



**Audit & Assessment of Quality of Service
Of
Cellular Mobile Telephone Service
Basic Telephone (Wire Line) Service
&
Broadband Service
For
Telecom Regulatory Authority of India
West Zone – Gujarat Service Area**

(April 2015 – June 2015)

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PREFACE

The Telecom Regulatory Authority of India (TRAI), was established in 1997 by an Act of Parliament, called the Telecom Regulatory Authority of India Act, 1997, to regulate telecom services. The Authority's mission is to ensure that the interest of consumers are protected and at the same time to nurture conditions for growth of telecommunications, broadcasting and cable services in a manner and at a pace which will enable India to play a leading role in emerging global information society.

The Authority, in exercise of its functions as per the provisions in the TRAI Act, has been entrusted to measure the Quality of Service provided by the Service Providers from time to time and to compare them with the benchmarks so as to assess the level of performance. In pursuance of this, TRAI has appointed **M/s TUV-SUD South Asia Pvt. Ltd.** to carry out "Audit and Assessment of Quality of Service" provided by Basic (Wire line), Cellular Mobile and Broadband service providers in terms of the benchmarks specified in the respective regulations, in **North and West** Zones.

TUV-SUD South Asia carried out QoS audit as per the norms of TRAI in all the eight circles / services areas of the North Zone and four circles of the West Zone. This report details the performance of the various service providers in **Gujarat circle** against the QoS bench marks laid down by TRAI in the respective regulations.

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1. BACKGROUND



1. BACKGROUND

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 survey of such service provided by the service providers so as to protect interest of the consumers of telecommunication services” vide sub-clause (v) of clause (b) of sub-section (1) of section 11 of the Telecom Regulatory Authority of India Act, 1997 (24 of 1997).

The purpose of laying down Quality of Service Parameters is to:

- i) Create conditions for consumer satisfaction by making known the quality of service, which the Service provider is required to provide, and the user has a right to expect.
- ii) Measure the Quality of Service provided by the Service Providers from time to time and to compare them with the norms so as to assess the level of performance.
- iii) Generally protect the interests of consumers of telecommunication services.

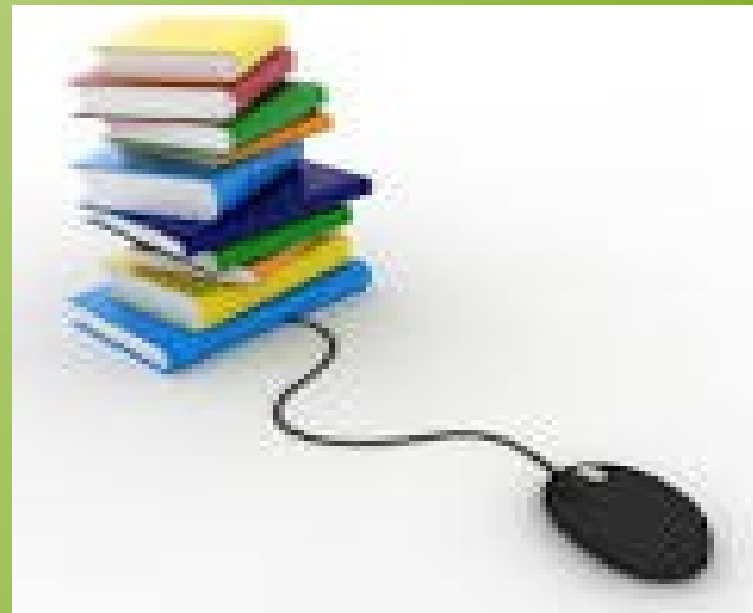
TRAI, the regulatory watch dog for the Quality of Service for the telecom services – Basic (Wire line), Cellular Mobile (Wireless) and Broadband has commissioned **M/s TUV-SUD South Asia Pvt. Ltd.** for conducting audit and assessment of quality of service of service providers, in terms of the benchmarks specified in the “The Standards of Quality of Service of Basic Telephone Service (Wire line) and Cellular Mobile Telephone Service Regulations, 2009 (7 of 2009) dated 20th March, 2009 and the Quality of Service of Broadband Service Regulations, 2006 (11 of 2006) dated 6th October, 2006 on zonal basis for **North Zone and West Zone** comprising 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 Gurgaon.

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

The Audit exercise would assess the Quality of Service of telecom operators providing Basic (Wire line), Cellular Mobile (Wireless) and Broadband services by auditing the relevant QoS records maintained by the operators, conducting drive tests as well as live measurements and comparing them with quality of service benchmarks stipulated by TRAI. The audit would be carried out by **TUV-SUD South Asia** every quarter across all the Circles/Service areas of **North** and **West** Zones for Cellular Mobile Service. However, in respect of Basic telephone service (wire line) and Broadband service, a circle would be audited once in a year.

2. OBJECTIVES AND METHODOLOGY



2. OBJECTIVES AND METHODOLOGY

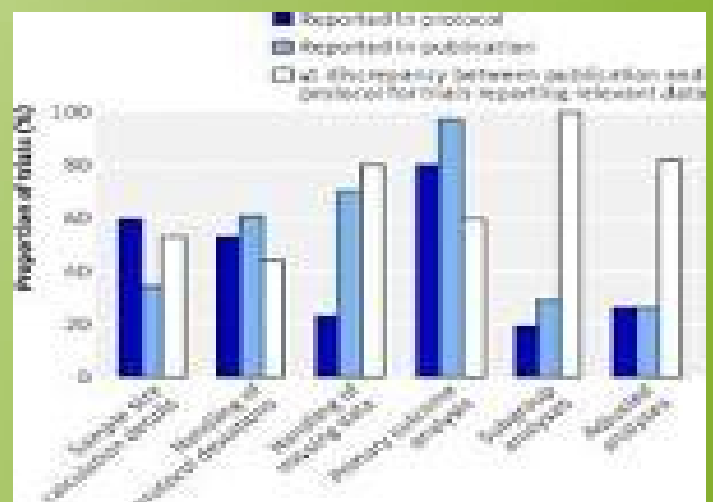
The primary objective is to audit and assess the Quality of Service being rendered by Basic, Cellular Mobile & Broadband service providers against the parameters notified by TRAI.

The audit and assessment of Quality of Service was carried out by **TUV SUD South Asia across all the Circles/Service areas of North and West Zones for Cellular Mobile Service. Apart from this, QoS audit for Basic (Wire line) and Broadband Services was also undertaken for Punjab, Rajasthan and Gujarat circles during the quarter April 2015 – June 2015.**

The Scope of work as per the Terms of Reference (TOR) includes the following:

- i) Preparation of Performance Monitoring reports (PMRs) and uploading in the system.
- ii) Live measurements of the performance of Service Providers (SPs) against the benchmarks for three days during each audit.
- iii) Monthly audit based on one month data of the SPs.
- iv) Drive test of the RF networks.
- v) Audit of the performance of call centers 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.
- vi) Transfer of data generated by the RF drive test/Live measurements / PMR/ monthly audit to the server located at TRAI premises on real time basis.

3. SAMPLE SIZE



3. SAMPLE SIZE

3.1 SAMPLING FOR CELLULAR MOBILE (WIRELESS) SERVICE PROVIDERS

- 100% of the Gateway MSC's (GMSC's) and Mobile Switching Centers (MSC's) of all the Cellular Mobile Service Providers or Unified Access Service Providers (UASP) were covered for audit in specified circles/service areas.

Following are the various operators covered in Gujarat circle

Sl. No.	Name of Service Provider	Dates of live measurement Audit			Audit Location
GSM Operators		April -15	May -15	June -15	
1	AIRCEL	20 to 22 Apr'15	25 to 27 May'15	10 to 12 June'15	Aircel limited, 204 , 2nd floor, c block, Ganesh meridian, opp. Amiraj farm, near new gujarat high court, s.g highway, Ahmedabad-380 060
2	AIRTEL	13 to 15 Apr'15	19 to 21 May'15	8 to 10 June'15	Bharti Airtel Limited, 2nd Floor, Zodiac Square, Opposite Gurudwara, S.G Highway, Ahmedabad-380054
3	BSNL	14 To 16 Apr'15	18 to 20 May'15	9 to 11 June'15	BSNL, Vastrapur Telephone Exchange, Bima Nagar, Vastrapur, Ahmedabad.
4	VIDEOCON	22 to 24 Apr'15	27 to 29 May'15	10 to 12 June'15	Videocon Telecommunications Ltd, 4th floor, Campus Corner 2, Opp AUDA Garden, Prahladnagar Ahmedabad- 380 015, Gujarat
5	TATA GSM	26 to 28 Apr'15	11 to 13 May'15	8 to 10 June'15	Tata Teleservices Ltd, 2nd Floor- Citygold Building, Near Shyamal Cross Road, 132 Feet Ring Road, Ahmedabad
6	IDEA	22 to 24 Apr'15	18 to 20 May'15	9 to 11 June'15	Idea Cellular Ltd, Venus Atlantis, 2nd Floor, 100ft road, Prahlad Nagar, Ahmedabad-380015
7	RCOM GSM	21 to 23 Apr'15	18 to 20 May'15	10 to 12 June'15	Reliance Communications Limited, 103/106, Gate No: 6, Near Muthiyagaam Bus Stand, Naroda GIDC, Naroda, Ahmedabad- 382330
8	VODAFONE	23 to 25 Apr'15	25 to 27 May'15	8 to 10 June'15	House A, Vodafone West Limited, Vodafone House Corporate Road, Prahladnagar , Off S. G. Highway, Ahmedabad -380051 Gujarat, India
9	UNINOR	20 to 22 Apr'15	13 to 15 May'15	17 to 19 June'15	Telewings Communications Services Pvt Ltd. (Uninor), Welldone Technology Park Sec-48 Sohana Road Gurgaon
CDMA Operators					
10	MTS	15 to 17 Apr'15	19 to 21 May'15	10 to 12 June'15	Sistema Shyam Teleservices Limited, C Block, Office No-2, 3rd Floor, 'The Acropolis Mall', Thaltej Cross Road, Ahmedabad- 380054
11	RCOM CDMA	21 to 23 Apr'15	18 to 20 May'15	10 to 12 June'15	Reliance Communications Limited, 103/106, Gate No: 6, Near Muthiyagaam Bus Stand, Naroda GIDC, Naroda, Ahmedabad- 382330
12	TATA CDMA	26 to 28 Apr'15	11 to 13 May'15	8 to 10 June'15	Tata Teleservices Ltd, 2nd Floor- Citygold Building, Near Shyamal Cross Road, 132 Feet Ring Road, Ahmedabad

For all the above operators, audit was conducted in all the three months of the Quarter ended June 2015.

The data generated by monthly PMR and 3-days live measurements audit for the period April 2015 to June 2015 has been successfully uploaded to the server located at TRAI premises.

3.2 SAMPLING FOR BASIC (WIRE LINE) SERVICES

- . The QoS audit for basic (wire line) service was to be done for the number of exchanges spread over in about 10% of SDCAs with each service providers in specified circles. Based on this criterion, the QoS audit for basic (wire line) service was undertaken for assessment of quarterly performance of the service providers for quarter ended June-2015. **Out of 2970 (Present no. of BSNL exchanges), audit was done for 148 sampled (27-Urban and 121-Rural) exchanges**, and one exchange each of Bharti, RCL, Vodafone & TTL. As Gujarat Circle is having 160 SDCAs, so 148 BSNL exchanges spread over 16 SDCAs (10% of total 160 SDCAs) have been taken for audit. List of all exchanges taken for QoS audit is attached as **Annex-1**.

3.3 SAMPLING FOR BROADBAND SERVICE PROVIDERS

- TUV–SUD South Asia was required to conduct the audit and assessment of Quality of Service of Broadband Service only in respect of the service providers who were having broadband subscriber base of more than 10,000 subscribers in their licensed service area, for 5% of Point of Presence (PoPs) spread over in 10% SDCAs in specified Telecom Circle.

Discussion with the broadband service providers revealed that they are maintaining their networks data on centralized basis so audit has been done for the centralized data.

4. EXECUTIVE SUMMARY



4. EXECUTIVE SUMMARY

The executive summary put in a nutshell the key findings of the Audit by providing: -

- “Service provider performance report” for Cellular mobile, Basic (wire line) and Broadband services , which gives a foretaste of the performance of various operators against the benchmark specified by TRAI, during the months in which the Audit was carried out by TUV-SUD Auditors.
- “Parameter wise critical findings” for Cellular mobile, Basic (wire line) and Broadband services: This indicates key observations and findings from different activities carried out during the Audit process.
- TUV-SUD conducted audit involved a 3 stage verification process which consisted of auditing the records of the service providers and verifying the data submitted to TRAI. The second step involved a three day live measurement of all the network parameters. On the basis of the three days live measurement, the auditors checked the busy hour of the day for the service provider and collected the data for this busy hour for the month in which the audit was conducted Finally, the performance of the service providers was also gauged by conducting drive tests in three select SSAs per service provider per quarter.
- The three stage audit / verification viz audit of the records, live measurements and drive tests of all the cellular mobile operators was repeated every month. In case of Basic (Wire line) and Broadband, this exercise is required to be carried out on quarterly basis
- **Essence of compliance report of service providers with respect to the QoS:**

1) Cellular Mobile Telephone Service:

(i) From analysis of monthly audit and 3 days live measurements results, it was concluded that performance of the operators in the Gujarat service area is fairly satisfactory for **Network parameters** as all operators (except Tata-GSM/Tata-CDMA) were found to have met the benchmarks of all parameters. **Tata (GSM) and Tata (CDMA)** were having non-compliance for parameter **‘Worst affected Cells > 3% TCH drops’** in all the three months of the quarter with their average performance of **4.67% and 7.08% respectively**.

In case of three days live measurement assessment, it is found that the performance of all operators is satisfactory as they have largely met the benchmarks except the parameter **‘Worst affected cells> 3 % TCH drops’**, which could not be complied with by **Tata (GSM) and Tata (CDMA)** . The quarterly average performance of **Tata (GSM) and Tata (CDMA)** for this parameter was **4.33% and 6.56 %** respectively.

(ii) With regard to the **Customer Service Quality Parameters**, the performance of operators remained satisfactory as most of the service providers were found in compliance of most of the benchmarks. However, **BSNL** could not meet the benchmark of **Metering and Billing credibility for pre-paid** with its performance level as **0.17%**.

Regarding parameters related to response time to customers for assistance, all service providers are in compliance with respect to the parameter Accessibility of call center. However, **Airtel, RCOM (GSM) and RCOM (CDMA)** have not met the benchmark of **‘calls answered by Operators (voice to voice) within 90 seconds**. They remained short of benchmark with their performance as **90.20%, 83.39% and 85.08%** respectively, way below the benchmark of >95%.

The results for three days live measurements reveal that all operators have met the benchmarks for the parameters ‘Accessibility to call center’. However, **Airtel, RCOM (GSM)** failed to meet the benchmark of **‘Call connection to operators (Voice to voice) within 90 seconds’** with their performance as **84.40% and 93.08%** respectively.

(iii) The **Drive Tests** results suggest satisfactory working of the network of all the service providers in **Nadiad, Surender Nagar and Valsad** SSAs where the drive tests were conducted.

Thus, taking cognizance on overall performance of the service providers, it was concluded that service providers were doing fairly well in Gujarat Circle for most of the parameters. However, the performance with respect to the parameters **worst affected cell having > 3 % TCH drop and Calls answered by operator (voice to voice)** need further improvement for those operators who could not meet the benchmarks of these parameters. In case of **Customer Service Quality Parameters**, the operators lagging behind the benchmark of parameter **Calls answered by operators (Voice to Voice) and Billing complaint** need improvements enough to meet the benchmarks.

2) Basic (Wireline) Service:

The audit findings with regard to the Basic (wireline) service revealed that the performance of **BSNL** remained non-complied with in respect of the parameters **Fault Incidences, Fault Repair / Restoration Time and Calls answered by the operators (Voice to voice) and Time taken for Refunds**. **TTL** remained under performed for parameters **Billing Complaints resolved within 4 weeks / within 6 weeks**, whereas **Bharti Airtel** failed to achieve the benchmark of **Calls answered by the operators (Voice to voice)**. Hence, the concern operators need to improve their services for these parameters.

3) Broadband Service:

From the audit findings, the service providers were to have not complied with certain parameters as furnished below;

Service Provisioning / Activation Time: The audit of the service providers revealed that **GTPL, Hathway, You Broadband and Indus Media** failed to meet the benchmark of the parameter **Connection within 15 days** with their performance as **99.51%, 98.24, 99.55% and 82.92%** respectively.

Fault Repair/Restoration Time: With regards to the fault related parameters, the performance of the service providers was within TRAI norms except for **Hathway, BSNL, TCL and TTL**. **Hathway and BSNL** failed to meet the benchmark of parameter **Fault repaired by next working day** with their performance as **87.51% and 61.54% respectively**. Whereas, **Hathway, TCL, TTL and BSNL** remained short of benchmark of parameter **Fault repaired within three days** with their achieved level as **95.83%, 97.03%, 98.96% and 83.17% respectively**.

Billing Performance: For this parameter the performance of the service providers was found well within the compliance benchmarks. However, in case of parameter **Billing Complaints resolved within 4 weeks**, **TTL and BSNL** could not meet the benchmark with their performance level as **52.17% and 99.37%** against the benchmark of 100%. Thus **TTL** was way below the benchmark.

Regarding the parameter of **Refunds**, **TCL** could not settle even a single case out of 12 cases due for refunds after closure.

Response Time to Customer for assistance by operator (Voice to Voice): For percentage of calls getting connected to call center and answered, all service providers were found meeting the benchmark for this parameter except **Airtel, TCL, You Broadband and BSNL**. **Airtel** could not meet the benchmark for the parameter “**% age calls answered by the operator within 60 seconds**”; and “**% age calls answered by the operator within 90 seconds**”; its achievement level was **54.25% and 61.99%** respectively.

Whereas, **TCL, You Broadband and BSNL** remained under performed for parameter “% age calls answered by the operator within 90 seconds”; with their performance level as **65.12%, 79.82% and 77.69%** respectively.

Live measurement: Airtel and You Broadband also failed to meet the benchmark for the same parameter during 3 days live measurement and its achievement level was **31.48%, 45.33% (Within 60 Sec.)** and **39.92%, 50.55% (Within 90 Sec.)** respectively.

Bandwidth Utilization/ Throughput: All the service providers were found using Multiple Router Traffic Grapher (MRTG) and also it was observed that all service providers were reporting combined bandwidth utilization for corporate customers and household customers.

The performance of service providers with respect of these parameters was found satisfactory i.e. within benchmark during quarterly audit as well as 3 days live measurement except **GPTL** could not meet the benchmark for the parameter **%age Bandwidth utilization during the period (88.25%)**. **GPTL** also failed to meet the benchmark **(85.94%)** during 3 days live measurement against the benchmark of <80%.

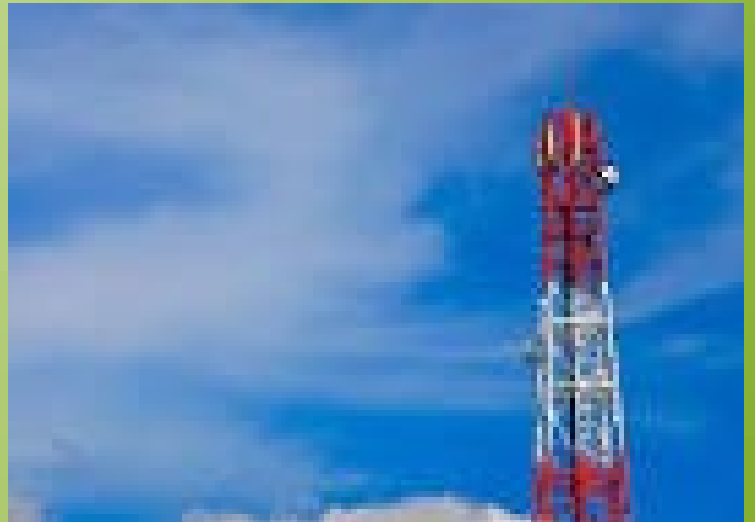
Service Availability/Uptime: All service providers were found meeting the benchmark for this parameter.

