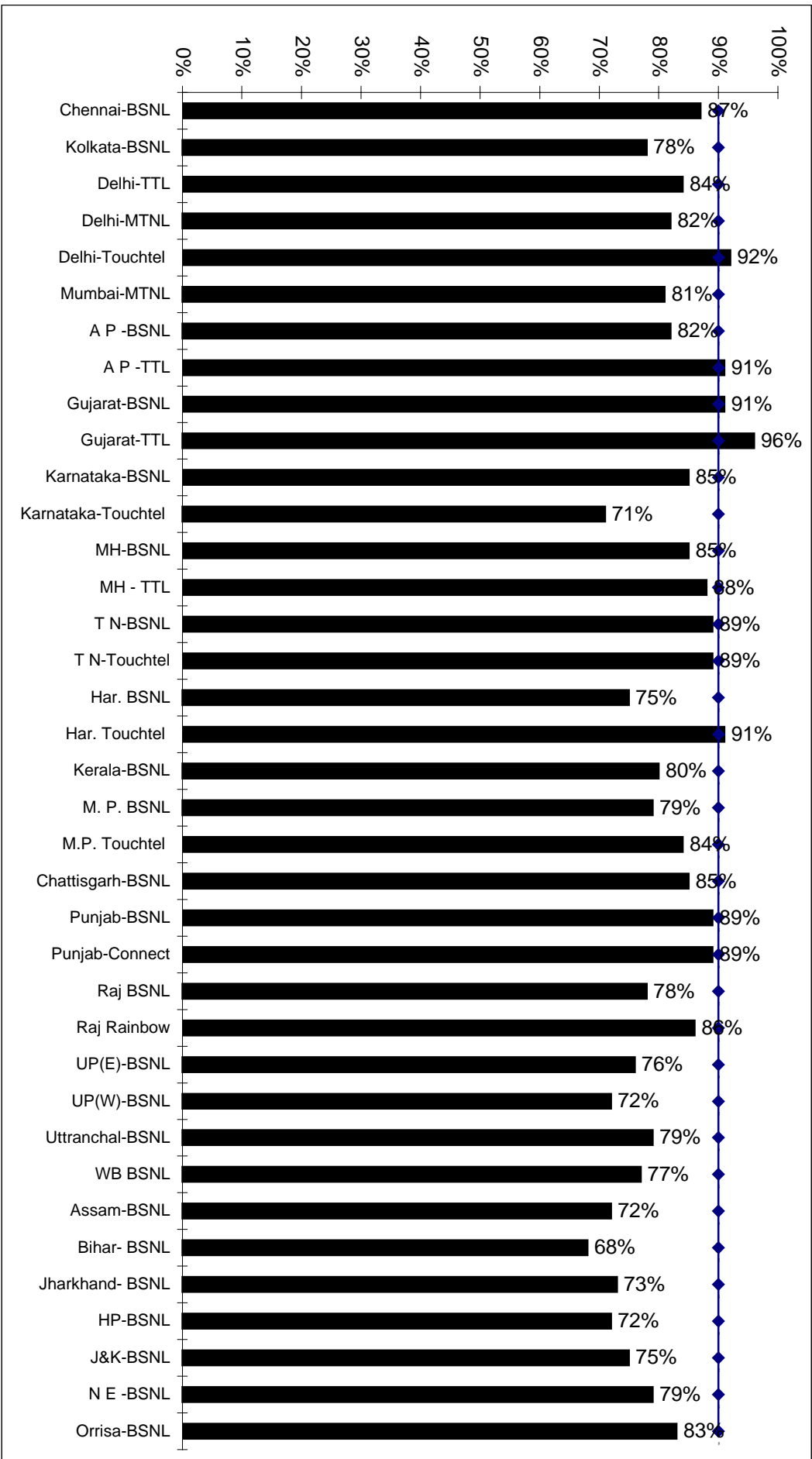


CUSTOMER SURVEY SCORES ON SATISFACTION WITH HELP SERVICES - BASIC SERVICES

Prescribed QoS Standard: > 90% scores

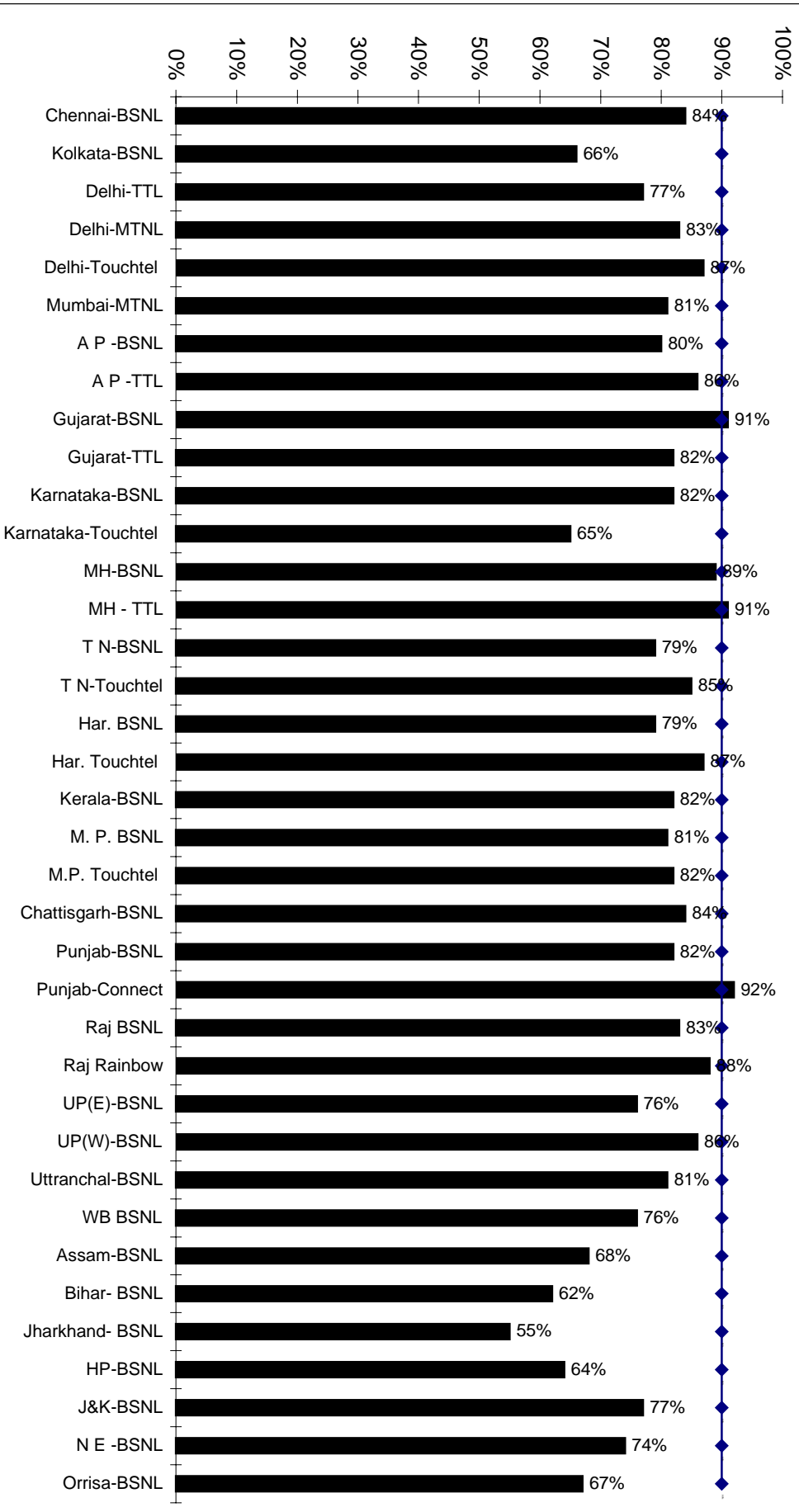
Oct.'03-Dec.'03

Annex-XII



CUSTOMER SURVEY SCORES ON SATISFACTION WITH BILLING – BASIC SERVICES

Prescribed QoS Standard: > 90% scores



Annex-XIII

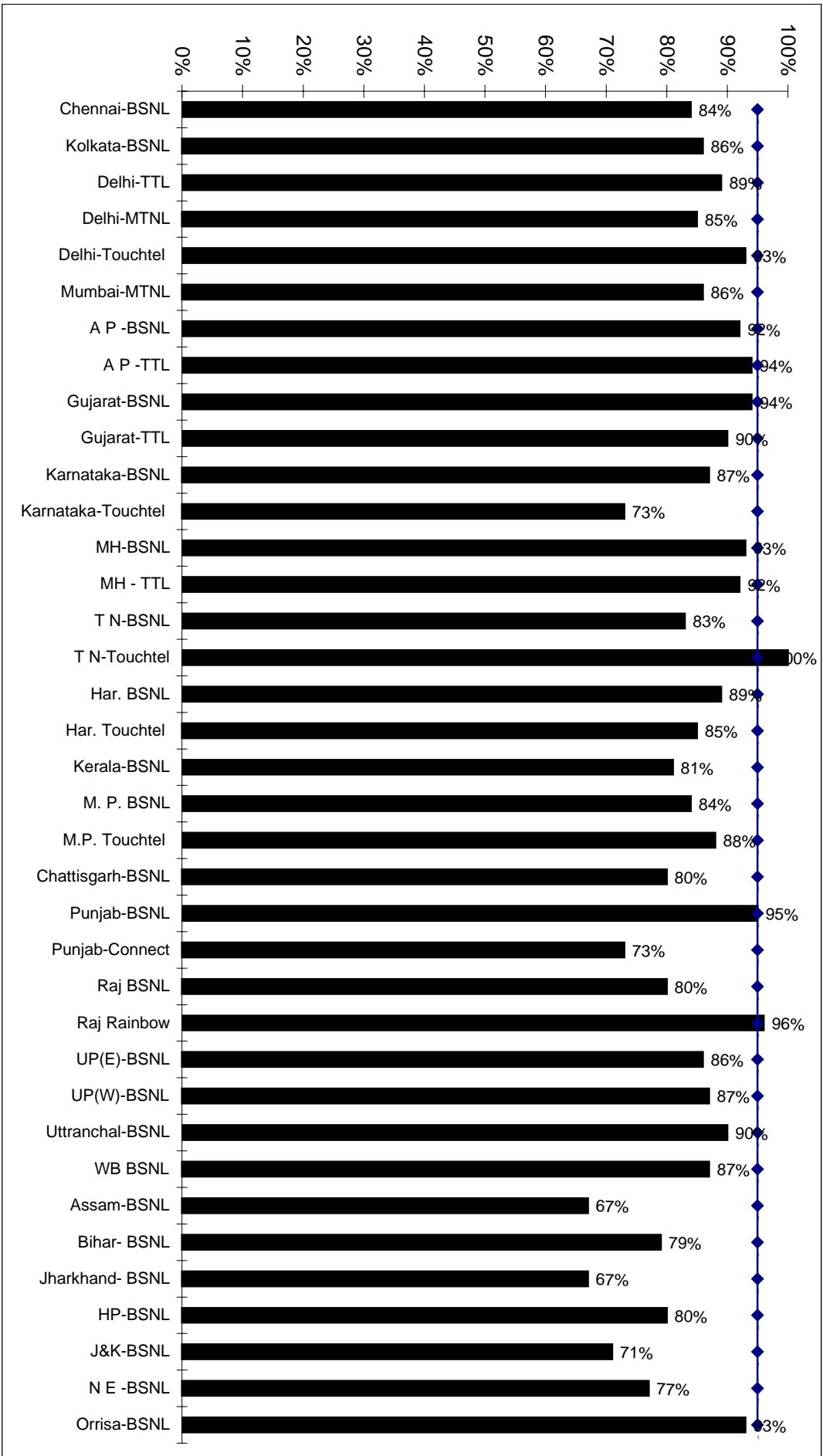
Oct.'03-Dec.'03

CUSTOMER SURVEY SCORES ON SATISFACTION WITH SUPPLEMENTARY SERVICES - BASIC SERVICE

Oct.'03-Dec.'03

Annex-XIV

Prescribed QoS Standard: > 95% scores

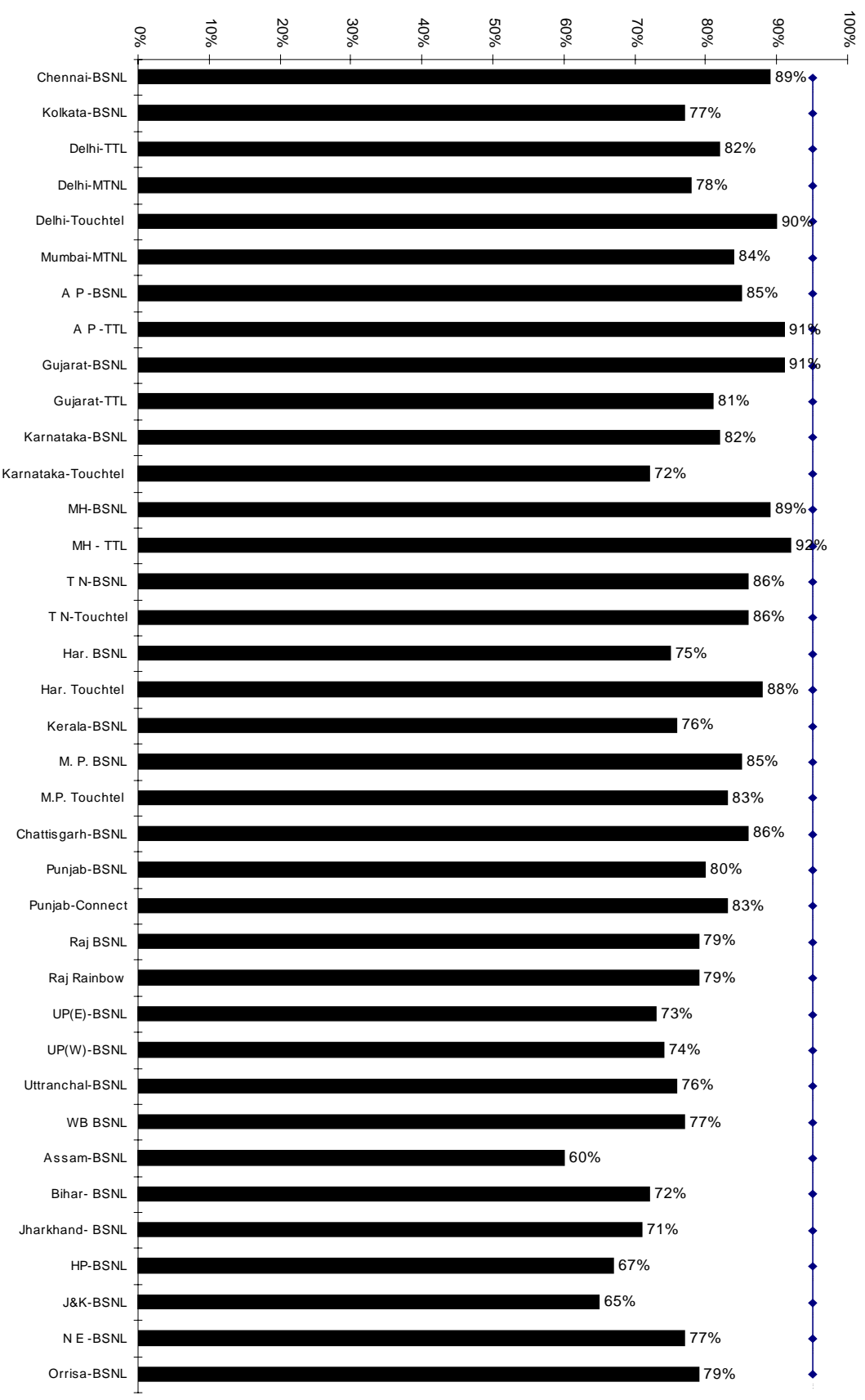


CUSTOMER SURVEY SCORES ON SATISFACTION WITH OVERALL SERVICE – BASIC SERVICE

Prescribed QoS Standard: > 95% score

Oct.'03-Dec.'03

Annex-XV



SUMMARY OF BASIC SERVICES QOS AUDIT

Metro Circle Basic Services Operators

Annex-XVI

Oct.'03-Dec.'03

Parameters	Long Term Benchmarks	Chennai - BSNL	Delhi - MTNL	Kolkata - BSNL	Mumbai – MTNL	Delhi – Touchtel
New connections after registration of demand in less than 7 days	=100%	64%	90%	34%	54%	38%
Fault incidences per 100subscribers/mnth)	< 3	6	25	27	6.8	1.8
Fault repair by next working day	>90%	62%	49%	44%	72%	99%
Mean Time to Repair (MTTR)	<8 hrs	13.78	15.79	18.05	14.94	5.07
Grade of service (calls blocked per thousand attempts)						
a) Junction between local exchange	< 0.002	0.09	0.002	0.01	0.28	0.001
b) Outgoing Junction from TAX to Local	< 0.005	NR	NR	NR	NR	NR
c) Incoming junction from local to TAX	< 0.005	NR	0.001	0.004	0.36	NR
d) Incoming/outgoing junction of TAX's	< 0.005	NR	NR	NR	NR	NR
Call completion rate in local network	>65%	54%	65%	62%	97%	59%
Metering & billing credibility- % of bills disputed	<0.10%	0.14%	0.15%	0.23%	0.29%	2.05%
Operator Assisted Trunk calls (% answered within time norm)						
Urgent calls: <1 hr	= 100%	100%	98%	100%	100%	NR
Ordinary calls: <2 hr	= 100%	100%	93%	100%	NR	100%
Response to operator assisted services (% answered in 10 sec. or three rings)	> 95%	NR	99%	75%	NR	75%
Customer care promptness						
Request for Shifts within 3 days	> 95%	25%	80%	25%	12%	20%
Request for Closures in less than 24 hours	> 95%	52%	97%	59%	13%	46%
Request for Additional facility within 24 hours	> 95%	87%	97%	91%	83%	81%
Percentage of repeat faults within 30 days	<1%	17%	6%	30%	2%	8%

Note: Highlighted boxes are those not meeting the TRAI long term benchmark norms

SUMMARY OF BASIC SERVICES QOS AUDIT

Annex-XVII

A Circle Basic Services Operators

Oct.03- Dec 03

Parameters	TRAI Benchmarks	AP - BSNL	AP-TATA TELE	Gujrat – BSNL	MH - BSNL	MH - TATA TELE	TN - BSNL	Karnataka - BSNL	Karnataka - Touchtel
New connections after registration of demand in less than 7 days	=100%	53%	80%	72%	39%	74%	57%	65%	33%
Fault incidences per 100subscribers/mnth)	< 3	15	2	11	14	6	8	10	2.9
Fault repair by next working day	>90%	61%	96%	71%	59%	100%	84%	87%	99%
Mean Time to Repair (MTTR)	<8 hrs	15	6	14	15	11	10	8	5
Grade of service (calls blocked per thousand attempts)									
a) Junction between local exchange	≤ 0.002	0.002	0.001	NR	0.155	0.002	0.002	0.001	0.015
b) Outgoing Junc. from TAX to Local	≤ 0.005	NR	0.003	NR	0.189	NR	0.032	NR	NR
c) Incoming junc. from local to TAX	≤ 0.005	0.005	0.001	NR	0.162	0.001	0.011	0.003	NR
d) Incoming/outgoing junc. of TAX's	≤ 0.005	0.002	NR	NR	NR	NR	0.108	0.006	NR
Call completion rate in local network	> 65%	61%	60%	64%	60%	82%	61%	59%	64%
Metering & billing credibility- % of bills disputed	≤ 0.10%	0.13%	0.18%	0.13%	0.15%	2.74%	0.09%	0.10%	0.55%
Operator Assisted Trunk calls (% answered within time norm)									
Urgent calls: <1 hr	= 100%	100%	93%	100%	100%	88%	99%	100%	100%
Ordinary calls: <2 hr	= 100%	100%	92%	100%	100%	NR	100%	100%	NR
Response to operator assisted services (% answered in 10 sec. or three rings)	≥ 95%	91%	NR	78%	98%	NR	84%	96%	NR
Customer care promptness									
Request for Shifts within 3 days	> 95%	34%	35%	49%	29%	64%	42%	54%	2%
Request for Closures in less than 24 hours	> 95%	70%	NR	92%	41%	16%	71%	68%	100%
Request for Additional facility within 24 hours	> 95%	88%	52%	98%	97%	91%	72%	74%	92%
Percentage of repeat faults within 30 days	<1%	10%	8%	4%	3%	9%	8%	12%	6%

Note: Highlighted boxes are those not meeting the TRAI long term benchmark norms

SUMMARY OF BASIC SERVICES QOS AUDIT

Annex-XIX

B Circle Basic Services Operators

Oct.03- Dec 03

Parameters	TRAI Benchmarks	Haryana - BSNL	Haryana - Touchtel	Kerala - BSNL	MP - BSNL	Chhattisgarh - BSNL	MP - Touchtel	Punjab - BSNL	Punjab - HFCL	Rajasthan - BSNL	Rajasthan - STL	UP (E) - BSNL	UP (W) - BSNL	Uttaranchal - BSNL	WB - BSNL
New connections after registration of demand in less than 7 days	=100%	48%	70%	22%	27%	20%	90%	53%	94%	19%	75%	38%	55%	35%	15%
Fault incidences per 100subscribers/mnth)	< 3	15	7	13	41	18.2	2.5	21	6	23	2	13.1	15	7.1	22.3
Fault repair by next working day	>90%	61%	99%	78%	41%	63%	97%	52%	99%	49%	97%	46%	86%	90%	32%
Mean Time to Repair (MTTR)	<8 hrs	16	5	16	16	12	6	18	6	20	7	18	10	11	9
Grade of service (calls blocked per thousand attempts)															
a) Junction between local exchange	≤ 0.002	NR	0.003	0.002	0.001	NR	NR	0.458	NR	0.012	NR	0.003	NR	NR	NR
b) Outgoing Junc. from TAX to Local	≤ 0.005	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	0.007	0.003	NR	0.061
c) Incoming junc. from local to TAX	≤ 0.005	NR	0.002	0.01	NR	NR	NR	0.747	NR	0.002	NR	NR	NR	NR	NR
d) Incoming/outgoing junc. of TAX's	≤ 0.005	NR	NR	NR	0.008	NR	NR	NR	NR	0.012	NR	0.003	0.029	NR	NR
Call completion rate in local network	> 65%	60%	77%	63%	72%	67%	72%	51%	74%	53%	NR	63%	46%	66%	NR
Metering & billing credibility- % of bills disputed	≤ 0.10%	0.23%	1.94%	0.08%	0.08%	NR	0.16%	0.08%	0.02%	0.01%	0.08%	0.05%	0.03%	0.01%	0.07%
Operator Assisted Trunk calls (% answered within time norm)															
Urgent calls: <1 hr	= 100%	NR	NR	100%	81%	100%	100%	100%	NR	100%	NR	100%	NR	100%	NR
Ordinary calls: <2 hr	= 100%	NR	100%	100%	98%	100%	NR	100%	NR	99%	100%	100%	NR	100%	100%
Response to operator assisted services (% answered in 10 sec. or three rings)	≥ 95%	NR	75%	89%	NR	0%	0%	96%	NR	88%	NR	89%	NR	NR	52%
Customer care promptness															
Request for Shifts within 3 days	> 95%	58%	15%	24%	12%	22%	41%	36%	43%	15%	95.1%	45%	53%	40%	33%
Request for Closures in less than 24 hours	> 95%	63%	59%	65%	5%	9%	100%	26%	92%	41%	100%	80%	48%	29%	25%
Request for Additional facility within 24 hours	> 95%	53%	80%	84%	10%	NR	100%	91%	NR	84%	98%	89%	95%	94%	83%
Percentage of repeat faults within 30 days	<1%	4%	8%	7%	4%	8%	2%	4%	11%	17%	1%	2%	NR	NR	2%

Note: Highlighted boxes are those not meeting the TRAI long term benchmark norms

SUMMARY OF BASIC SERVICES QOS AUDIT

C Circle Basic Services Operators

Annex-XX

Oct.03- Dec 03

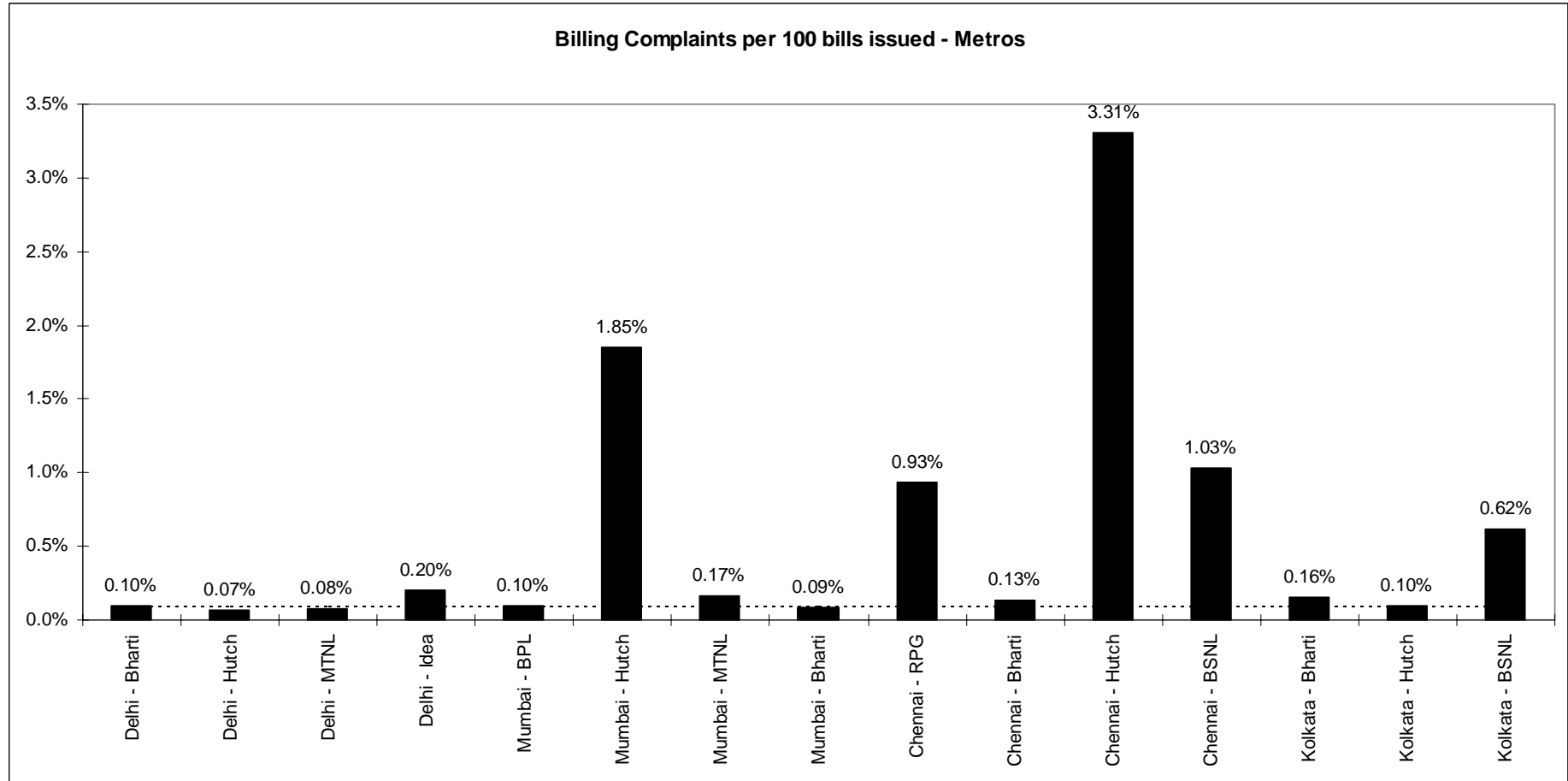
Parameters	Long Term Benchmarks	Assam - BSNL	Bihar - BSNL	Jharkhand - BSNL	HP- BSNL	J&K - BSNL	NE - BSNL	Orissa - BSNL
New connections after registration of demand in less than 7 days	=100%	58%	30%	4%	51%	8%	33%	52%
Fault incidences per 100subscribers/mnth)	< 3	15	31	27	96	20	17	30
Fault repair by next working day	>90%	100%	27%	8%	93%	45%	100%	73%
Mean Time to Repair (MTTR)	<8 hrs	16	20	23	7	20	19	17
Grade of service (calls blocked per thousand attempts)								
a) Junction between local exchange	≤ 0.002	0.091	NR	NR	0.003	0.003	0.031	0.016
b) Outgoing Junc. from TAX to Local	≤ 0.005	0.186	0.667	0.82	0.001	0.012	0.112	0.087
c) Incoming junc. from local to TAX	≤ 0.005	0.344	0.025	0.641	0.017	NR	0.05	0.072
d) Incoming/outgoing junc. of TAX's	≤ 0.005	0.27	0.779	NR	NR	0.028	0.005	NR
Call completion rate in local network	> 65%	86%	NR	NR	55%	50%	65%	56%
Metering & billing credibility- % of bills disputed	≤ 0.10%	NR	NR	NR	0.40%	0.22%	NR	0.24%
Operator Assisted Trunk calls (% answered within time norm)								
Urgent calls: <1 hr	= 100%	100%	100%	NR	95%	97%	77%	50%
Ordinary calls: <2 hr	= 100%	84%	100%	NR	99%	99%	95%	70%
Response to operator assisted services (% answered in 10 sec. or three rings)	≥ 95%	NR	22%	26%	82%	94%	NR	NR
Customer care promptness								
Request for Shifts within 3 days	> 95%	69%	45%	63%	58%	NR	54%	70%
Request for Closures in less than 24 hours	> 95%	100%	NR	52%	7%	NR	83%	94%
Request for Additional facility within 24 hours	> 95%	86%	62%	25%	67%	98%	99%	77%
Percentage of repeat faults within 30 days	<1%	5%	7%	NR	8%	11%	7%	19%