Packet Loss and Network Latency: It was observed that almost all operators were measuring packet loss and latency by conducting ping test on random basis for their internal assessment. Only **Pacenet** failed to achieve the benchmark with its achieved level as **2.07%** against the benchmark of <1%.

However, the ping test conducted during live measurement revealed that all service providers were meeting the benchmark prescribed by TRAI except **Pacenet (2.26%)**.

Hence the Broadband service providers need to improve their networks with respect the above indicated parameters.

5. PMR AUDIT REPORT



5. PMR AUDIT REPORTS:

5.1 MONTHLY PMR:

5.1.1 BUSY HOUR OF VARIOUS SERVICE PROVIDERS:

Sl. No.	Name of Service Provider	Month of Audit	Network TCBH Hour
GSM Operators			
1	AIRTEL	June-15	20 Hrs-21 Hrs
2	AIRCEL	June-15	20 Hrs-21 Hrs
3	TATA GSM	June-15	21 Hrs-22 Hrs
4	BSNL	June-15	21 Hrs-22 Hrs
5	IDEA	June-15	20 Hrs-21 Hrs
6	UNINOR	June-15	21 Hrs-22 Hrs
7	RCOM GSM	June-15	20 Hrs-21 Hrs
8	VIDEOCON	June-15	21 Hrs-22 Hrs
9	VODAFONE	June-15	20 Hrs-21 Hrs
CDMA Operators			
10	RCOM CDMA	June-15	19 Hrs-20 Hrs
11	MTS	June-15	19 Hrs-20 Hrs
12	TATA CDMA	June-15	11 Hrs-12 Hrs

The TCBH reported by all the service providers matched the network busy hour calculated by TUV auditors for the Gujarat circle.

5.1.2 SWITCHES/BSC/BTS DETAILS OF SERVICE PROVIDERS:

Sl. No.	Name of Service Provider	No. of MSC + GMSC	No. of BSC	No. of BTS	NSS make	BSS make
GSM Operators						
1	AIRTEL	15	114	7449	NSN	NSN
2	AIRCEL	1	6	826	ZTE	ZTE
3	TATA GSM	3	14	1966	Huawei	Huawei
4	BSNL	9	93	4373	Alcatel-Lucent	Alcatel-Lucent
5	IDEA	21	46	6933	Ericsson	Ericsson
6	UNINOR	8	20	3823	NSN	NSN+Huawei
7	RCOM GSM	5	18	2537	Huawei	Huawei
8	VIDEOCON	2	11	1971	Huawei	Huawei
9	VODAFONE	20	160	8218	NSN	NSN
CDMA Operators						
10	RCOM CDMA	7	3	1115	Lucent, ZTE, Ericsson, Huawei	Lucent, Huawei
11	MTS	1	3	580	ZTE	ZTE
12	TATA CDMA	5	6	581	Ericsson	Motorola, Huawei

5.1.3 QOS PERFORMANCE OF MONTHLY PMR – APRIL-15 MONTH

CELLULAR MOBILE TELEPHONE SERVICES GUJARAT CIRCLE- APRIL 15 MONTH															
PMR Generation Data		Bench- mark	Audit Period	AIRTEL	AIRCEL	TATA GSM	BSNL	IDEA	UNINOR	RCOM GSM	VIDEOCON	VODAFONE	RCOM CDMA	MTS	TATA CDMA
S/N	Name of Parameter			GSM Operators										CDMA Operators	
	Network Service Quality Parameter														
1	Network Availability														
	a) BTS Accumulated Downtime	<=2%	Apr-15	0.06%	0.03%	0.11%	1.63%	0.07%	0.16%	0.23%	0.08%	0.04%	0.24%	0.03%	0.04%
	b) Worst affected BTSs due to downtime	<=2%	Apr-15	0.04%	0.00%	0.10%	1.62%	0.21%	0.34%	0.32%	0.25%	0.02%	0.72%	0.00%	0.00%
2	Connection Establishment (Accessibility)														
	a) CSSR (Call Setup Success Rate)	>=95%	Apr-15	99.67%	99.14%	98.21%	96.65%	99.08%	97.91%	99.36%	99.16%	99.19%	99.11%	98.83%	98.71%
	b) SDCCH/PAGING Channel congestion	<=1%	Apr-15	0.06%	0.09%	0.04%	0.12%	0.46%	0.24%	0.02%	0.06%	0.28%	0.00%	0.00%	0.00%
	c) TCH congestion	<=2%	Apr-15	0.42%	0.04%	0.08%	0.55%	0.53%	0.92%	0.27%	0.03%	0.81%	0.00%	0.00%	0.26%
3	Connection maintenance (Retainability)														
	a) CDR (Call Drop Rate)	<=2%	Apr-15	0.63%	0.36%	0.67%	0.91%	0.89%	0.49%	0.32%	0.48%	0.77%	0.14%	0.02%	0.55%
	b) Worst affected cells>3% TCH drop (Call drop) rate	<=3%	Apr-15	0.89%	2.10%	4.57%	2.83%	0.96%	1.66%	0.04%	0.90%	2.37%	0.21%	0.15%	6.77%
	c) Connections with good voice quality	>=95%	Apr-15	96.96%	97.58%	98.85%	NP	96.45%	98.09%	98.60%	97.57%	97.22%	99.82%	99.19%	99.36%
4	No. of POI's having >=0.5% POI congestion		Apr-15	0	0	0	0	0	0	0	0	0	0	0	0

NP: Data not provided: BSNL has not provided data for the parameter "Connections with good voice quality" because its OMCR (ALCATEL LUCENT Technology being used by BSNL) does not Support this parameter.

5.1.4 QOS PERFORMANCE OF MONTHLY PMR – MAY-15 MONTH

CELLULAR MOBILE TELEPHONE SERVICES GUJARAT CIRCLE- MAY 15 MONTH															
PMR Generation Data		Bench- mark	Audit Period	AIRTEL	AIRCEL	TATA GSM	BSNL	IDEA	UNINOR	RCOM GSM	VIDEOCON	VODAFONE	RCOM CDMA	MTS	TATA CDMA
S/N	Name of Parameter			GSM Operators										CDMA Operators	
Network Service Quality Parameter															
1	Network Availability														
	a) BTS Accumulated Downtime	<=2%	May-15	0.05%	0.03%	0.14%	1.81%	0.07%	0.13%	0.28%	0.09%	0.03%	0.29%	0.07%	0.03%
	b) Worst affected BTSs due to downtime	<=2%	May-15	0.12%	0.00%	0.36%	1.38%	0.19%	0.16%	0.47%	0.20%	0.00%	0.09%	0.00%	0.00%
Connection Establishment (Accessibility)															
2	a) CSSR (Call Setup Success Rate)	>=95%	May-15	99.66%	99.24%	98.36%	97.32%	99.18%	98.15%	99.50%	99.16%	99.47%	99.10%	99.83%	98.56%
	b) SDCCH/PAGING Channel congestion	<=1%	May-15	0.07%	0.04%	0.03%	0.12%	0.40%	0.15%	0.02%	0.05%	0.19%	0.00%	0.00%	0.00%
	c) TCH congestion	<=2%	May-15	0.43%	0.02%	0.02%	0.47%	0.39%	0.78%	0.19%	0.03%	0.53%	0.00%	0.00%	0.52%
Connection maintenance (Retainability)															
3	a) CDR (Call Drop Rate)	<=2%	May-15	0.60%	0.34%	0.64%	0.87%	0.83%	0.44%	0.28%	0.39%	0.73%	0.14%	0.01%	0.55%
	b) Worst affected cells>3% TCH drop (Call drop) rate	<=3%	May-15	0.87%	1.94%	4.30%	2.75%	0.91%	1.35%	0.01%	0.63%	2.31%	0.21%	0.19%	6.96%
	c) Connections with good voice quality	>=95%	May-15	97.14%	97.68%	98.93%	NP	96.61%	98.18%	98.76%	97.71%	97.27%	99.83%	99.15%	99.36%
4	No. of POI's having >=0.5% POI congestion		May-15	0	0	0	0	0	0	0	0	0	0	0	0

NP: Data not provided, BSNL has not provided data for the parameter "Connections with good voice quality" because its OMCR (ALCATEL LUCENT Technology being used by BSNL) does not Support this parameter.

5.1.5 QOS PERFORMANCE OF MONTHLY PMR – JUNE- 15 MONTH

CELLULAR MOBILE TELEPHONE SERVICES GUJARAT CIRCLE - JUNE 15 MONTH

CELLULAR MOBILE TELEPHONE SERVICES GUJARAT CIRCLE - JUNE 15 MONTH															
PMR Generation Data		Bench- mark	Audit Period	AIRTEL	AIRCEL	TATA GSM	BSNL	IDEA	UNINOR	RCOM GSM	VIDEOCON	VODAFONE	RCOM CDMA	MTS	TATA CDMA
S/N	Name of Parameter			GSM Operators										CDMA Operators	
Network Service Quality Parameter															
1	Network Availability														
	a) BTS Accumulated Downtime	<=2%	Jun-15	0.35%	0.05%	0.15%	1.90%	0.12%	0.29%	0.41%	0.14%	0.20%	0.42%	0.11%	0.02%
	b) Worst affected BTSs due to downtime	<=2%	Jun-15	1.88%	0.00%	0.00%	1.90%	0.48%	1.33%	0.63%	0.41%	0.00%	0.72%	0.00%	0.00%
Connection Establishment (Accessibility)															
2	a) CSSR (Call Setup Success Rate)	>=95%	Jun-15	99.49%	99.05%	98.20%	96.85%	99.03%	97.73%	99.48%	98.91%	99.03%	98.77%	99.83%	98.44%
	b) SDCCH/PAGING Channel congestion	<=1%	Jun-15	0.16%	0.04%	0.06%	0.17%	0.69%	0.66%	0.03%	0.18%	0.55%	0.00%	0.00%	0.00%
	c) TCH congestion	<=2%	Jun-15	1.07%	0.06%	0.05%	0.59%	0.59%	1.58%	0.24%	0.19%	0.76%	0.01%	0.00%	0.43%
Connection maintenance (Retainability)															
3	a) CDR (Call Drop Rate)	<=2%	Jun-15	0.67%	0.40%	0.84%	0.86%	0.87%	0.50%	0.26%	0.46%	0.74%	0.18%	0.04%	0.67%
	b) Worst affected cells>3% TCH drop (Call drop) rate	<=3%	Jun-15	0.98%	2.24%	5.15%	2.76%	1.08%	1.65%	0.03%	0.92%	2.14%	0.33%	0.35%	7.50%
	c) Connections with good voice quality	>=95%	Jun-15	97.23%	97.28%	98.85%	NP	96.60%	98.20%	98.79%	97.56%	97.42%	99.82%	99.05%	99.35%
4	No. of POI's having >=0.5% POI congestion		Jun-15	0	0	0	0	0	0	0	0	0	0	0	0

NP: Data not provided: BSNL has not provided data for the parameter "Connections with good voice quality" because its OMC (ALCATEL LUCENT Technology being used by BSNL) does not support this parameter.

5.1.6 QOS PERFORMANCE OF QUARTERLY PMR –AVERAGE OF QE- JUNE-15(APRIL TO JUNE 2015 MONTHS AUDITED DATA)

QUARTERLY QOS PERFORMANCE (AVERAGE OF THREE MONTHS) OF GUJARAT CIRCLE															
PMR Generation Data		Bench- mark	Audit Period	AIRTEL	AIRCEL	TATA GSM	BSNL	IDEA	UNINOR	RCOM GSM	VIDEOCON	VODAFONE	RCOM CDMA	MTS	TATA CDMA
S/N	Name of Parameter			GSM Operators										CDMA Operators	
	Network Service Quality Parameter														
1	Network Availability														
	a) BTS Accumulated Downtime	<=2%	Quarterly	0.15%	0.04%	0.13%	1.78%	0.09%	0.19%	0.31%	0.10%	0.09%	0.32%	0.07%	0.03%
	b) Worst affected BTSs due to downtime	<=2%	Quarterly	0.68%	0.00%	0.15%	1.63%	0.29%	0.61%	0.47%	0.29%	0.01%	0.51%	0.00%	0.00%
2	Connection Establishment (Accessibility)														
	a) CSSR (Call Setup Success Rate)	>=95%	Quarterly	99.61%	99.14%	98.26%	96.94%	99.10%	97.93%	99.45%	99.08%	99.23%	98.99%	99.50%	98.57%
	b) SDCCH/PAGING Channel congestion	<=1%	Quarterly	0.10%	0.06%	0.04%	0.14%	0.52%	0.35%	0.02%	0.10%	0.34%	0.00%	0.00%	0.00%
	c) TCH congestion	<=2%	Quarterly	0.64%	0.04%	0.05%	0.54%	0.50%	1.09%	0.23%	0.08%	0.70%	0.00%	0.00%	0.40%
3	Connection maintenance (Retainability)														
	a) CDR (Call Drop Rate)	<=2%	Quarterly	0.63%	0.37%	0.72%	0.88%	0.86%	0.48%	0.29%	0.44%	0.75%	0.15%	0.02%	0.59%
	b) Worst affected cells>3% TCH drop (Call drop) rate	<=3%	Quarterly	0.91%	2.09%	4.67%	2.78%	0.98%	1.55%	0.03%	0.82%	2.27%	0.25%	0.23%	7.08%
	c) Connections with good voice quality	>=95%	Quarterly	97.11%	97.51%	98.88%	NP	96.55%	98.16%	98.72%	97.61%	97.30%	99.82%	99.13%	99.36%
4	No. of POI's having >=0.5% POI congestion		Quarterly	0	0	0	0	0	0	0	0	0	0	0	0

NP: Data not provided: BSNL has not provided data for the parameter "Connections with good voice quality" because its OMCR (ALCATEL LUCENT Technology being used by BSNL) does not Support this parameter.

5.1.7 KEY FINDINGS ON MONTHLY PMR AUDIT REPORTS:

The audit of network related parameters for cellular mobile service providers was conducted at their respective MSCs in the circle.

TUV conducted audit for cellular mobile operators based on **three stage audit / verification viz audit of the records, live measurements and drive tests. This exercise has been repeated every month for CMSPs.**

Network Service Quality Parameters:

- **Network Availability**

- i. BTS Accumulated Downtime (Not Available for Service):
- ii. Worst affected BTSs due to downtime

For measuring the performance against the benchmark for this parameter, down time of each BTS lasting for more than 1 hour at a time in a day during the period of a month has been taken for computation.

In Gujarat circle, **all the operators were found meeting benchmark of the above parameters** 'BTS accumulated downtime' and 'worst affected BTSs due to down time' in all the three months of the quarter.

- **Connection Establishment (Accessibility)**

- i. Call Set-up Success Rate(CSSR)

CSSR includes complete signaling in the call set up process and does not aim to measure the performance of the called exchange or that of the Point of Interconnection (POI). CSSR was established as the ratio of total number of successful call attempts (establishment) to the total number of call attempts made. All the operators were found to be calculating the parameter as per the TRAI's specified norms.

All the operators were comfortably meeting the benchmark of this parameter.

- **Parameters related to Network Congestion:**

The parameters namely SDCCH / Paging Channel Congestion, TCH and POI are prescribed with the aim of measuring the congestion in the network.

In CDMA system, there is no direct counter defined for reporting Paging Channel Congestion as reported by Tata Teleservices. However, they have a defined counter for Paging Channel Occupancy Ratio (**PCH Average Using Ratio**) which is used to determine the Paging Channel Occupancy which on an average is < 50% on all sites in the network. When the value of this parameter is less than 100%, it is counted as 0% congestion. Thus, there is no congestion on the paging channel in CDMA system.

With respect to this parameter, the performance of the operators is quite satisfactory as **all operators met the TRAI specified benchmarks** on the congestion parameters. There was no congestion on individual POI links between a service provider vis-à-vis other service providers.

- **Connection Maintenance (Retainability)**

- i. Call Drop Rate:

This parameter gives a reliable measurement of the mobile network used by the service provider for maintaining a call once it has been correctly established. Failures in coverage, network congestion and network failures have important impact on this parameter.

The audit of this parameter revealed that all the service providers were measuring this parameter as per the TRAI guidelines. Also, **all the service providers were found to be meeting the TRAI specified benchmark**. The lowest call drop rate (average 0.02 %) was for MTS during the quarter.

- ii. Worst affected cells having more than 3% TCH drops

Worst affected cells are defined as cells in which the call drop rate exceeds 3% during cell Bouncing Busy Hour (CBBH) or at any other hour of a day.

The audit, with respect to this parameter revealed that **Tata (GSM) and Tata (CDMA)** were non-compliants in the three months of the quarter with their average performance of **4.67% and 7.08%** respectively.

- iii. Connections with good voice quality:

Some of the Operators are measuring this parameter through the system generated data at their switches whereas some are measuring through their periodic drive tests. The audit results for this parameter indicates that **all operators have met the bench mark** successfully during the quarter.

- iv. POI congestion.

There was no congestion on individual POI links between a service provider vis-à-vis other service providers.

**3-DAYS LIVE MEASUREMENT DATA VERIFICATION FOR
CELLULAR MOBILE SERVICE PROVIDERS
(NETWORK SERVICE QUALITY PARAMETER)**



5.2 LIVE MEASUREMENT DATA (3-DAYS) FOR CELLULAR MOBILE SERVICE PROVIDERS (NETWORK SERVICE QUALITY PARAMETER):

5.2.1 LIVE MEASUREMENT DATA (3-DAYS) – APRIL- 15 MONTH:

CELLULAR MOBILE TELEPHONE SERVICES GUJARAT CIRCLE - APRIL 15 MONTH															
Live measurement Data		Bench- mark	Average of 3 Days	AIRTEL	AIRCEL	TATA GSM	BSNL	IDEA	UNINOR	RCOM GSM	VIDEOCON	VODAFONE	RCOM CDMA	MTS	TATA CDMA
S/N	Name of Parameter														
Network Service Quality Parameter															
1	Network Availability														
	a) BTS Accumulated Downtime	<=2%	Live data	0.06%	0.04%	0.04%	1.11%	0.05%	0.07%	0.27%	0.07%	0.02%	0.28%	0.04%	0.11%
	b) Worst affected BTSs due to downtime	<=2%	Live data	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2	Connection Establishment (Accessibility)														
	a) CSSR (Call Setup Success Rate)	>=95%	Live data	99.74%	99.19%	98.24%	96.38%	99.21%	98.00%	99.44%	99.11%	99.32%	99.12%	99.93%	98.97%
	b) SDCCH/PAGING Channel congestion	<=1%	Live data	0.02%	0.02%	0.01%	0.10%	0.29%	0.21%	0.02%	0.02%	0.14%	0.00%	0.00%	0.00%
	c) TCH congestion	<=2%	Live data	0.17%	0.06%	0.05%	0.61%	0.41%	0.72%	0.21%	0.01%	0.68%	0.00%	0.00%	0.06%
3	Connection maintenance (Retainability)														
	a) CDR (Call Drop Rate)	<=2%	Live data	0.63%	0.34%	0.62%	0.92%	0.86%	0.51%	0.31%	0.45%	0.76%	0.63%	0.04%	0.55%
	b) Worst affected cells>3% TCH drop (Call drop) rate	<=3%	Live data	0.90%	2.06%	4.25%	2.80%	0.86%	2.24%	0.01%	0.88%	2.33%	0.21%	1.16%	7.42%
	c) Connections with good voice quality	>=95%	Live data	97.06%	97.64%	98.86%	NP	96.51%	98.06%	98.60%	97.69%	97.13%	99.82%	99.23%	99.35%
4	No. of POI having >=0.5% congestion		Live data	0	0	0	0	0	0	0	0	0	0	0	0

NP: Data not provided: BSNL has not provided data for the parameter "Connections with good voice quality" because its OMCR (ALCATEL LUCENT Technology being used by BSNL) does not Support this parameter.

5.2.2 LIVE MEASUREMENT DATA (3-DAYS) – MAY- 15 MONTH:

CELLULAR MOBILE TELEPHONE SERVICES GUJARAT CIRCLE- MAY 15 MONTH															
Live measurement Data		Bench- mark	Average of 3 Days	AIRTEL	AIRCEL	TATA GSM	BSNL	IDEA	UNINOR	RCOM GSM	VIDEOCON	VODAFONE	RCOM CDMA	MTS	TATA CDMA
S/N	Name of Parameter			GSM Operators										CDMA Operators	
	Network Service Quality Parameter														
1	Network Availability														
	a) BTS Accumulated Downtime	<=2%	Live data	0.07%	0.01%	0.13%	1.78%	0.08%	0.15%	0.27%	0.13%	0.01%	0.37%	0.09%	0.03%
	b) Worst affected BTSs due to downtime	<=2%	Live data	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2	Connection Establishment (Accessibility)														
	a) CSSR (Call Setup Success Rate)	>=95%	Live data	99.76%	99.23%	98.39%	97.86%	99.19%	98.10%	99.54%	99.15%	99.51%	99.05%	99.89%	99.33%
	b) SDCCH/PAGING Channel congestion	<=1%	Live data	0.02%	0.01%	0.03%	0.10%	0.32%	0.17%	0.02%	0.04%	0.09%	0.00%	0.00%	0.00%
	c) TCH congestion	<=2%	Live data	0.16%	0.01%	0.02%	0.42%	0.43%	0.76%	0.18%	0.03%	0.49%	0.01%	0.00%	0.01%
3	Connection maintenance (Retainability)														
	a) CDR (Call Drop Rate)	<=2%	Live data	0.56%	0.34%	0.63%	0.84%	0.75%	0.47%	0.27%	0.39%	0.67%	0.71%	0.04%	0.37%
	b) Worst affected cells>3% TCH drop (Call drop) rate	<=3%	Live data	0.82%	1.94%	3.99%	2.62%	0.79%	1.46%	0.00%	0.73%	1.71%	0.33%	0.38%	5.68%
	c) Connections with good voice quality	>=95%	Live data	97.30%	97.66%	98.92%	NP	96.78%	98.14%	98.81%	97.68%	97.53%	99.83%	99.19%	99.37%
4	No. of POI having >=0.5% congestion		Live data	0	0	0	0	0	0	0	0	0	0	0	0

NP: Data not provided: BSNL has not provided data for the parameter "Connections with good voice quality" because its OMCR (ALCATEL LUCENT Technology being used by BSNL) does not support this parameter.

5.2.3 LIVE MEASUREMENT DATA (3-DAYS) – JUNE-15 MONTH:

CELLULAR MOBILE TELEPHONE SERVICES GUJARAT CIRCLE- JUNE 15 MONTH

CELLULAR MOBILE TELEPHONE SERVICES GUJARAT CIRCLE- JUNE 15 MONTH															
Live measurement Data		Bench- mark	Average of 3 Days	AIRTEL	AIRCEL	TATA GSM	BSNL	IDEA	UNINOR	RCOM GSM	VIDEOCON	VODAFONE	RCOM CDMA	MTS	TATA CDMA
S/N	Name of Parameter			GSM Operators										CDMA Operators	
	Network Service Quality Parameter														
1	Network Availability														
	a) BTS Accumulated Downtime	<=2%	Live data	0.17%	0.04%	0.17%	1.64%	0.13%	0.21%	0.56%	0.18%	0.08%	0.55%	0.03%	0.03%
	b) Worst affected BTSs due to downtime	<=2%	Live data	0.01%	0.00%	0.00%	0.00%	0.04%	0.05%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2	Connection Establishment (Accessibility)														
	a) CSSR (Call Setup Success Rate)	>=95%	Live data	99.60%	99.23%	98.34%	97.60%	99.35%	97.72%	99.54%	99.15%	97.43%	99.03%	99.74%	98.91%
	b) SDCCH/PAGING Channel congestion	<=1%	Live data	0.10%	0.01%	0.02%	0.16%	0.21%	0.18%	0.02%	0.05%	0.22%	0.00%	0.00%	0.00%
	c) TCH congestion	<=2%	Live data	0.62%	0.00%	0.02%	0.53%	0.28%	1.60%	0.20%	0.03%	0.56%	0.00%	0.00%	0.13%
3	Connection maintenance (Retainability)														
	a) CDR (Call Drop Rate)	<=2%	Live data	0.67%	0.35%	0.78%	0.85%	0.81%	0.52%	0.26%	0.42%	0.72%	0.62%	0.00%	0.54%
	b) Worst affected cells>3% TCH drop (Call drop) rate	<=3%	Live data	1.00%	2.10%	4.76%	2.59%	0.89%	1.64%	0.04%	0.72%	2.18%	0.15%	0.38%	6.59%
	c) Connections with good voice quality	>=95%	Live data	97.30%	97.58%	98.87%	NP	97.77%	98.16%	98.82%	97.63%	97.43%	99.83%	99.13%	99.36%
4	No. of POI having >=0.5% congestion		Live data	0	0	0	0	0	0	0	0	0	0	0	0

NP: Data not provided: BSNL has not provided data for the parameter "Connections with good voice quality" because its OMCR (ALCATEL LUCENT Technology being used by BSNL) does not support this parameter.

5.2.4 QUARTERLY QOS PERFORMANCE OF 3-DAYS LIVE MEASUREMENT AUDITED DATA (AVERAGE OF APRIL TO JUNE 2015 MONTHS)

QUARTERLY QOS PERFORMANCE BASED ON 3-DAYS LIVE MEASUREMENT (AVERAGE OF THREE MONTHS) – GUJARAT CIRCLE															
Live measurement Data		Bench- mark	Average of 3 Days	AIRTEL	AIRCEL	TATA GSM	BSNL	IDEA	UNINOR	RCOM GSM	VIDEOCON	VODAFONE	RCOM CDMA	MTS	TATA CDMA
S/N	Name of Parameter			GSM Operators										CDMA Operators	
	Network Service Quality Parameter														
1	Network Availability														
	a) BTS Accumulated Downtime	<=2%	Quarterly	0.10%	0.03%	0.11%	1.51%	0.09%	0.14%	0.37%	0.13%	0.04%	0.40%	0.05%	0.06%
	b) Worst affected BTSs due to downtime	<=2%	Quarterly	0.01%	0.00%	0.00%	0.00%	0.01%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2	Connection Establishment (Accessibility)														
	a) CSSR (Call Setup Success Rate)	>=95%	Quarterly	99.70%	99.22%	98.32%	97.28%	99.25%	97.94%	99.51%	99.14%	98.75%	99.07%	99.85%	99.07%
	b) SDCCH/PAGING Channel congestion	<=1%	Quarterly	0.05%	0.01%	0.02%	0.12%	0.27%	0.19%	0.02%	0.04%	0.15%	0.00%	0.00%	0.00%
	c) TCH congestion	<=2%	Quarterly	0.32%	0.02%	0.03%	0.52%	0.37%	1.03%	0.20%	0.02%	0.58%	0.00%	0.00%	0.07%
3	Connection maintenance (Retainability)														
	a) CDR (Call Drop Rate)	<=2%	Quarterly	0.62%	0.34%	0.68%	0.87%	0.81%	0.50%	0.28%	0.42%	0.72%	0.65%	0.03%	0.49%
	b) Worst affected cells>3% TCH drop (Call drop) rate	<=3%	Quarterly	0.91%	2.03%	4.33%	2.67%	0.85%	1.78%	0.02%	0.78%	2.07%	0.23%	0.64%	6.56%
	c) Connections with good voice quality	>=95%	Quarterly	97.22%	97.63%	98.88%	NP	97.02%	98.12%	98.74%	97.67%	97.36%	99.83%	99.18%	99.36%
4	No. of POI having >=0.5% congestion		Quarterly	0	0	0	0	0	0	0	0	0	0	0	0

NP: Data not provided: BSNL has not provided data for the parameter "Connections with good voice quality" because its OMCR (ALCATEL LUCENT Technology being used by BSNL) does not support this parameter.

5.2.5 KEY FINDING ON 3 DAYS LIVE MEASUREMENTS:

From three days live measurement assessment, it is found that the performance of all operators is satisfactory as they have largely met the benchmarks except the parameter '**Worst affected cells> 3 % TCH drops**', which could not be complied with by **Tata (GSM and Tata (CDMA)**. The quarterly average performance of **Tata (GSM)** and **Tata (CDMA)** for this parameter was **4.33%** and **6.56 %** respectively.

5.2.6 DETAILED NETWORK DATA ASSESSMENT OF CELLULAR MOBILE TELEPHONE SERVICES:

TABLE: 1

Detailed Network Data Assessment of Cellular Mobile Telephone Services- Gujarat Circle- April 15 month															
S/N	Name of Parameter	Bench- mark	Audit Period	AIRTEL	AIRCEL	TATA GSM	BSNL	IDEA	UNINOR	RCOM GSM	VIDEOCON	VODAFONE	RCOM CDMA	MTS	TATA CDMA
				GSM Operators									CDMA Operators		
Network Service Quality Parameter															
1	Network Availability														
	a) Total no. of BTSs in the licensed service area		Apr-15	7456	826	1968	4323	6775	3824	2530	1980	8161	1116	579	581
	b) Sum of downtime of BTSs in a month in hours i.e. total outage time of all BTSs in hours during a month		Apr-15	2961	198	1556	50609	3319	4424	4256	1102	2298	1902	144	171
	c) BTS Accumulated Downtime	<=2%	Apr-15	0.06%	0.03%	0.11%	1.63%	0.07%	0.16%	0.23%	0.08%	0.04%	0.24%	0.03%	0.04%
	d) No. of BTSs having accumulated downtime of >24 hours in a month		Apr-15	3	0	2	70	14	13	8	5	2	8	0	0
	e) Worst affected BTSs due to downtime	<=2%	Apr-15	0.04%	0.00%	0.10%	1.62%	0.21%	0.34%	0.32%	0.25%	0.02%	0.72%	0.00%	0.00%
2	Connection Establishment (Accessibility)														
	a) CSSR (Call Setup Success Rate)	>=95%	Apr-15	99.67%	99.14%	98.21%	96.65%	99.08%	97.91%	99.36%	99.16%	99.19%	99.11%	98.83%	98.71%
	b) SDCCH/PAGING Congestion	<=1%	Apr-15	0.06%	0.09%	0.04%	0.12%	0.46%	0.24%	0.02%	0.06%	0.28%	0.00%	0.00%	0.00%
	c) TCH congestion	<=2%	Apr-15	0.42%	0.04%	0.08%	0.55%	0.53%	0.92%	0.27%	0.03%	0.81%	0.00%	0.00%	0.26%
3	Connection Maintenance (Retainability)														
	a) Call Drop Rate (CDR)	<=2%	Apr-15	0.63%	0.36%	0.67%	0.91%	0.89%	0.49%	0.32%	0.48%	0.77%	0.14%	0.02%	0.55%
	b) Worst affected cells>3% TCH drop	<=3%	Apr-15	0.89%	2.10%	4.57%	2.83%	0.96%	1.66%	0.04%	0.90%	2.37%	0.21%	0.15%	6.77%

Detailed Network Data Assessment of Cellular Mobile Telephone Services- Gujarat Circle- April 15 month															
S/N	Name of Parameter	Bench- mark	Audit Period	AIRTEL	AIRCEL	TATA GSM	BSNL	IDEA	UNINOR	RCOM GSM	VIDEOCON	VODAFONE	RCOM CDMA	MTS	TATA CDMA
				GSM Operators								CDMA Operators			
	c) % of connections with good voice quality	>=95%	Apr-15	96.96%	97.58%	98.85%	NP	96.45%	98.09%	98.60%	97.57%	97.22%	99.82%	99.19%	99.36%
	d) Total No. of cells exceeding 3% TCH drop (call drop)		Apr-15	205	52	273	359	195	200	3	54	587	7	0	115
	e) Total no. of cells (Sector) in the licensed service area		Apr-15	23145	2478	5972	12698	20366	12047	7451	6006	24789	3348	86	1706
4	No. of POI's having >=0.5% POI congestion														
	No. of POI's having >=0.5% POI congestion		Apr-15	0	0	0	0	0	0	0	0	0	0	0	0
	Name of POI not meeting the benchmark		Apr-15	0	0	0	0	0	0	0	0	0	0	0	0
5	Network Data														
	a) Equipped Capacity of Network in Erlang		Apr-15	231165	30973	108434	317000	293509	147331	144000	86917	473851	144000	21000	90386
	b) Total traffic in TCBH in erlang (Avg.)		Apr-15	184445	8776	30175	85663	242714	180476	137527	26232	399801	40443	1540	13670
	c) Total no. of customers served (as per VLR) on last day of the month		Apr-15	7203749	8928	1313928	2562478	11460846	4805113	3368568	1063959	17309862	1219536	83588	243971

NP: Data not provided: BSNL has not provided data for the parameter "Connections with good voice quality" because its OMCR (ALCATEL LUCENT Technology being used by BSNL) does not Support this parameter.

TABLE: 2

Detailed Network Data Assessment of Cellular Mobile Telephone Services-3 days live- Gujarat Circle- April-15 month															
S/N	Name of Parameter	Bench- mark	Average of 3 Days	AIRTEL	AIRCEL	TATA GSM	BSNL	IDEA	UNINOR	RCOM GSM	VIDEOCON	VODAFONE	RCOM CDMA	MTS	TATA CDMA
				GSM Operators									CDMA Operators		
Network Service Quality Parameter															
1	Network Availability														
	a) Total no. of BTSs in the licensed service area		Live data	7442	826	1968	4306	6772	3826	2530	1979	8161	1116	578	581
	b) Sum of downtime of BTSs in a month in hours i.e. total outage time of all BTSs in hours during a month		Live data	332	22	50	3433	222	187	488	105	137	228	18	46
	c) BTS Accumulated Downtime	<=2%	Live data	0.06%	0.04%	0.04%	1.11%	0.05%	0.07%	0.27%	0.07%	0.02%	0.28%	0.04%	0.11%
	d) No. of BTSs having accumulated downtime of >24 hours in a month		Live data	1	0	0	0	0	0	0	0	0	0	0	0
	e) Worst affected BTSs due to downtime	<=2%	Live data	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2	Connection Establishment (Accessibility)														
	a) CSSR (Call Setup Success Rate)	>=95%	Live data	99.74%	99.19%	98.24%	96.38%	99.21%	98.00%	99.44%	99.11%	99.32%	99.12%	99.93%	98.97%
	b) SDCCH/PAGING Congestion	<=1%	Live data	0.02%	0.02%	0.01%	0.10%	0.29%	0.21%	0.02%	0.02%	0.14%	0.00%	0.00%	0.00%
	c) TCH congestion	<=2%	Live data	0.17%	0.06%	0.05%	0.61%	0.41%	0.72%	0.21%	0.01%	0.68%	0.00%	0.00%	0.06%
3	Connection Maintenance (Retainability)														
	a) Call Drop Rate (CDR)	<=2%	Live data	0.63%	0.34%	0.62%	0.92%	0.86%	0.51%	0.31%	0.45%	0.76%	0.63%	0.04%	0.55%
	b) Worst affected cells>3% TCH drop	<=3%	Live data	0.90%	2.06%	4.25%	2.80%	0.86%	2.24%	0.01%	0.88%	2.33%	0.21%	1.16%	7.42%
	c) % of connections with good voice quality	>=95%	Live data	97.06%	97.64%	98.86%	NP	96.51%	98.06%	98.60%	97.69%	97.13%	99.82%	99.23%	99.35%
	d) Total No. of cells exceeding 3% TCH drop (call drop)		Live data	208	51	251	357	176	270	1	53	577	7	1	121
	e) Total no. of cells (Sector) in the licensed service area		Live data	23129	2478	5903	12767	20364	12049	7451	6008	24777	3348	86	1631
4	No. of POI's having >=0.5% POI congestion														
	No. of POI's having >=0.5% POI congestion		Live data	0	0	0	0	0	0	0	0	0	0	0	0
	Name of POI not meeting the benchmark		Live data	0	0	0	0	0	0	0	0	0	0	0	0

NP: Data not provided: BSNL has not provided data for the parameter "Connections with good voice quality" because its OMCR (ALCATEL LUCENT Technology being used by BSNL) does not support this parameter.

TABLE: 3

Detailed Network Data Assessment of Cellular Mobile Telephone Services- Gujarat Circle - May 15 month

Detailed Network Data Assessment of Cellular Mobile Telephone Services- Gujarat Circle - May 15 month															
S/N	Name of Parameter	Bench- mark	Audit Period	AIRTEL	AIRCEL	TATA GSM	BSNL	IDEA	UNINOR	RCOM GSM	VIDEOCON	VODAFONE	RCOM CDMA	MTS	TATA CDMA
				GSM Operators										CDMA Operators	
Network Service Quality Parameter															
1	Network Availability														
	a) Total no. of BTSs in the licensed service area		May-15	7470	826	1968	4348	6856	3823	2528	1983	8183	1116	580	581
	b) Sum of downtime of BTSs in a month in hours i.e. total outage time of all BTSs in hours during a month		May-15	2747	172	2019	58508	3422	3670	5348	1353	1555	2401	282	147
	c) BTS Accumulated Downtime	<=2%	May-15	0.05%	0.03%	0.14%	1.81%	0.07%	0.13%	0.28%	0.09%	0.03%	0.29%	0.07%	0.03%
	d) No. of BTSs having accumulated downtime of >24 hours in a month		May-15	9	0	7	60	13	6	12	4	0	1	0	0
	e) Worst affected BTSs due to downtime	<=2%	May-15	0.12%	0.00%	0.36%	1.38%	0.19%	0.16%	0.47%	0.20%	0.00%	0.09%	0.00%	0.00%
2	Connection Establishment (Accessibility)														
	a) CSSR (Call Setup Success Rate)	>=95%	May-15	99.66%	99.24%	98.36%	97.32%	99.18%	98.15%	99.50%	99.16%	99.47%	99.10%	99.83%	98.56%
	b) SDCCH/PAGING Congestion	<=1%	May-15	0.07%	0.04%	0.03%	0.12%	0.40%	0.15%	0.02%	0.05%	0.19%	0.00%	0.00%	0.00%
	c) TCH congestion	<=2%	May-15	0.43%	0.02%	0.02%	0.47%	0.39%	0.78%	0.19%	0.03%	0.53%	0.00%	0.00%	0.52%
3	Connection Maintenance (Retainability)														
	a) Call Drop Rate (CDR)	<=2%	May-15	0.60%	0.34%	0.64%	0.87%	0.83%	0.44%	0.28%	0.39%	0.73%	0.14%	0.01%	0.55%
	b) Worst affected cells>3% TCH drop	<=3%	May-15	0.87%	1.94%	4.30%	2.75%	0.91%	1.35%	0.01%	0.63%	2.31%	0.21%	0.19%	6.96%
	c) % of connections with good voice quality	>=95%	May-15	97.14%	97.68%	98.93%	NP	96.61%	98.18%	98.76%	97.71%	97.27%	99.83%	99.15%	99.36%
	d)Total No. of cells exceeding 3% TCH drop (call drop)		May-15	202	48	254	349	186	163	1	38	574	7	0	106
	e) Total no. of cells (Sector) in the licensed service area		May-15	23216	2478	5910	12687	20483	12051	7445	6015	24858	3348	86	1524

Detailed Network Data Assessment of Cellular Mobile Telephone Services- Gujarat Circle - May 15 month

S/N	Name of Parameter	Bench- mark	Audit Period	AIRTEL	AIRCEL	TATA GSM	BSNL	IDEA	UNINOR	RCOM GSM	VIDEOCON	VODAFONE	RCOM CDMA	MTS	TATA CDMA
				GSM Operators									CDMA Operators		
4	No. of POI's having >=0.5% POI congestion														
	No. of POI's having >=0.5% POI congestion		May-15	0	0	0	0	0	0	0	0	0	0	0	0
	Name of POI not meeting the benchmark		May-15	0	0	0	0	0	0	0	0	0	0	0	0
5	Network Data														
	a) Equipped Capacity of Network in Erlang		May-15	233672	31051	107875	317000	295540	147906	144000	86876	480221	144000	21000	76692
	b) Total traffic in TCBH in erlang (Avg.)		May-15	174134	8189	28011	83931	239713	173070	137322	25483	378160	39213	1425	10749
	c) Total no. of customers served (as per VLR) on last day of the month		May-15	7252581	9698	1225916	2514121	11520186	4827076	3326477	1052664	17301806	1190405	81395	239576

NP: Data not provided: BSNL has not provided data for the parameter "Connections with good voice quality" because its OMCR (ALCATEL LUCENT Technology being used by BSNL) does not Support this parameter.