Note: Highlighted boxes are those not meeting the TRAI long term benchmark norms

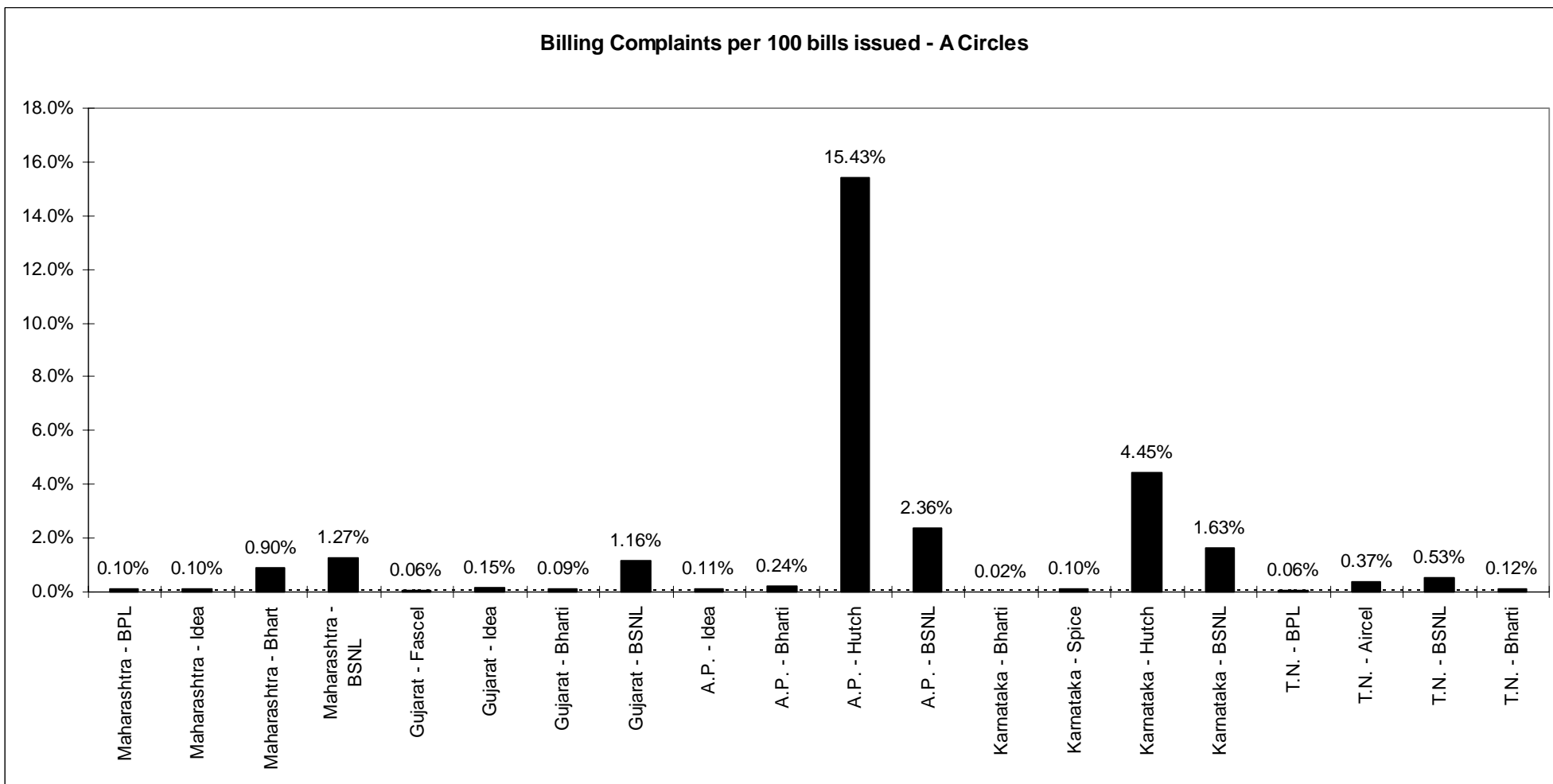
Overall performance of Cellular service operators on some selected service parameters

Annex-I

CUSTOMER REPORTED BILLING COMPLAINTS - METROS Prescribed QoS standard: <0.10% complaints per 100 bills generated

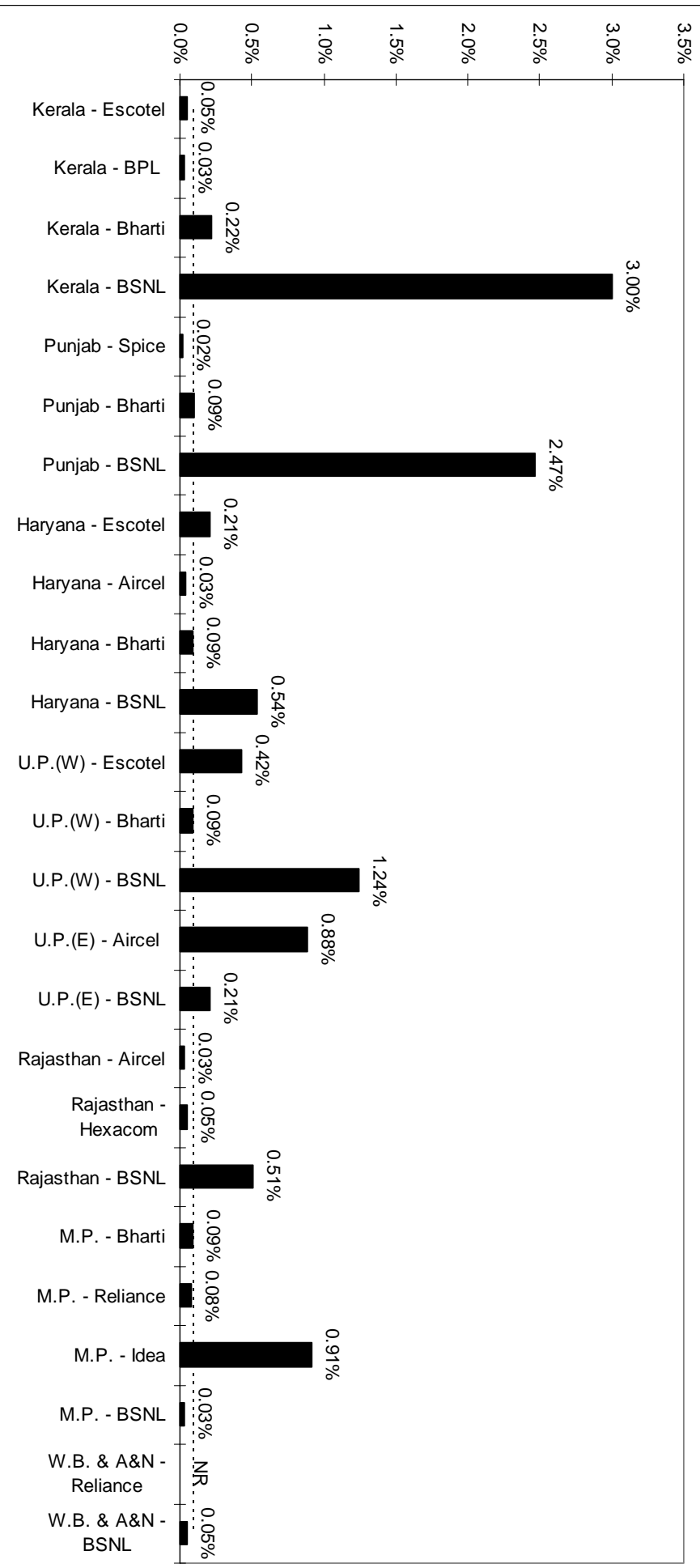


CUSTOMER REPORTED BILLING COMPLAINTS – A CIRCLES
Prescribed QoS standard: <0.10% complaints per 100 bills generated



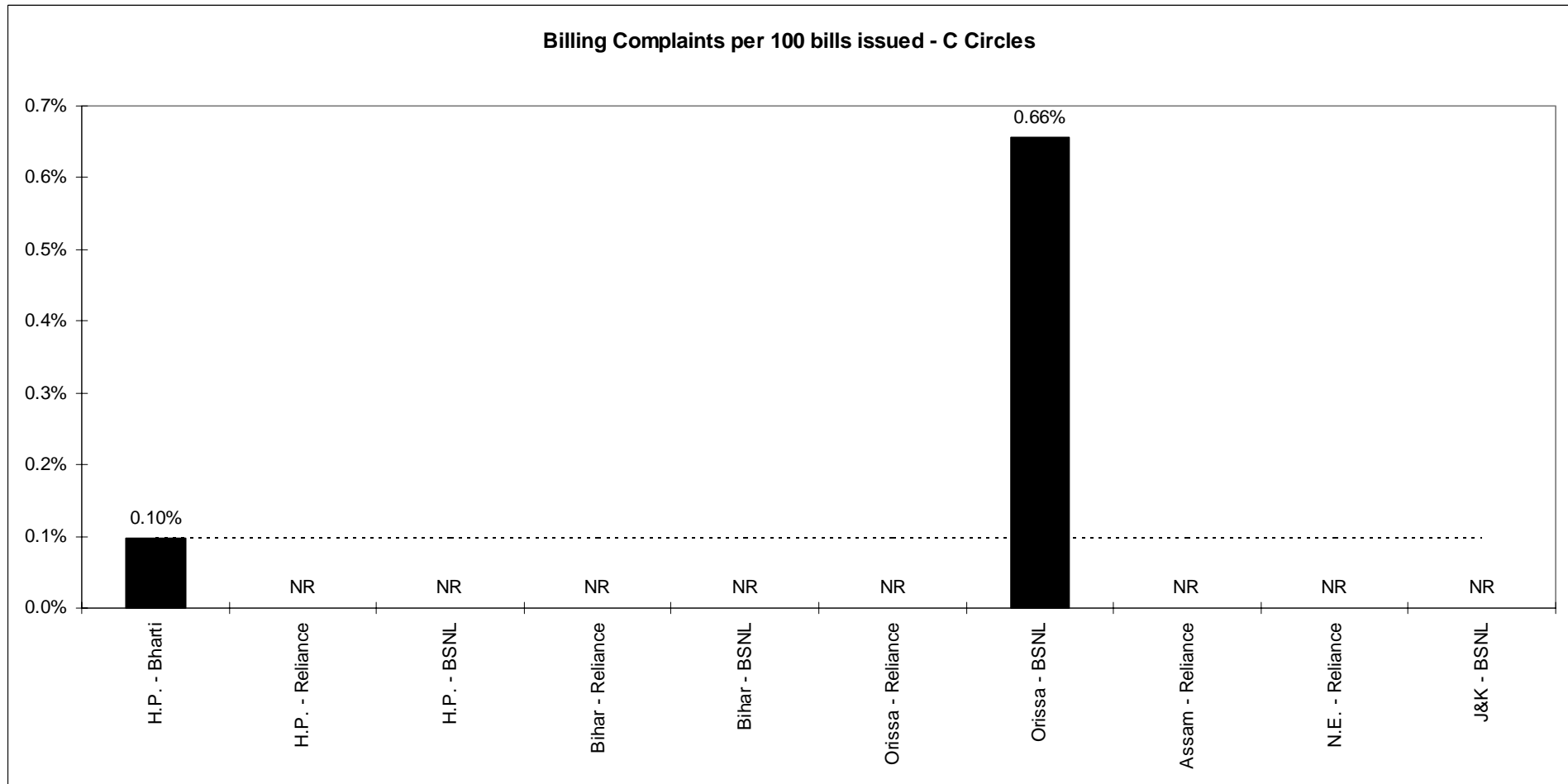
CUSTOMER REPORTED BILLING COMPLAINTS – B CIRCLES

Billing Complaints per 100 bills issued - B Circles



Prescribed QoS standard: <0.10% complaints per 100 bills generated

CUSTOMER REPORTED BILLING COMPLAINTS – C CIRCLES

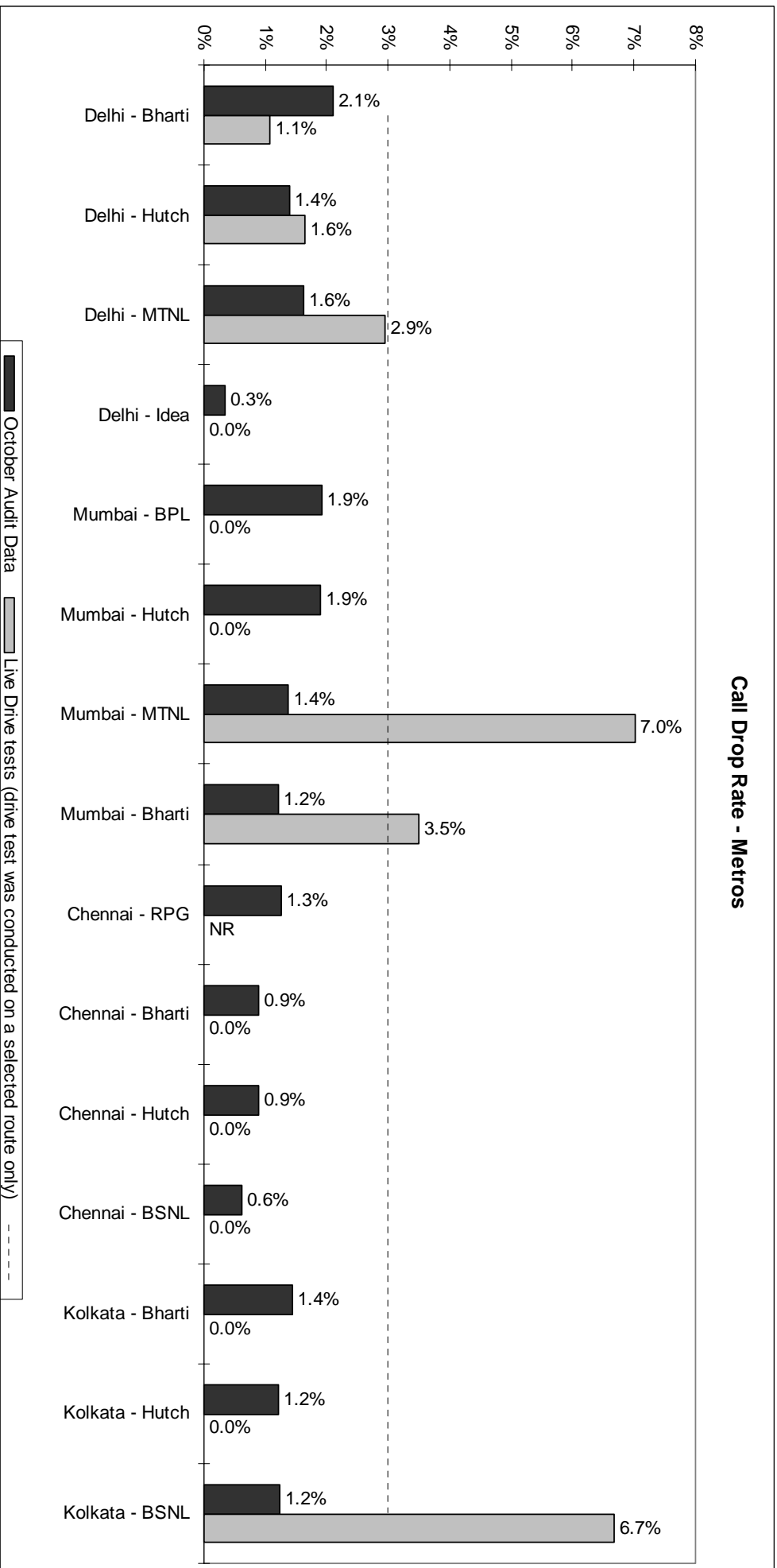


Prescribed QoS standard: <0.10% complaints per 100 bills generated

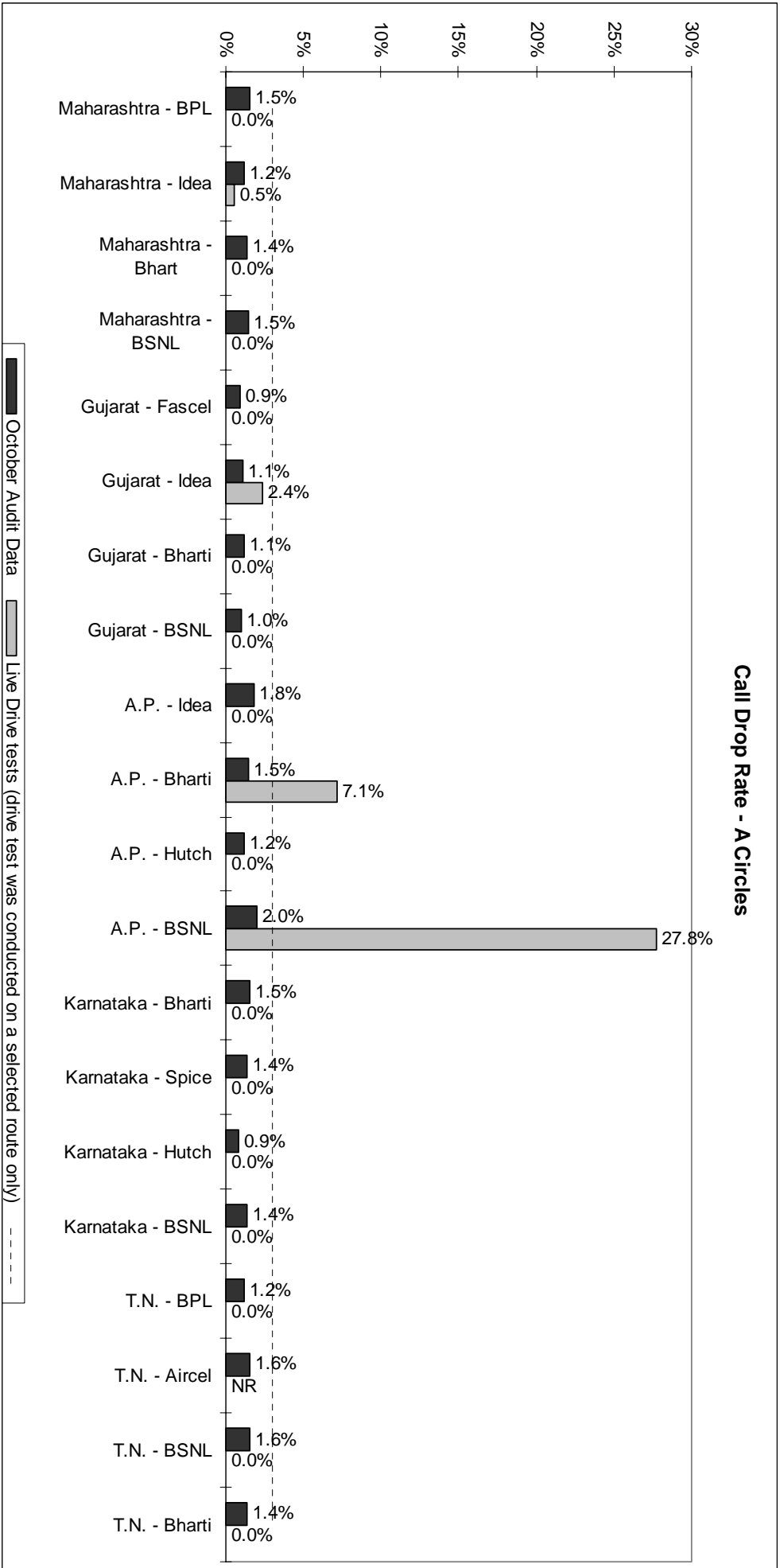
PERCENTAGE OF CALLS DROPPED DURING CONVERSATION - METROS

Oct 03-Dec 03

Annex-II



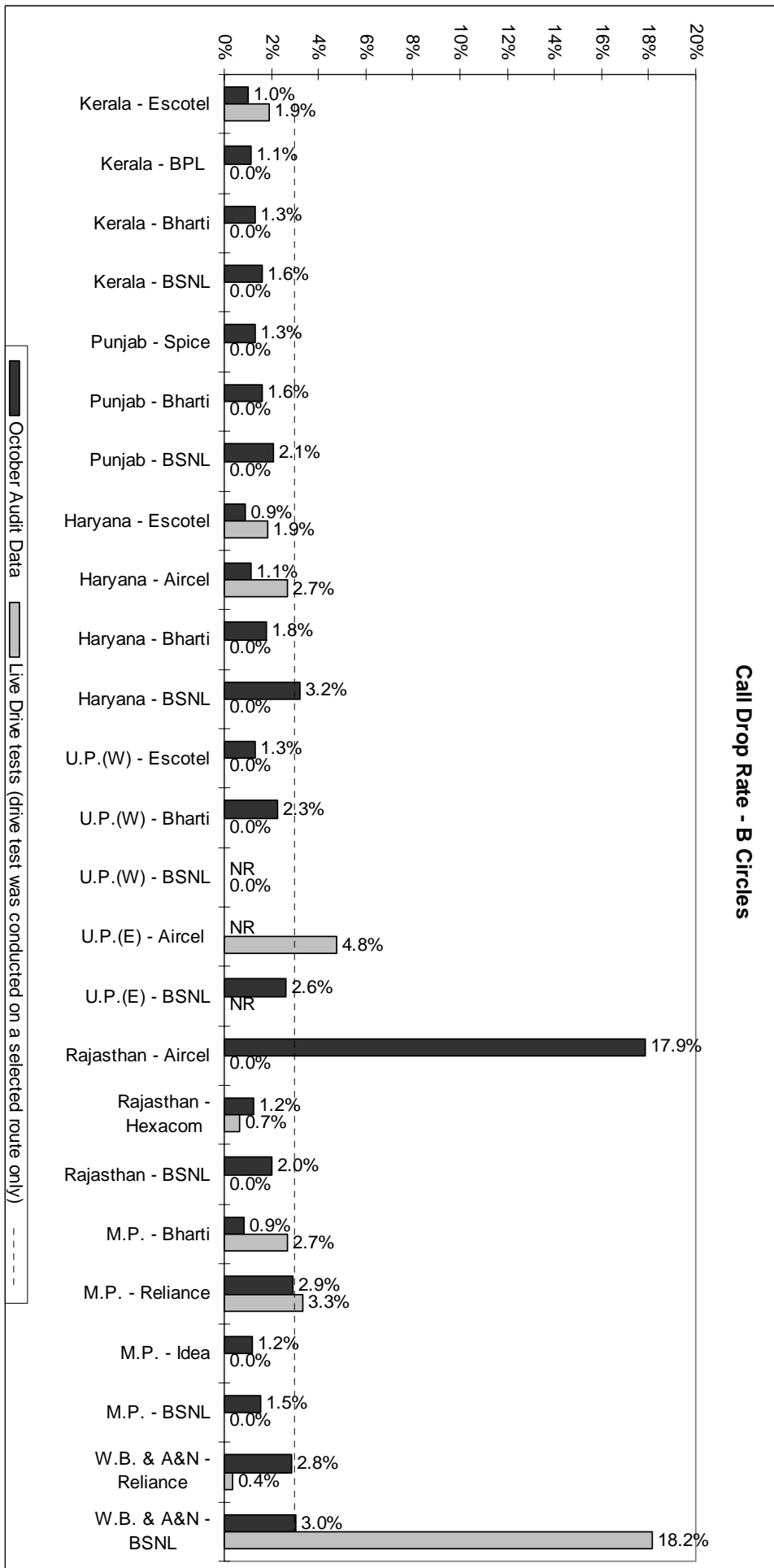
PERCENTAGE OF CALLS DROPPED DURING CONVERSATION - A CIRCLES



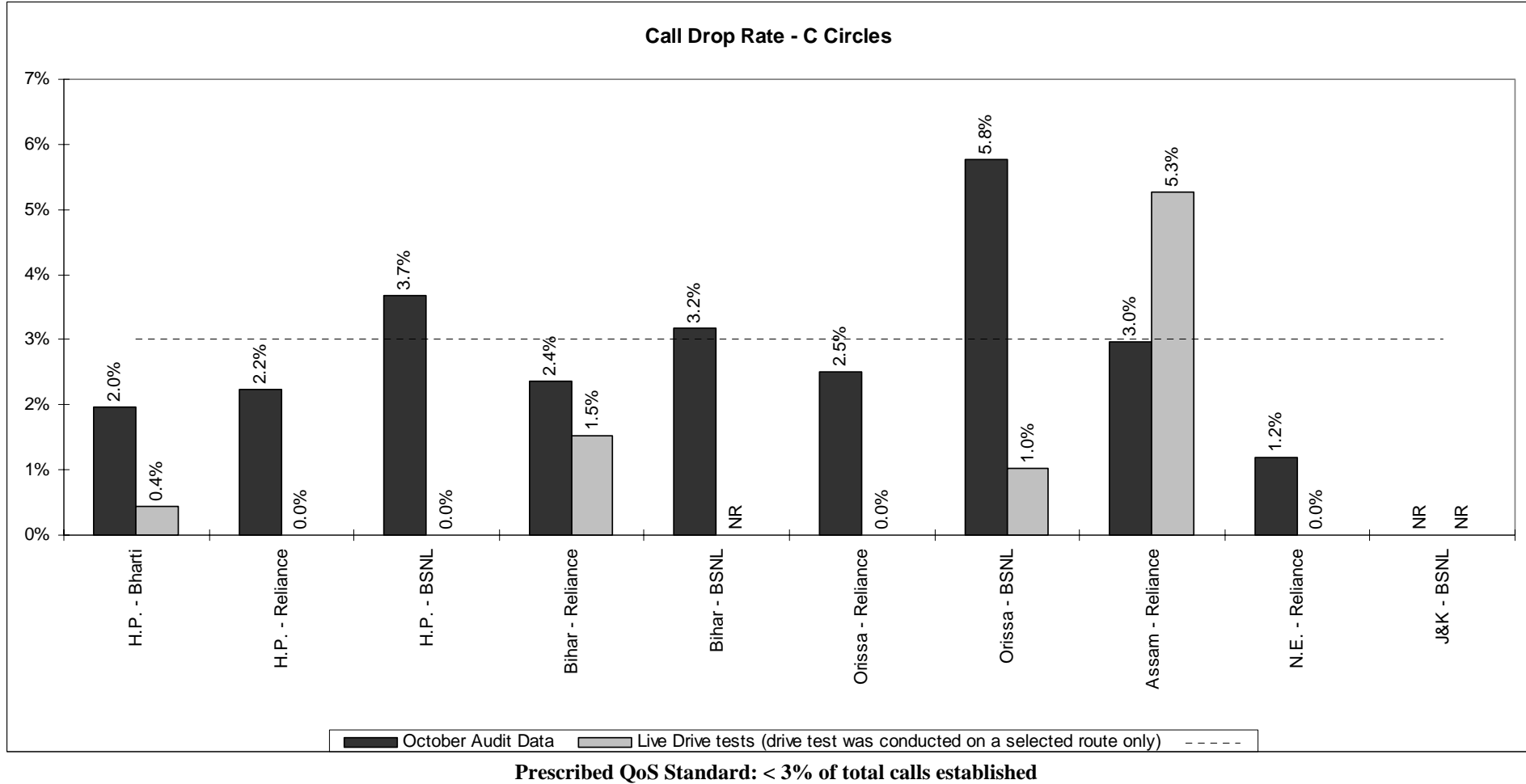
PERCENTAGE OF CALLS DROPPED DURING CONVERSATION - B CIRCLES

Oct 03-Dec 03

Annex-III



PERCENTAGE OF CALLS DROPPED DURING CONVERSATION - C CIRCLES

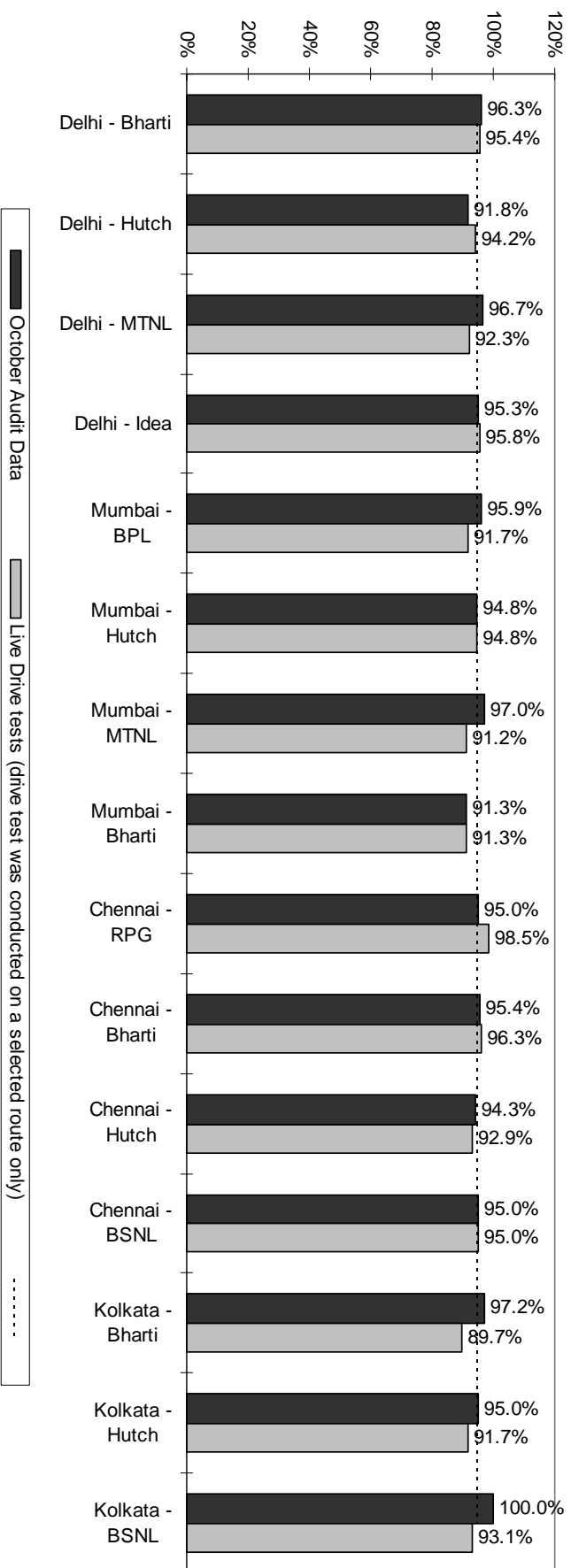


PERCENTAGE OF CALLS WITH GOOD VOICE QUALITY - METROS

Oct 03-Dec 03

Annex-IV

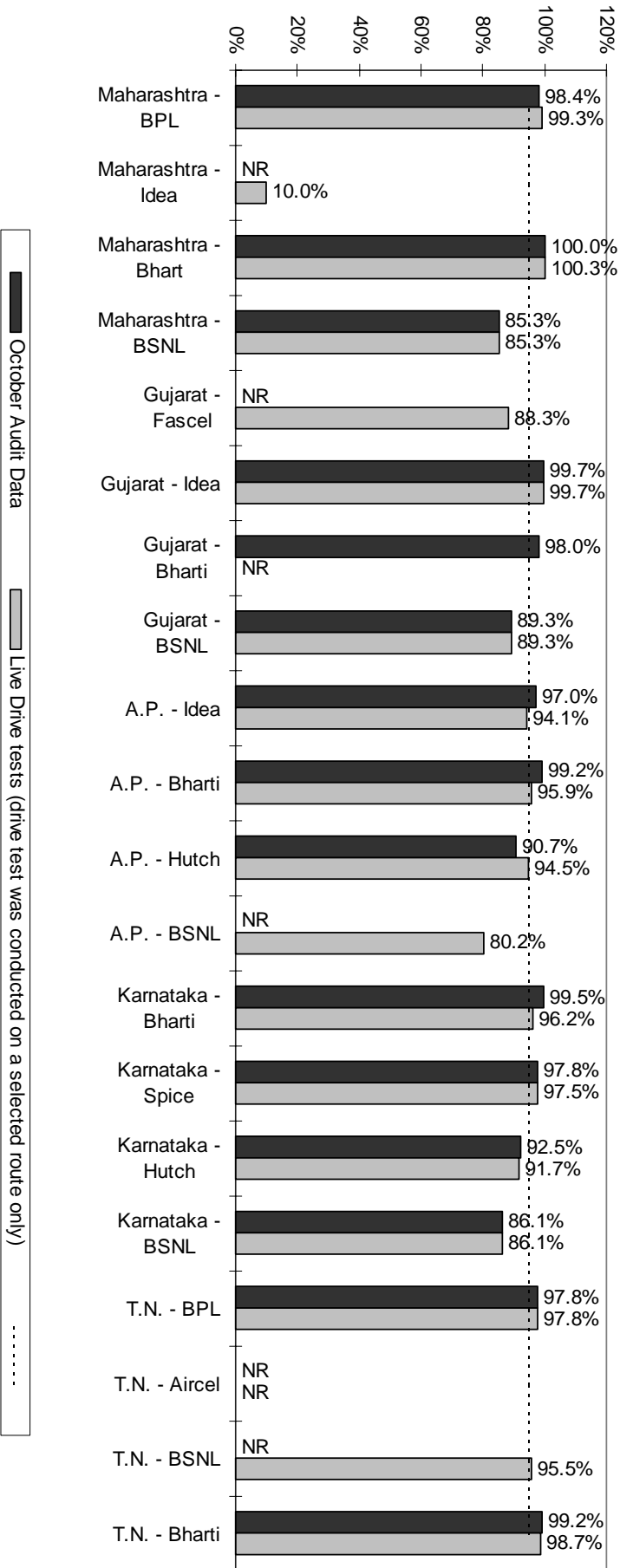
%age connections with good voice quality - Metros