TABLE: 4

Detailed Network Data Assessment of Cellular Mobile Telephone Services-3 days live - Gujarat Circle - May 15 month															
S/N	Name of Parameter	Bench- mark	Average of 3 Days	AIRTEL	AIRCEL	TATA GSM	BSNL	IDEA	UNINOR	RCOM GSM	VIDEOCON	VODAFONE	RCOM CDMA	MTS	TATA CDMA
				GSM Operators									CDMA Operators		
Network Service Quality Parameter															
1	Network Availability														
	a) Total no. of BTSs in the licensed service area		Live data	7453	826	1968	4335	6822	3823	2530	1981	8161	1116	580	581
	b) Sum of downtime of BTSs in a month in hours i.e. total outage time of all BTSs in hours during a month		Live data	370	7	185	5560	393	416	488	185	85	297	38	12
	c) BTS Accumulated Downtime	<=2%	Live data	0.07%	0.01%	0.13%	1.78%	0.08%	0.15%	0.27%	0.13%	0.01%	0.37%	0.09%	0.03%
	d) No. of BTSs having accumulated downtime of >24 hours in a month		Live data	0	0	0	0	0	0	0	0	0	0	0	0
	e) Worst affected BTSs due to downtime	<=2%	Live data	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2	Connection Establishment (Accessibility)														
	a) CSSR (Call Setup Success Rate)	>=95%	Live data	99.76%	99.23%	98.39%	97.86%	99.19%	98.10%	99.54%	99.15%	99.51%	99.05%	99.89%	99.33%
	b) SDCCH/PAGING Congestion	<=1%	Live data	0.02%	0.01%	0.03%	0.10%	0.32%	0.17%	0.02%	0.04%	0.09%	0.00%	0.00%	0.00%
	c) TCH congestion	<=2%	Live data	0.16%	0.01%	0.02%	0.42%	0.43%	0.76%	0.18%	0.03%	0.49%	0.01%	0.00%	0.01%
3	Connection Maintenance (Retainability)														
	a) Call Drop Rate (CDR)	<=2%	Live data	0.56%	0.34%	0.63%	0.84%	0.75%	0.47%	0.27%	0.39%	0.67%	0.71%	0.04%	0.37%
	b) Worst affected cells>3% TCH drop	<=3%	Live data	0.82%	1.94%	3.99%	2.62%	0.79%	1.46%	0.00%	0.73%	1.71%	0.33%	0.38%	5.68%
	c) % of connections with good voice quality	>=95%	Live data	97.30%	97.66%	98.92%	NP	96.78%	98.14%	98.81%	97.68%	97.53%	99.83%	99.19%	99.37%
	d) Total No. of cells exceeding 3% TCH drop (call drop)		Live data	191	48	236	337	161	176	0	44	426	11	0	77
	e) Total no. of cells (Sector) in the licensed service area		Live data	23181	2478	5910	12845	20507	12051	7451	6019	24879	3348	86	1355
4	No. of POI's having >=0.5% POI congestion														
	No. of POI's having >=0.5% POI congestion		Live data	0	0	0	0	0	0	0	0	0	0	0	0
	Name of POI not meeting the benchmark		Live data	0	0	0	0	0	0	0	0	0	0	0	0

NP: Data not provided: BSNL has not provided data for the parameter "Connections with good voice quality" because its OMC (ALCATEL LUCENT Technology being used by BSNL) does not support this parameter.

TABLE: 5

Detailed Network Data Assessment of Cellular Mobile Telephone Services- Gujarat Circle - June 15 month

S/N	Name of Parameter	Bench- mark	Audit Period	AIRTEL	AIRCEL	TATA GSM	BSNL	IDEA	UNINOR	RCOM GSM	VIDEOCON	VODAFONE	RCOM CDMA	MTS	TATA CDMA
				GSM Operators									CDMA Operators		
Network Service Quality Parameter															
1	Network Availability														
	a) Total no. of BTSs in the licensed service area		Jun-15	7449	826	1964	4373	6933	3823	2537	1971	8218	1115	578	581
	b) Sum of downtime of BTSs in a month in hours i.e. total outage time of all BTSs in hours during a month		Jun-15	18664	308	2118	59719	5939	7901	7574	1959	12007	3389	451	102
	c) BTS Accumulated Downtime	<=2%	Jun-15	0.35%	0.05%	0.15%	1.90%	0.12%	0.29%	0.41%	0.14%	0.20%	0.42%	0.11%	0.02%
	d) No. of BTSs having accumulated downtime of >24 hours in a month		Jun-15	140	0	0	83	33	51	16	8	0	8	0	0
	e) Worst affected BTSs due to downtime	<=2%	Jun-15	1.88%	0.00%	0.00%	1.90%	0.48%	1.33%	0.63%	0.41%	0.00%	0.72%	0.00%	0.00%
2	Connection Establishment (Accessibility)														
	a) CSSR (Call Setup Success Rate)	>=95%	Jun-15	99.49%	99.05%	98.20%	96.85%	99.03%	97.73%	99.48%	98.91%	99.03%	98.77%	99.83%	98.44%
	b) SDCCH/PAGING Congestion	<=1%	Jun-15	0.16%	0.04%	0.06%	0.17%	0.69%	0.66%	0.03%	0.18%	0.55%	0.00%	0.00%	0.00%
	c) TCH congestion	<=2%	Jun-15	1.07%	0.06%	0.05%	0.59%	0.59%	1.58%	0.24%	0.19%	0.76%	0.01%	0.00%	0.43%
3	Connection Maintenance (Retainability)														
	a) Call Drop Rate (CDR)	<=2%	Jun-15	0.67%	0.40%	0.84%	0.86%	0.87%	0.50%	0.26%	0.46%	0.74%	0.18%	0.04%	0.67%

Detailed Network Data Assessment of Cellular Mobile Telephone Services- Gujarat Circle - June 15 month

S/N	Name of Parameter	Bench- mark	Audit Period	AIRTEL	AIRCEL	TATA GSM	BSNL	IDEA	UNINOR	RCOM GSM	VIDEOCON	VODAFONE	RCOM CDMA	MTS	TATA CDMA
				GSM Operators									CDMA Operators		
	b) Worst affected cells>3% TCH drop	<=3%	Jun-15	0.98%	2.24%	5.15%	2.76%	1.08%	1.65%	0.03%	0.92%	2.14%	0.33%	0.35%	7.50%
	c) % of connections with good voice quality	>=95%	Jun-15	97.23%	97.28%	98.85%	NP	96.60%	98.20%	98.79%	97.56%	97.42%	99.82%	99.05%	99.35%
	d)Total No. of cells exceeding 3% TCH drop (call drop)		Jun-15	228	56	304	355	223	199	2	55	534	11	0	133
	e) Total no. of cells (Sector) in the licensed service area		Jun-15	23228	2478	5904	12850	20675	12055	7445	6005	24967	3345	86	1766
4	No. of POI's having >=0.5% POI congestion														
	No. of POI's having >=0.5% POI congestion		Jun-15	0	0	0	0	0	0	0	0	0	0	0	0
	Name of POI not meeting the benchmark		Jun-15	0	0	0	0	0	0	0	0	0	0	0	0
5	Network Data														
	a) Equipped Capacity of Network in Erlang		Jun-15	232710	31114	108033	317000	297266	148077	144000	85684	480548	144000	21000	96826
	b) Total traffic in TCBH in erlang (Avg.)		Jun-15	175584	8438	29141	86683	229957	179566	138789	26868	371998	38909	1349	13780
	c) Total no. of customers served (as per VLR) on last day of the month		Jun-15	7490738	9774	1265406	2498668	11554757	5075381	3397091	1118501	17688843	1199153	87172	237785

NP: Data not provided: BSNL has not provided data for the parameter "Connections with good voice quality" because its OMCR (ALCATEL LUCENT Technology being used by BSNL) does not Support this parameter.

TABLE: 6

Detailed Network Data Assessment of Cellular Mobile Telephone Services-3 days live- Gujarat Circle- June 15 month															
S/N	Name of Parameter	Bench- mark	Average of 3 Days	AIRTEL	AIRCEL	TATA GSM	BSNL	IDEA	UNINOR	RCOM GSM	VIDEOCON	VODAFONE	RCOM CDMA	MTS	TATA CDMA
				GSM Operators									CDMA Operators		
Network Service Quality Parameter															
1	Network Availability														
	a) Total no. of BTSs in the licensed service area		Live data	7464	826	1967	4353	6866	3825	2527	1979	8131	1115	580	581
	b) Sum of downtime of BTSs in a month in hours i.e. total outage time of all BTSs in hours during a month		Live data	922	26	235	5126	637	573	1013	255	451	440	14	12
	c) BTS Accumulated Downtime	<=2%	Live data	0.17%	0.04%	0.17%	1.64%	0.13%	0.21%	0.56%	0.18%	0.08%	0.55%	0.03%	0.03%
	d) No. of BTSs having accumulated downtime of >24 hours in a month		Live data	1	0	0	0	3	2	0	0	0	0	0	0
	e) Worst affected BTSs due to downtime	<=2%	Live data	0.01%	0.00%	0.00%	0.00%	0.04%	0.05%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2	Connection Establishment (Accessibility)														
	a) CSSR (Call Setup Success Rate)	>=95%	Live data	99.60%	99.23%	98.34%	97.60%	99.35%	97.72%	99.54%	99.15%	97.43%	99.03%	99.74%	98.91%
	b) SDCCH/PAGING Congestion	<=1%	Live data	0.10%	0.01%	0.02%	0.16%	0.21%	0.18%	0.02%	0.05%	0.22%	0.00%	0.00%	0.00%
	c) TCH congestion	<=2%	Live data	0.62%	0.00%	0.02%	0.53%	0.28%	1.60%	0.20%	0.03%	0.56%	0.00%	0.00%	0.13%
3	Connection Maintenance (Retainability)														
	a) Call Drop Rate (CDR)	<=2%	Live data	0.67%	0.35%	0.78%	0.85%	0.81%	0.52%	0.26%	0.42%	0.72%	0.62%	0.00%	0.54%
	b) Worst affected cells>3% TCH drop	<=3%	Live data	1.00%	2.10%	4.76%	2.59%	0.89%	1.64%	0.04%	0.72%	2.18%	0.15%	0.38%	6.59%
	c) % of connections with good voice quality	>=95%	Live data	97.30%	97.58%	98.87%	NP	97.77%	98.16%	98.82%	97.63%	97.43%	99.83%	99.13%	99.36%
	d) Total No. of cells exceeding 3% TCH drop (call drop)		Live data	232	52	281	335	184	198	3	43	543	5	0	116
	e) Total no. of cells (Sector) in the licensed service area		Live data	23247	2478	5908.33	12931	20642	12058	7445	6012	24858	3345	86	1761
4	No. of POI's having >=0.5% POI congestion														
	No. of POI's having >=0.5% POI congestion		Live data	0	0	0	0	0	0	0	0	0	0	0	0
	Name of POI not meeting the benchmark		Live data	0	0	0	0	0	0	0	0	0	0	0	0

NP: Data not provided: BSNL has not provided data for the parameter "Connections with good voice quality" because its OMCR (ALCATEL LUCENT Technology being used by BSNL) does not Support this parameter.

CUSTOMER SERVICE QUALITY (CSD) PARAMETERS



5.3 CUSTOMER SERVICE QUALITY PARAMETERS MEASUREMENT FOR CMTS:

5.3.1 QUARTERLY CUSTOMER SERVICE DELIVERY (CSD) AUDITED DATA FOR CELLULAR MOBILE SERVICES (APRIL TO JUNE 2015 MONTHS AUDITED DATA):

Quarterly CSD Audited Data for Cellular Mobile Telephone Services															
Quarterly CSD Audit Data		Bench- mark	Circle Name	AIRCEL	AIRTEL	BSNL	UNINOR	IDEA	RCOM (GSM)	TATA (GSM)	VIDEOCON	VODAFONE	MTS	RCOM (CDMA)	TATA (CDMA)
S/ N	Name of Parameter			GSM Operators								CDMA Operators			
Customer Service Quality Parameters															
1	Metering & Billing Credibility -Post Paid														
	A) No. of bills issued during the quarter		GUJ	111	1720703	152674	NA	1495254	181934	185341	NA	5258894	167835	442234	46437
	B) No. of bills disputed including billing complaints during the quarter		GUJ	0	116	28	NA	974	170	0	NA	4257	35	394	1
	C)% of billing complaints during the quarter	<= 0.1%	GUJ	0.00%	0.01%	0.02%	NA	0.07%	0.09%	0.00%	NA	0.08%	0.02%	0.09%	0.002%
2	Metering & Billing Credibility -Pre Paid														
	A) Total No. of Pre-paid customers at the end of the quarter		GUJ	16935	7271342	2925427	7713215	10593968	3432433	3281053	2425243	16928896	165589	1047870	253031
	B) Total No. of complaints relating to charging, Credit and Validity during the quarter		GUJ	0	115	5077	328	5969	3044	1	12	4077	24	466	0
	C) % of Pre-paid Charging Complaints	<= 0.1%	GUJ	0.00%	0.00%	0.17%	0.004%	0.06%	0.089%	0.00%	0.00%	0.02%	0.01%	0.04%	0.00%
3	Resolution of Billing/Charging Complaints and Period of applying credit/Waiver/Adjustment to customers account from the date of resolution of complaints														
	A) No. of Billing/Charging/Credit/Validity Complaints received during the quarter		GUJ	0	231	5105	328	17436	3214	1	12	8334	59	860	1
	B) No. of billing complaints for Post paid customers/Charging/Credit/Validity complaints for pre-paid customers resolved within 4 weeks during the quarter		GUJ	0	231	5105	328	17434	3214	1	12	8334	59	860	1

QUARTERLY CSD AUDITED DATA FOR CELLULAR MOBILE TELEPHONE SERVICES

Quarterly CSD Audit Data		Bench- mark	Circle Name	AIRCEL	AIRTEL	BSNL	UNINOR	IDEA	RCOM (GSM)	TATA (GSM)	VIDEOCON	VODAFONE	MTS	RCOM (CDMA)	TATA (CDMA)
S/ N	Name of Parameter			GSM Operators										CDMA Operators	
4	C) No. of billing complaints for Post paid customers/Charging/Credit/Validity complaints for pre-paid customers resolved within 6 weeks during the quarter.		GUJ	0	231	5105	328	17436	3214	1	12	8334	59	860	1
	D) % of billing complaints (for post paid customer) / Charging/Credit/Validity (for Pre paid customer) resolved within 4 weeks	>=98% within 4 weeks	GUJ	100%	100%	100%	100%	99.99%	100%	100%	100%	100%	100%	100%	100%
	E) % of billing complaints (for post paid customer) / Charging/Credit/Validity (for Pre paid customer) resolved within 6 weeks	100% within 6 weeks		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	F) % of Period of applying credit/Waiver/Adjustment to customers account from the date of resolution of complaints	<=1 week		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Response time to customers for assistance															
4	A) Total no of calls attempted to customer care/Call center		GUJ	13452	1640834	272780	14338124	22680674	5454248	517822	216552	41596610	17075	504708	49207
	B) Total no. of calls successfully established to customer care/Call center		GUJ	12986	1640834	264847	14281285	22419128	5379523	512292	216552	41596594	16335	495778	47894
	C) % Accessibility of Call centre /customer Care (Total call successfully established *100/ Total call attempt)	>=95%	GUJ	96.54%	100%	97.09%	99.60%	98.85%	98.63%	98.93%	100%	100%	95.666%	98.23%	97.33%
	D) Total Calls reached to operator for Voice to Voice (Total call attempts)		GUJ	4506	3307890	1701162	3526232	7345585	1284120	1020983	714220	9354110	216003	147069	70501

AUDIT & ASSESSMENT OF QOS FOR QE-JUNE- 2015-GUJARAT CIRCLE



QUARTERLY CSD AUDITED DATA FOR CELLULAR MOBILE TELEPHONE SERVICES

Quarterly CSD Audit Data		Bench- mark	Circle Name	AIRCEL	AIRTEL	BSNL	UNINOR	IDEA	RCOM (GSM)	TATA (GSM)	VIDEOCON	VODAFONE	MTS	RCOM (CDMA)	TATA (CDMA)
S/ N	Name of Parameter			GSM Operators										CDMA Operators	
	E) Total number of calls answered by the operator (Voice to voice) within 90 seconds.		GUJ	4433	2983581	1640200	3496407	7286830	1070864	1006400	707836	9162960	209673	125124	68344
	F) % age of calls answered by operator(voice to voice) (Total call successfully established within 90 sec.*100 / Total call attempts)	>=95%	GUJ	98.38%	90.20%	96.416%	99.15%	99.20%	83.39%	98.57%	99.106%	97.96%	97.069%	85.08%	96.94%
5	Termination/closure of service														
	A) Total No. of requests for Termination / Closure of service received during the quarter		GUJ	0	4340	16758	NA	11439	660	3189	NA	20140	5431	3013	1764
	B) No. of requests for Termination / Closure of service complied within 7 days during the quarter		GUJ	0	4340	16758	NA	11439	660	3189	NA	20140	5431	3013	1764
	C) % of Termination/ Closure of service within 7 days	<=7days	GUJ	100%	100%	100%	NA	100%	100%	100%	NA	100%	100%	100%	100%
6	Time taken for refunds of deposits after closures.														
	A) No. of Payments/ Refunds due during the quarter		GUJ	0	1347	1153	NA	2147	750	967	NA	5671	0	1439	869
	B) No. of Payments/ Refunds Cleared during the quarter		GUJ	0	1347	1153	NA	2147	750	967	NA	5671	0	1439	869
	C) Time taken for refunds of deposits after closures.	100% within 60 days	GUJ	100%	100%	100%	NA	100%	100%	100%	NA	100%	100%	100%	100%

NA: Uninor and Videocon have no post-paid customers, so data for parameters related to post-paid bills not applicable for them. In case of Aircel, Post paid connections are being used for internal use only.

NB: Accessibility of call center / Customer care data of RCOM (GSM & CDMA) are based on average of two months' data i.e. April & May 15, June-15 month data has not provided by RCOM (GSM & CDMA) due to TTI server issue.

5.3.2 3 DAYS LIVE CSD AUDITED DATA FOR CELLULAR MOBILE SERVICES:

CSD 3 DAYS LIVE DATA FOR CELLULAR MOBILE TELEPHONE SERVICES – QE JUNE 2015															
3 days live CSD Audit Data		Bench- mark	Circle Name	AIRCEL	AIRTEL	BSNL	UNINOR	IDEA	RCOM (GSM)	TATA (GSM)	VIDEOCON	VODAFONE	MTS	RCOM (CDMA)	TATA (CDMA)
S/ N	Name of Parameter			GSM Operators										CDMA Operators	
Response time to customers for assistance															
1	Total no of calls attempted to customer care/Call center		GUJ	185	57032	10234	545225	679141	NP	17404	9999	1517950	594	NP	1628
	Total no. of calls successfully established to customer care/Call center		GUJ	185	57032	9948	543267	673505	NP	17232	9999	1517950	583	NP	1589
	% Accessibility of Call centre /customer Care (Total call successfully established*100 / Total call attempts)	>=95%	GUJ	100.00%	100.00%	97.21%	99.64%	99.17%	NP	99.01%	100.00%	100.00%	98.15%	NP	97.60%
	Total Calls reached to operator for Voice to Voice (Total call attempts)		GUJ	121	113264	57321	119300	219657	41288	33124	20614	319487	6286	4688	2184
	Total number of calls answered by the operator (Voice to voice) within 90 seconds		GUJ	118	95595	55570	114858	219148	38431	31580	20413	315685	6219	4609	2146
	% age of calls answered by operator(voice to voice) (Total call successfully established within 90 Sec.*100 / Total call attempts)	>=95%	GUJ	97.52%	84.40%	96.945%	96.28%	99.77%	93.08%	95.339%	99.02%	98.81%	98.93%	98.31%	98.26%

NP: RCOM (GSM & CDMA) has not provided data for the parameter "Accessibility of call center / Customer care" due to TTI server issue.

KEY FINDINGS: CUSTOMER SERVICE DELIVERY PARAMETERS

1. Metering and billing credibility-(Post paid & Pre-paid)

The performance of the service providers with respect to the parameter metering and billing credibility for both post-paid and pre-paid was well within the prescribed bench mark of $\leq 0.1\%$. However, **BSNL** could not meet the benchmark of Metering and **Billing credibility for pre-paid** with its performance level as **0.17%**.

2. Resolution of Billing complaints and applying credits -

- i. Resolution of billing /charging complaints
- ii. Period of applying credit/waiver/adjustment to customer's account from the date of resolution of complaints

All operators have 100 % resolved the billing complaints within stipulated period of 4/6 weeks. Similarly, in all cases where customers were due for credit / adjustment, all the service providers have complied with the benchmark of 100 % refund in one week.

3. Response Time to the Customer for assistance

- i. Accessibility of call centre/customer care
- ii. Percentage of calls answered by Operators (Voice to Voice) within 60 seconds

All service providers are in compliance with respect to the parameter Accessibility of call center. However, **Airtel, RCOM (GSM) and RCOM (CDMA)** have not met the benchmark of '**calls answered by Operators (voice to voice) within 90 seconds**'. They remained short of benchmark with their performance as **90.20%, 83.39% and 85.08%** respectively, way below the benchmark of **>95%**.

4. Termination/Closure of Service

In case of this parameters also, all service providers have settled the closure/termination within the benchmark of 100% in 7 days.

5. Time Taken for Refund of deposits after closures

All operators, were found to have complied with the benchmark of 100% refund of deposits within 60 days of closure.

Live Measurements:

The results for three days live measurements reveal that all operators have met the benchmarks for the parameters 'Accessibility to call center'. However, **Airtel, RCOM (GSM)** failed to meet the benchmark of '**Call connection to operators (Voice to voice) within 90 seconds**' with their performance as **84.40% and 93.08%** respectively.

6. LIVE CALLING ASSESSMENT



6. LIVE CALLING ASSESSMENT:

6.1 INTER OPERATOR CALLS ASSESSMENT:

Inter operator call assessment with a sample of 2x50 test calls for each Service provider operating in Gujarat service area during the time 1100 to 1400 Hrs and 1600 to 1900 was carried out by TUV auditors. The test calls were made from one operator to another within the same licensed area to judge the ease of connectivity amongst the operators. While doing this exercise, the radio part, the switch part and POI in between the two operators are involved. Congestion in any of these network elements could result in congestion in the network.

INTER OPERATOR CALL ASSESSMENT BASED ON LIVE MEASUREMENT													
Calling Operators	Circle Name	AIRCEL	AIRTEL	UNINOR	BSNL	IDEA	RCOM GSM	RCOM CDMA	TATA GSM	TATA CDMA	VIDEOCON	MTS	VODAFONE
AIRCEL	Gujarat	-	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
AIRTEL		100%	-	100%	100%	100%	100%	100%	99%	99%	100%	100%	97%
UNINOR		100%	100%	-	100%	100%	98%	99%	100%	100%	99%	97%	100%
BSNL		99%	100%	97%	-	99%	100%	100%	100%	98%	100%	100%	99%
IDEA		100%	97%	100%	100%	-	100%	100%	100%	100%	98%	98%	100%
RCOM GSM		100%	100%	100%	98%	100%	-	99%	99%	100%	100%	100%	100%
RCOM CDMA		100%	100%	100%	100%	100%	100%	-	100%	98%	97%	100%	100%
TATA GSM		100%	100%	100%	100%	99%	99%	100%	-	100%	100%	99%	98%
TATA CDMA		98%	100%	99%	100%	100%	100%	100%	100%	-	100%	100%	100%
VIDEOCON		100%	99%	100%	98%	100%	98%	98%	97%	100%	-	100%	100%
MTS		100%	100%	100%	100%	100%	100%	100%	100%	98%	100%	-	99%
VODAFONE		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-

The result of the testing revealed that the inter connection performance among the operators was satisfactory. However, in some cases where calls attempted from one operator to other, successful calls interconnection were in variation of 97% to 100% respectively. Thus there was no remarkable problem in interconnection from one operator to other operators.

6.2 CUSTOMER CARE / HELPLINE ASSESSMENT:

LIVE CALLING TO CALL CENTRE													
Parameter	Circle Name	AIRCEL	AIRTEL	BSNL	UNINOR	IDEA	RCOM (GSM)	TATA (GSM)	VIDEOCON	VODAFONE	MTS	RCOM (CDMA)	TATA (CDMA)
Total no of calls attempted to customer care/Call center	GUJ	100	100	100	100	100	100	100	100	100	100	100	100
Total no. of calls successfully established to customer care/Call center	GUJ	100	100	100	100	100	100	100	100	100	100	100	100
% Accessibility of Call centre /customer Care (Total call successfully established *100 /Total call attempts)	GUJ	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Total Calls reached to agent desk for Voice to Voice (Total call attempts)	GUJ	100	100	100	100	100	100	100	100	100	100	100	100
Total number of calls answered by the operator (Voice to voice) within 90 seconds	GUJ	100	100	100	100	100	100	100	100	100	100	100	100
% age of calls answered by operator(voice to voice) (Total call successfully established within 90 Sec.*100/Total call attempts)	GUJ	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

In case of calls answered by operators (voice to voice) within 90 seconds when test calls were made to the call centers, the performance of all the operators with respect to call connections to the customer care was very satisfactory.

6.3 LIVE CALLING ASSESSMENT FOR BILLING COMPLAINTS:

TELEPHONIC INTERVIEW FOR BILLING COMPLAINTS													
Parameter	Circle Name	AIRCEL	AIRTEL	BSNL	UNINOR	IDEA	RCOM (GSM)	TATA (GSM)	VIDEOCON	VODAFONE	MTS	RCOM (CDMA)	TATA (CDMA)
Total No. of calls Attempted	Gujarat	NA	100	100	100	100	100	1	12	100	59	100	1
Total No. of calls Answered	Gujarat	NA	100	100	100	100	100	1	12	100	59	100	1
Resolution of Billing complaints	Gujarat	NA	100	100	100	100	100	1	100	100	100	100	1
%age of cases resolved	Gujarat	NA	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

To test the Service Providers performance on billing related complaints and their resolutions, TUV-SUD auditors conducted a customer feedback calling for about random 100 nos. of customers. However, in some cases, the number of customers contacted for verification was very less due to less number of billing complaints. During live calling, some of the customers did not attend the calls, so shortfall was made good by taking other complaints to make verification of 100 Complaints.

Some of the complainants reported that they didn't exactly remember about the resolution of complaints. However, majority of the customers reported that the billing complaints were resolved to their satisfaction.

6.4 LEVEL -1 CALLING ASSESSMENT:

LEVEL 1 LIVE CALLING																
Emergency no.	Month of Drive Test	SSA Name	Name of SDCA	No. of calls made	AIRCEL	AIRTEL	UNINOR	BSNL	IDEA	RCOM GSM	RCOM CDMA	TATA GSM	TATA CDMA	VIDEOCON	MTS	VODAFONE
100 / 108 / 1091 / 101 / 1095	April'15	Nadiad SSA	Borsad	7	NC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
			khambaht	7	NC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
			petlad	7	NC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
			Anand	7	NC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
			Nadiad	7	NC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
			BalaSinor	7	NC	✓	✓	✓	✓	✓	✓	✓	NC	✓	✓	✓
			Thasra	7	NC	✓	✓	✓	✓	✓	✓	✓	NC	✓	✓	✓
100 / 108 / 1091 / 101 / 1095	MAY'15	Surendranagar SSA	Lakhtar	6	NC	✓	✓	✓	✓	✓	NC	NC	NC	NC	NC	✓
			Surendranagar	6	NC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
			Sayla	6	NC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
			Limbdi	6	NC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
			Muli	6	NC	✓	✓	✓	✓	✓	NC	NC	NC	NC	NC	✓
			Chotila	6	NC	✓	✓	✓	✓	✓	✓	✓	NC	✓	✓	✓
			halvad	6	✓	✓	✓	✓	✓	✓	✓	✓	NC	✓	✓	✓
100 / 108 / 1091 / 101 / 1095	JUNE'15	Valsad SSA	Valsad	7	NC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
			Billimora	7	NC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
			Vapi	7	NC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
			Dharampur	7	NC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
			Navsari	7	NC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
			Vansada	7	NC	✓	NC	✓	✓	✓	✓	NC	NC	NC	✓	✓

NC: No Coverage

To assess the availability and efficiency of level 1 services such as police, fire, ambulance (emergency services) offered by various mobile service providers, the calls were made during drive tests from different SDCA in Nadiad, Surendranagar and Valsad SSAs. In Gujarat service area, these services were found functional in the networks of all the service providers except for those operators who were not having their coverage in particular SDCAs as indicated above.

Note: Emergency Nos 101 is not getting through since BSNL end lines are disconnected due to Non-payment by Fire Department in Valsad SSA. So that 101 is not through for any Operator in Valsad SSA.

7. DRIVE TEST



7. OPERATOR ASSESTID DRIVE TEST

In terms of TRAI's letter dated 21st January, 2014, the drive tests were conducted for three consecutive days in one select SSA each month in each service area. Thus, the drive tests were carried out in three SSA's namely **Nadiad, Surendar Nagar** and **Valsad** in the months of April, May and June 2015 respectively. The total route Kms covered during drive tests in respective SSAs was **308 Kms, 301 Kms** and **334 Kms**. The performance of the operators has been highlighted below in the tables. The drive test was conducted simultaneously for all the operators following the same route of drive tests. The holding period for all test calls was 120 seconds. The drive test vehicle across all routes plied at a speed of about 30-50 km per hour

For measuring voice quality, Rx Qual samples on a scale from 0 to 7 for GSM operators and Frame Error Rate (FERs) for CDMA service providers were measured. As per the QoS norms, Rx Qual between 0- 5 for GSM operators and between 0-4 % FER value for CDMA operators is considered to be good, where as Rx Qual beyond this benchmark is considered to be bad. Call drops were measured by the number of calls that were dropped to the total number of calls established during the drive test. Similarly CSSR was measured as the ratio of total calls established to the total call attempts made. Signal strength was measured in dBm at street level with strength ≥ -75 dBm for in-door coverage and ≥ -85 dBm for in-vehicle.

DRIVE TEST TABLE-1A

OPERATOR ASSISTED DRIVE TEST AT NADIAD SSA IN APRIL 15 MONTH - GUJRAT CIRCLE														
S/N	Parameter	Classification of routes covered	AIRCEL		AIRTEL		BSNL		TATA GSM		IDEA		RCOM GSM	
			Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor
1	Call Attempts	Highways	NC	NC	100	25	54	25	49	25	73	25	68	26
		Major Roads	NC	NC	141	25	74	26	72	25	105	25	85	28
		Within City	NC	NC	157	25	112	25	105	25	134	25	114	26
		Overall SSA	NC	NC	398	75	240	76	226	75	312	75	267	80
2	Blocked Call Rate	Highways	NC	NC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Major Roads	NC	NC	0.00%	0.00%	0.00%	0.00%	1.39%	0.00%	0.00%	0.00%	0.00%	0.00%
		Within City	NC	NC	0.00%	0.00%	0.00%	0.00%	0.95%	0.00%	0.00%	0.00%	0.00%	0.00%
		Overall SSA	NC	NC	0.00%	0.00%	0.00%	0.00%	0.88%	0.00%	0.00%	0.00%	0.00%	0.00%
3	Dropped Call Rate (<=2%)	Highways	NC	NC	0.00%	0.00%	1.85%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Major Roads	NC	NC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Within City	NC	NC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.75%	0.00%
		Overall SSA	NC	NC	0.00%	0.00%	0.42%	0.00%	0.00%	0.00%	0.00%	0.00%	0.75%	0.00%
4	Percentage connections with good voice quality (=>95%)													
	(a) 0-4 (w/o frequency hopping for CDMA Operators)	Highways	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Major Roads	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Within City	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Overall SSA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	(b) 0-5 (with frequency hopping for GSM Operators)	Highways	NC	NC	97.18%	99.92%	99.01%	99.65%	97.62%	99.80%	98.35%	99.45%	97.66%	99.30%
		Major Roads	NC	NC	97.08%	99.71%	99.31%	99.85%	98.27%	98.33%	98.51%	99.41%	97.12%	100%
		Within City	NC	NC	97.29%	99.81%	98.99%	99.87%	98.36%	99.97%	98.78%	99.28%	97.71%	100%
		Overall SSA	NC	NC	97.19%	99.82%	99.09%	99.79%	98.17%	99.37%	98.59%	99.38%	97.51%	99.79%
5	Service Coverage													
	In door (>= -75dBm)	Highways	NC	NC	95.08%	100%	83.26%	97.50%	69.25%	67.68%	98.76%	98.96%	75.46%	99.78%
		Major Roads	NC	NC	94.83%	100%	82.32%	100%	72.02%	72.12%	97.99%	99.90%	74.98%	100%
		Within City	NC	NC	91.21%	100%	85.48%	100%	71.76%	75.07%	94.58%	93.51%	72.20%	100%
		Overall SSA	NC	NC	93.44%	100%	84.01%	99.13%	71.30%	71.62%	96.70%	97.50%	73.87%	99.93%

AUDIT & ASSESSMENT OF QOS FOR QE-JUNE- 2015-GUJARAT CIRCLE



OPERATOR ASSISTED DRIVE TEST AT NADIAD SSA IN APRIL 15 MONTH - GUJRAT CIRCLE														
S/N	Parameter	Classification of routes covered	AIRCEL		AIRTEL		BSNL		TATA GSM		IDEA		RCOM GSM	
			Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor
	In-vehicle (>= - 85dBm)	Highways	NC	NC	99.46%	100%	98.46%	99.97%	90.97%	94.05%	99.95%	99.93%	90.66%	100%
		Major Roads	NC	NC	99.62%	100%	97.91%	100%	94.51%	96.31%	99.95%	99.97%	96.19%	100%
		Within City	NC	NC	98.86%	100%	98.41%	100%	93.87%	97.72%	99.72%	99.98%	94.33%	100%
		Overall SSA	NC	NC	99.27%	100%	98.27%	99.99%	93.44%	96.03%	99.85%	99.96%	94.00%	100%
	Outdoor- in city (>= - 95dBm)	Highways	NC	NC	99.79%	100%	99.99%	100%	98.30%	96.83%	99.99%	100%	99.13%	100%
		Major Roads	NC	NC	99.96%	100%	99.92%	100%	99.42%	99.34%	99.99%	100%	99.92%	100%
		Within City	NC	NC	99.97%	100%	99.89%	100%	99.43%	98.86%	99.99%	100%	99.36%	100%
		Overall SSA	NC	NC	99.92%	100%	99.92%	100%	99.18%	98.34%	99.99%	100%	99.48%	100%
6	Call Setup Success Rate (>=95%)	Highways	NC	NC	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
		Major Roads	NC	NC	100%	100%	100%	100%	98.61%	100%	99.05%	100%	100%	100%
		Within City	NC	NC	100%	100%	100%	100%	99.05%	100%	100%	100%	100%	100%
		Overall SSA	NC	NC	100%	100%	100%	100%	99.12%	100%	99.68%	100%	100%	100%
7	Hand Over Success Rate (HOSR)	Highways	NC	NC	100%	100%	98.96%	100%	100%	100%	100%	100%	100%	100%
		Major Roads	NC	NC	100%	100%	99.38%	100%	100%	100%	100%	100%	100%	100%
		Within City	NC	NC	100%	100%	99.43%	100%	100%	100%	100%	100%	100%	100%
		Overall SSA	NC	NC	100%	100%	99.31%	100%	100%	100%	100%	100%	100%	100%

NA: Not Applicable

NC: No Coverage

AUDIT & ASSESSMENT OF QOS FOR QE-JUNE- 2015-GUJARAT CIRCLE

DRIVE TEST TABLE-1B

OPERATOR ASSISTED DRIVE TEST AT NADIAD SSA IN APRIL 15 MONTH - GUJRAT CIRCLE														
S/N	Parameter	Classification of routes covered	UNINOR		VIDEOCON		VODAFONE		MTS CDMA		TATA CDMA		RCOM CDMA	
			Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor
1	Call Attempts	Highways	55	26	110	25	86	25	62	25	45	25	68	26
		Major Roads	117	28	84	25	105	25	86	25	73	25	85	28
		Within City	115	29	155	25	148	25	116	25	117	NC	113	26
		Overall SSA	287	83	349	75	339	75	264	75	235	50	266	80
2	Blocked Call Rate	Highways	1.82%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Major Roads	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Within City	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	NC	0.00%	0.00%
		Overall SSA	0.35%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
3	Dropped Call Rate (<=2%)	Highways	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Major Roads	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Within City	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	NC	0.00%	0.00%
		Overall SSA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
4	Percentage connections with good voice quality (=>95%)													
	(a) 0-4 (w/o frequency hopping for CDMA Operators)	Highways	NA	NA	NA	NA	NA	NA	99.98%	100%	98.16%	100%	99.36%	100%
		Major Roads	NA	NA	NA	NA	NA	NA	99.86%	100%	98.42%	98.81%	97.81%	99.47%
		Within City	NA	NA	NA	NA	NA	NA	99.86%	100%	95.49%	NC	99.01%	100%
		Overall SSA	NA	NA	NA	NA	NA	NA	99.89%	100%	96.92%	99.40%	98.73%	99.79%
	(b) 0-5 (with frequency hopping for GSM Operators)	Highways	97.59%	97.87%	98.25%	99.30%	96.39%	99.09%	NA	NA	NA	NA	NA	NA
		Major Roads	96.92%	98.25%	98.61%	99.45%	96.29%	99.03%	NA	NA	NA	NA	NA	NA
		Within City	97.66%	99.50%	97.88%	98.02%	95.71%	99.57%	NA	NA	NA	NA	NA	NA
		Overall SSA	97.39%	98.54%	98.17%	98.91%	96.06%	99.24%	NA	NA	NA	NA	NA	NA
5	Service Coverage													
	In door (>= -75dBm)	Highways	93.61%	89.03%	77.69%	90.39%	99.24%	99.87%	85.32%	78.98%	80.71%	99.41%	69.91%	96.48%
		Major Roads	91.99%	99.05%	78.88%	96.20%	98.61%	100%	89.12%	99.98%	77.69%	100%	62.06%	100%
		Within City	87.88%	99.48%	72.65%	99.69%	97.96%	100%	87.02%	99.46%	68.55%	NC	59.38%	100%
		Overall SSA	90.54%	95.88%	76.41%	95.43%	98.60%	99.96%	87.28%	93.03%	73.77%	99.71%	62.81%	99.93%