Standard: > 95% of calls with good voice quality

PERCENTAGE OF CALLS WITH GOOD VOICE QUALITY – A CIRCLES

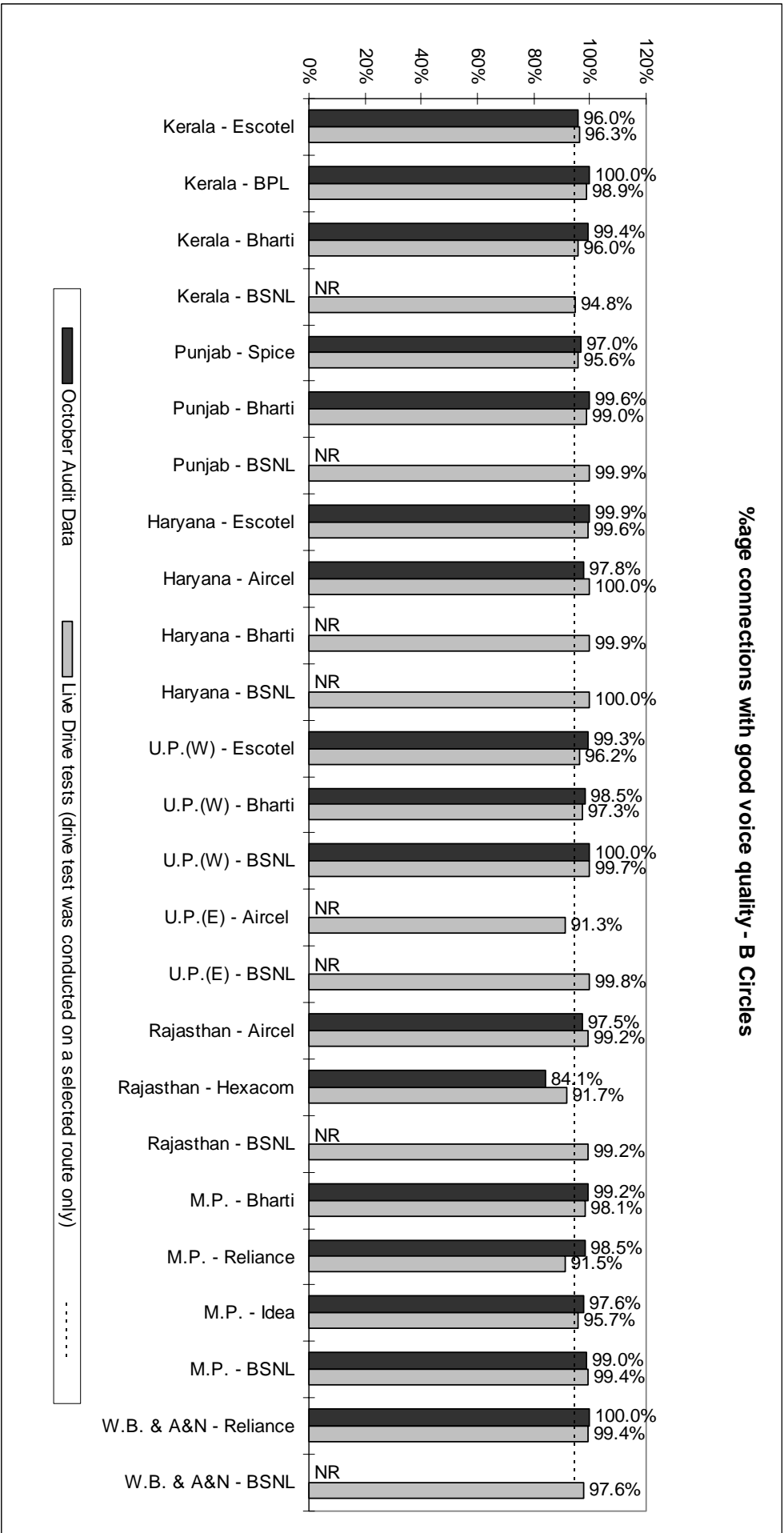
%age connections with good voice quality - A Circles



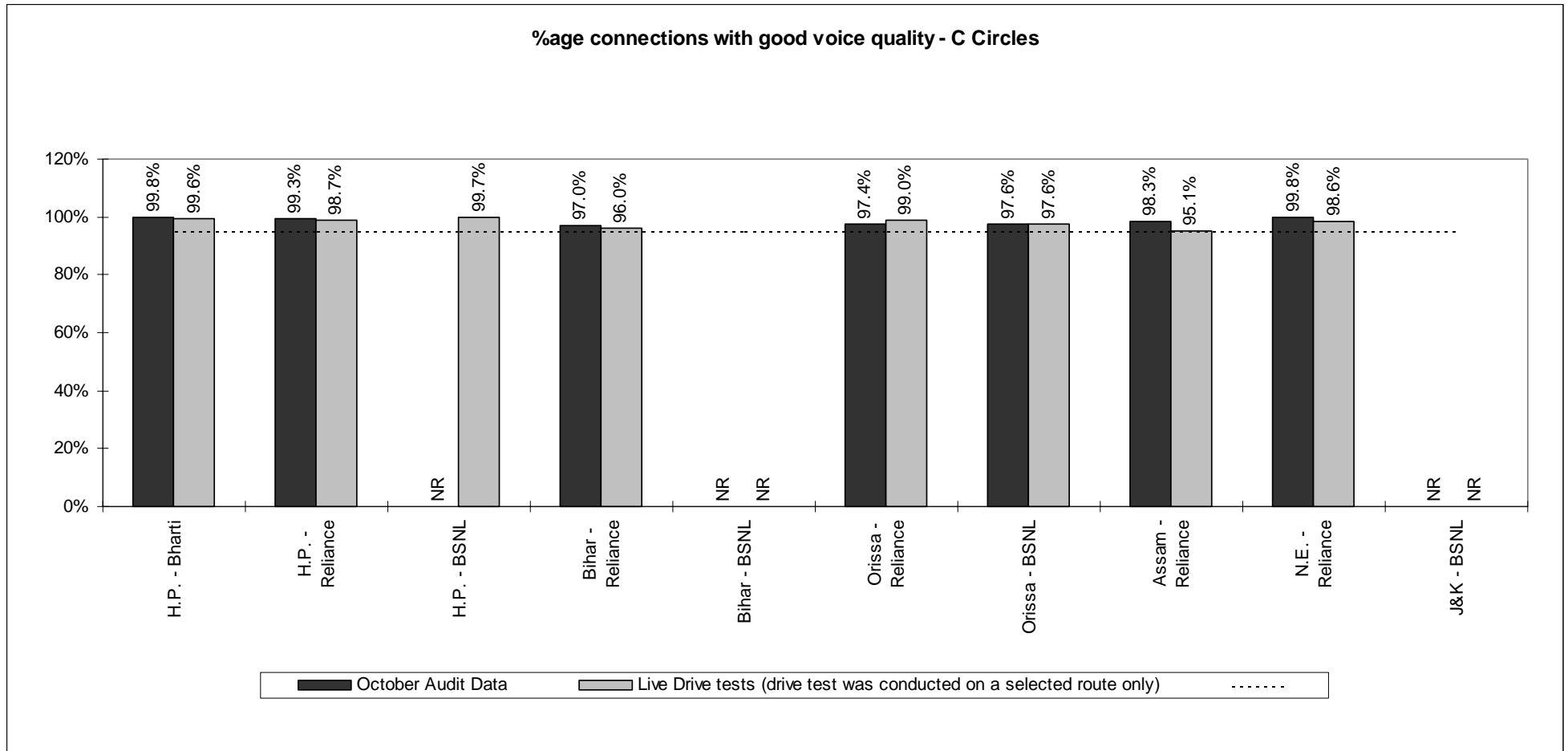
Standard: > 95% of calls with good voice quality

PERCENTAGE OF CALLS WITH GOOD VOICE QUALITY – B CIRCLES

Annex-V-a



PERCENTAGE OF CALLS WITH GOOD VOICE QUALITY – C CIRCLES



Standard: > 95% of calls with good voice quality

SUMMARY OF CELLULAR SERVICE OPERATORS QoS AUDIT (METRO CIRCLE)

Oct- Dec 2003

A.1.1 METROS S.no	Objective parameters	Long term benchmark	Delhi	Delhi	Delhi	Delhi	Mumbai	Mumbai	Mumbai	Mumbai
			Bharti	Hutch	MTNL	Idea	BPL	Hutch	MTNL	Bharti
Fault Incidence & repair										
A (I)	Fault incidences (per100 subscribers/ month)	<1	0.14	0.39	1.03	0.45	0.05	0.25	0.48	0.03
A (ii)	Fault cleared in 24 hours	100%	100.00%	99.06%	NR	98.05%	99.22%	95.11%	49.62%	100.00%
A (iii)	Accumulated down time of community isolation	<24Hrs.	0.00 hrs.	73.68 hrs.	0.00 hrs.	0.00 hrs.	9.17 hrs.	0.00 hrs.	0.00 hrs.	0.00 hrs.
Network performance										
B (I)	Call success rate	>99%	99.07%	99.98%	NR	99.98%	95.48%	87.53%	NR	94.83%
B (ii)	Service Access Delay	9 to 20 Sec.	9.3 to 15.27 sec.	9.07 to 15.16 sec.	NR	6.89 to 11.01 sec.	10.15 to 20.72 sec.	7.58 to 10.13 sec.	9.33 to 26.33 sec.	9.16 to 16.11 sec.
B (iii)	Call Drop rate	<3%	2.1%	1.4%	1.6%	0.3%	1.9%	1.9%	1.4%	1.2%
B(iv)	% connections with good voice quality	>95%	96.29%	91.77%	96.74%	95.25%	95.94%	94.80%	97.04%	91.29%
Billing complaints										
C(I)	Billing complaints per 100 bills issued	<0.1%	0.10%	0.07%	0.08%	0.20%	0.10%	1.85%	0.17%	0.09%
C (ii)	%age of billing complaints resolved within 4 weeks	100%	100.0%	100.0%	100.0%	100.0%	100.0%	99.1%	100.0%	100.0%
C (iii)	Period of all refunds/ from the date of resolution	<4 weeks	100.0%	NR	NR	100.0%	100.0%	99.9%	100.0%	100.0%
Network and POI Congestion related parameters										
D(I)	SDCCH Establishment success rate	Not applicable	99.7%	98.0%	97.6%	99.7%	99.5%	97.8%	73.6%	99.4%
D(ii)	TCH Establishment success rate	Not applicable	98.6%	98.3%	98.9%	94.0%	94.0%	97.8%	82.8%	92.2%
D (iii)	Served Traffic for all POIs	Not applicable	99.9%	67.3%	92.3%	61.0%	55.2%	38.1%	98.8%	76.5%

METROS (CONTD.)

S.no	Objective parameters	Long term benchmark	Chennai	Chennai	Chennai	Chennai	Kolkata	Kolkata	Kolkata
			RPG	Bharti	Hutch	BSNL	Bharti	Hutch	BSNL
Fault Incidence & repair									
A (I)	Fault incidences (per100 subscribers/ month)	<1	0.46	0.02	0.36	0.00	0.63	0.04	1.73
A (ii)	Fault cleared in 24 hours	100%	100.00%	100.00%	85.67%	100.00%	100.00%	76.05%	64.62%
A (iii)	Accumulated down time of community isolation	<24Hrs.	0.00 hrs.	0.00 hrs.	0.00 hrs.	16.17 hrs.	0.00 hrs.	15.33 hrs.	20.55 hrs.
Network performance									
B (I)	Call success rate	>99%	100.00%	99.44%	100.00%	97.97%	99.73%	98.87%	85.66%
B (ii)	Service Access Delay	9 to 20 Sec.	7.54 to 14.03 sec.	11.68 to 19.48 sec.	5.69 to 13.22 sec.	15.32 to 20.52 sec.	14.33 to 19.6 sec.	14.78 to 17.33 sec.	NR
B (iii)	Call Drop rate	<3%	1.3%	0.9%	0.9%	0.6%	1.4%	1.2%	1.2%
B(iv)	% connections with good voice quality	>95%	95.03%	95.42%	94.32%	95.02%	97.18%	95.00%	100.00%
Billing complaints									
C(I)	Billing complaints per 100 bills issued	<0.1%	0.93%	0.13%	3.31%	1.03%	0.16%	0.10%	0.62%
C (ii)	%age of billing complaints resolved within 4 weeks	100%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	93.1%
C (iii)	Period of all refunds/ from the date of resolution	<4 weeks	NR	100.0%	100.0%	100.0%	100.0%	100.0%	96.5%
Network and POI Congestion related parameters									
D(I)	SDCCH Establishment success rate	Not applicable	96.2%	96.3%	95.0%	98.8%	99.0%	99.5%	NR
D(ii)	TCH Establishment success rate	Not applicable	86.0%	99.5%	97.0%	97.1%	98.0%	98.7%	99.2%
D (iii)	Served Traffic for all POIs	Not applicable	63.5%	63.7%	67.5%	1.3%	49.8%	50.5%	NR

SUMMARY OF CELLULAR SERVICE OPERATORS QoS AUDIT (A CIRCLE) Annex-V-b
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S.no	Objective parameters	Long term benchmark	Maharashtra	Maharashtra	Maharashtra	Maharashtra	Gujarat	Gujarat	Gujarat	Gujarat
			BPL	Idea	Bharti	BSNL	Fascel / Hutch	Idea	Bharti	BSNL
Fault Incidence & repair										
A (I)	Fault incidences (per100 subscribers/month)	<1	0.70	0.01	0.18	0.09	0.02	0.02	0.19	0.00
A (ii)	Fault cleared in 24 hours	100%	85.94%	100.00%	85.39%	25.19%	100.00%	100.00%	100.00%	100.00%
A (iii)	Accumulated down time of community isolation	<24Hrs.	9.25 hrs.	50.47 hrs.	25.70 hrs.	109.83 hrs.	22.65 hrs.	59.57 hrs.	18.25 hrs.	73.00 hrs.
Network performance										
B (I)	Call success rate	>99%	99.88%	95.00%	86.83%	96.47%	99.00%	99.03%	99.23%	99.60%
B (ii)	Service Access Delay	9 to 20 Sec.	NR	7.33 to 19.45 sec.	9.5 to 15.3 sec.	NR	7.58 to 17.9 sec.	6.07 to 18.87 sec.	9.9 to 16.93 sec.	6.14 to 8.37 sec.
B (iii)	Call Drop rate	<3%	1.5%	1.2%	1.4%	1.5%	0.9%	1.1%	1.1%	1.0%
B(iv)	% connections with good voice quality	>95%	98.36%	NR	100.00%	85.30%	NR	99.69%	98.00%	89.29%
Billing complaints										
C(I)	Billing complaints per 100 bills issued	<0.1%	0.10%	0.10%	0.90%	1.27%	0.06%	0.15%	0.09%	1.16%
C (ii)	%age of billing complaints resolved within 4 weeks	100%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	69.0%	100.0%
C (iii)	Period of all refunds/ from the date of resolution	<4 weeks	100.0%	100.0%	100.0%	NR	NR	63.5%	NR	NR
Network and POI Congestion related parameters										
D(I)	SDCCH Establishment success rate	Not applicable	99.4%	92.6%	99.9%	88.0%	99.6%	92.7%	NR	98.0%
D(ii)	TCH Establishment success rate	Not applicable	98.0%	81.0%	99.5%	93.9%	98.4%	94.3%	NR	99.7%
D (iii)	Served Traffic for all POIs	Not applicable	82.5%	87.6%	68.9%	NR	89.0%	NR	NR	64.2%

S.no	Objective parameters	Long term benchmark	A.P.	A.P.	A.P.	A.P.	Karnataka	Karnataka	Karnataka	Karnataka
			Idea	Bharti	Hutch	BSNL	Bharti	Spice	Hutch	BSNL
Fault Incidence & repair										
A (I)	Fault incidences (per100 subscribers/ month)	<1	0.00	0.03	0.73	0.12	0.13	0.31	0.13	0.03
A (ii)	Fault cleared in 24 hours	100%	100.00%	100.00%	93.97%	56.15%	100.00%	100.00%	85.33%	48.68%
A (iii)	Accumulated down time of community isolation	<24Hrs.	21.70 hrs.	71.37 hrs.	111.85 hrs.	519.98 hrs.	60.00 hrs.	1.20 hrs.	37.65 hrs.	475.57 hrs.
Network performance										
B (I)	Call success rate	>99%	99.97%	99.04%	95.98%	97.85%	99.06%	99.64%	NR	NR
B (ii)	Service Access Delay	9 to 20 Sec.	6.46 to 12.46 sec.	7.6 to 15.6 sec.	8 to 16.12 sec.	8.32 to 11.42 sec.	6.12 to 16.72 sec.	8.81 to 18.81 sec.	NR	NR
B (iii)	Call Drop rate	<3%	1.8%	1.5%	1.2%	2.0%	1.5%	1.4%	0.9%	1.4%
B(iv)	% connections with good voice quality	>95%	96.96%	99.19%	90.73%	NR	99.46%	97.76%	92.48%	86.11%
Billing complaints										
C(I)	Billing complaints per 100 bills issued	<0.1%	0.11%	0.24%	15.43%	2.36%	0.02%	0.10%	4.45%	1.63%
C (ii)	%age of billing complaints resolved within 4 weeks	100%	100.0%	100.0%	100.0%	97.2%	100.0%	100.0%	100.0%	93.5%
C (iii)	Period of all refunds/ from the date of resolution	<4 weeks	100.0%	100.0%	100.0%	NR	100.0%	100.0%	100.0%	7.4%
Network and POI Congestion related parameters										
D(I)	SDCCH Establishment success rate	Not applicable	99.8%	93.9%	96.2%	99.2%	96.8%	99.8%	97.1%	97.7%
D(ii)	TCH Establishment success rate	Not applicable	96.6%	97.5%	96.0%	96.6%	94.0%	97.6%	99.1%	94.0%
D (iii)	Served Traffic for all POIs	Not applicable	71.2%	77.2%	31.7%	38.5%	70.3%	58.9%	76.4%	81.5%

S.no	Objective parameters	Long term benchmark	T.N.	T.N.	T.N.	T.N.
			BPL	Aircel	BSNL	Bharti
Fault Incidence & repair						
A (I)	Fault incidences (per100 subscribers/month)	<1	0.43	0.17	0.10	0.05
A (ii)	Fault cleared in 24 hours	100%	100.00%	1.74%	89.43%	100.00%
A (iii)	Accumulated down time of community isolation	<24Hrs.	3.68 hrs.	91.60 hrs.	75.83 hrs.	15.98 hrs.
Network performance						
B (I)	Call success rate	>99%	99.17%	34.92%	30.33%	99.47%
B (ii)	Service Access Delay	9 to 20 Sec.	6.24 to 11.9 sec.	14.16 to 31.14 sec.	NR	14.07 to 20.07 sec.
B (iii)	Call Drop rate	<3%	1.2%	1.6%	1.6%	1.4%
B(iv)	% connections with good voice quality	>95%	97.78%	NR	NR	99.21%
Billing complaints						
C(I)	Billing complaints per 100 bills issued	<0.1%	0.06%	0.37%	0.53%	0.12%
C (ii)	%age of billing complaints resolved within 4 weeks	100%	100.0%	100.0%	100.0%	100.0%
C (iii)	Period of all refunds/ from the date of resolution	<4 weeks	100.0%	100.0%	37.1%	100.0%
Network and POI Congestion related parameters						
D(I)	SDCCH Establishment success rate	Not applicable	98.1%	99.1%	98.4%	94.5%
D(ii)	TCH Establishment success rate	Not applicable	98.7%	97.7%	92.7%	99.5%
D (iii)	Served Traffic for all POIs	Not applicable	73.8%	99.9%	NR	59.9%

SUMMARY OF CELLULAR SERVICE OPERATORS QoS AUDIT (B CIRCLE)

Oct- Dec 2003

S.no	Objective parameters	Long term benchmark	Kerala	Kerala	Kerala	Kerala	Punjab	Punjab	Punjab
			Escotel	BPL	Bharti	BSNL	Spice	Bharti	BSNL
Fault Incidence & repair									
A (I)	Fault incidences (per100 subscribers/month)	<1	0.34	0.04	0.05	2.35	0.23	0.04	0.23
A (ii)	Fault cleared in 24 hours	100%	100.00%	100.00%	100.00%	NR	99.05%	100.00%	NR
A (iii)	Accumulated down time of community isolation	<24Hrs.	10.21 hrs.	3.07 hrs.	11.30 hrs.	63.53 hrs.	23.47 hrs.	10.75 hrs.	31.58 hrs.
Network performance									
B (I)	Call success rate	>99%	99.95%	99.22%	99.23%	89.50%	98.07%	99.01%	78.00%
B (ii)	Service Access Delay	9 to 20 Sec.	9.3 to 18.6 sec.	6.02 to 12.37 sec.	14.05 to 19.05 sec.	16.8 to 20.8 sec.	12.29 to 21.52 sec.	7.37 to 15.24 sec.	NR
B (iii)	Call Drop rate	<3%	1.0%	1.1%	1.3%	1.6%	1.3%	1.6%	2.1%
B(iv)	% connections with good voice quality	>95%	95.98%	100.00%	99.35%	NR	96.97%	99.62%	NR
Billing complaints									
C(I)	Billing complaints per 100 bills issued	<0.1%	0.05%	0.03%	0.22%	3.00%	0.02%	0.09%	2.47%
C (ii)	%age of billing complaints resolved within 4 weeks	100%	100.0%	100.0%	100.0%	90.0%	100.0%	100.0%	95.0%
C (iii)	Period of all refunds/ from the date of resolution	<4 weeks	100.0%	100.0%	100.0%	NR	100.0%	100.0%	100.0%
Network and POI Congestion related parameters									
D(I)	SDCCH Establishment success rate	Not applicable	99.0%	99.7%	95.3%	99.7%	98.9%	95.1%	89.7%
D(ii)	TCH Establishment success rate	Not applicable	98.7%	97.5%	99.3%	98.0%	96.3%	99.0%	41.8%
D (iii)	Served Traffic for all POIs	Not applicable	55.6%	88.1%	50.4%	71.4%	93.4%	83.6%	97.7%

B CIRCLES (CONTD.)

S.no	Objective parameters	Long term benchmark	Haryana	Haryana	Haryana	Haryana	U.P.(W)	U.P.(W)	U.P.(W)	U.P.(E)	U.P.(E)
			Escotel	Aircel	Bharti	BSNL	Escotel	Bharti	BSNL	Aircel	BSNL
Fault Incidence & repair											
A (I)	Fault incidences (per100 subscribers/ month)	<1	0.06	1.00	0.08	0.04	0.16	0.06	0.21	0.05	0.09
A (ii)	Fault cleared in 24 hours	100%	100.00%	97.75%	100.00%	100.00%	93.86%	100.00%	84.14%	79.61%	NR
A (iii)	Accumulated down time of community isolation	<24Hrs.	11.07 hrs.	1.12 hrs.	6.17 hrs.	8.00 hrs.	0.00 hrs.	8.00 hrs.	0.00 hrs.	0.00 hrs.	6.00 hrs.
Network performance											
B (I)	Call success rate	>99%	99.76%	99.92%	99.02%	97.50%	99.12%	99.01%	NR	98.59%	72.35%
B (ii)	Service Access Delay	9 to 20 Sec.	11.06 to 19.48 sec.	14.74 to 19.48 sec.	6.31 to 14.31 sec.	NR	11.43 to 16.83 sec.	9.06 to 14.1 sec.	NR	7.07 to 14.82 sec.	NR
B (iii)	Call Drop rate	<3%	0.9%	1.1%	1.8%	3.2%	1.3%	2.3%	NR	NR	2.6%
B(iv)	% connections with good voice quality	>95%	99.86%	97.81%	NR	NR	99.31%	98.54%	100.00%	NR	NR
Billing complaints											
C(I)	Billing complaints per 100 bills issued	<0.1%	0.21%	0.03%	0.09%	0.54%	0.42%	0.09%	1.24%	0.88%	0.21%
C (ii)	%age of billing complaints resolved within 4 weeks	100%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	92.2%
C (iii)	Period of all refunds/ from the date of resolution	<4 weeks	100.0%	NR	NR	100.0%	NR	100.0%	NR	100.0%	83.2%
Network and POI Congestion related parameters											
D(I)	SDCCH Establishment success rate	Not applicable	99.5%	93.8%	95.8%	89.4%	99.2%	99.6%	94.3%	NR	92.0%
D(ii)	TCH Establishment success rate	Not applicable	96.3%	92.9%	99.0%	84.9%	97.1%	98.3%	88.7%	NR	82.0%
D (iii)	Served Traffic for all POIs	Not applicable	98.9%	100.0%	73.2%	99.7%	97.5%	99.6%	99.3%	NR	0.8%

B CIRCLES (CONTD.)