AUDIT & ASSESSMENT OF QOS FOR QE-JUNE- 2015-GUJARAT CIRCLE

OPERATOR ASSISTED DRIVE TEST AT NADIAD SSA IN APRIL 15 MONTH - GUJRAT CIRCLE

S/N	Parameter	Classification of routes covered	UNINOR		VIDEOCON		VODAFONE		MTS CDMA		TATA CDMA		RCOM CDMA	
			Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor
	In-vehicle (≥ -85 dBm)	Highways	98.61%	99.76%	97.62%	99.30%	99.85%	100%	99.81%	100%	95.28%	100%	92.83%	100%
		Major Roads	99.40%	99.56%	96.62%	99.78%	99.48%	100%	99.90%	100%	97.05%	100%	89.89%	100%
		Within City	98.41%	100%	95.05%	100%	99.64%	100%	98.65%	100%	91.66%	NC	86.14%	100%
		Overall SSA	98.79%	99.77%	96.43%	99.69%	99.66%	100%	99.33%	100%	94.03%	100%	88.96%	100%
	Outdoor- in city (≥ -95 dBm)	Highways	100%	100%	99.64%	100%	99.96%	100%	100%	100%	99.95%	100%	99.59%	100%
		Major Roads	100%	100%	99.60%	99.89%	99.81%	100%	100%	100%	99.85%	100%	99.84%	100%
		Within City	100%	100%	99.69%	100%	99.86%	100%	99.96%	100%	98.49%	NC	99.50%	100%
		Overall SSA	100%	100%	99.64%	99.96%	99.88%	100%	99.98%	100%	99.20%	100%	99.63%	100%
6	Call Setup Success Rate ($\geq 95\%$)	Highways	98.18%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
		Major Roads	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
		Within City	100%	100%	100%	100%	100%	100%	100%	100%	100%	NC	100%	100%
		Overall SSA	99.65%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
7	Hand Over Success Rate (HOSR)	Highways	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
		Major Roads	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
		Within City	98.06%	100%	100%	100%	100%	100%	100%	100%	100%	NC	100%	100%
		Overall SSA	99.19%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

NA: Not Applicable

NC: No Coverage

DRIVE TEST TABLE-2A

OPERATOR ASSISTED DRIVE TEST AT SURENDAR NAGAR SSA IN MAY 15 MONTH - GUJRAT CIRCLE														
S/N	Parameter	Classification of routes covered	AIRCEL		AIRTEL		BSNL		TATA GSM		IDEA		RCOM GSM	
			Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor
1	Call Attempts	Highways	6	NC	65	25	149	14	102	25	84	25	53	25
		Major Roads	18	NC	108	25	162	28	122	25	104	25	86	25
		Within City	18	25	124	25	188	28	131	25	129	25	96	25
		Overall SSA	42	25	297	75	499	70	355	75	317	75	235	75
2	Blocked Call Rate	Highways	0.00%	NC	0.00%	0.00%	2.01%	7.14%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Major Roads	0.00%	NC	0.00%	0.00%	3.09%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Within City	0.00%	0.00%	0.00%	0.00%	0.53%	10.71%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Overall SSA	0.00%	0.00%	0.00%	0.00%	1.80%	5.71%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
3	Dropped Call Rate (<=2%)	Highways	0.00%	NC	0.00%	0.00%	0.68%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Major Roads	0.00%	NC	0.00%	0.00%	1.91%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Within City	0.00%	0.00%	0.00%	0.00%	0.53%	4.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Overall SSA	0.00%	0.00%	0.00%	0.00%	1.02%	1.52%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
4	Percentage connections with good voice quality (=>95%)													
	(a) 0-4 (w/o frequency hopping for CDMA Operators)	Highways	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Major Roads	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Within City	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Overall SSA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	(b) 0-5 (with frequency hopping for GSM Operators)	Highways	99.86%	NC	98.48%	99.19%	96.47%	80.75%	98.02%	99.62%	98.03%	99.42%	98.02%	96.16%
		Major Roads	99.42%	NC	98.39%	99.08%	97.63%	100%	97.94%	99.39%	98.35%	98.83%	98.29%	100%
		Within City	99.45%	99.39%	98.78%	99.45%	97.51%	100%	98.85%	100%	98.36%	99.43%	98.06%	99.43%
		Overall SSA	99.50%	99.39%	98.57%	99.25%	97.25%	81.78%	98.34%	99.66%	98.27%	99.23%	98.14%	97.71%
5	Service Coverage													
	In door (>= -75dBm)	Highways	59.97	NC	97.75%	99.98%	85.12%	11.27%	57.34%	2.94%	98.73%	99.93%	86.72%	88.52%
		Major Roads	56.27	NC	95.71%	99.88%	75.10%	55.56%	56.76%	0.93%	98.71%	97.65%	86.23%	100%
		Within City	62.04	100%	93.61%	99.85%	76.51%	100%	45.69%	99.02%	98.25%	99.85%	79.09%	100%
		Overall SSA	59.44%	100%	95.33%	99.91%	78.48%	14.22%	53.27%	34.30%	98.53%	99.14%	83.51%	93.77%

OPERATOR ASSISTED DRIVE TEST AT SURENDAR NAGAR SSA IN MAY 15 MONTH - GUJRAT CIRCLE														
S/N	Parameter	Classification of routes covered	AIRCEL		AIRTEL		BSNL		TATA GSM		IDEA		RCOM GSM	
			Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor
	In-vehicle (>= - 85dBm)	Highways	85.68	NC	99.90%	100%	96.68%	94.37%	88.28%	69.39%	99.99%	100%	98.53%	100%
		Major Roads	92.66	NC	99.85%	100%	93.78%	100%	86.11%	23.41%	99.99%	99.99%	97.79%	100%
		Within City	85.41	100%	99.68%	100%	95.29%	100%	78.24%	99.54%	99.95%	99.99%	95.84%	100%
		Overall SSA	88.32%	100%	99.79%	100%	95.17%	94.67%	84.21%	64.11%	99.97%	99.99%	97.19%	100%
	Outdoor- in city (>= - 95dBm)	Highways	100	NC	99.97%	100%	99.99%	100%	99.12%	99.87%	100%	100%	100%	100%
		Major Roads	100	NC	99.97%	100%	99.34%	100%	98.10%	90.16%	100%	100%	99.99%	100%
		Within City	99.70	100%	99.98%	100%	98.98%	100%	96.91%	99.83%	100%	100%	99.86%	100%
		Overall SSA	99.86%	100%	99.97%	100%	99.39%	100%	98.04%	96.62%	100%	100%	99.94%	100%
6	Call Setup Success Rate (>=95%)	Highways	100%	NC	100%	100%	97.99%	92.86%	100%	100%	100%	100%	100%	100%
		Major Roads	100%	NC	100%	100%	96.91%	100%	100%	100%	100%	100%	100%	100%
		Within City	100%	100%	100%	100%	99.47%	89.29%	100%	100%	99.22%	100%	100%	100%
		Overall SSA	100%	100%	100%	100%	98.20%	94.29%	100%	100%	99.68%	100%	100%	100%
7	Hand Over Success Rate (HOSR)	Highways	100%	NC	100%	100%	98.21%	100%	100%	100%	100%	100%	100%	100%
		Major Roads	100%	NC	100%	100%	98.70%	100%	100%	100%	100%	100%	100%	100%
		Within City	100%	100%	100%	100%	97.99%	100%	100%	100%	100%	100%	100%	100%
		Overall SSA	100%	100%	100%	100%	98.30%	100%	100%	100%	100%	100%	100%	100%

NA: Not Applicable

NC: No Coverage

The service providers having block call rate more than 3% have been shaded in yellow colour.

AUDIT & ASSESSMENT OF QOS FOR QE-JUNE- 2015-GUJARAT CIRCLE

DRIVE TEST TABLE-2B

OPERATOR ASSISTED DRIVE TEST AT SUNDERNAGAR SSA IN MAY 15 MONTH - GUJRAT CIRCLE														
S/N	Parameter	Classification of routes covered	UNINOR		VIDEOCON		VODAFONE		MTS CDMA		TATA CDMA		RCOM CDMA	
			Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor
1	Call Attempts	Highways	85	25	100	25	55	25	42	25	45	25	42	27
		Major Roads	116	25	66	25	119	25	67	25	74	25	74	25
		Within City	134	25	106	25	111	25	86	25	72	0	86	25
		Overall SSA	335	75	272	75	285	75	195	75	191	50	202	77
2	Blocked Call Rate	Highways	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Major Roads	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Within City	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	NC	0.00%	0.00%
		Overall SSA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
3	Dropped Call Rate (<=2%)	Highways	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Major Roads	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Within City	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	NC	0.00%	0.00%
		Overall SSA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
4	Percentage connections with good voice quality (=>95%)													
	(a) 0-4 (w/o frequency hopping for CDMA Operators)	Highways	NA	NA	NA	NA	NA	NA	99.98%	100%	98.16%	99.97%	99.53%	99.82%
		Major Roads	NA	NA	NA	NA	NA	NA	99.99%	100%	98.38%	100%	98.53%	100%
		Within City	NA	NA	NA	NA	NA	NA	99.99%	100%	97.69%	NC	99.20%	100%
		Overall SSA	NA	NA	NA	NA	NA	NA	99.99%	100%	98.07%	99.98%	99.02%	99.90%
	(b) 0-5 (with frequency hopping for GSM Operators)	Highways	96.51%	97.51%	98.63%	96.99%	96.60%	98.82%	NA	NA	NA	NA	NA	NA
		Major Roads	96.04%	98.31%	98.33%	99.98%	96.04%	97.90%	NA	NA	NA	NA	NA	NA
		Within City	95.40%	99.79%	98.64%	99.80%	96.56%	95.50%	NA	NA	NA	NA	NA	NA
		Overall SSA	95.95%	98.53%	98.56%	98.93%	96.37%	97.47%	NA	NA	NA	NA	NA	NA
5	Service Coverage													
	In door (>= -75dBm)	Highways	85.74%	94.50%	87.15%	99.68%	96.64%	82.28%	87.49%	99.93%	89.47%	99.47%	83.91%	100%
		Major Roads	82.19%	89.14%	81.34%	98.50%	98.33%	95.64%	84.98%	11.52%	63.95%	7.83%	67.95%	100%
		Within City	69.41%	100%	78.45%	89.50%	97.21%	72.88%	86.59%	84.74%	55.00%	NC	67.28%	92.39%
		Overall SSA	78.62%	94.18%	82.31%	95.89%	97.39%	82.94%	86.23%	65.84%	69.47%	53.65%	71.09%	97.36%

AUDIT & ASSESSMENT OF QOS FOR QE-JUNE- 2015-GUJARAT CIRCLE



OPERATOR ASSISTED DRIVE TEST AT SUNDERNAGAR SSA IN MAY 15 MONTH - GUJRAT CIRCLE														
S/N	Parameter	Classification of routes covered	UNINOR		VIDEOCON		VODAFONE		MTS CDMA		TATA CDMA		RCOM CDMA	
			Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor
	In-vehicle (>= -85dBm)	Highways	97.24%	99.28%	97.16%	99.97%	99.42%	99.86%	99.05%	100%	99.89%	100%	95.87%	100%
		Major Roads	97.40%	99.47%	95.19%	100%	99.94%	99.99%	97.93%	99.17%	89.96%	98.32%	88.39%	100%
		Within City	94.45%	100%	96.01%	99.73%	99.96%	99.59%	97.93%	100%	88.62%	NC	88.14%	98.91%
		Overall SSA	96.28%	99.56%	96.12%	99.90%	99.77%	99.81%	98.17%	99.73%	92.82%	99.16%	89.89%	99.62%
	Outdoor- in city (>= -95dBm)	Highways	100%	100%	99.89%	100%	99.66%	100%	100%	100%	100%	100%	100%	100%
		Major Roads	100%	100%	99.56%	100%	100%	100%	99.91%	100%	99.83%	100%	99.48%	100%
		Within City	100%	100%	99.80%	100%	100%	100%	99.99%	100%	99.84%	NC	99.59%	100%
		Overall SSA	100%	100%	99.75%	100%	99.89%	100%	99.96%	100%	99.89%	100%	99.64%	100%
6	Call Setup Success Rate (>=95%)	Highways	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
		Major Roads	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
		Within City	100%	100%	100%	100%	100%	100%	100%	100%	100%	NC	100%	100%
		Overall SSA	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
7	Hand Over Success Rate (HOSR)	Highways	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
		Major Roads	100%	100%	100%	100%	100%	80.95%	100%	100%	100%	100%	100%	100%
		Within City	98.43%	100%	100%	100%	100%	100%	100%	100%	100%	NC	100%	100%
		Overall SSA	99.49%	100%	100%	100%	100%	92.59%	100%	100%	100%	100%	100%	100%

NA: Not Applicable

NC: No Coverage

DRIVE TEST TABLE-3A

OPERATOR ASSISTED DRIVE TEST AT VALSAD SSA IN JUNE 15 MONTH - GUJRAT CIRCLE														
S/N	Parameter	Classification of routes covered	AIRCEL		AIRTEL		BSNL		TATA GSM		IDEA		RCOM GSM	
			Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor
1	Call Attempts	Highways	NC	NC	62	25	39	27	46	25	66	25	72	25
		Major Roads	NC	NC	134	25	87	25	91	25	122	25	126	25
		Within City	NC	NC	107	25	144	33	117	25	127	26	141	26
		Overall SSA	NC	NC	303	75	270	85	254	75	315	76	339	76
2	Blocked Call Rate	Highways	NC	NC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Major Roads	NC	NC	0.00%	0.00%	1.15%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Within City	NC	NC	0.00%	0.00%	2.08%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Overall SSA	NC	NC	0.00%	0.00%	1.48%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
3	Dropped Call Rate (<=2%)	Highways	NC	NC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Major Roads	NC	NC	0.00%	0.00%	1.16%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Within City	NC	NC	0.00%	0.00%	0.71%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Overall SSA	NC	NC	0.00%	0.00%	0.75%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
4	Percentage connections with good voice quality (=>95%)													
	(a) 0-4 (w/o frequency hopping for CDMA Operators)	Highways	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Major Roads	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Within City	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Overall SSA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	(b) 0-5 (with frequency hopping for GSM Operators)	Highways	NC	NC	96.99%	99.33%	96.81%	100%	97.56%	99.95%	97.56%	99.03%	97.95%	93.25%
		Major Roads	NC	NC	96.11%	99.75%	96.33%	99.43%	97.16%	99.43%	97.37%	99.08%	97.79%	100%
		Within City	NC	NC	96.39%	99.37%	97.87%	99.90%	97.70%	100%	98.04%	98.95%	97.85%	100%
Overall SSA		NC	NC	96.40%	99.49%	97.23%	99.77%	97.48%	99.80%	97.68%	99.02%	97.85%	98.43%	
5	Service Coverage													
	In door (>= -75dBm)	Highways	NC	NC	90.30%	100%	62.91%	99.98%	85.03%	100%	94.69%	53.44%	78.92%	86.82%
		Major Roads	NC	NC	94.68%	100%	52.15%	99.98%	84.41%	99.12%	96.38%	97.61%	87.45%	100%
		Within City	NC	NC	93.73%	100%	60.64%	98.61%	82.54%	100%	98.74%	99.70%	85.38%	100%
		Overall SSA	NC	NC	93.39%	100%	58.33%	99.43%	83.99%	99.71%	96.97%	83.77%	84.82%	96.87%

AUDIT & ASSESSMENT OF QOS FOR QE-JUNE- 2015-GUJARAT CIRCLE



OPERATOR ASSISTED DRIVE TEST AT VALSAD SSA IN JUNE 15 MONTH - GUJRAT CIRCLE														
S/N	Parameter	Classification of routes covered	AIRCEL		AIRTEL		BSNL		TATA GSM		IDEA		RCOM GSM	
			Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor
	In-vehicle (>= -85dBm)	Highways	NC	NC	98.75%	100%	89.01%	100%	97.76%	100%	99.89%	99.48%	97.03%	100%
		Major Roads	NC	NC	99.29%	100%	81.52%	100%	97.46%	99.97%	99.83%	99.93%	98.95%	100%
		Within City	NC	NC	99.56%	100%	91.08%	99.95%	97.25%	100%	99.90%	100%	98.87%	100%
		Overall SSA	NC	NC	99.28%	100%	87.83%	99.98%	97.49%	99.99%	99.87%	99.80%	98.52%	100%
	Outdoor- in city (>= -95dBm)	Highways	NC	NC	99.85%	100%	99.20%	100%	99.83%	100%	100%	100%	100%	100%
		Major Roads	NC	NC	99.95%	100%	97.83%	100%	99.78%	100%	100%	100%	100%	100%
		Within City	NC	NC	99.94%	100%	99.53%	100%	99.76%	100%	100%	100%	100%	100%
		Overall SSA	NC	NC	99.92%	100%	98.96%	100%	99.79%	100%	100%	100%	100%	100%
6	Call Setup Success Rate (>=95%)	Highways	NC	NC	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
		Major Roads	NC	NC	100%	100%	98.85%	100%	100%	100%	100%	100%	100%	100%
		Within City	NC	NC	100%	100%	97.92%	100%	100%	100%	100%	100%	100%	100%
		Overall SSA	NC	NC	100%	100%	98.52%	100%	100%	100%	100%	100%	100%	100%
7	Hand Over Success Rate (HOSR)	Highways	NC	NC	100%	100%	98.95%	100%	100%	100%	99.35%	100%	100%	100%
		Major Roads	NC	NC	100%	100%	99.30%	100%	99.53%	100%	99.60%	100%	100%	100%
		Within City	NC	NC	100%	100%	98.47%	100%	100%	100%	100%	100%	100%	100%
		Overall SSA	NC	NC	100%	100%	98.80%	100%	99.82%	100%	99.71%	100%	100%	100%