S.no	Objective parameters	Long term benchmark	Rajasthan	Rajasthan	Rajasthan	M.P.	M.P.	M.P.	M.P.	W.B. & A&N	W.B. & A&N
			Aircel	Hexacom	BSNL	Bharti	Reliance	Idea	BSNL	Reliance	BSNL
Fault Incidence & repair											
A (I)	Fault incidences (per100 subscribers/ month)	<1	0.15	0.35	0.16	0.15	0.05	0.19	NR	0.16	0.21
A (ii)	Fault cleared in 24 hours	100%	32.81%	65.22%	100.00%	100.00%	51.11%	87.89%	NR	100.00%	100.00%
A (iii)	Accumulated down time of community isolation	<24Hrs.	42.22 hrs.	36.37 hrs.	38.30 hrs.	7.50 hrs.	12.35 hrs.	50.47 hrs.	294.25 hrs.	19.60 hrs.	0.00 hrs.
Network performance											
B (I)	Call success rate	>99%	100.05%*	84.42%	99.50%	99.93%	124.80%*	99.11%	82.61%	102.52%*	99.04%
B (ii)	Service Access Delay	9 to 20 Sec.	9 to 17 sec.	NR	NR	8.39 to 13.24 sec.	10 to 16 sec.	8.09 to 16.11 sec.	12.72 to 14.44 sec.	10.52 to 15.52 sec.	NR
B (iii)	Call Drop rate	<3%	17.9%	1.2%	2.0%	0.9%	2.9%	1.2%	1.5%	2.8%	3.0%
B(iv)	% connections with good voice quality	>95%	97.46%	84.14%	NR	99.18%	98.52%	97.64%	98.97%	100.00%	NR
Billing complaints											
C(I)	Billing complaints per 100 bills issued	<0.1%	0.03%	0.05%	0.51%	0.09%	0.08%	0.91%	0.03%	NR	0.05%
C (ii)	%age of billing complaints resolved within 4 weeks	100%	100.0%	100.0%	99.5%	100.0%	100.0%	100.0%	100.0%	NR	100.0%
C (iii)	Period of all refunds/ from the date of resolution	<4 weeks	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	NR	100.0%	NR
Network and POI Congestion related parameters											
D(I)	SDCCH Establishment success rate	Not applicable	99.8%	85.0%	93.7%	99.7%	99.9%	98.6%	90.6%	98.2%	98.2%
D(ii)	TCH Establishment success rate	Not applicable	94.9%	69.2%	87.6%	98.8%	98.2%	93.6%	94.7%	97.0%	83.8%
D (iii)	Served Traffic for all POIs	Not applicable	57.6%	49.3%	1.2%	49.5%	98.6%	39.6%	76.8%	99.3%	NR

* The CSR figure for these operators exceeds 100% due to the inability of the service providers MSC to capture the results as per the prescribed methodology.

SUMMARY OF CELLULAR SERVICE OPERATORS QoS AUDIT (C CIRCLE)

Annex-VII

S.no	Objective parameters	Long term benchmark	H.P.	H.P.	H.P.	Bihar	Bihar	Orissa	Orissa	Assam	N.E.	J&K
			Bharti	Reliance	BSNL	Reliance	BSNL	Reliance	BSNL	Reliance	Reliance	BSNL
Fault Incidence & repair												
A (I)	Fault incidences (per100 subscribers/ month)	<1	0.13	0.12	0.07	0.02	0.89	0.13	0.35	NR	0.00	NR
A (ii)	Fault cleared in 24 hours	100%	100.00%	100.00%	NR	100.00%	NR	100.00%	73.50%	NR	100.00%	NR
A (iii)	Accumulated down time of community isolation	<24Hrs.	19.75 hrs.	9.15 hrs.	885.80 hrs.	61.55 hrs.	0.00 hrs.	14.85 hrs.	86.68 hrs.	0.00 hrs.	0.00 hrs.	0.00 hrs.
Network performance												
B (I)	Call success rate	>99%	99.01%	37.89%	90.63%	95.56%	86.51%	99.17%	220.06%*	127.84%*	107.27%*	NR
B (ii)	Service Access Delay	9 to 20 Sec.	8.02 to 15.94 sec.	NR	NR	NR	NR	9.86 to 14.9 sec.	13 to 26 sec.	9.37 to 15.7 sec.	9.32 to 15.65 sec.	NR
B (iii)	Call Drop rate	<3%	2.0%	2.2%	3.7%	2.4%	3.2%	2.5%	5.8%	3.0%	1.2%	NR
B(iv)	% connections with good voice quality	>95%	99.79%	99.34%	NR	96.96%	NR	97.41%	97.65%	98.32%	99.77%	NR
Billing complaints												
C(I)	Billing complaints per 100 bills issued	<0.1%	0.10%	NR	NR	NR	NR	NR	0.66%	NR	NR	NR
C (ii)	%age of billing complaints resolved within 4 weeks	100%	100.0%	NR	NR	NR	NR	NR	100.0%	NR	NR	NR
C (iii)	Period of all refunds/ from the date of resolution	<4 weeks	100.0%	NR	NR	NR	NR	NR	NR	NR	NR	NR
Network and POI Congestion related parameters												
D(I)	SDCCH Establishment success rate	Not applicable	95.9%	99.3%	92.0%	99.2%	92.2%	99.2%	94.4%	99.6%	99.6%	NR
D(ii)	TCH Establishment success rate	Not applicable	99.0%	96.8%	90.4%	96.4%	69.7%	97.0%	73.6%	95.5%	99.6%	NR
D (iii)	Served Traffic for all POIs	Not applicable	78.8%	96.2%	97.3%	95.4%	83.8%	95.7%	NR	100.0%	99.9%	NR

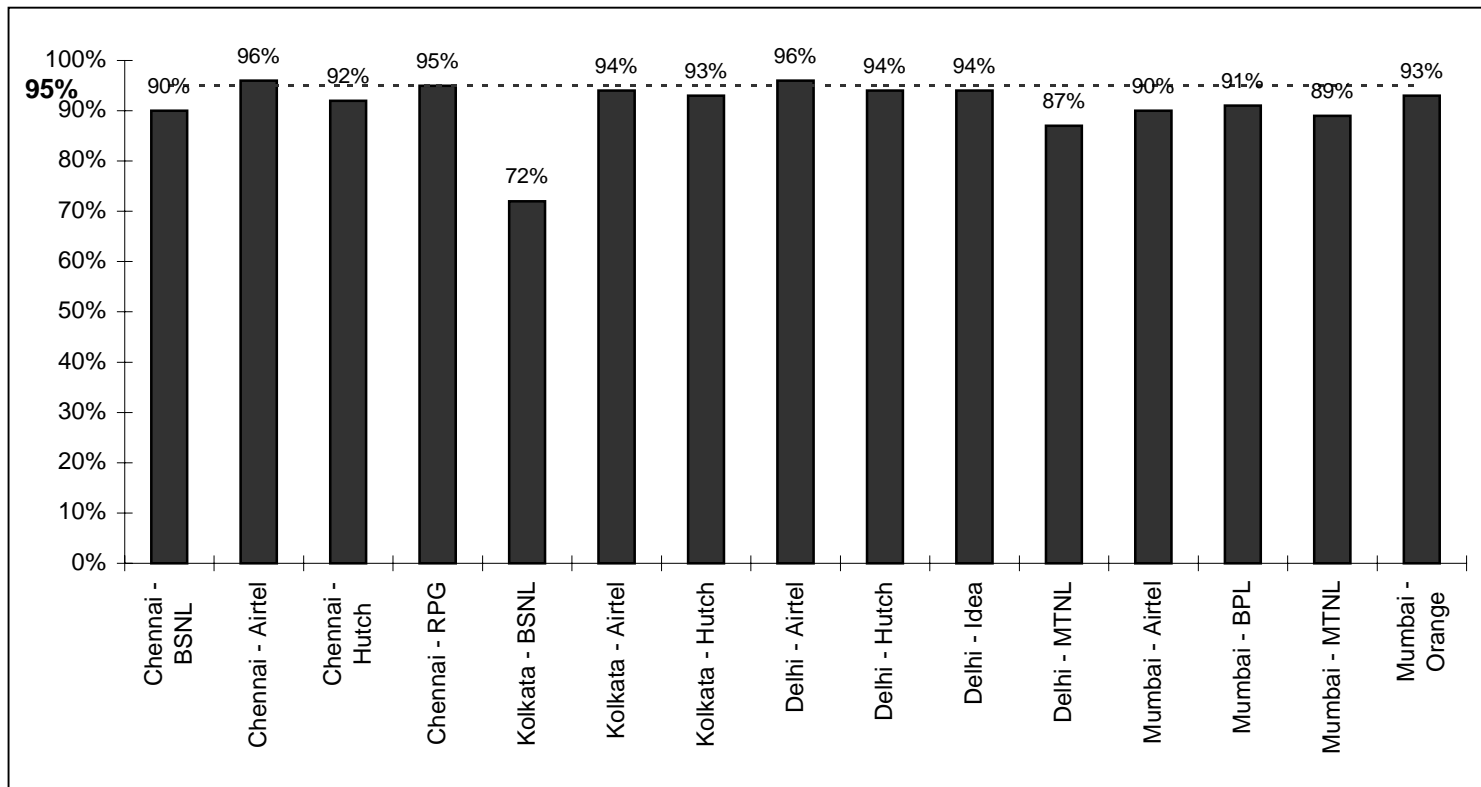
* The CSR figure for these operators exceeds 100% due to the inability of the service providers MSC to capture the results as per the prescribed methodology.

Annex-VIII

CUSTOMER SURVEY SCORES ON SATISFACTION WITH SERVICE PROVISION – GSM SERVICES (METROS)

Oct.'03-Dec.'03

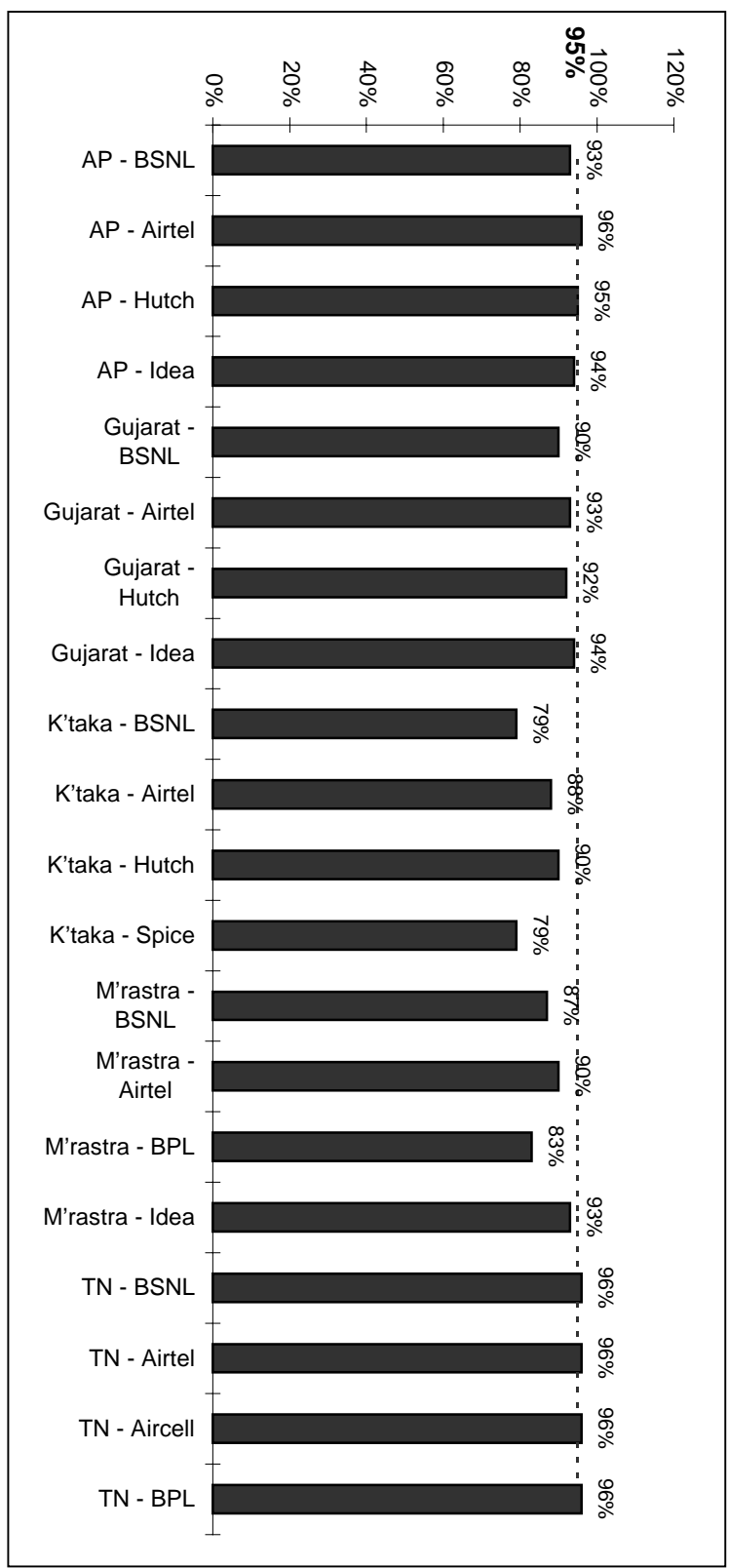
Standard: > 95%



CUSTOMER SURVEY SCORES ON SATISFACTION WITH SERVICE PROVISION – GSM SERVICES (A CIRCLES)

Oct.'03-Dec.'03

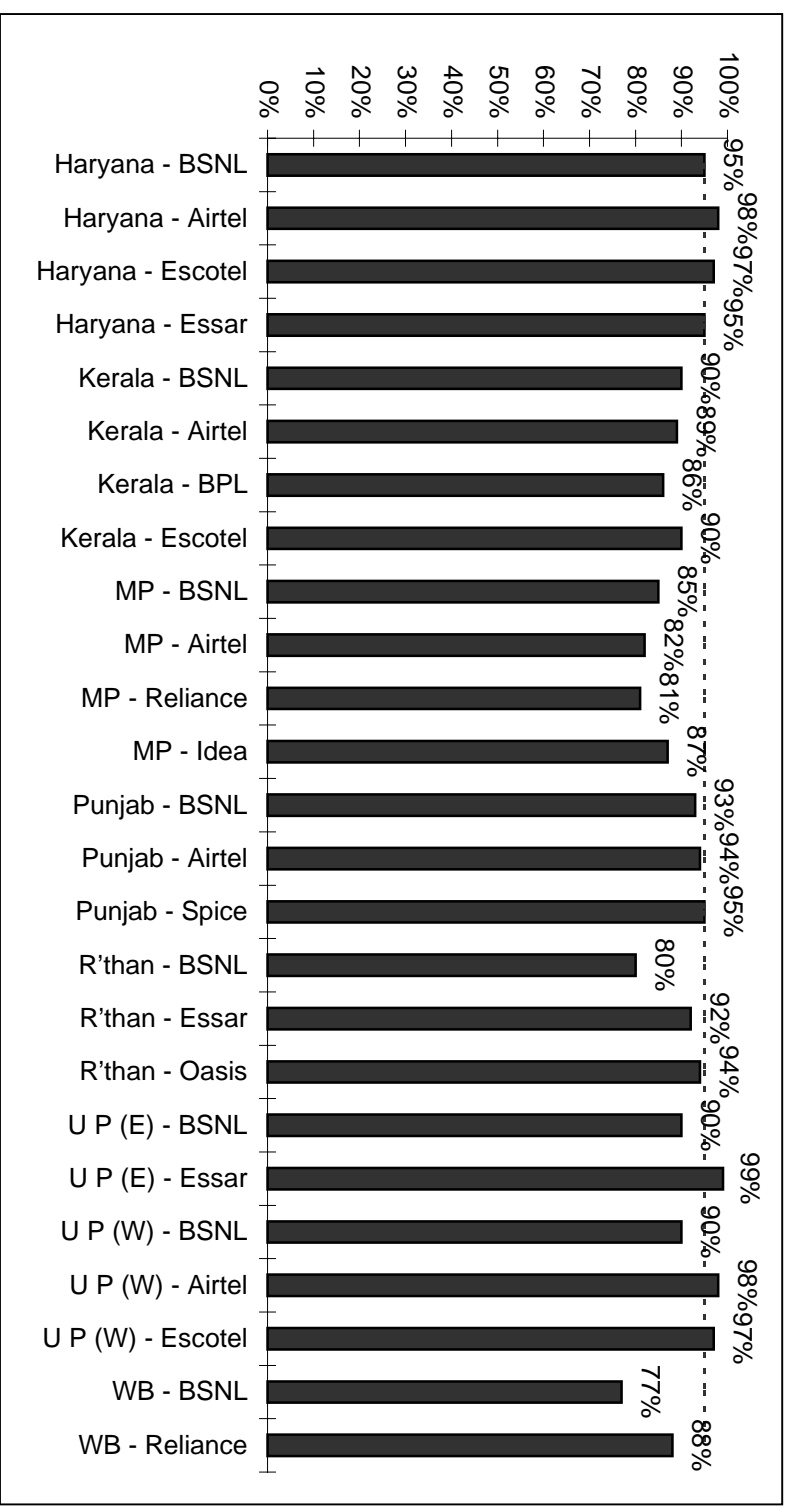
Standard: > 95%



CUSTOMER SURVEY SCORES ON SATISFACTION WITH SERVICE PROVISION – GSM SERVICES (B CIRCLES)

Oct. '03-Dec. '03

Standard: > 95%

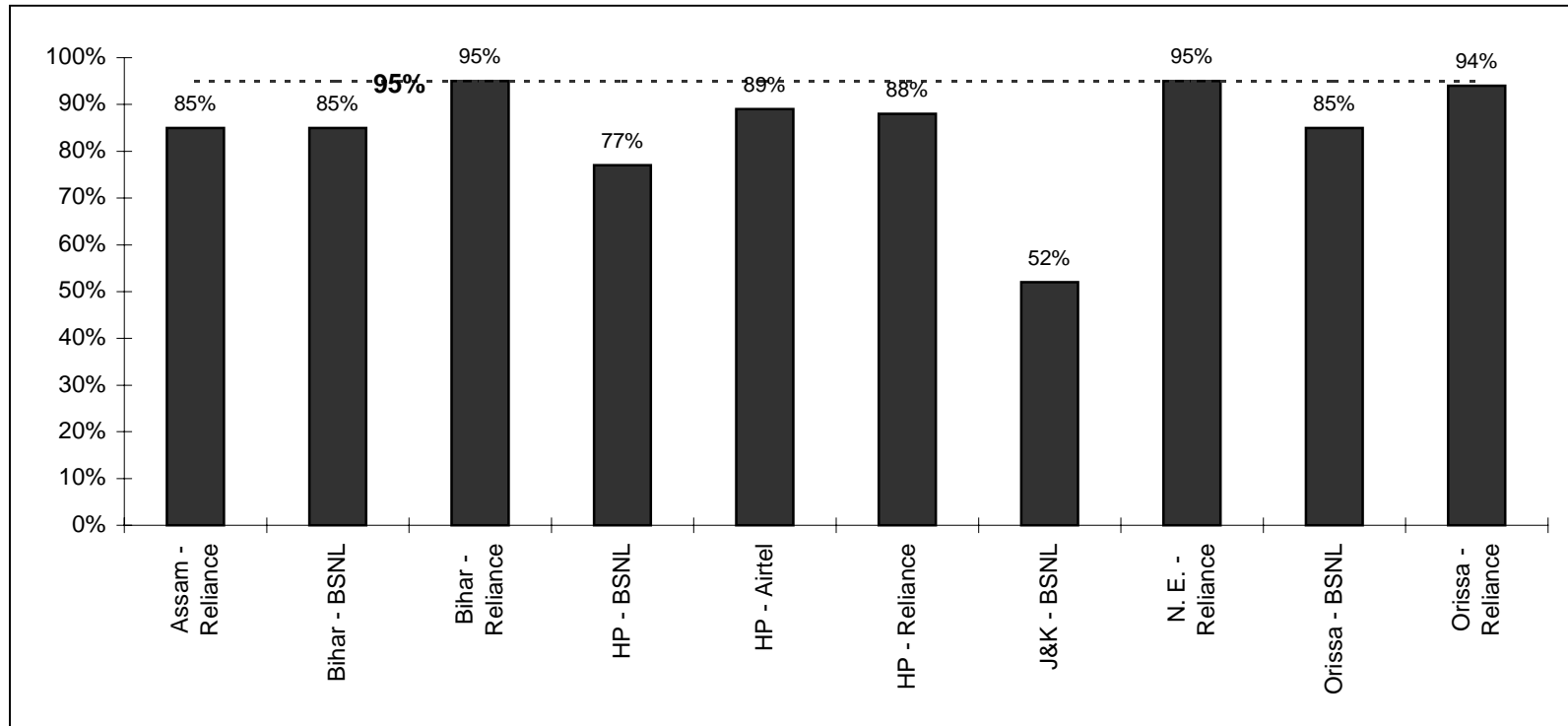


Annex-XI

CUSTOMER SURVEY SCORES ON SATISFACTION WITH SERVICE PROVISION – GSM SERVICES (C CIRCLES)

Oct.'03-Dec.'03

Standard: > 95%

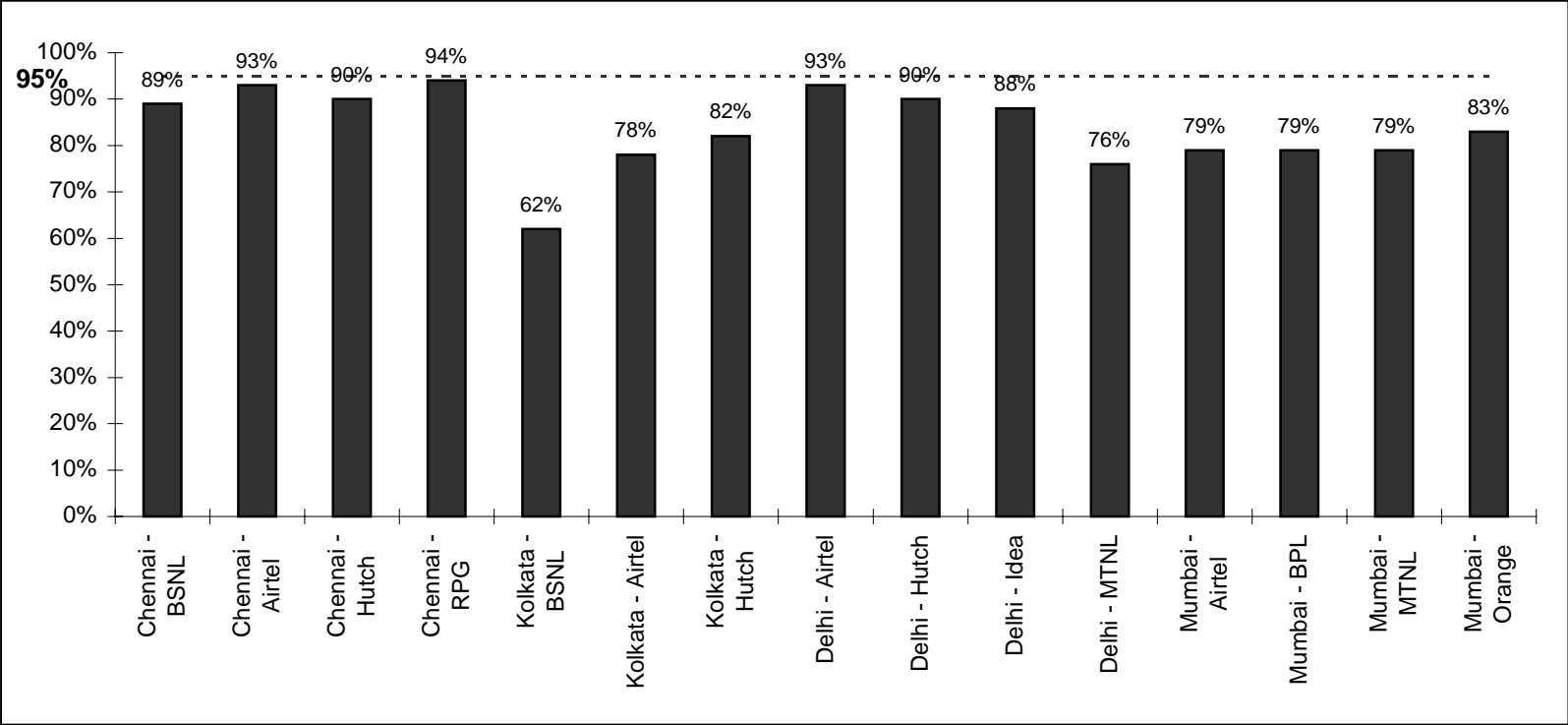


Annex-XII

CUSTOMER SURVEY SCORES ON SATISFACTION WITH NETWORK PERFORMANCE, RELIABILITY & AVAILABILITY – GSM SERVICES (METROS)

Oct.'03-Dec.'03

Standard: > 95%

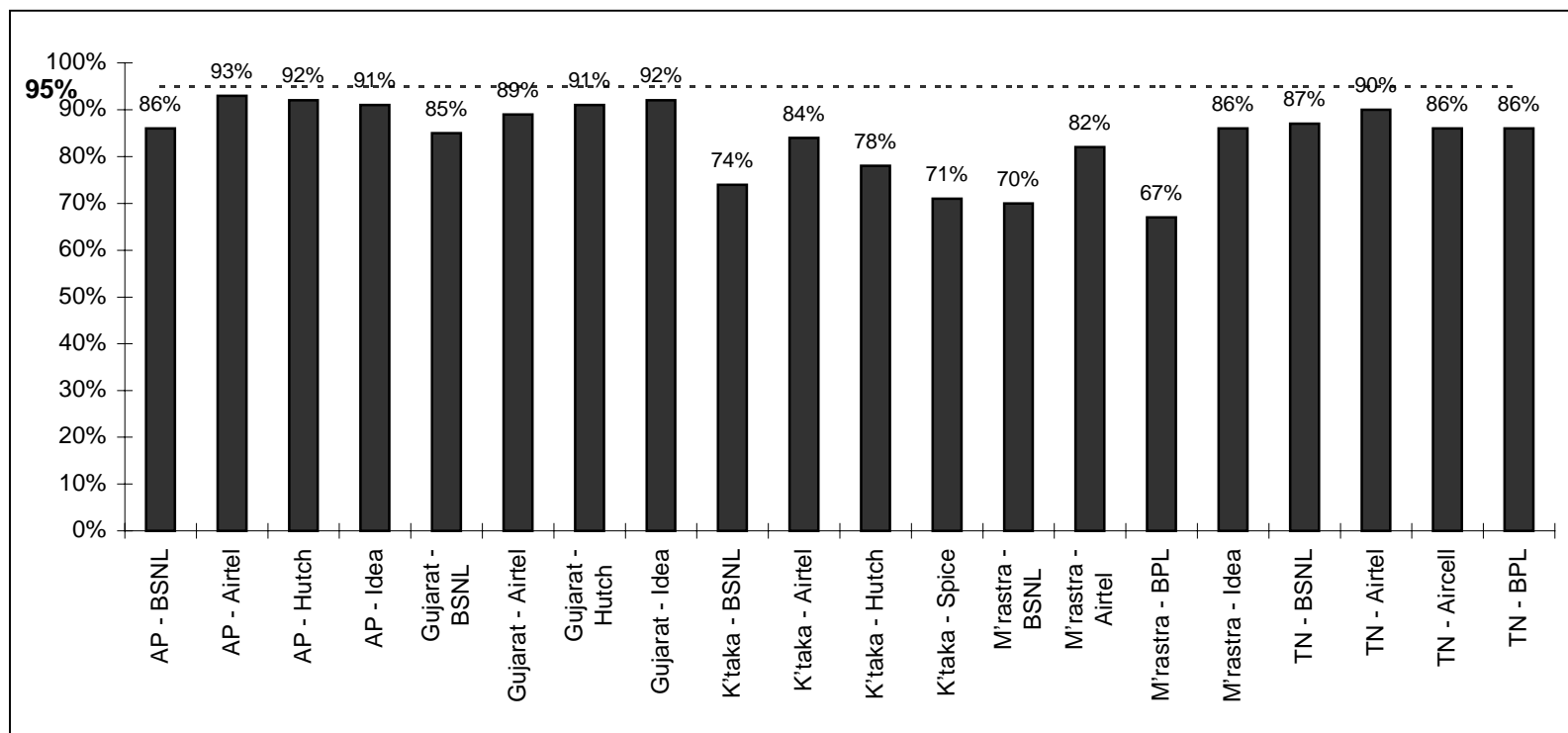


Annex-XIII

CUSTOMER SURVEY SCORES ON SATISFACTION WITH NETWORK PERFORMANCE, RELIABILITY & AVAILABILITY – GSM SERVICES (A CIRCLES)

Oct.'03-Dec.'03

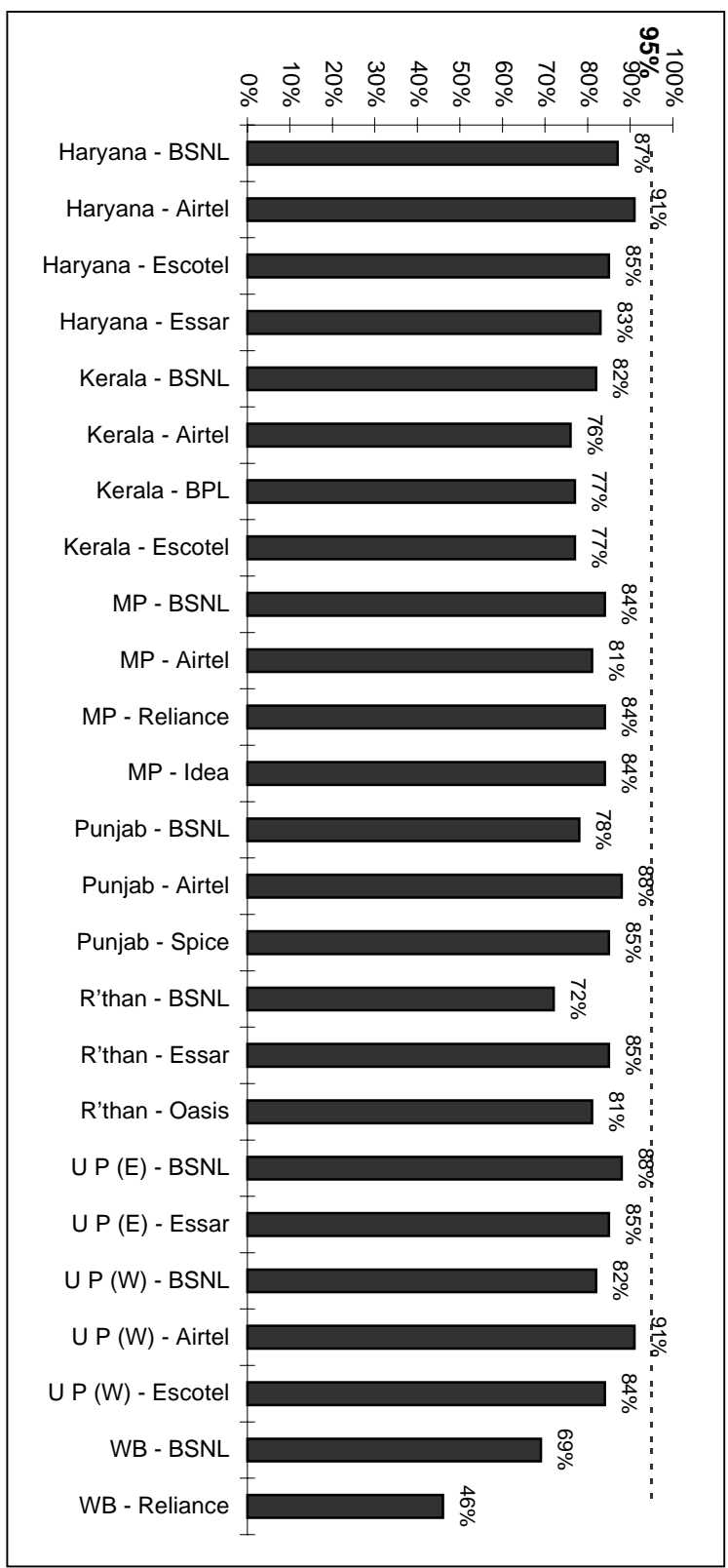
Standard: > 95%



CUSTOMER SURVEY SCORES ON SATISFACTION WITH NETWORK PERFORMANCE, RELIABILITY & AVAILABILITY – GSM SERVICES (B CIRCLES)

Oct.'03-Dec.'03

Standard: > 95%

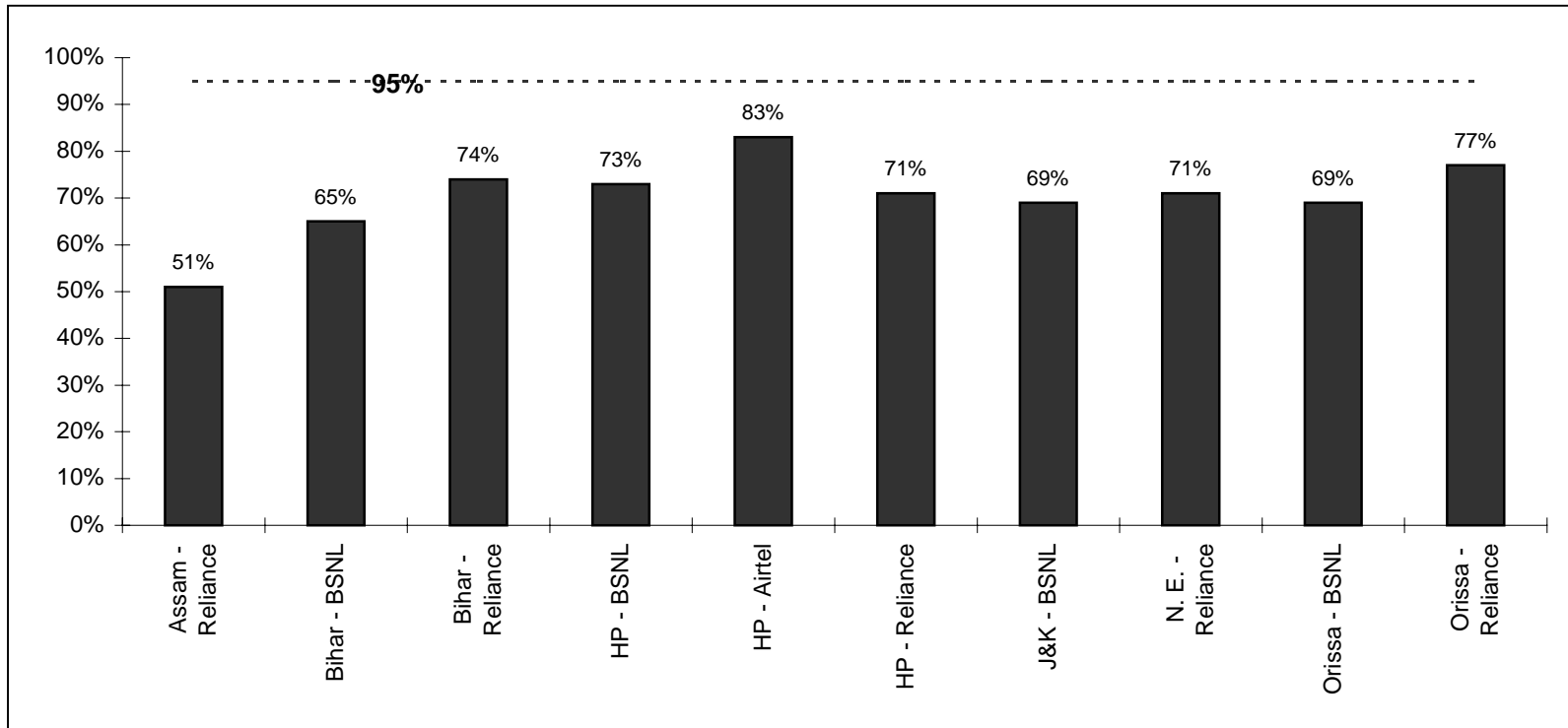


Annex-XV

CUSTOMER SURVEY SCORES ON SATISFACTION WITH NETWORK PERFORMANCE, RELIABILITY & AVAILABILITY – GSM SERVICES (C CIRCLES)

Oct.'03-Dec.'03

Standard: > 95%

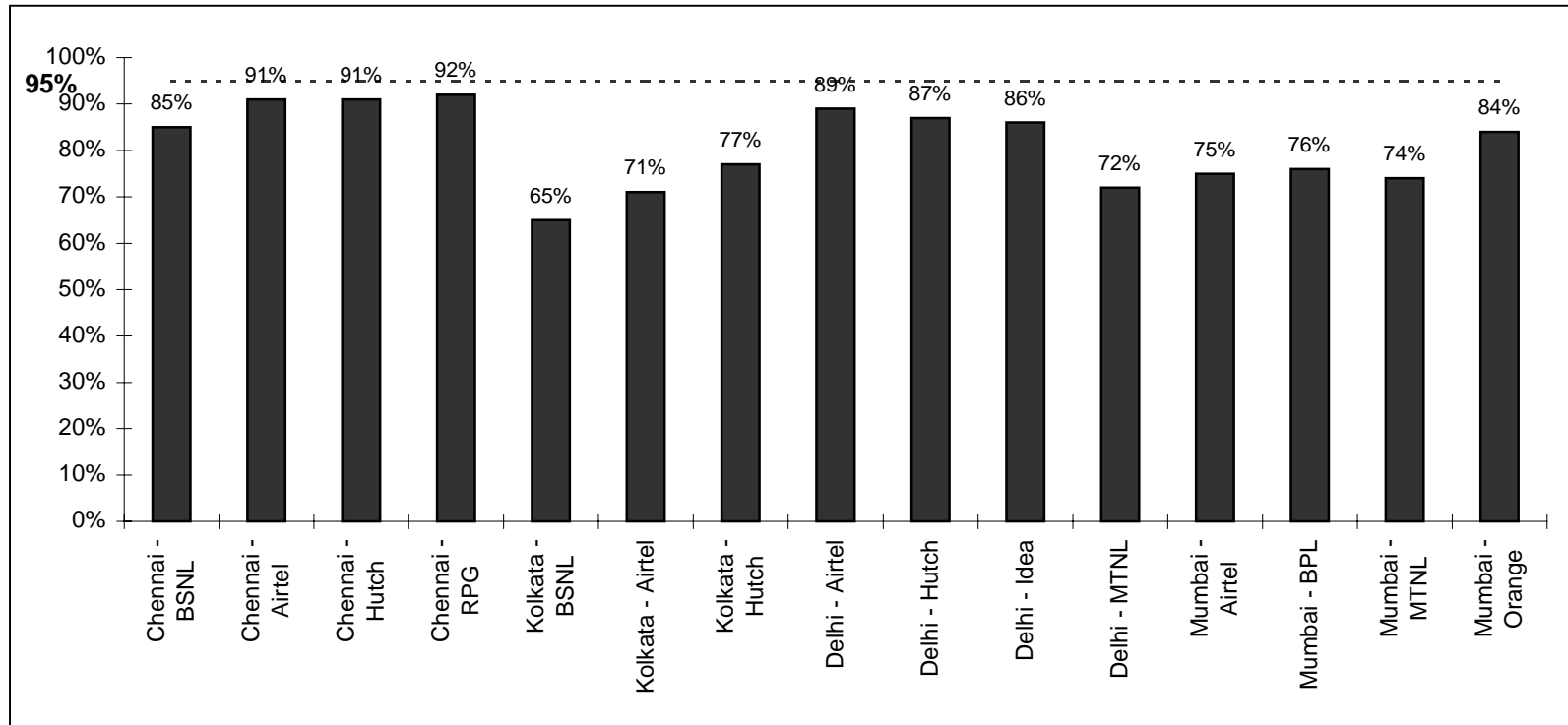


Annex-XVI

CUSTOMER SURVEY SCORES ON SATISFACTION WITH MAINTAINABILITY – GSM SERVICES (METROS)

Oct.'03-Dec.'03

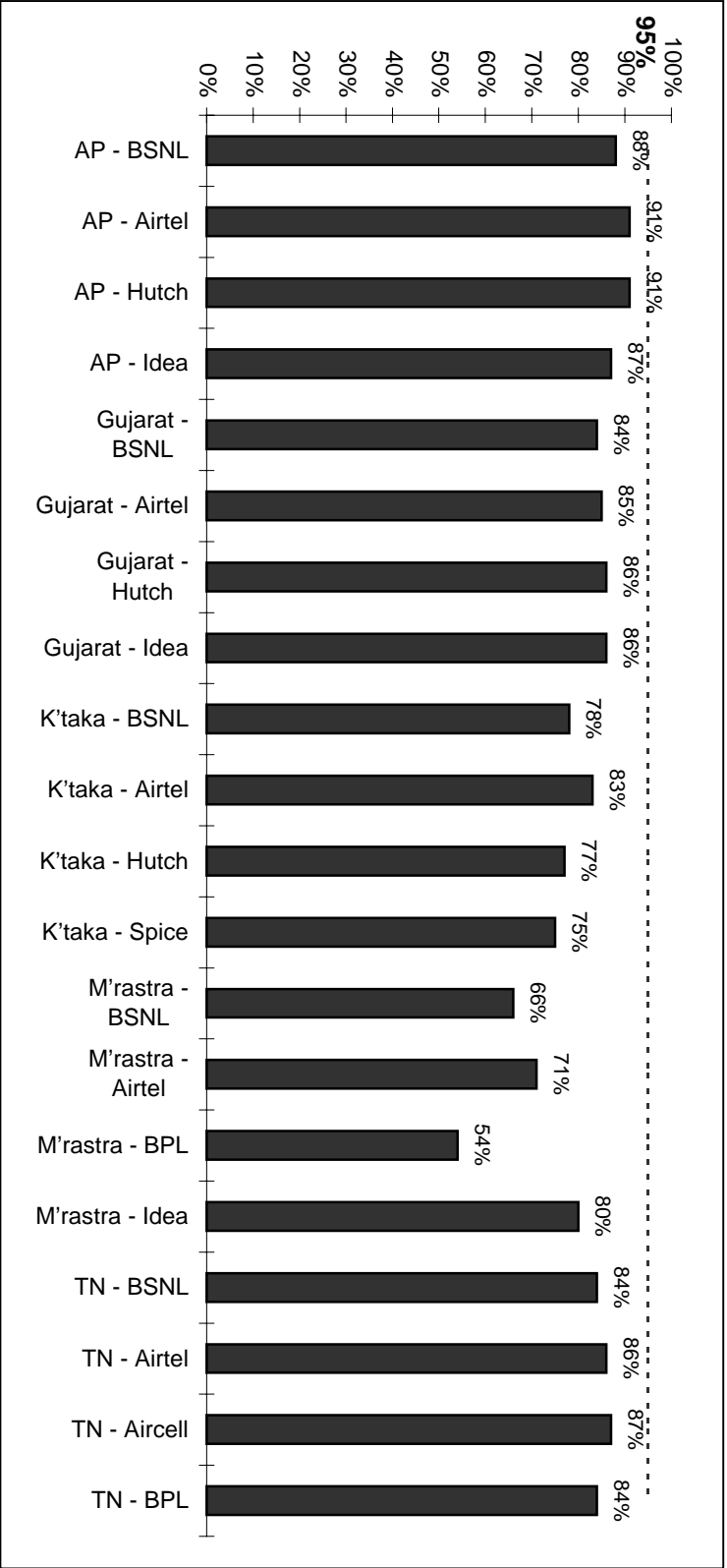
Standard: > 95%



CUSTOMER SURVEY SCORES ON SATISFACTION WITH MAINTAINABILITY – GSM SERVICES (A CIRCLES)

Oct. '03-Dec. '03

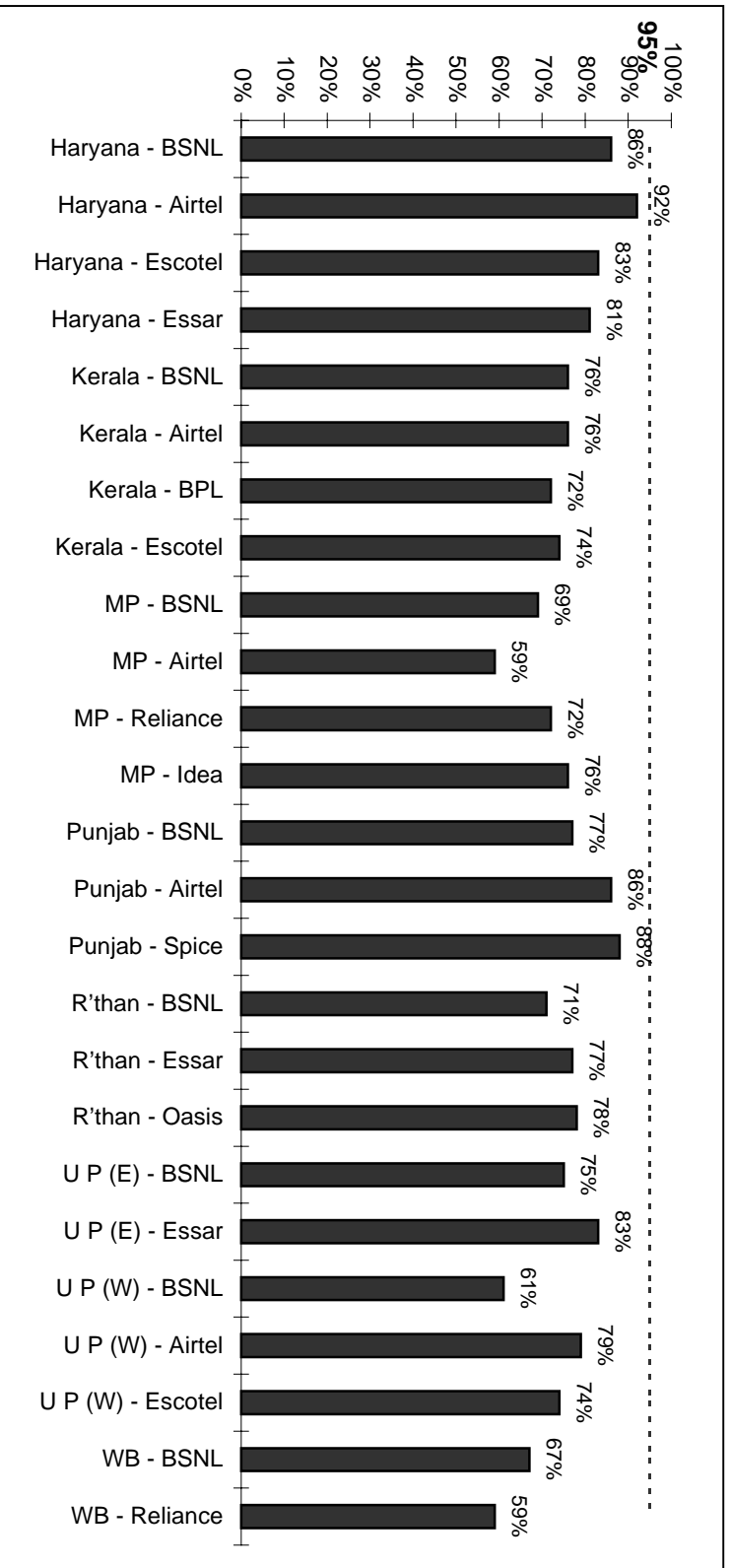
Standard: > 95%



CUSTOMER SURVEY SCORES ON SATISFACTION WITH MAINTAINABILITY – GSM SERVICES (B CIRCLES)

Oct. '03-Dec. '03

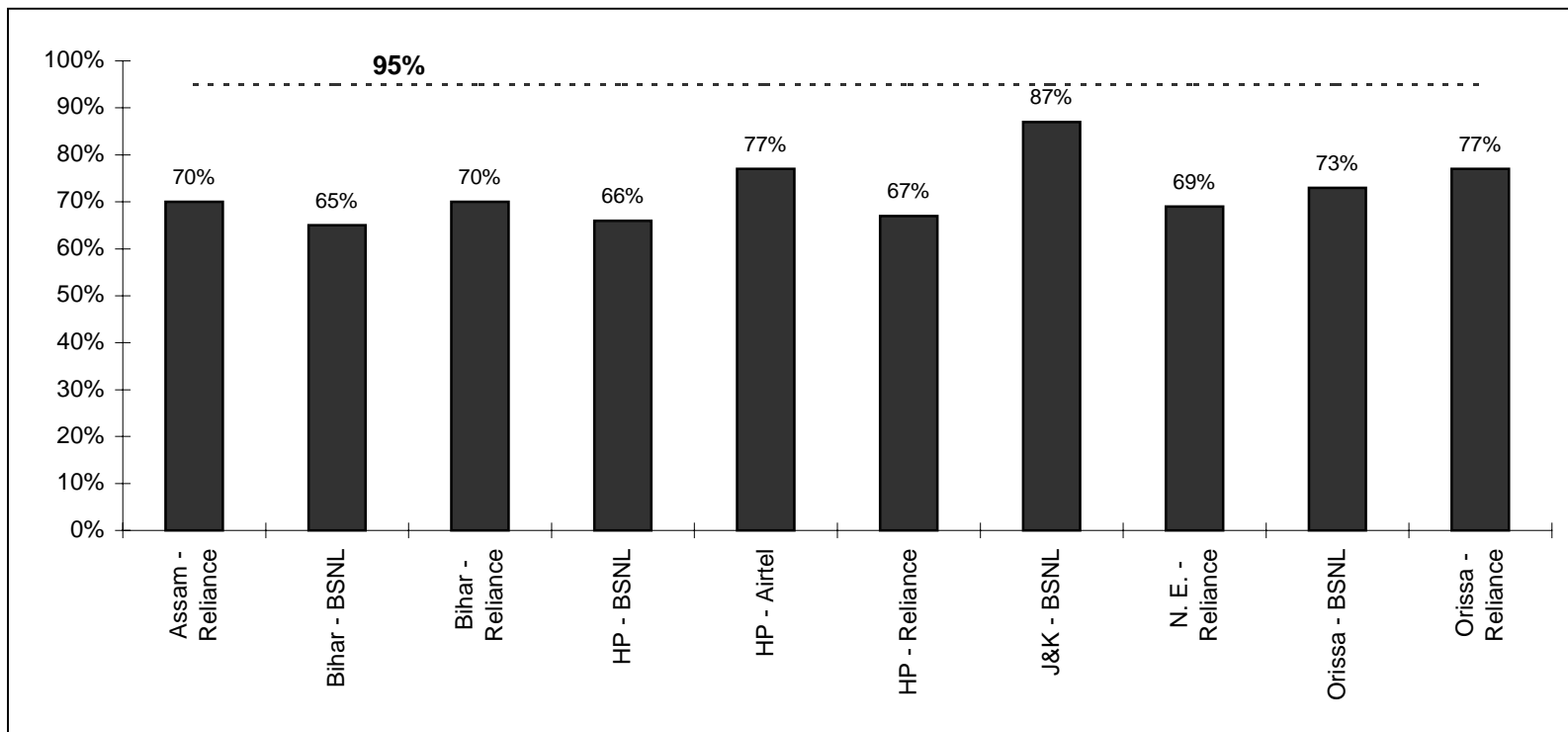
Standard: > 95%



CUSTOMER SURVEY SCORES ON SATISFACTION WITH MAINTAINABILITY – GSM SERVICES (C CIRCLES)

Oct.'03-Dec.'03

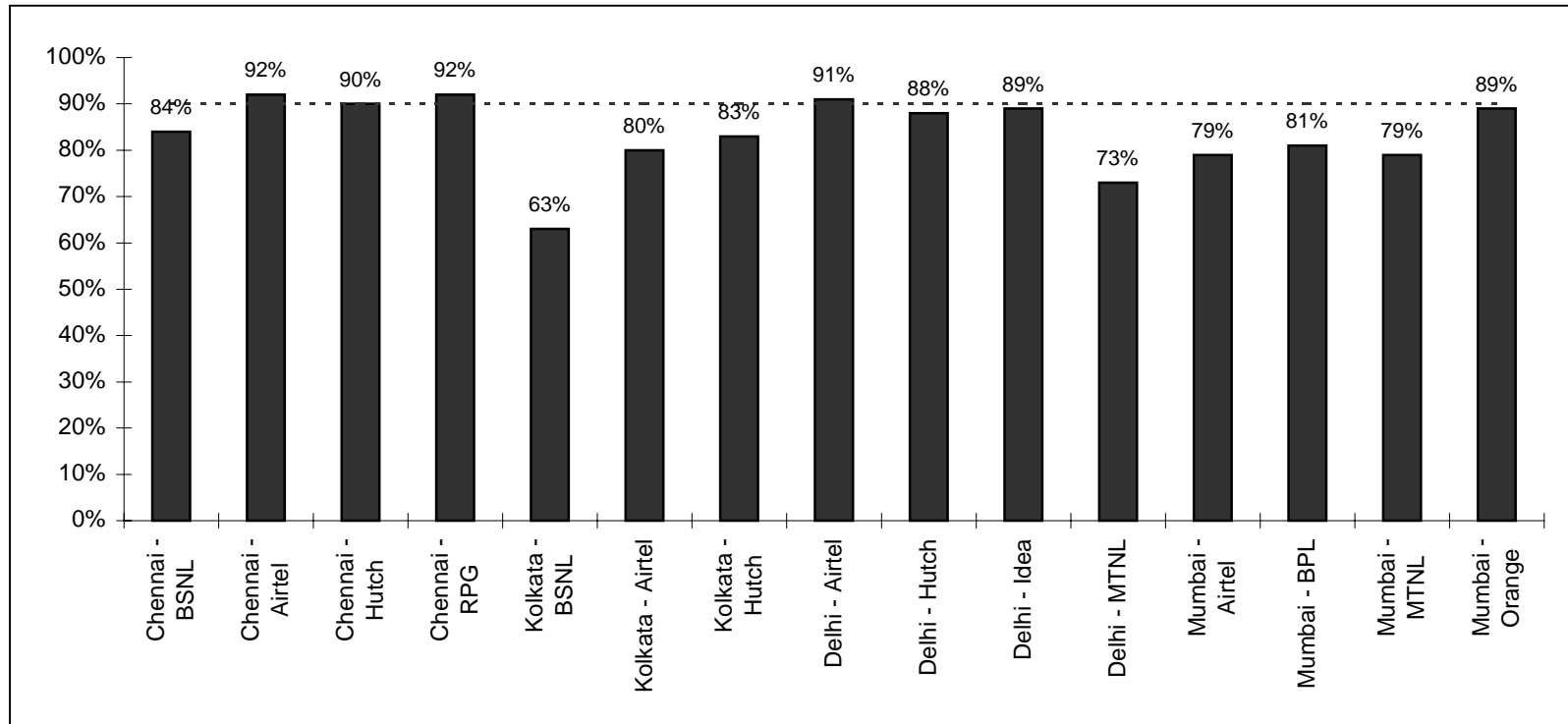
Standard: > 95%



CUSTOMER SURVEY SCORES ON SATISFACTION WITH HELP SERVICES – GSM SERVICES (METROS)

Oct.'03-Dec.'03

Standard: > 90%

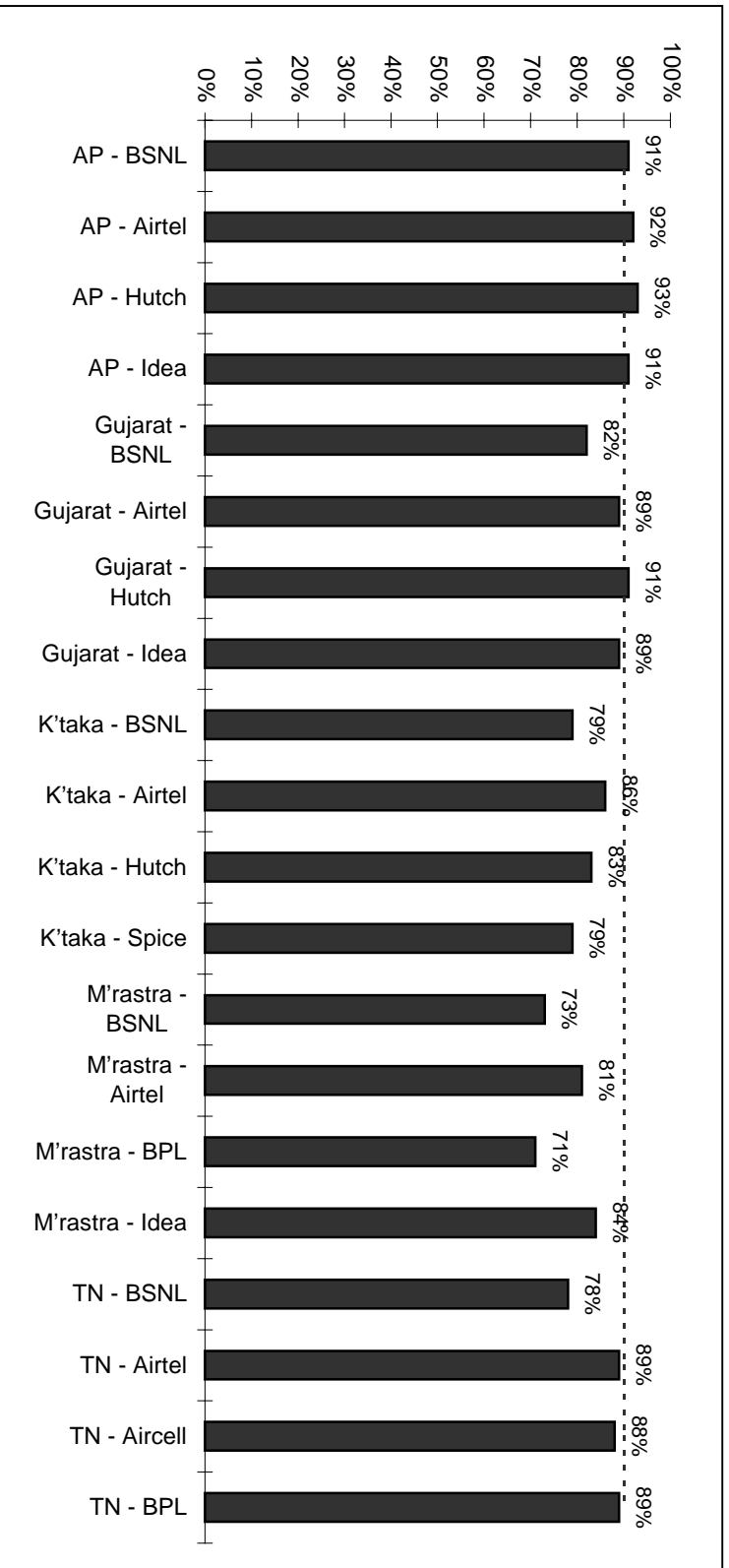


CUSTOMER SURVEY SCORES ON SATISFACTION WITH HELP SERVICES – GSM SERVICES (A CIRCLES)