NA: Not Applicable

NC: No Coverage

DRIVE TEST TABLE-3B

OPERATOR ASSISTED DRIVE TEST AT VALSAD SSA IN JUNE 15 MONTH - GUJRAT CIRCLE														
S/N	Parameter	Classification of routes covered	UNINOR		VIDEOCON		VODAFONE		MTS CDMA		TATA CDMA		RCOM CDMA	
			Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor
1	Call Attempts	Highways	100	27	135	25	52	25	59	25	56	25	72	26
		Major Roads	99	26	87	25	92	25	107	25	100	25	126	26
		Within City	170	26	159	25	103	25	123	25	118	25	141	25
		Overall SSA	369	79	381	75	247	75	289	75	274	75	339	77
2	Blocked Call Rate	Highways	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Major Roads	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Within City	1.18%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.71%	0.00%
		Overall SSA	0.54%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.29%	0.00%
3	Dropped Call Rate (<=2%)	Highways	2.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Major Roads	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Within City	0.60%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Overall SSA	0.82%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
4	Percentage connections with good voice quality (=>95%)													
	(a) 0-4 (w/o frequency hopping for CDMA Operators)	Highways	NA	NA	NA	NA	NA	NA	99.63%	99.82%	99.85%	100%	99.52%	100%
		Major Roads	NA	NA	NA	NA	NA	NA	99.76%	100%	99.97%	100%	99.35%	100%
		Within City	NA	NA	NA	NA	NA	NA	99.85%	100%	99.92%	99.66%	99.24%	99.68%
		Overall SSA	NA	NA	NA	NA	NA	NA	99.77%	99.94%	99.92%	99.89%	99.34%	99.90%
	(b) 0-5 (with frequency hopping for GSM Operators)	Highways	95.78%	97.28%	97.29%	99.54%	95.34%	98.59%	NA	NA	NA	NA	NA	NA
		Major Roads	95.19%	98.91%	98.61%	99.10%	95.59%	96.20%	NA	NA	NA	NA	NA	NA
		Within City	95.22%	95.20%	98.13%	99.70%	96.03%	99.36%	NA	NA	NA	NA	NA	NA
		Overall SSA	95.34%	97.11%	97.94%	99.44%	95.71%	98.00%	NA	NA	NA	NA	NA	NA
5	Service Coverage													
	In door (>= -75dBm)	Highways	94.10%	95.35%	66.59%	99.56%	91.55%	100%	80.60%	26.65%	72.78%	100%	79.28%	100%
		Major Roads	90.99%	100%	71.57%	38.65%	97.01%	100%	87.16%	99.75%	74.73%	99.86%	83.30%	100%
		Within City	90.10%	100%	60.40%	99.89%	96.74%	100%	91.63%	99.48%	83.48%	99.98%	89.86%	87.92%
		Overall SSA	91.25%	98.71%	66.19%	79.37%	95.10%	100%	87.73%	74.99%	77.00%	99.95%	85.28%	96.29%

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OPERATOR ASSISTED DRIVE TEST AT VALSAD SSA IN JUNE 15 MONTH - GUJRAT CIRCLE														
S/N	Parameter	Classification of routes covered	UNINOR		VIDEOCON		VODAFONE		MTS CDMA		TATA CDMA		RCOM CDMA	
			Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor
	In-vehicle (>= -85dBm)	Highways	97.46%	99.10%	90.23%	100%	99.10%	100%	94.98%	98.82%	91.77%	100%	98.31%	100%
		Major Roads	98.10%	100%	92.78%	92.87%	99.74%	100%	98.41%	99.95%	94.87%	100%	97.51%	100%
		Within City	97.82%	100%	90.23%	100%	99.49%	100%	99.48%	99.66%	99.29%	100%	99.58%	100%
		Overall SSA	97.86%	99.75%	91.08%	97.62%	99.44%	100%	98.16%	99.48%	95.31%	100%	98.56%	100%
	Outdoor- in city (>= -95dBm)	Highways	100%	100%	98.90%	100%	99.95%	100%	99.43%	99.74%	99.62%	100%	100%	100%
		Major Roads	100%	100%	99.51%	99.97%	99.97%	100%	99.78%	99.97%	99.35%	100%	99.93%	100%
		Within City	100%	100%	99.03%	100%	99.85%	100%	99.85%	99.90%	99.99%	100%	100%	100%
		Overall SSA	100%	100%	99.15%	99.99%	99.92%	100%	99.74%	99.87%	99.65%	100%	99.97%	100%
6	Call Setup Success Rate (>=95%)	Highways	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
		Major Roads	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
		Within City	98.82%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99.29%	100%
		Overall SSA	99.46%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99.71%	100%
7	Hand Over Success Rate (HOSR)	Highways	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
		Major Roads	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
		Within City	97.83%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
		Overall SSA	98.86%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

NA: Not Applicable

7.1 DETAIL OF THE ROUTES COVERED DURING THE DRIVE TESTS:

DRIVE TEST TABLE: 4

DRIVE TEST ROUTE OF APRIL TO JUNE 15 – GUJARAT CIRCLE									
Name of SSA	Day 1			Day 2			Day 3		
	Name of SDCA Covered /Total KM covered	Outdoor Route Covered	Indoor Office/Complex Name	Name of SDCA Covered /Total KM covered	Outdoor Route Covered	Indoor Office/Complex Name	Name of SDCA Covered /Total KM covered	Outdoor Route Covered	Indoor Office/Complex Name
Nadiad	Borsad, Khambhat, Petlad / 101 KM	Borsad SDCA:- Anand chokdi , Vasna Road,surya mandir ,Al madina nagar ,Vrindavan society ,court,Borsad College ,100 ft road ,Jagdish society , ST bus stand , Krishna Nagar Society , Vaav , Maruti Park society ,ravikunj, Dalwadi wado ,Bhobha lake, Gopalak Society , Janta Bazzar. Khambhat SDCA:- ST Bus stand ,General Hospital , Aambakhand ,Nityanand society ,vrindavan society ,vijay society ,sejpari ,Madra Lake ,krishna nagar society , Swaminarayan mandir,sakarpur road,Jamma masjid ,Laxminarayan mandir ,Tower Char rasta,shaiyad wado ,khanpur, pirajpur ,kadiwal	Patel Primary School,Khambhat	Anand, Nadiad / 145 KM	Anand SDCA:- Meena park society ,aabad nagar society,Bodiya maholla ,amul dairy road , Gopal chokdi ,Loteswar Mahadev mandir,Hadgood road ,swasthik vatika,chikodra road ,shastri cricket ground , M B patel Science college ,Anand Arts college , Town Hall ,Borsad Chokdi ,Akruti nagar , Jitodia Road ,Manglam society ,Sundaram park society ,Gokul society ,Anand-Vidyanagar Road,D Z patel school ,Sachidanand society ,Shikhload talav , N S patel Arts collge,mayfair road, Station Road ,100 ft road ,Lambhvel Road,Gold Cinema ,Big Bazaar , Maruti sharnam ,Purva paschim park society,Vrindavan garba ground ,laxmi park society ,Shree park ,Janta Chokdi ,Elecon Engg. ,Madhuban	Big Bazar, Anand	Balasinor, Thasra / 62 KM	Balasinor SDCA:- GIDC Balasinor ,sarvoday hospital ,bus stand ,bhoiwada ,rajpur road ,zalod road ,pilodara road ,aapeshwar temple road ,Sudarshan lake,Madni street ,shiv shambhu temple ,hazrat gayban shah pir ,kalupur,Arts & commerce college ,karun niketan hihg school ,tribhuvan hospital. Thasra SDCA:- New bus station ,Aman society , bhut society ,premji faliya,saiyad wada, jumma masjid ,matangi ,aashapura mandir ,gayatri mandir.	Milan Plaza, Opp. Nagar Palika, Balasinor

DRIVE TEST ROUTE OF APRIL TO JUNE 15 – GUJARAT CIRCLE									
Name of SSA	Day 1			Day 2			Day 3		
	Name of SDCA Covered /Total KM covered	Outdoor Route Covered	Indoor Office/Complex Name	Name of SDCA Covered /Total KM covered	Outdoor Route Covered	Indoor Office/Complex Name	Name of SDCA Covered /Total KM covered	Outdoor Route Covered	Indoor Office/Complex Name
		Petlad SDCA:- Petlad GIDC ,Railway Station ,New bus station ,nariapada, pathanwada ,ranchood rai society ,shepur kabristan,main market,Lions garden ,College Road ,al amin society ,s m nagar society			Resort , Vithal udhyog nagar ,shastri ground ,Sardar Patel University ,Nandalaya road , Bakrol, Road ,Middle st ,Shreeji nagar society .Nana bazar ,mota bazar ,comfy street , Mohini corner . Nadiad SDCA:- Jawahar Nagar ,Saibaba nagar ,Santram mandir ,SRP CMP ,Manjipura , Nadiad Bypass road ,Nizampura ,Juna Raopura ,Nava raopura ,sheth pole , nagar wada ,College road ,Hospital road , Vaniyawad Circle ,canal road ,juna dumral road ,napad , indira gandhi marg ,vihar society , vihar society ,vallabh nagar society ,mai mandir ,alaknanda society ,st .mary high school ,new english high school ,Meghdoot society ,Mai mandir road ,Pij road ,Pavanchakki road ,Efforts marg ,dabhan bhagole ,Gunj bazar ,kapadvanj road ,station road ,M patel Kidney hospital ,desai vago ,fatepura road ,Globe cinema road.				

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DRIVE TEST ROUTE OF APRIL TO JUNE 15 – GUJARAT CIRCLE									
Name of SSA	Day 1			Day 2			Day 3		
	Name of SDCA Covered /Total KM covered	Outdoor Route Covered	Indoor Office/Complex Name	Name of SDCA Covered /Total KM covered	Outdoor Route Covered	Indoor Office/Complex Name	Name of SDCA Covered /Total KM covered	Outdoor Route Covered	Indoor Office/Complex Name
Sundernagar	Surendra nagar / 105 KM	Surendra nagar:- Wadhwan-City Bus station,Hotel Shiv, City Heli,Mini Hydrel Power Plant,Udhyog Nagar,M.P.Shah college bridge,Surendranagar Gate Railway Station,Fun World Garden,Police Colony	Mega Mall,Surendra nagar	Limbdi & Sayla / 96 KM	Limbdi:- Rehmat Baug Society,Paras Nagar,LIMBDI NAGAR PALIK,Shri Swaminarayan Temple, Cricket Ground,Ram Rajendra Civil Hospital,Limbdi S.T. Bus Station Sayla:- Sayla Road Junction Round,DARBARGADH NP,LALJI MAHARAJ NI JAGY,CNG Pump Station	Smruti mandir, Limbdi	Halvad & Chotila / 100 KM	Halvad:- Krishna Park Society,New Halvad Township, Halvad Police Line, Halvad Railway Station, Krusna Nagar, Sharneshwar mahadev, Rajodharji Highschool Chotila:- CNG Pump,Khushi Nagar, Chitrakut Dham, Referrel Hospital, maftiya para, Jalaram Mandir, Bus station	Krishna Complex, Halvad
Valsad	Valsad & Billimora / 130 KM	Valsad:- Daman Ganga Vinayak Nagar,Shapur Nagar, Mustak Nagar, GRAM PANCHAYA, Auranga River Bridge, Police Head Quarter, Ghaswala High Sai Leela MallDharampur Chokdi, dhodia vad, Jai jalaram Park Billimora:- Bhagat Faliya, Navanath Ashram, I.T.I Bilimora , GIDC-Antalia, Somnath Mandir, n c m girls high school , M & R TATA High School	Sai Leela Mall,Valsad	Vapi & Dharampur / 101 KM	Vapi:- SALVAV Village, Electrical Substation,Hotel Galaxy,Ram Leela Garden,Pramukh Residency,R.G.A.S, azad nagar,UCB India Pvt ltd, Pramukh Residency, DADRA GAON, Manglam,dungra,Haria Park,CHANOD COLONY, Vapi Char Rasta Dharampur:- Mohangadh, hathikhana, S.M.S.M. HIGH SCHOOL, Dharampur Bus Station, POLICE RESIDENCE, shanta park, Vav Circle, Sujivan Hospital	Shoppers Gate,Vapi	Navsari & Vansada / 103 KM	Navsari:- Dandiwad, Jalalpore, Dinbai Dabo, Gspc Gas, Ashabaug Society, GANDHI FARM, prerna park society , Ishwar Darshan Society, G.E.B, italva village, Navsari Flyover, Nutan Society Vansada:- Vansda Court, SARDAR BAG vansda, Cahampawadi Street, Main bazaar, Shivji Temple, Nava Faliya, Gandhi Medan	Sagar Complex,N avsari

7.2 SSA WISE DRIVE TEST OBSERVATION:

DRIVE TEST TABLE: 5

DRIVE TEST OBSERVATION OF NADIAD SSA (APRIL-15)

S. No	Name of SP	SDCA Covered in Day 1	Day 1 Observation	SDCA Covered in Day 2	Day 2 Observation	SDCA Covered in Day 3	Day 3 Observation
1	AIRCEL	Borsad, Khambhat, Petlad	No Coverage	Anand, Nadiad	No Coverage	Balasinor, Thasra	No Coverage
2	AIRTEL		Poor Rx Quality At Borsad-Singlav road (Borsad), Nadiad-Khambhat highway (Khambhat)		Poor Rx Quality At Bhaleh & Moghri road (Anand), Near harihar dughdhalaya, Gokul Complex (Nadiad)		Poor Rx Quality Near AHD-zalod Highway (Balasinor), Maakrupa Infotech (thasra)
3	BSNL		---		---		---
4	IDEA CELLULAR		---		---		---
5	UNINOR		Poor Rx level & Quality At Jmama Masjid (Khambhat), 'Poor Rx Quality At Borsad-Singlav road (Borsad), Poor rx Quality at petlad chokdi (Petlad)		Poor Rx quality Near Anand Bus-stop, Tirath nagar (Anand), Poor Rx qual Nr. Jalaram nagar, Sindhi market & Bypass Road (Nadiad)		Poor Rx Qual & level At Mohamad Colony (Balasinor)
6	VIDEOCON		Poor Rx Qual & level At Highway Road (Khambhat)		No troublesome		No troublesome
7	VODAFONE		Poor Rx Quality At Borsad-Singlav road (Borsad), Nadiad-Khambhat highway (Khambhat)		Poor Rx Quality At Bhaleh & Moghri road (Anand), Near harihar dughdhalaya, Gokul Complex (Nadiad)		Poor Rx Quality Near AHD-zalod Highway (Balasinor), Maakrupa Infotech (thasra)
8	MTS		---		---		---
9	TATA GSM		Poor Rx Qual & level At Forja Mosque area (Khambhat), Poor Rx level At Bus-Stop & poor rx-qual At gorel-petlad road (Petlad)		Poor Rx Level & Qual At Tarapur road Highway & Anand-nadiad road (Anand)		Poor Rx level Near Bus-stand (Thasra)
10	TATA CDMA		Poor Rx Qual & level At Purshottam Nagar (Borsad), Jali Pol (Khambhat)		Poor Rx Quality At Vrindavan garden (Anand)		---
11	RCOM GSM		---		---		---
12	RCOM CDMA		---		---		---

Common observation Area: Nadiad-Khambhat Highway (khambhat), AHD-zalod highway (Balasinor)

DRIVE TEST TABLE: 6

DRIVE TEST OBSERVATION OF SUNDERNAGAR SSA (MAY-15)

S. No	Name of SP	SDCA Covered in Day 2	Day 1 Observation	SDCA Covered in Day 2	Day 2 Observation	SDCA Covered in Day 3	Day 3 Observation
1	AIRCEL	Surendranagar, Lakhtar	No Coverage	Limbd, Muli, Sayla	No Coverage	Chotila, Halvad	No troublesome in Halvad Town, No Coverage in Chotila
2	AIRTEL		Poor Rx Quality Near Motisar Pond, PTC College, Saraghara dam (Lakhtar), Alkapuri Rod, Mulchand road, gharsala Road, Nehru Stadium (Surendranagar)		Poor Rx Quality Near Limbd Police Station, taluka Court, Bhogava river (Limbd) rajkot highway (Muli), Fulgram (Sayla)		Poor Rx Quality Near Bhakti van park (Chotila), Bhadar river, Station Road (Halvad)
3	BSNL		Poor Rx Level At Dayami Mata School, Bhogava river (Surendranagar)		Poor Rx level At Muli darwaza (Sayla), dhandhuka bridge (Limbd)		Poor Rx level At Samanstar Lake (Halvad)
4	IDEA CELLULAR		Poor Rx Quality At Open & dense Clutter Area (Surendranagar)		Poor Rx Quality At Outskirt of city (sayla)		Poor Rx Quality At Open Clutter Area & Highway (Chotila)
5	UNINOR		Poor Rx level & Quality At Dense Area, Outskirt Area (Surendranagar)		Poor Rx Quality Near Limbd Police Station, taluka Court, Bhogava river (Limbd) rajkot highway (Muli), Fulgram (Sayla)		Poor Rx Level Near Bhakti van park (Chotila), Bhadar river, Station Road (Halvad)
6	VIDEOCON		---		---		---
7	VODAFONE		Poor Rx Quality Near Motisar Pond, PTC College, Saraghara dam (Lakhtar), Alkapuri Rod, Mulchand road, gharsala Road, Nehru Stadium (Surendranagar)		Poor Rx Quality Near Limbd Police Station, taluka Court, Bhogava river (Limbd) rajkot highway (Muli), Fulgram (Sayla)		Poor Rx Quality Near Bhakti van park (Chotila), Bhadar river, Station Road (Halvad)
8	MTS		---		---		---
9	TATA GSM		---		---		---
10	TATA CDMA		---		---		---
11	RCOM GSM		---		---		---
12	RCOM CDMA		---		---		---

Common observation Area: Bhogava River (Surendranagar), Bhadar River (Halvad)

DRIVE TEST TABLE: 7

DRIVE TEST OBSERVATION OF VALSAD SSA (JUNE-15)

S. No	Name of SP	SDCA Covered in Day 1	Day 1 Observation	SDCA Covered in Day 2	Day 2 Observation	SDCA Covered in Day 3	Day 3 Observation
1	AIRCEL	Valsad, Billimora	No Coverage	Vapi, Dharampur	No Coverage	Navsari, Vansada	No Coverage
2	AIRTEL		Poor Rx Quality At Tithal Road, Valsad-Atul Road (Valsad), Near Desai Hospital, BVKM Campus (Billimora)		Poor Rx Quality At Vapi-Dharampur, barsoi road, Dharampur Bypass road (dharampur), Nr. Janesva Hospital, GIDC Road, RK Desai College, Nanji Industrial Park (Vapi)		Poor Rx Quality Near MG Road, Sisodra Road (navsari), near Nirman Road (Vansada)
3	BSNL		Poor Rx Level At Billimora Outer Area (Billimora)		Poor Rx level At Outer side of town (Dharampur), GIDC Area (Vapi)		Poor Rx level At Outer Area Of Navsari & vansada
4	IDEA CELLULAR		Poor Rx Quality At Open Clutter Area (Billimora)		Poor Rx Quality At Open Clutter Area & dense area (Vapi), Outer Side Of town (Dharampur)		Poor Rx Quality At Open Clutter Area & dense area (Navsari)
5	UNINOR		Poor Rx level & Quality At devsar & waghrech (Billimora), Poor Rx Qual Near Pardi (Vlasad)		Poor Rx quality At Desaiwad, Chanod, GIDC Road (Vapi), Poor rx level At desaiwad (Vapi), 'Poor Rx Quality & Level At Vapi-Dharampur, barsoi road, Dharampur Bypass road (dharampur),		Poor Rx Qual At Dudhiya Talav, Chapra Road (Navsari)
6	VIDEOCON		---		Poor Rx level At Major road Area (Dharampur)		Poor Rx Level & Quality At dense & major road area of (navsari)
7	VODAFONE		Poor Rx Quality At Tithal Road, Valsad-Atul Road (Valsad), Near Desai Hospital, BVKM Campus (Billimora)		Poor Rx Quality At Vapi-Dharampur, barsoi road, Dharampur Bypass road (dharampur), Nr. Janesva Hospital, GIDC Road, RK Desai College, Nanji Industrial Park (Vapi)		Poor Rx Quality Near MG Road, Sisodra Road (navsari), near Nirman Road (Vansada)
8	MTS		---		---		---
9	TATA GSM		---		---		---
10	TATA CDMA		---		---		---
11	RCOM GSM		---		---		---
12	RCOM CDMA		---		---		---