Annex-XXI

Oct. '03-Dec. '03

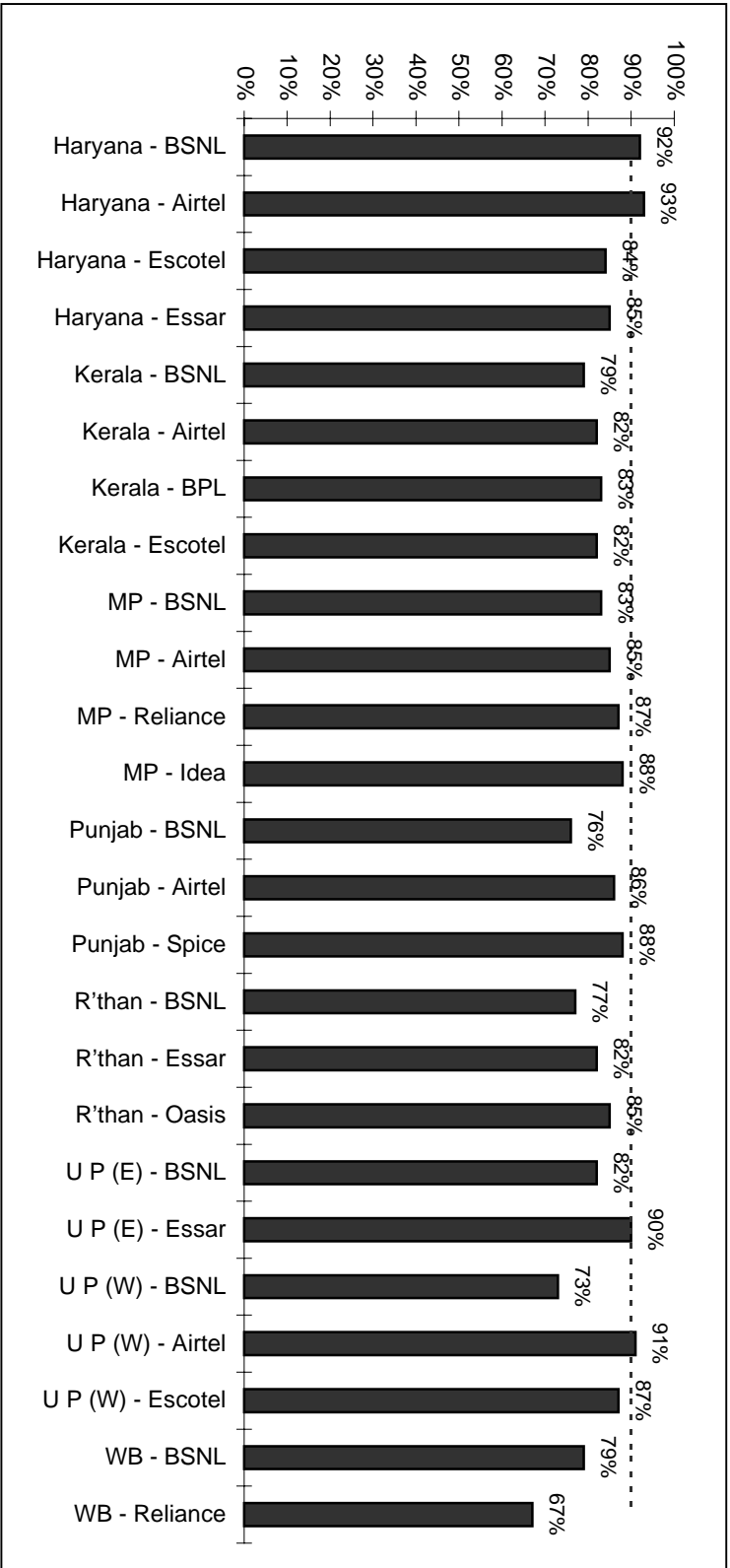
Standard: > 90%



Annex-XXII
CUSTOMER SURVEY SCORES ON SATISFACTION WITH HELP SERVICES – GSM SERVICES (B CIRCLES)

Standard: > 90%

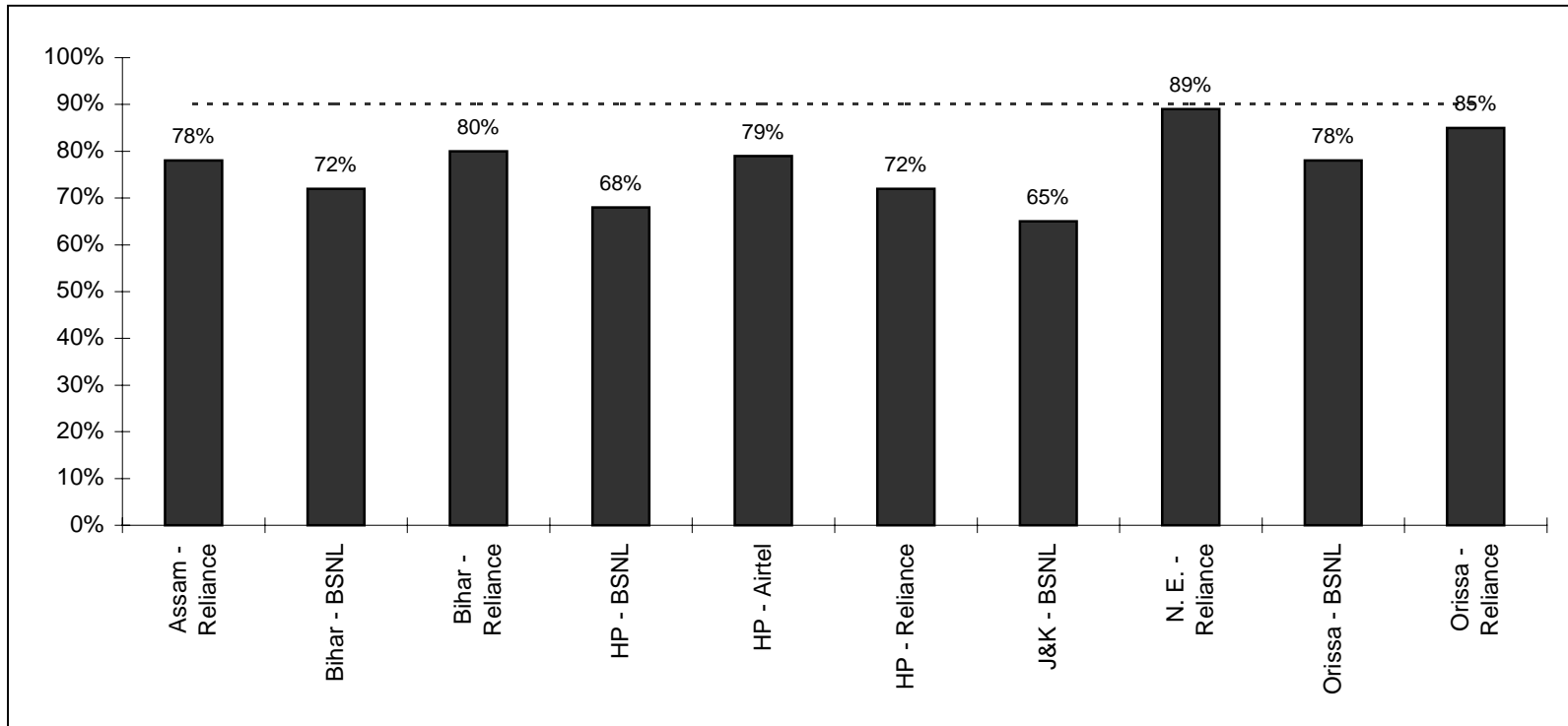
Oct.'03-Dec.'03



CUSTOMER SURVEY SCORES ON SATISFACTION WITH HELP SERVICES – GSM SERVICES (C CIRCLES)

Oct.'03-Dec.'03

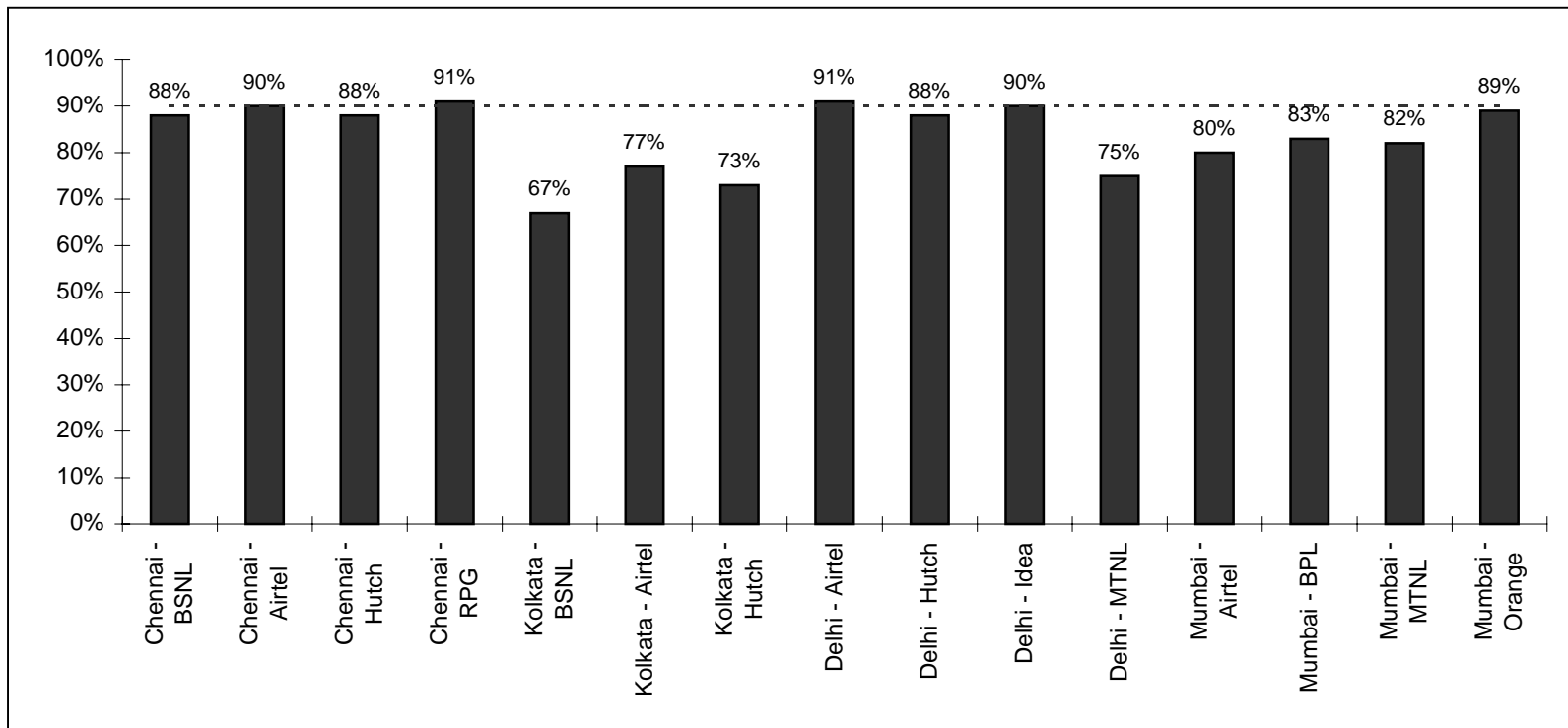
Standard: > 90%



CUSTOMER SURVEY SCORES ON SATISFACTION WITH BILLING – GSM SERVICES (METROS)

Oct.'03-Dec.'03

Standard: > 90%

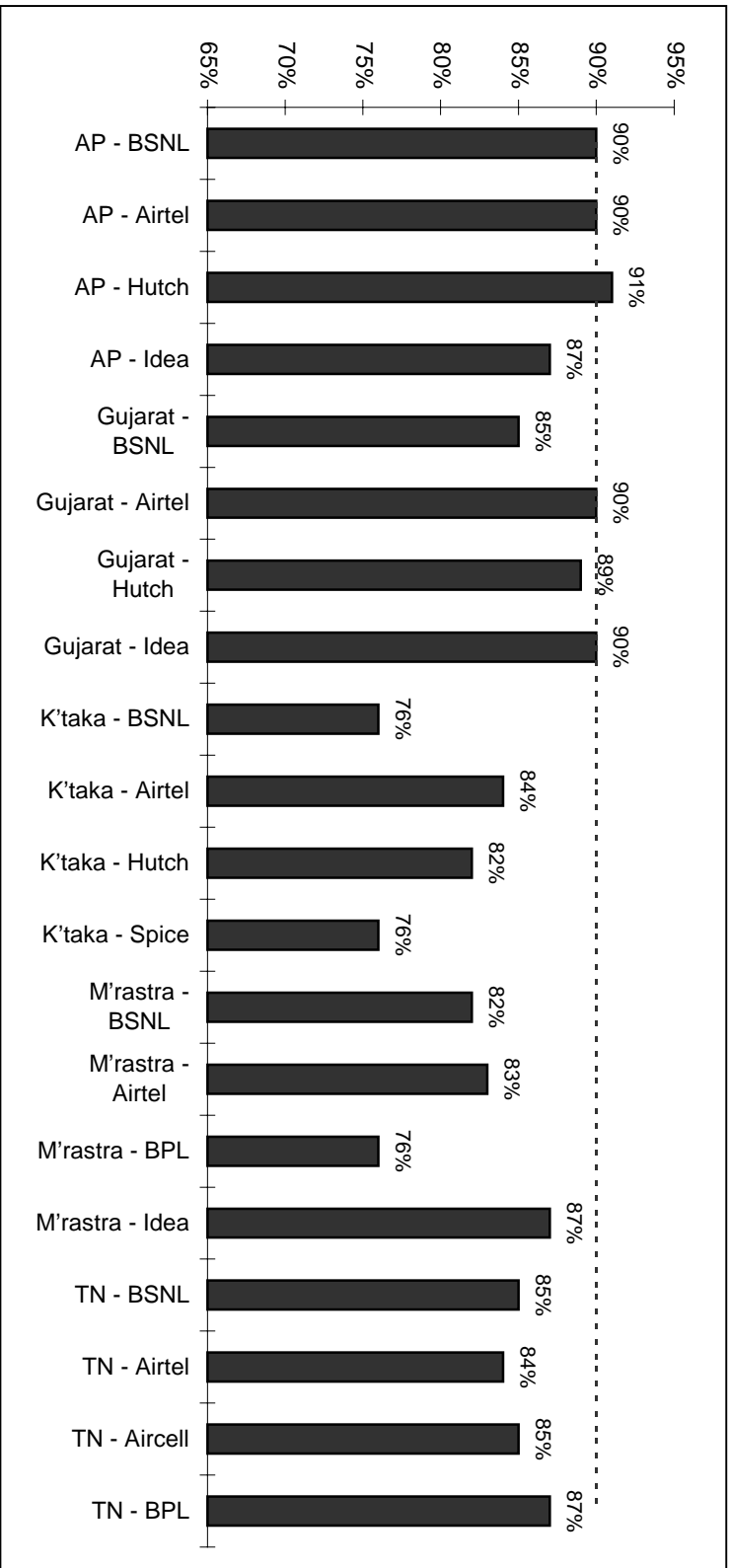


CUSTOMER SURVEY SCORES ON SATISFACTION WITH BILLING – GSM SERVICES (A CIRCLES)

Annex-XXV

Oct. '03-Dec. '03

Standard: > 90%

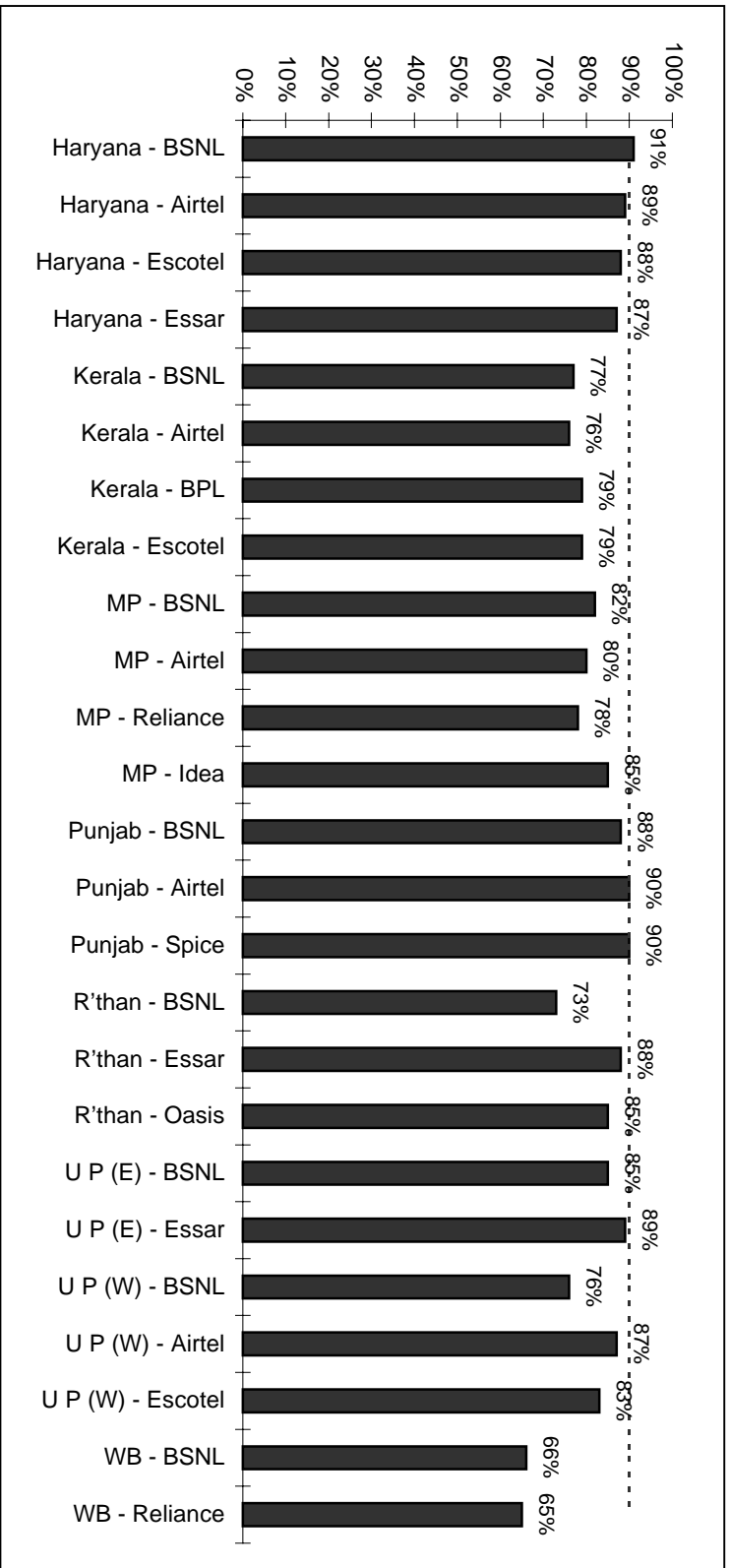


CUSTOMER SURVEY SCORES ON SATISFACTION WITH BILLING – GSM SERVICES (B CIRCLES)

Annex-XXVI

Oct. '03-Dec. '03

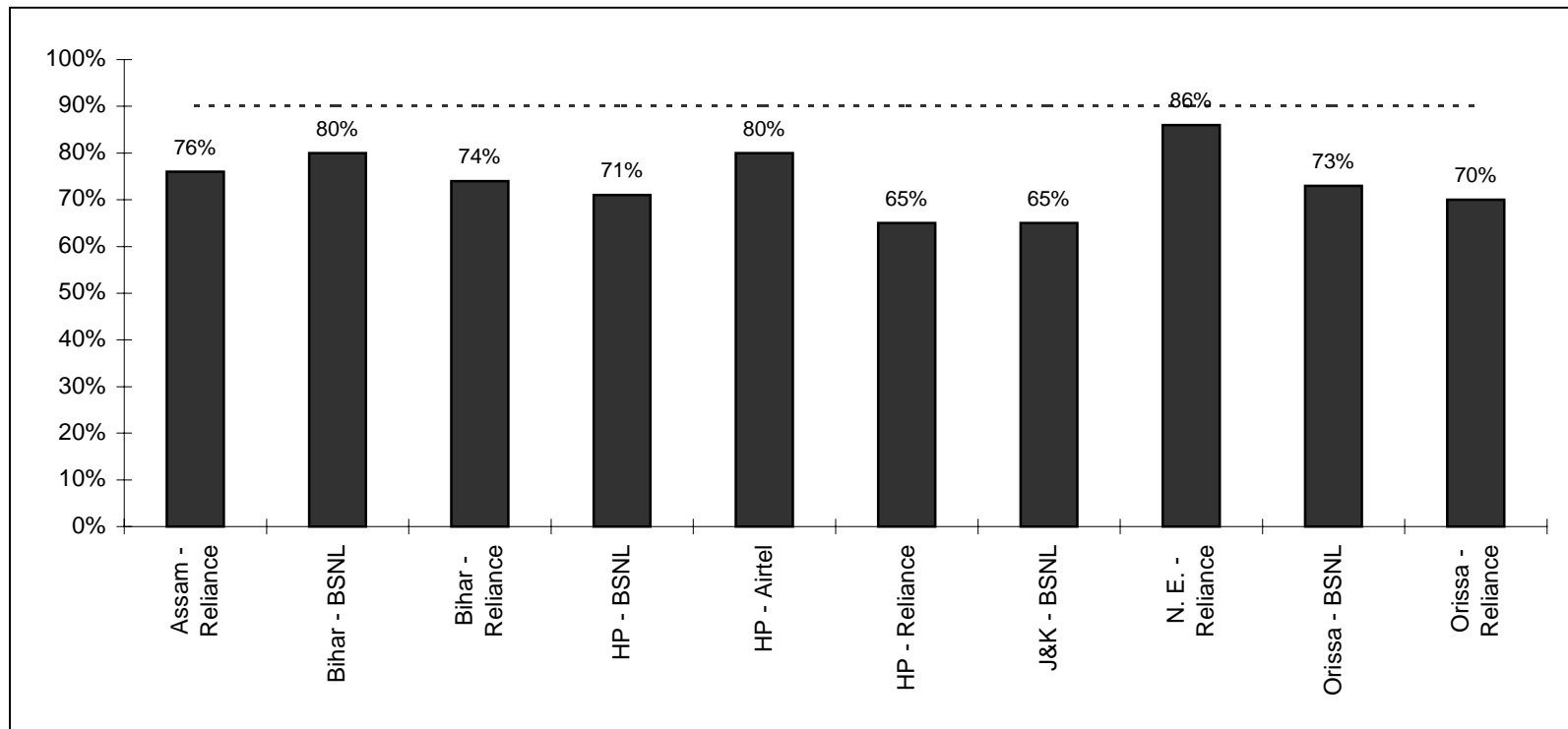
Standard: > 90%



CUSTOMER SURVEY SCORES ON SATISFACTION WITH BILLING – GSM SERVICES (C CIRCLES)

Oct.'03-Dec.'03

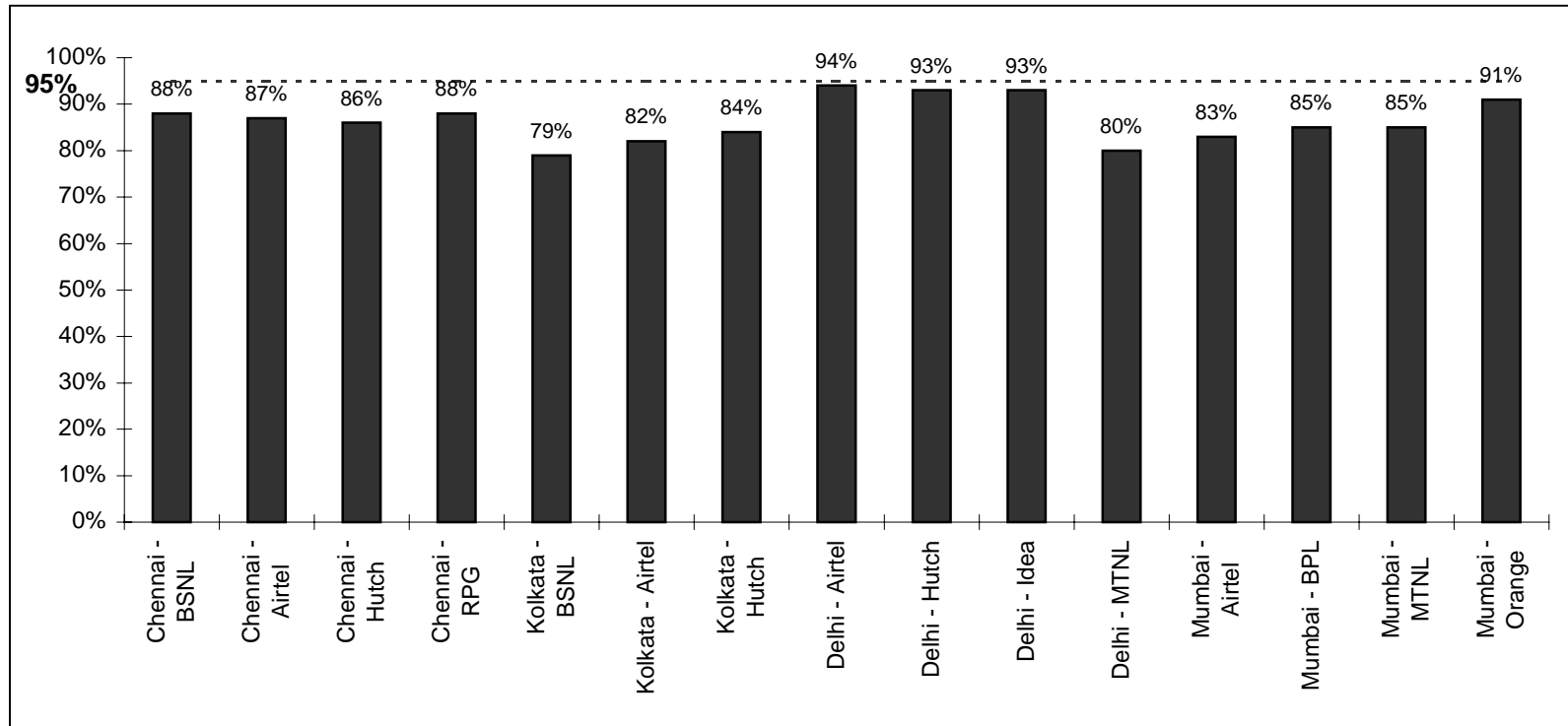
Standard: > 90%



**CUSTOMER SURVEY SCORES ON SATISFACTION WITH SUPPLEMENTARY SERVICES – GSM SERVICES
(METROS)**

Oct.'03-Dec.'03

Standard: > 95%

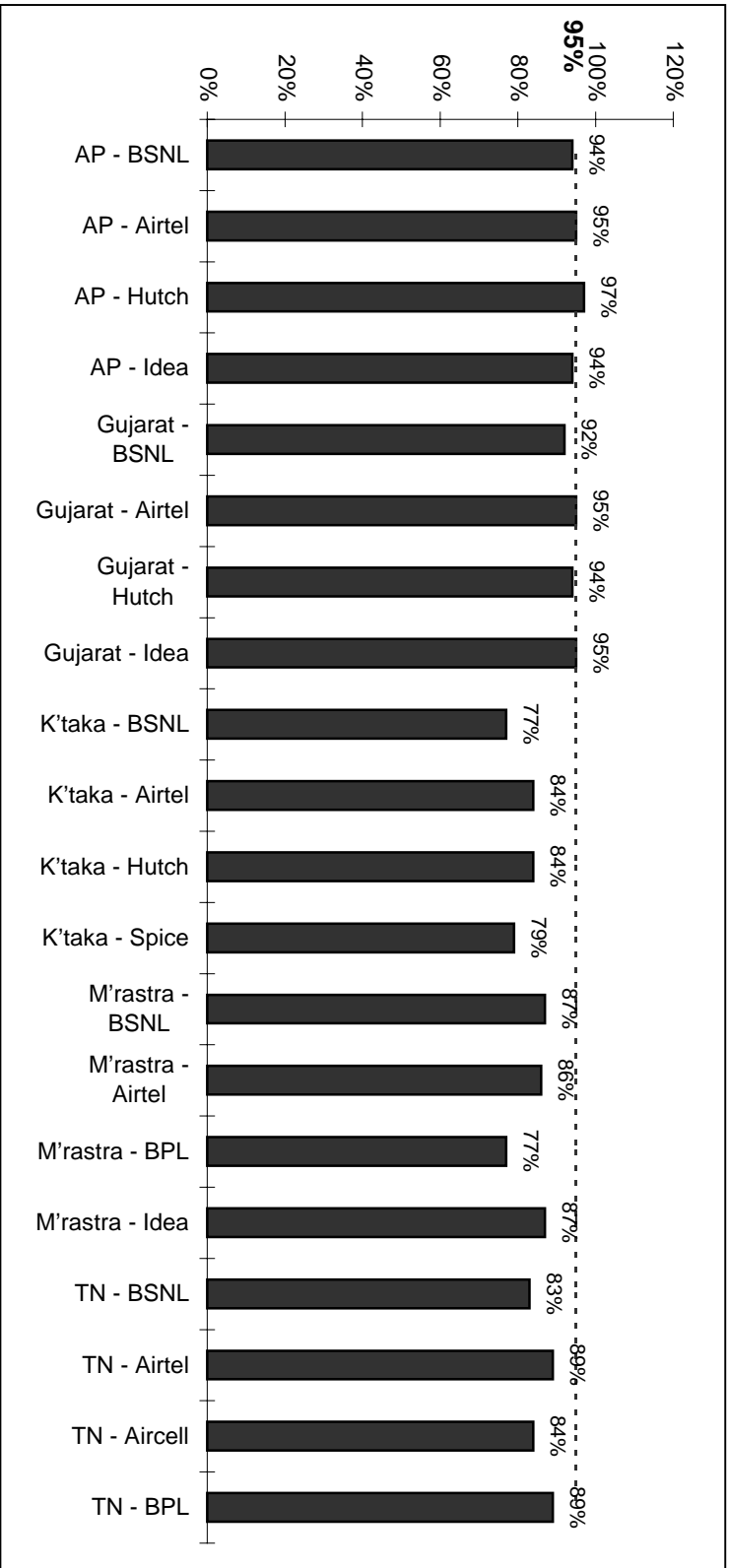


**CUSTOMER SURVEY SCORES ON SATISFACTION WITH SUPPLEMENTARY SERVICES – GSM SERVICES
(A CIRCLES)**

Annex-XXIX

Oct. '03-Dec. '03

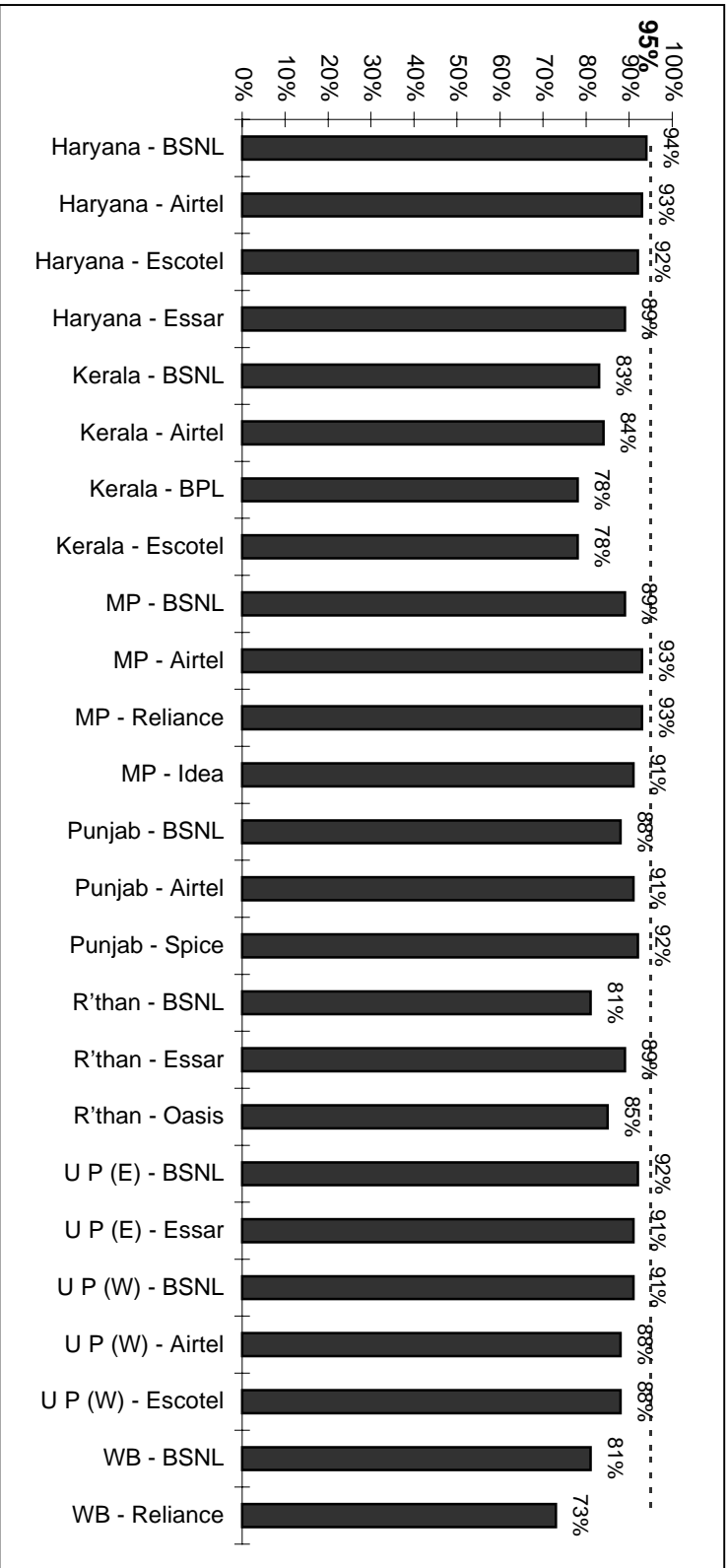
Standard: > 95%



**CUSTOMER SURVEY SCORES ON SATISFACTION WITH SUPPLEMENTARY SERVICES – GSM SERVICES
(B CIRCLES)**

Standard: > 95%

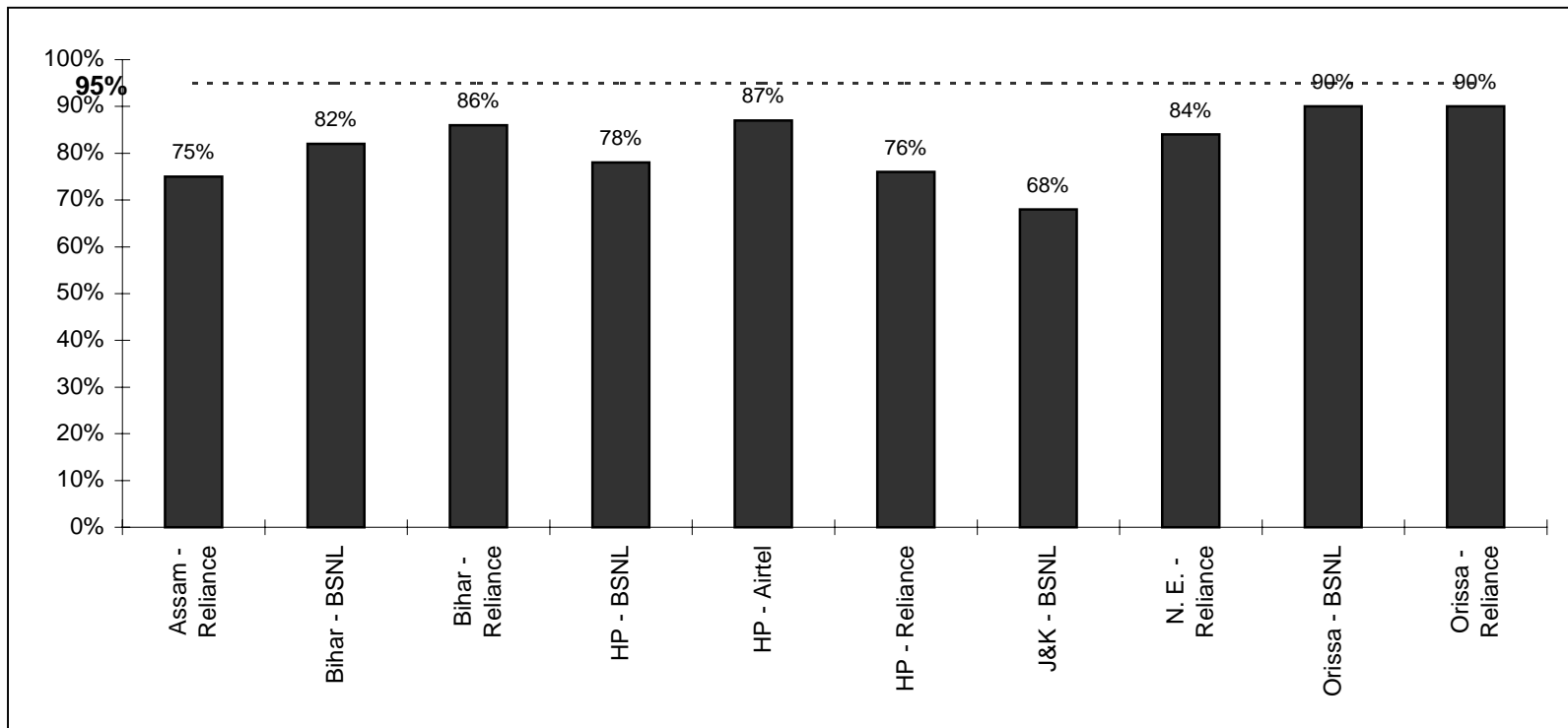
Oct.'03-Dec.'03



**CUSTOMER SURVEY SCORES ON SATISFACTION WITH SUPPLEMENTARY SERVICES – GSM SERVICES
(C CIRCLES)**

Oct.'03-Dec.'03

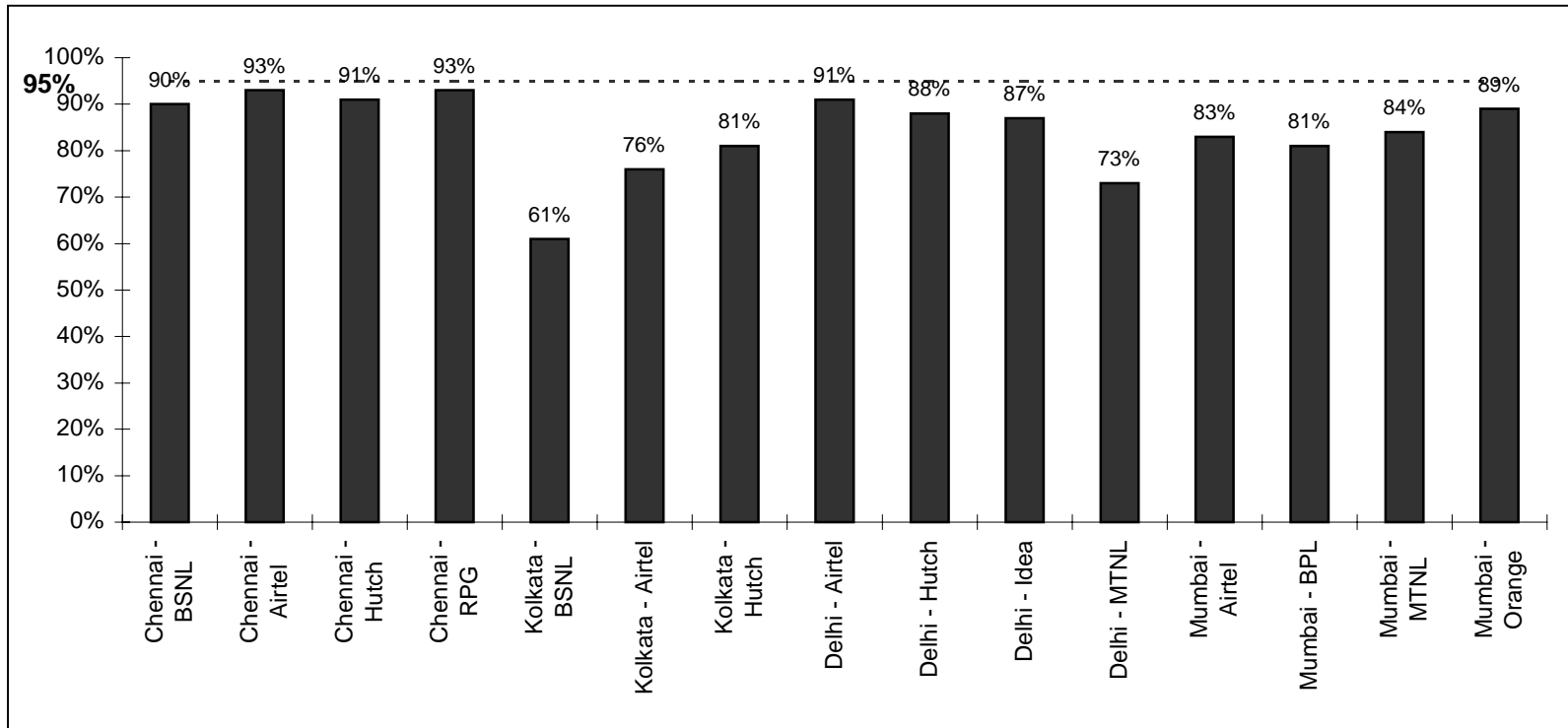
Standard: > 95%



**CUSTOMER SURVEY SCORES ON SATISFACTION WITH OVERALL SERVICE – GSM SERVICES
(METROS)**

Oct.'03-Dec.'03

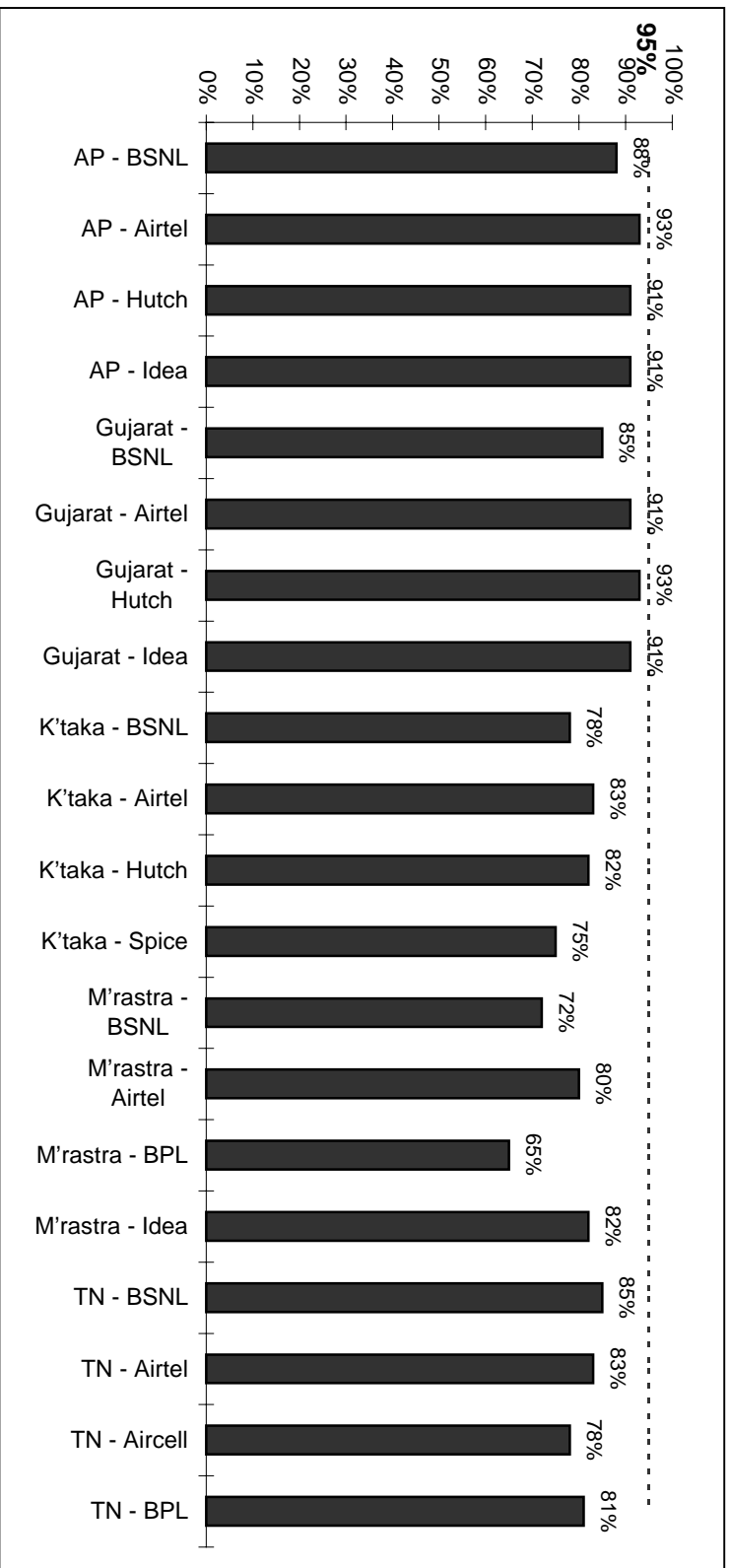
Standard: > 95%



**CUSTOMER SURVEY SCORES ON SATISFACTION WITH OVERALL SERVICE – GSM SERVICES
(A CIRCLES)**

Standard: > 95%

Oct. '03-Dec. '03

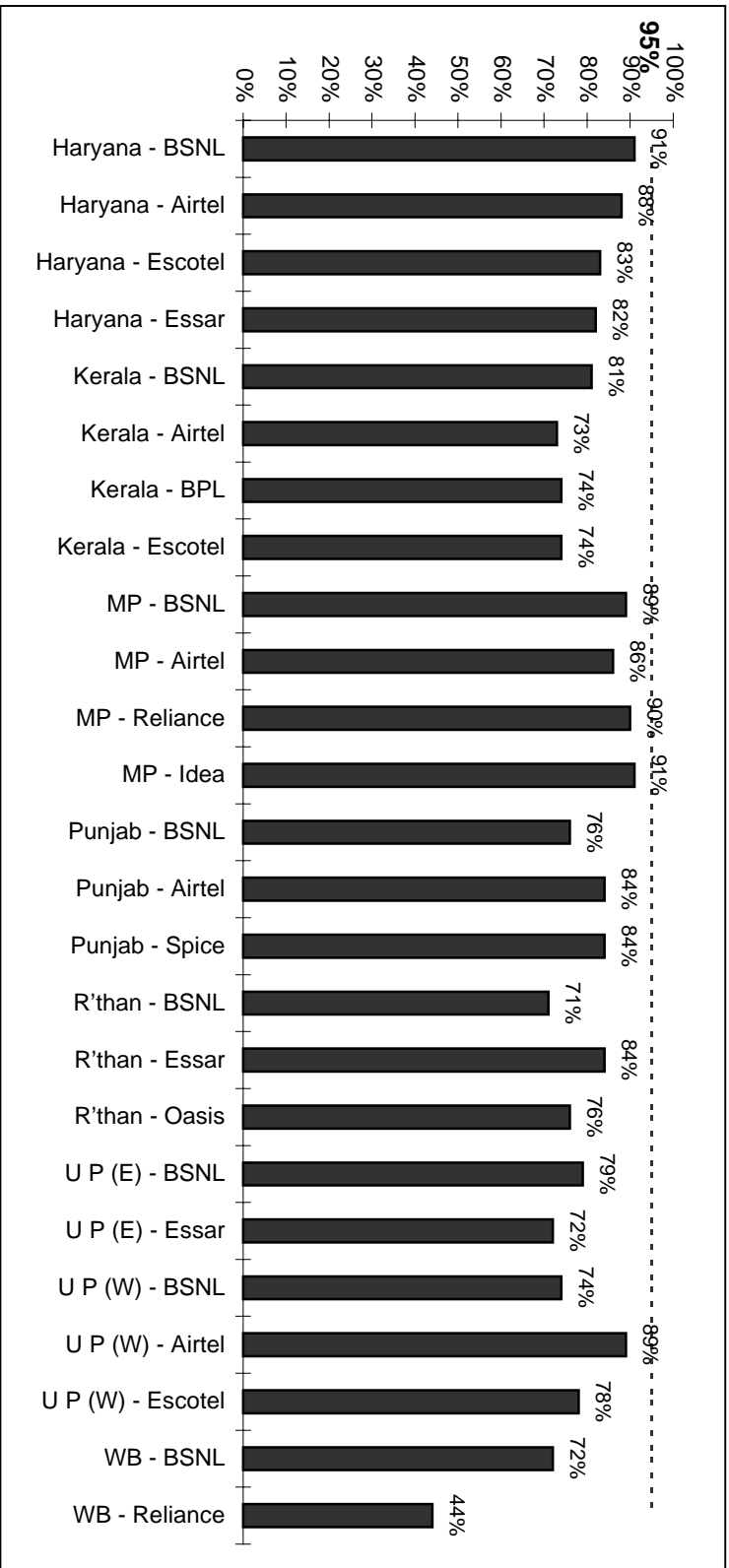


**CUSTOMER SURVEY SCORES ON SATISFACTION WITH OVERALL SERVICE – GSM SERVICES
(B CIRCLES)**

Annex-XXXIV

Standard: > 95%

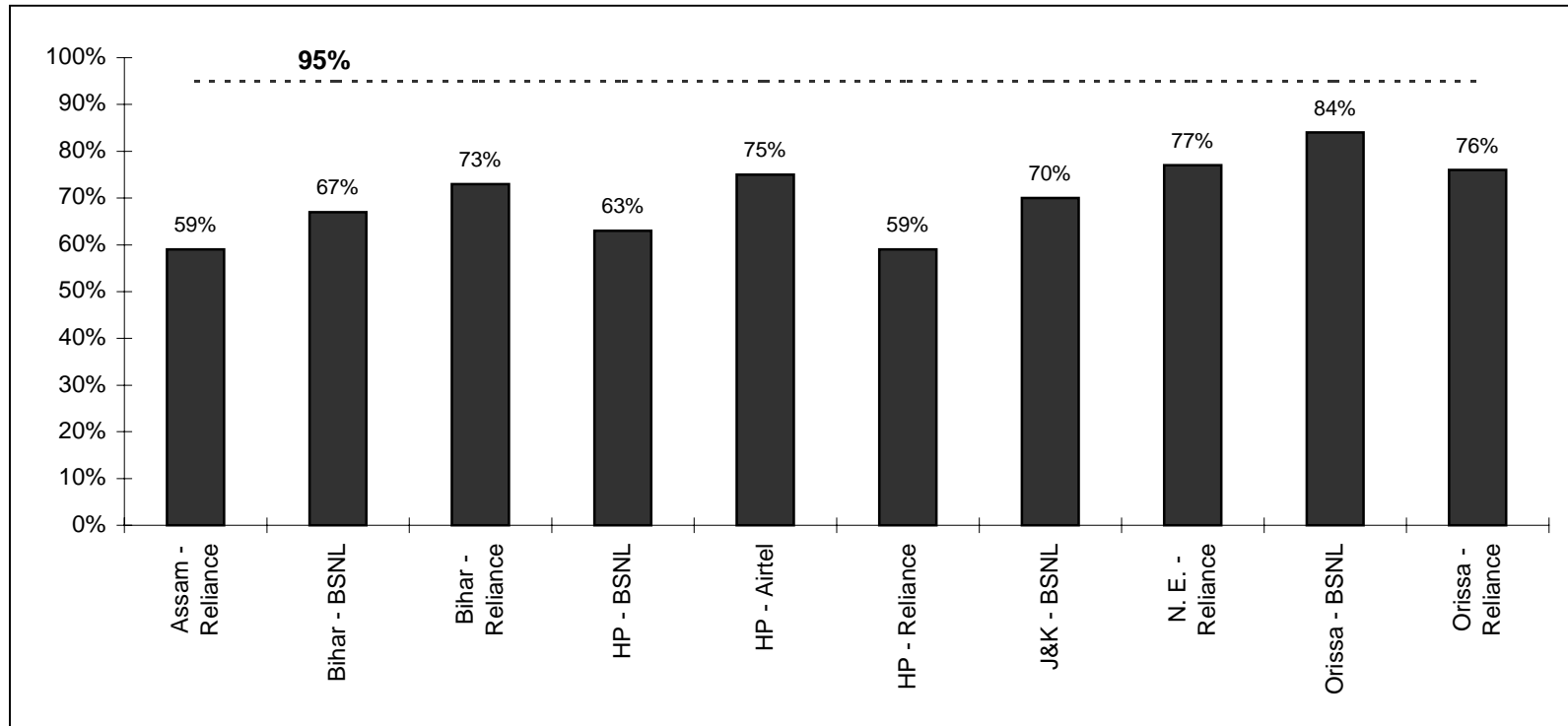
Oct.'03-Dec.'03



**CUSTOMER SURVEY SCORES ON SATISFACTION WITH OVERALL SERVICE – GSM SERVICES
(C CIRCLES)**

Oct.'03-Dec.'03

Standard: > 95%



Overall performance of CDMA service operators on some selected service parameters

CDMA Operators in Metro Circle

Oct.03- Dec 03

		Chennai	Chennai	Delhi	Delhi	Kolkata	Mumbai	Mumbai
S.no	Objective parameters	RIL	TTL	RIL	TTL	RIL	RIL	TTL
Fault Incidence & repair								
A (I)	Fault incidences (per100 subscribers/ month)	0.729	0.034	1.061	1.183	0.809	1.373	1.525
A (ii)	Fault cleared in 24 hours	98.9%	100.0%	99.0%	99.3%	99.0%	99.0%	99.7%
A (iii)	Accumulated down time of community isolation	0.00 hrs.	1.48 hrs.	0.00 hrs.	69.55 hrs.	0.00 hrs.	0.00 hrs.	2.52 hrs.
Network performance								
B (I)	Call setup success rate							
	Incoming	98.75%	98.61%	99.57%	94.99%	99.25%	99.09%	87.45%
	Outgoing	98.51%	98.24%	98.41%	95.48%	98.52%	98.52%	88.55%
	Total	98.58%	98.36%	98.79%	95.35%	98.77%	98.72%	88.26%
B (ii)	Service Access Delay	7.52 to 11.44 sec.	NR	NR	NR	7.38 to 11.1 sec.	7.07 to 10.99 sec.	NR
B (iii)	Call Drop rate	1.26%	0.72%	0.74%	0.75%	0.77%	1.02%	1.26%
B(iv)	% connections with good voice quality (%age connections with FER)							
	0-2	97.32%	80.73%	97.88%	NR	98.19%	99.36%	NR
	2-4	1.87%	14.17%	0.67%	NR	1.61%	0.46%	NR
	More than 4	0.80%	5.10%	1.45%	NR	0.20%	0.18%	NR

METROS (CONTD.)

		Chennai	Chennai	Delhi	Delhi	Kolkata	Mumbai	Mumbai
S.no	Objective parameters	RIL	TTL	RIL	TTL	RIL	RIL	TTL
Billing complaints								
C(i)	Billing complaints per 100 bills issued	0.11%	0.16%	0.15%	1.31%	0.22%	0.17%	0.22%
C (ii)	%age of billing complaints resolved within 4 weeks	95.9%	100.0%	98.2%	39.1%	96.6%	98.9%	80.1%
C (iii)	Period of all refunds/ from the date of resolution							
	Total number of cases where refund was made in <4 weeks	97.2%	NR	98.6%	0.0%	96.2%	97.4%	75.4%
	Total number of cases where refund was made in <5 weeks	2.8%	NR	1.4%	0.0%	3.8%	2.6%	9.6%
	Total number of cases where refund was made in <6 weeks	0.0%	NR	0.0%	0.0%	0.0%	0.0%	5.6%
Network and POI Congestion related parameters								
D(i)	Paging Channel Establishment success rate	94.6%	100.0%	95.6%	NR	92.3%	95.9%	NR
D(ii)	Traffic Channel Establishment success rate	94.9%	100.0%	98.4%	NR	97.7%	97.3%	95.4%
E	Global Answer Seizure Ratio							
	Incoming	74.0%	50.0%	78.5%	59.8%	76.4%	81.0%	41.7%
	Outgoing	59.5%	52.4%	62.5%	49.1%	65.9%	59.9%	37.1%
	Total	64.1%	51.2%	67.8%	53.3%	69.5%	67.1%	38.9%

CDMA Operators in A Circle

Oct.03- Dec 03

		A.P.	AP	Gujarat	Gujarat	Karnataka	Karnataka	Mahara shtra	Mahara shtra	T.N.	TN
S.no	Objective parameters	RIL	TTL	RIL	TTL	RIL	TTL	TTL	RIL	RIL	TTL
Fault Incidence & repair											
A (I)	Fault incidences (per100 subscribers/ month)	0.791	0.000	0.970	NA	0.608	0.098	NA	0.947	0.917	0.030
A (ii)	Fault cleared in 24 hours	98.0%	NR	98.0%	NA	99.0%	100.0%	NA	99.0%	98.1%	100.0%
A (iii)	Accumulated down time of community isolation	10.03 hrs.	4.00 hrs.	10.93 hrs.	NA	9.25 hrs.	0.00 hrs.	NA	9.27 hrs.	0.00 hrs.	6.13 hrs.
Network performance											
B (I)	Call setup success rate										
	Incoming	99.07%	NR	98.71%	NA	99.32%	98.59%	NA	98.73%	98.55%	98.19%
	Outgoing	98.46%	NR	98.45%	NA	98.61%	97.95%	NA	98.53%	98.38%	98.37%
	Total	98.68%	97.67%	98.54%	NA	98.89%	98.16%	NA	98.59%	98.43%	98.32%
B (ii)	Service Access Delay	7.15 to 11.06 sec.	NR	7.75 to 11.66 sec.	NA	7.29 to 11.05 sec.	NR	NA	6.65 to 10.57 sec.	6.63 to 10.38 sec.	NR
B (iii)	Call Drop rate	1.00%	0.73%	0.80%	NA	0.76%	0.70%	NA	0.81%	0.91%	0.45%
B(iv)	% connections with good voice quality (%age connections with FER)										
	0-2	98.19%	96.46%	97.98%	NA	97.61%	89.99%	NA	99.10%	98.51%	84.76%
	2-4	0.44%	2.80%	1.92%	NA	2.29%	6.74%	NA	0.64%	1.39%	12.06%
	More than 4	1.37%	0.70%	0.09%	NA	0.10%	3.27%	NA	0.26%	0.11%	3.17%

A CIRCLES (CONTD.)

		A.P.			AP		Gujarat		Karnataka		Maharash Mahara		T.N.	TN
S.no	Objective parameters	RIL	TTL	RIL	TTL	RIL	TTL	RIL	TTL	TTL	RIL	RIL	TTL	
Billing complaints														
C(I)	Billing complaints per 100 bills issued	0.10%	NR	0.18%	NA	0.10%	0.18%	NA	0.17%	0.11%	0.06%			
C (ii)	%age of billing complaints resolved within 4 weeks	95.0%	NR	99.0%	NA	98.6%	96.0%	NA	98.9%	95.9%	100.0%			
C (iii)	Period of all refunds/ from the date of resolution													
	Total number of cases where refund was made in <4 weeks	96.5%	NR	96.0%	NA	97.0%	100.0%	NA	97.4%	97.2%	NR			
	Total number of cases where refund was made in <5 weeks	2.5%	NR	4.0%	NA	3.0%	0.0%	NA	2.6%	2.8%	NR			
	Total number of cases where refund was made in <6 weeks	1.0%	NR	0.0%	NA	0.0%	0.0%	NA	0.0%	0.0%	NR			
Network and POI Congestion related parameters														
D(I)	Paging Channel Establishment success rate	93.1%	NR	92.4%	NA	92.4%	100.0%	NA	92.8%	87.9%	100.0%			
D(ii)	Traffic Channel Establishment success rate	98.2%	NR	97.7%	NA	98.3%	100.0%	NA	98.1%	96.7%	99.9%			
E	Global Answer Seizure Ratio													
	Incoming	74.7%	99.9%	77.3%	NA	72.6%	55.6%	NA	71.3%	72.3%	48.0%			
	Outgoing	61.3%	99.6%	66.3%	NA	67.5%	49.9%	NA	56.8%	56.2%	48.3%			
	Total	66.0%	99.8%	69.9%	NA	69.5%	52.5%	NA	61.4%	61.2%	48.2%			

CDMA Operators in B Circle

Oct.03- Dec 03

S.no	Objective parameters	Haryana		M.P.	Punjab	Rajasthan	U.P.(E)	U.P.(W)	W.B.
		RIL	RIL	RIL	RIL	RIL	Reliance	Reliance	Reliance
Fault Incidence & repair									
A (I)	Fault incidences (per100 subscribers/ month)	2.867	0.821	0.970	1.008	0.955	1.344	1.920	2.859
A (ii)	Fault cleared in 24 hours	98.1%	98.0%	98.1%	99.0%	98.1%	98.0%	98.1%	98.1%
A (iii)	Accumulated down time of community isolation	3.00 hrs.	0.00 hrs.	0.00 hrs.	2.48 hrs.	3.75 hrs.	1.97 hrs.	7.12 hrs.	0.00 hrs.
Network performance									
B (I)	Call setup success rate								
	Incoming	98.81%	98.63%	99.36%	98.61%	98.93%	99.08%	99.27%	99.23%
	Outgoing	98.59%	98.39%	98.49%	98.45%	98.60%	98.47%	98.49%	98.55%
	Total	98.65%	98.48%	98.83%	98.50%	98.70%	98.62%	98.72%	98.76%
B (ii)	Service Access Delay	NR	7.48 to 11.39 sec.	NR	6.29 to 10.24 sec.	6.5 to 10.42 sec.	7.25 to 11.16 sec.	7.04 to 10.96 sec.	6.49 to 10.41 sec.
B (iii)	Call Drop rate	0.75%	0.99%	0.53%	0.66%	0.59%	1.25%	0.75%	1.18%
B(iv)	% connections with good voice quality (%age connections with FER)								
	0-2	98.05%	99.20%	94.56%	98.54%	97.84%	95.91%	91.76%	96.67%
	2-4	1.95%	0.76%	4.97%	0.97%	2.11%	4.06%	6.99%	3.27%
	More than 4	0.00%	0.04%	0.47%	0.48%	0.05%	0.03%	1.25%	0.06%

B CIRCLES (CONTD.)

		Haryana	Kerala	M.P.	Punjab	Rajasthan	U.P.(E)	U.P.(W)	W.B.
S.no	Objective parameters	RIL	RIL	RIL	RIL	RIL	Reliance	Reliance	Reliance
Billing complaints									
C(I)	Billing complaints per 100 bills issued	0.13%	0.14%	0.12%	0.10%	0.10%	0.10%	0.11%	0.22%
C (ii)	%age of billing complaints resolved within 4 weeks	97.8%	97.0%	98.8%	97.4%	98.4%	98.9%	97.3%	96.6%
C (iii)	Period of all refunds/ from the date of resolution								
	Total number of cases where refund was made in <4 weeks	100.0%	100.0%	97.9%	92.9%	95.5%	100.0%	87.5%	96.2%
	Total number of cases where refund was made in <5 weeks	0.0%	0.0%	2.1%	7.1%	4.5%	0.0%	12.5%	3.8%
	Total number of cases where refund was made in <6 weeks	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Network and POI Congestion related parameters									
D(I)	Paging Channel Establishment success rate	88.5%	86.6%	90.7%	91.3%	91.1%	88.2%	91.4%	89.0%
D(ii)	Traffic Channel Establishment success rate	98.0%	97.5%	98.8%	97.7%	98.3%	97.6%	98.5%	97.5%
E	Global Answer Seizure Ratio								
	Incoming	72.2%	72.1%	77.9%	74.2%	75.1%	69.0%	72.0%	71.0%
	Outgoing	52.8%	64.9%	64.2%	59.1%	54.9%	51.3%	56.1%	62.6%
	Total	57.9%	67.4%	69.4%	63.8%	61.3%	55.8%	60.8%	65.1%

CDMA Operators in C Circle

Annex-IV

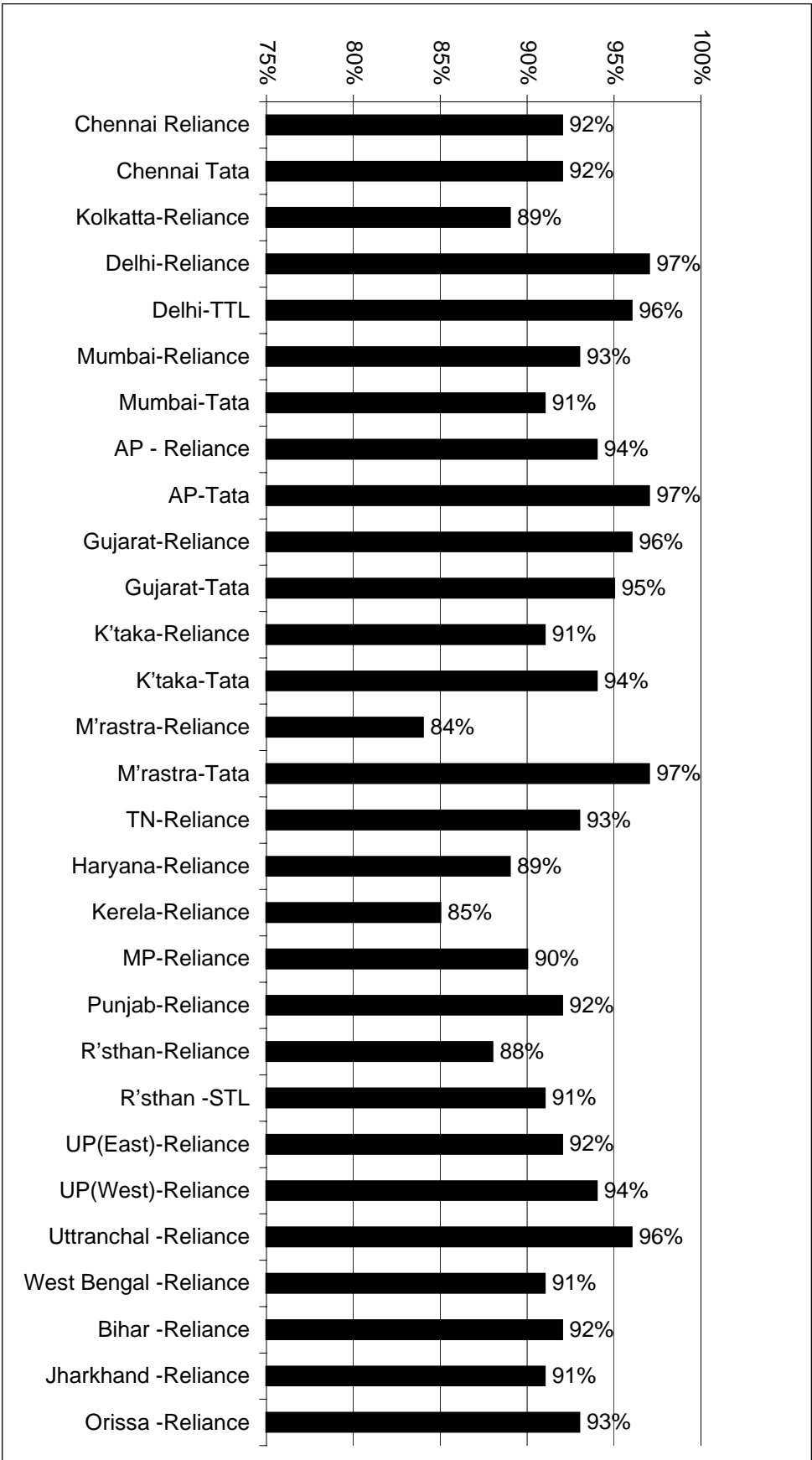
Oct.03- Dec 03

S.no	Objective parameters	Bihar	Orissa
		Reliance	Reliance
Fault Incidence & repair			
A (I)	Fault incidences (per100 subscribers/ month)	2.792	1.271
A (ii)	Fault cleared in 24 hours	98.0%	98.1%
A (iii)	Accumulated down time of community isolation	0.00 hrs.	0.00 hrs.
Network performance			
B (I)	Call setup success rate		
	Incoming	98.92%	98.38%
	Outgoing	98.45%	98.61%
	Total	98.59%	98.55%
B (ii)	Service Access Delay	6.45 to 10.37 sec.	7.65 to 11.47 sec.
B (iii)	Call Drop rate	1.66%	0.88%
B(iv)	% connections with good voice quality (%age connections with FER)		
	0-2	93.83%	92.62%
	2-4	5.93%	7.38%
	More than 4	0.37%	0.00%
Billing complaints			
C(I)	Billing complaints per 100 bills issued	0.08%	0.12%
C (ii)	%age of billing complaints resolved within 4 weeks	97.1%	97.0%
C (iii)	Period of all refunds/ from the date of resolution		
	Total number of cases where refund was made in <4 weeks	100.0%	100.0%
	Total number of cases where refund was made in <5 weeks	0.0%	0.0%
	Total number of cases where refund was made in <6 weeks	0.0%	0.0%
Network and POI Congestion related parameters			
D(I)	Paging Channel Establishment success rate	87.4%	87.6%
D(ii)	Traffic Channel Establishment success rate	98.2%	98.2%
E	Global Answer Seizure Ratio		
	Incoming	72.2%	75.7%
	Outgoing	59.6%	59.4%
	Total	63.3%	64.2%

CUSTOMER SURVEY SCORES ON SATISFACTION WITH SERVICE PROVISION – CDMA SERVICES

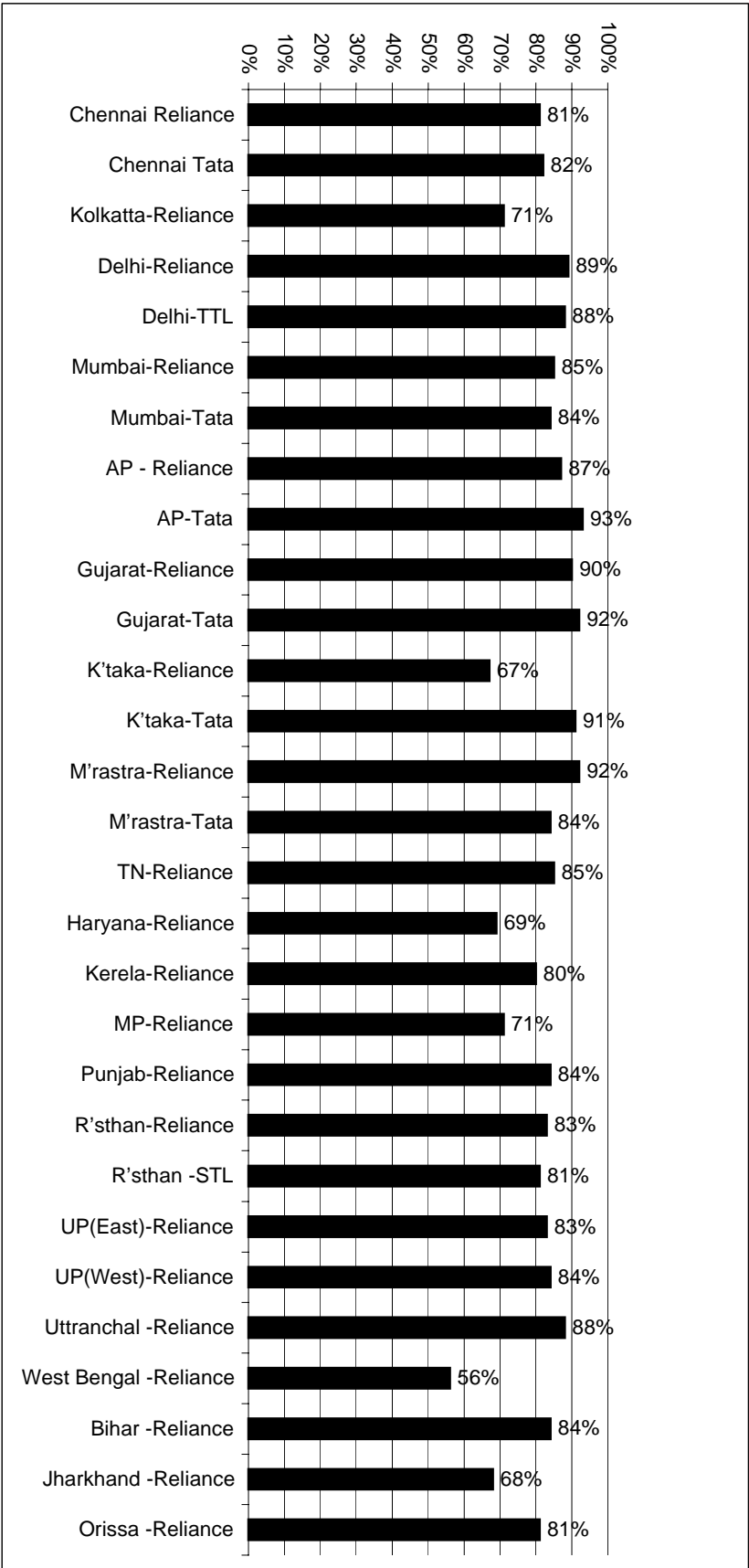
Oct.'03-Dec.'03

Annex-V



**CUSTOMER SURVEY SCORES ON SATISFACTION WITH NETWORK PERFORMANCE, RELIABILITY AND AVAILABILITY –
CDMA SERVICES**

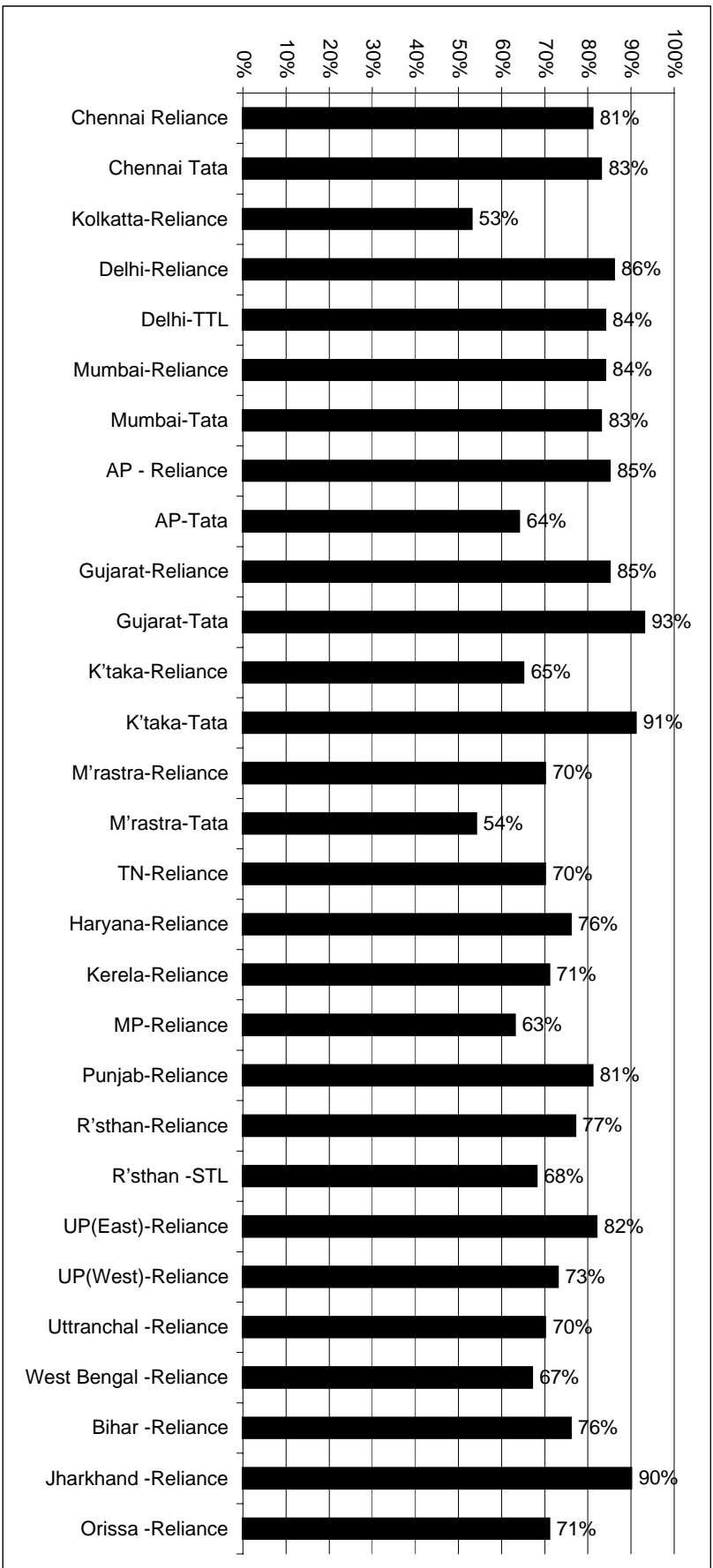
Annex-VI
Oct.'03-Dec.'03



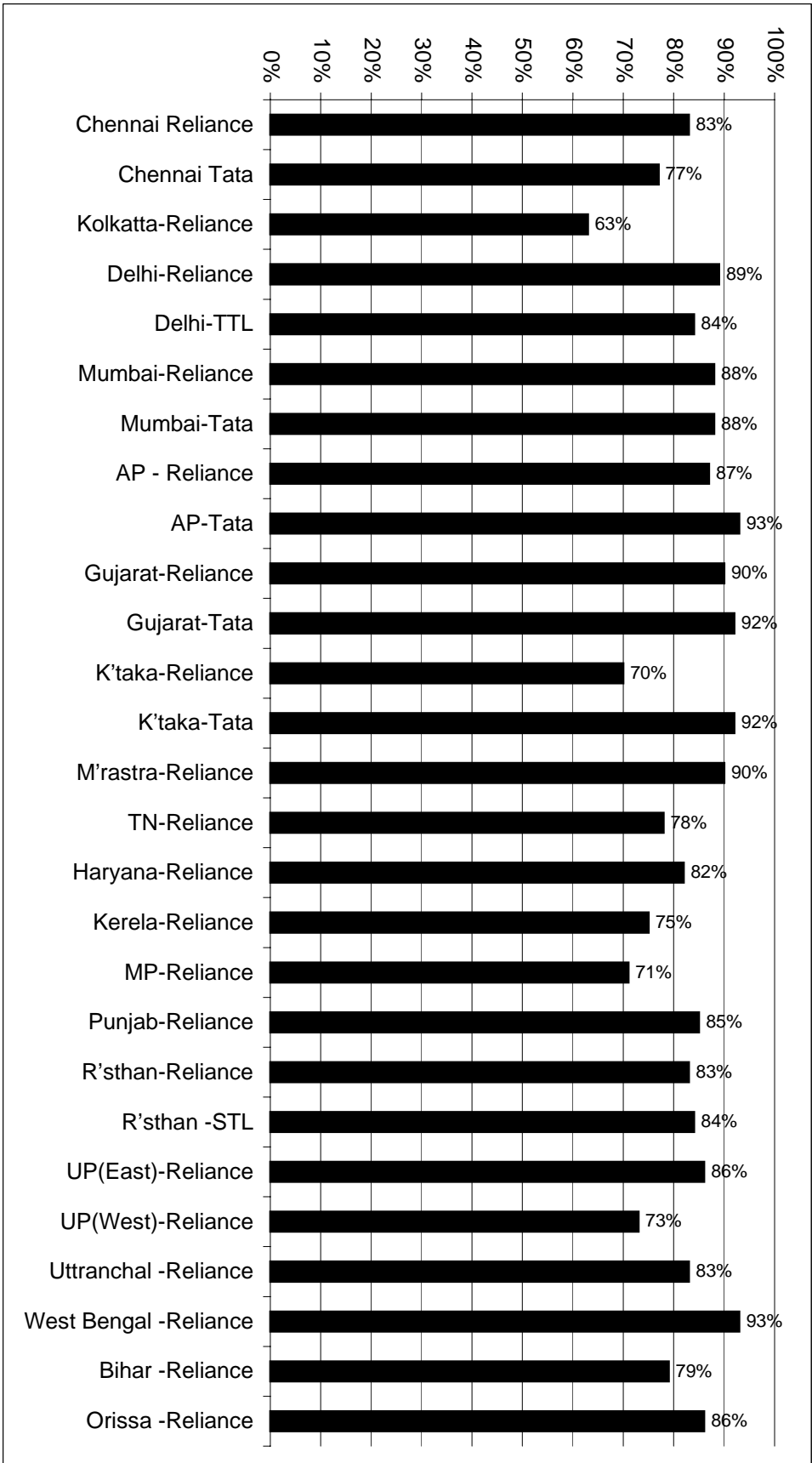
CUSTOMER SURVEY SCORES ON SATISFACTION WITH MAINTAINABILITY – CDMA SERVICES

Oct.'03-Dec.'03

Annex-VII



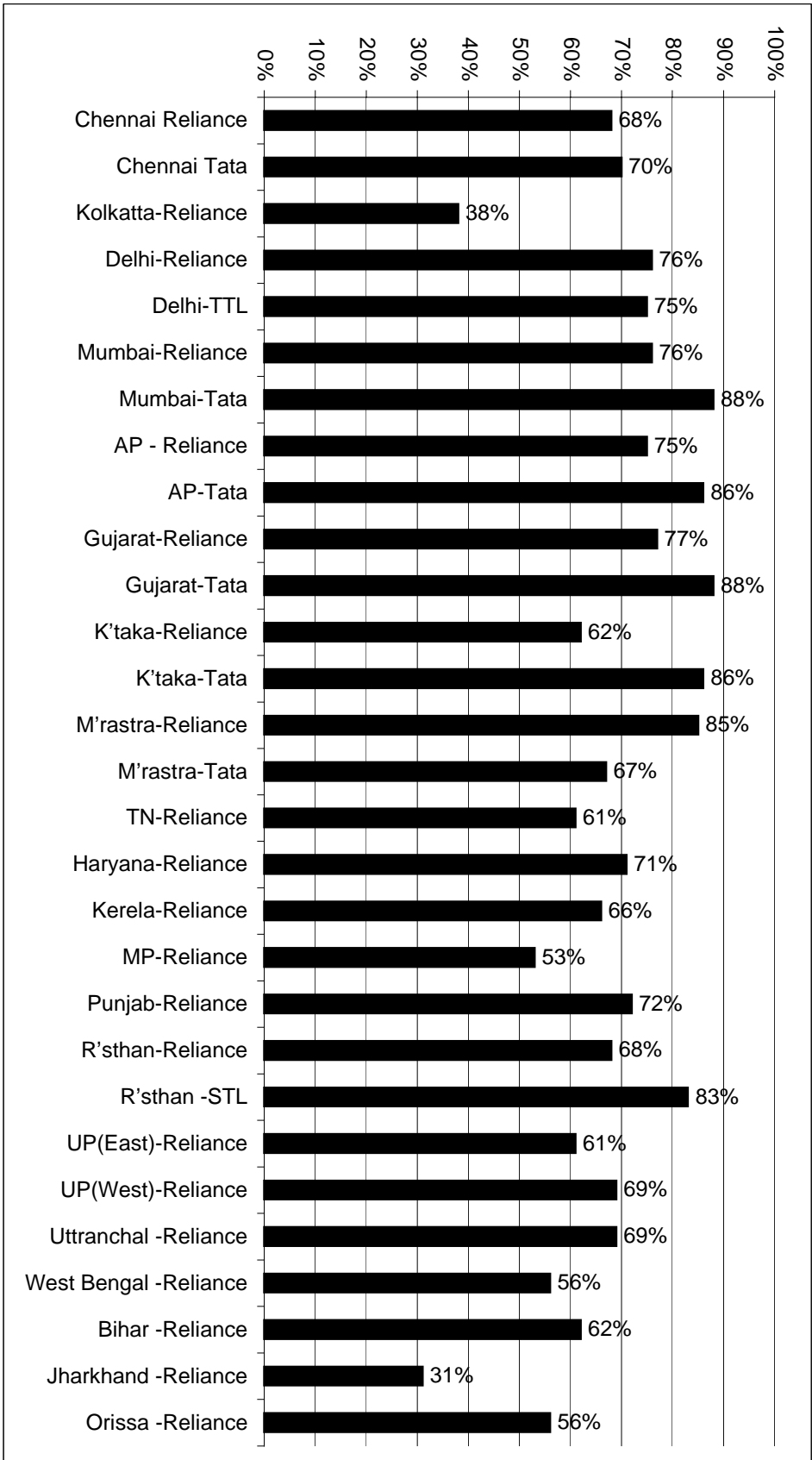
CUSTOMER SURVEY SCORES ON SATISFACTION WITH HELP SERVICES – CDMA SERVICES



Oct.'03-Dec.'03

Annex-VIII

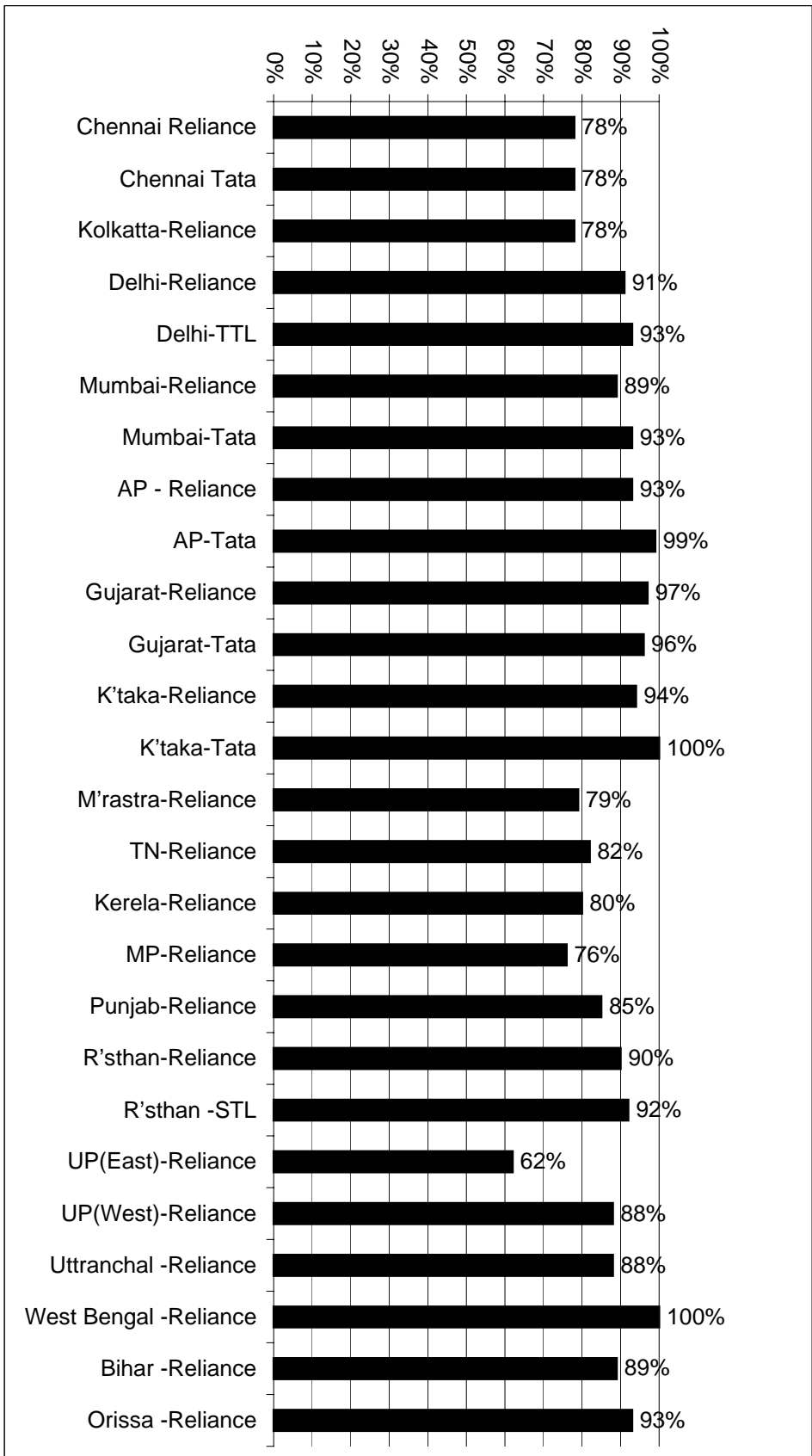
CUSTOMER SURVEY SCORES ON SATISFACTION WITH BILLING – CDMA SERVICES



Oct.'03-Dec.'03

Annex-IX

CUSTOMER SURVEY SCORES ON SATISFACTION WITH SUPPLEMENTARY SERVICE – CDMA SERVICES
Annex-X
Oct.'03-Sept.'03



CUSTOMER SURVEY SCORES ON SATISFACTION WITH OVERALL SERVICE – CDMA SERVICES

Oct.'03-Dec.'03

Annex-XI