Common observation Area: Vapi-Dharampur, barsoi road, Dharampur Bypass road (dharampur), GIDC Road (Vapi)

DRIVE TEST TABLE: 8

NO NETWORK COVERAGE STATUS OF DRIVE TEST – APRIL TO JUNE 15

S No	Month of Drive Test	Operator	SSA	Total SDCA Covered	Status of no network coverage area (SDCA Name)	ICR Status (SDCA Name)
1	Apr-15	Aircel	Nadiad	Borsad, Khambhat, Petlad, Anand, Nadiad , Balasinor &Thasra	Borsad, Khambhat, Petlad, Anand, Nadiad , Balasinor &Thasra SDCA (All SDCAs)	No
		Airtel			No Coverage Issue	No
		BSNL			No Coverage Issue	No
		TATA GSM			No Coverage Issue	No
		Idea			No Coverage Issue	No
		RCOM GSM			No Coverage Issue	No
		Uninor			No Coverage Issue	No
		Videocon			No Coverage Issue	Videocon is on ICR with TATA GSM at Borsad, Khambhat &Thasra SDCA
		Vodafone			No Coverage Issue	No
		MTS			No Coverage Issue	MTS is on ICR with RCOM CDMA at Borsad, Khambhat, Petlad, Anand, Nadiad , Balasinor &Thasra SDCA
		TATA CDMA			Thasra & Balasinor SDCA	No
		RCOM CDMA			No Coverage Issue	No
2	May-15	Aircel	Surendra nagar	Surendra nagar, Lakhtar, Muli , Limbdi ,Sayla , Halvad & Chotila	Surendra nagar,Lakhtar , Limbdi ,Sayla , Muli & Chotila	No
		Airtel			No Coverage Issue	No
		BSNL			No Coverage Issue	No
		TATA GSM			Lakhtar & Muli SDCA	No
		Idea			No Coverage Issue	No
		RCOM GSM			No Coverage Issue	No
		Uninor			No Coverage Issue	No
		Videocon			Lakhtar & Muli SDCA	Videocon is on ICR with TATA GSM at Limbdi (Spider) & Chotila SDCA
		Vodafone			No Coverage Issue	No
		MTS			Lakhtar & Muli SDCA	MTS is on ICR with RCOM CDMA at Surendra nagar,Limbdi , Sayla ,Halvad & Chotila SDCA
		TATA CDMA			Lakhtar & Muli ,Halvad & Chotila SDCA	No
		RCOM CDMA			Lakhtar,Muli SDCA	No

S No	Month of Drive Test	Operator	SSA	Total SDCA Covered	Status of no network coverage area (SDCA Name)	ICR Status (SDCA Name)
3	Jun-15	Aircel	Valsad	Valsad,Billimora,Vapi ,Dharampur ,Navsari & Vansada	All SDCAS Valsad,Billimora,Vapi ,Dharampur ,Navsari & Vansada	No
		Airtel			No Coverage Issue	No
		BSNL			No Coverage Issue	No
		TATA GSM			Vansada SDCA	No
		Idea			No Coverage Issue	No
		RCOM GSM			No Coverage Issue	No
		Uninor			Vansada SDCA	No
		Videocon			Vansada SDCA	Videocon is on ICR with TATA GSM at Valsad,Billimora,Dharampur SDCA
		Vodafone			No Coverage Issue	No
		MTS			No Coverage Issue	MTS is on ICR with RCOM CDMA at Valsad,Vapi ,Dharampur ,Navsari & Vansada SDCA
		TATA CDMA			Vansada SDCA	No
		RCOM CDMA			No Coverage Issue	No

7.3 KEY FINDINGS ON DRIVE TEST:

The key observations that could be derived from the results of the drive tests are as under –

1. April -15 : Nadiad SSA

SDCAs covered: Borsad, Khambhat, Petlad, Anand, Nadiad , Balasinor &Thasra SDCAs (308Kms).

No Coverage: Aircel has no coverage in Nadiad SSA.

The results of the drive test, carried out across **Nadiad** SSA for all service providers revealed that they were in compliance of benchmarks of all the parameters.

2. May -15: Surender Nagar SSA

SDCAs covered: Surendra nagar, Lakhtar, Muli , Limbdi ,Sayla , Halvad & Chotila SDCAs (311 Kms).

The results of the drive test, carried out across **Surender Nagar SSA** for all service providers revealed that they were largely in compliance of benchmarks for all the parameters on over all SSA level. However, BSNL could perform well in **indoor** drive test for parameters **Voice Quality (81.78%) and CSSR (94.29%)**.

June -15: Valsad SSA

SDCA Covered: Valsad,Billimora,Vapi ,Dharampur ,Navsari & Vansada (334 Kms).

No coverage: Aircel has no any coverage in Valsad SSA.

The results of the drive test, carried out in Valsad SSA also revealed that the operators were doing well with regard to compliance of the TRAI norms as all operators met the benchmarks of network parameters.

The drive test results suggest satisfactory working of the network of the service providers in all the SSAs where drive was conducted during the quarter. However, deficiencies with respect to adequate coverage and good voice quality, encountered by different Service providers at the various places shown in the drive tests plots, are detailed in the above table.-5, table-6 and table-7 for the respective SSAs.

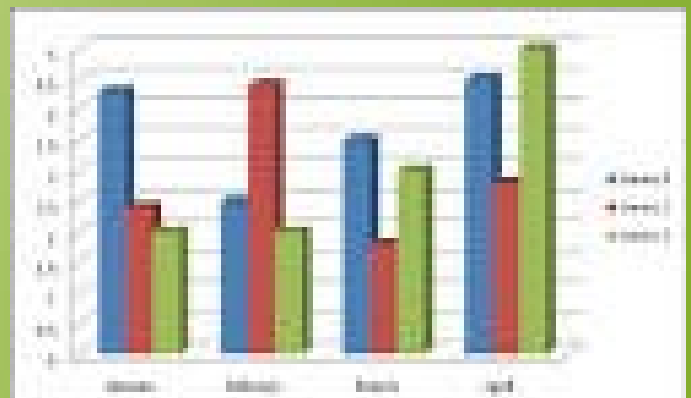
The detail of Network coverage and Intra Circle Roaming (ICR) status of different service providers at various locations in the three SSAs is given in table-8.

8. GRAPHICAL REPRESENTATION (CELLULAR MOBILE SERVICE PROVIDERS)

AVERAGED QUARTERLY PMR

V/S

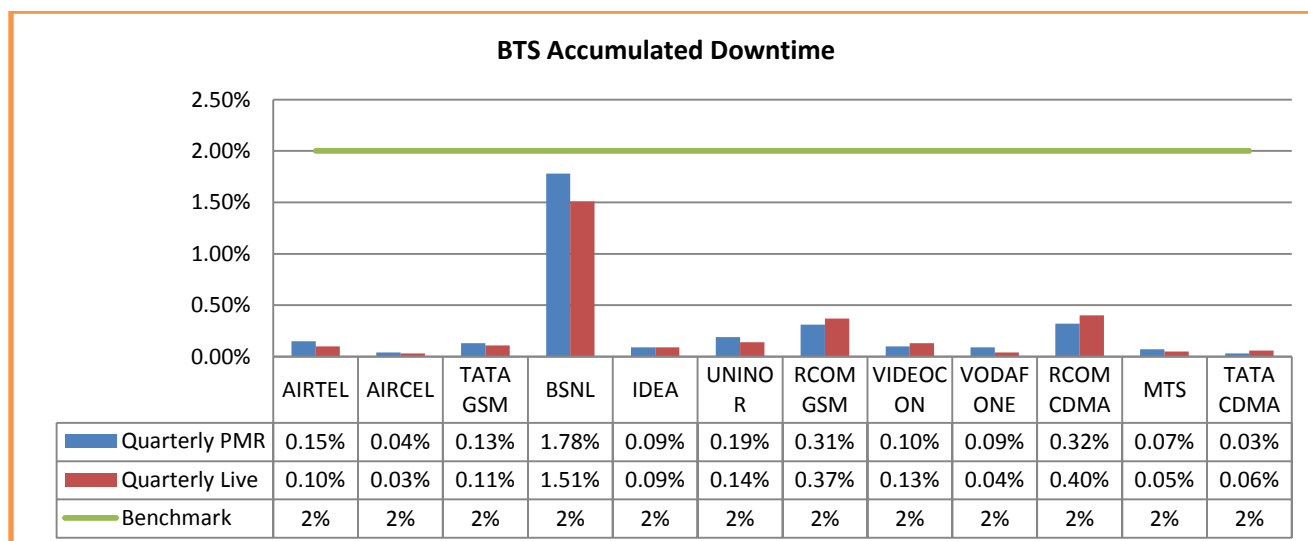
AVERAGED QUARTERLY 3-DAYS LIVE MEASUREMENT



8. GRAPHICAL REPRESENTATION (CMTS):

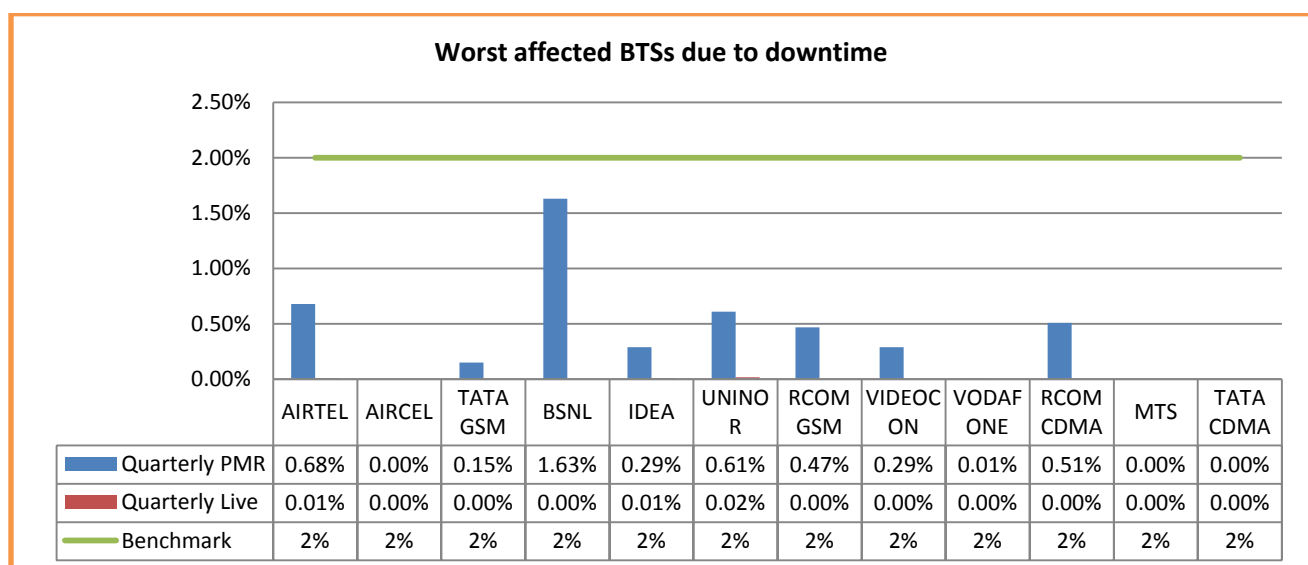
Graphical Representation of Performance of the Cellular Mobile Service Providers (PMR) V/S 3-Days Live Measurement (Quarterly Average Data):

1. BTS ACCUMULATED DOWNTIME:



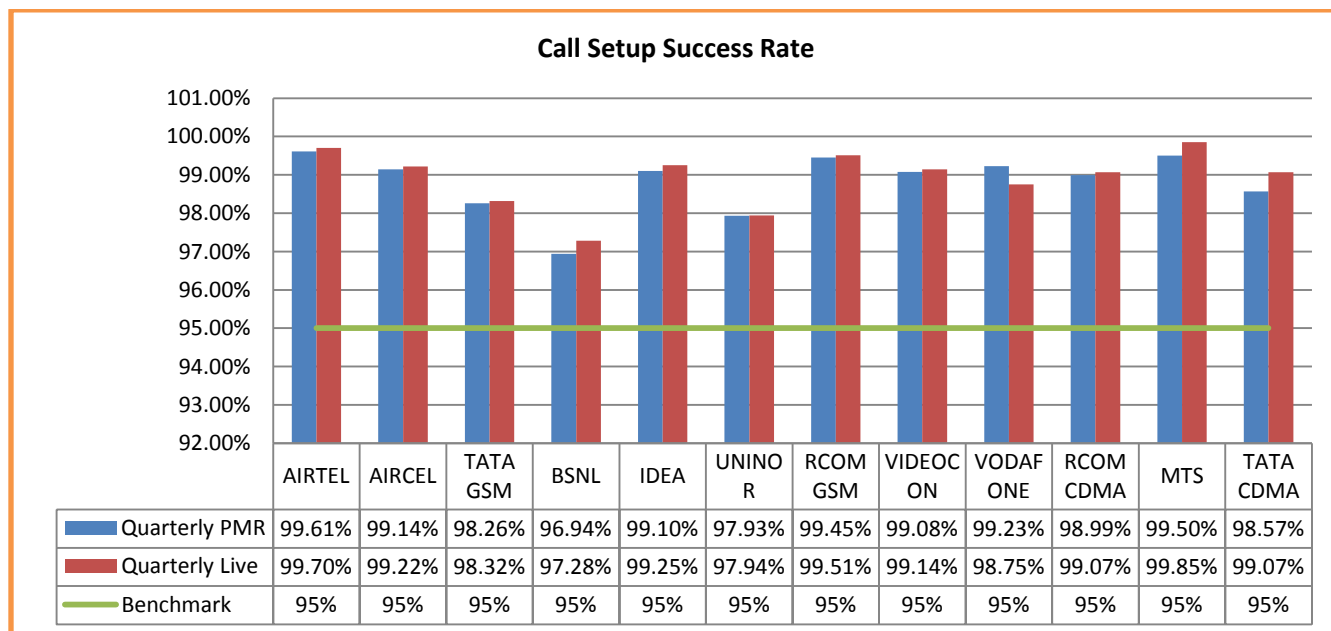
All operators are meeting the benchmarks.

2. WORST AFFECTED BTSs DUE TO DOWNTIME:



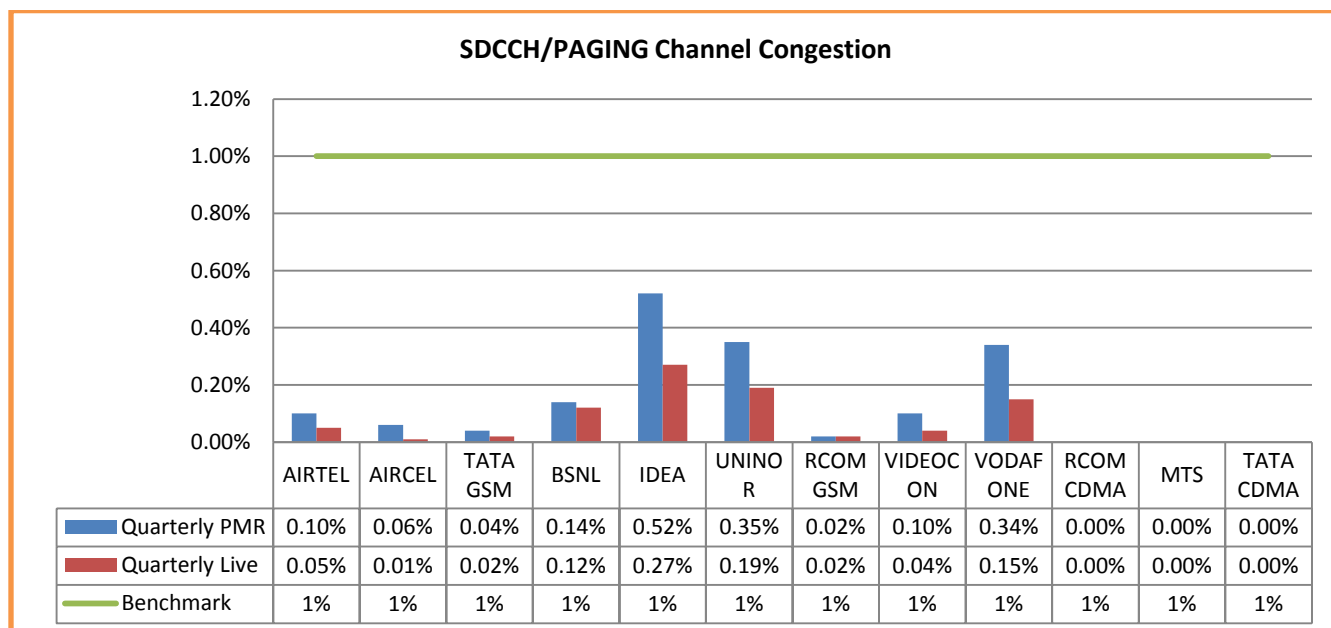
All operators are meeting the benchmarks.

3. CALL SETUP SUCCESS RATE:



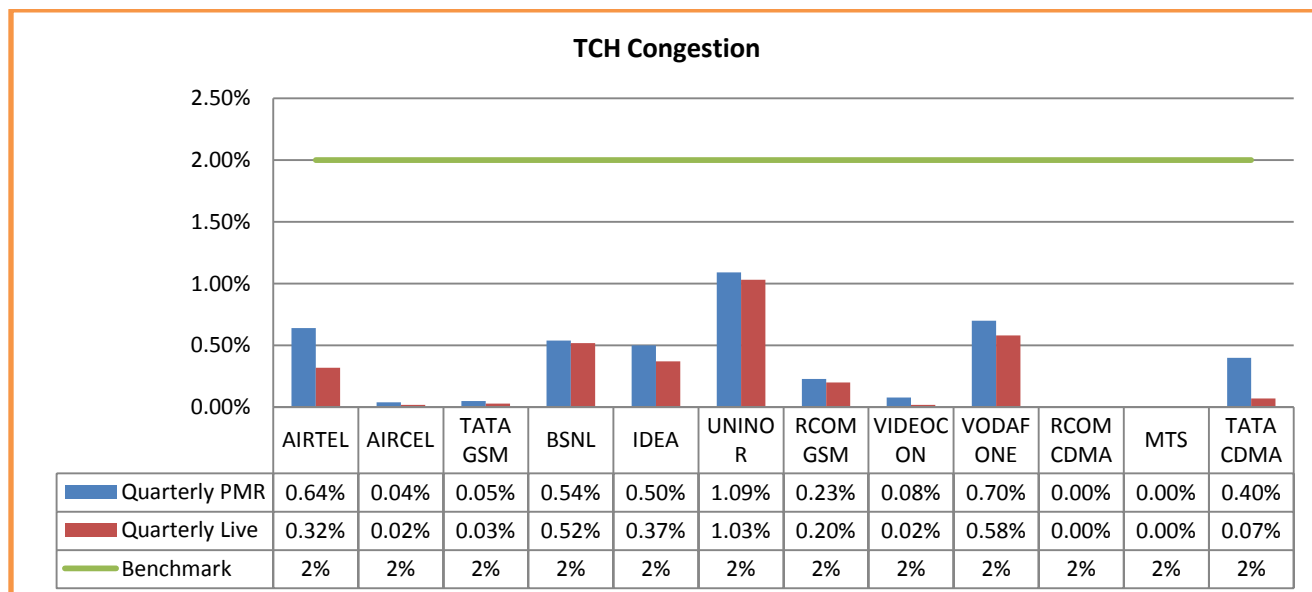
All operators are meeting the benchmarks.

4. SDCCH/PAGING CHANNEL CONGESTION:



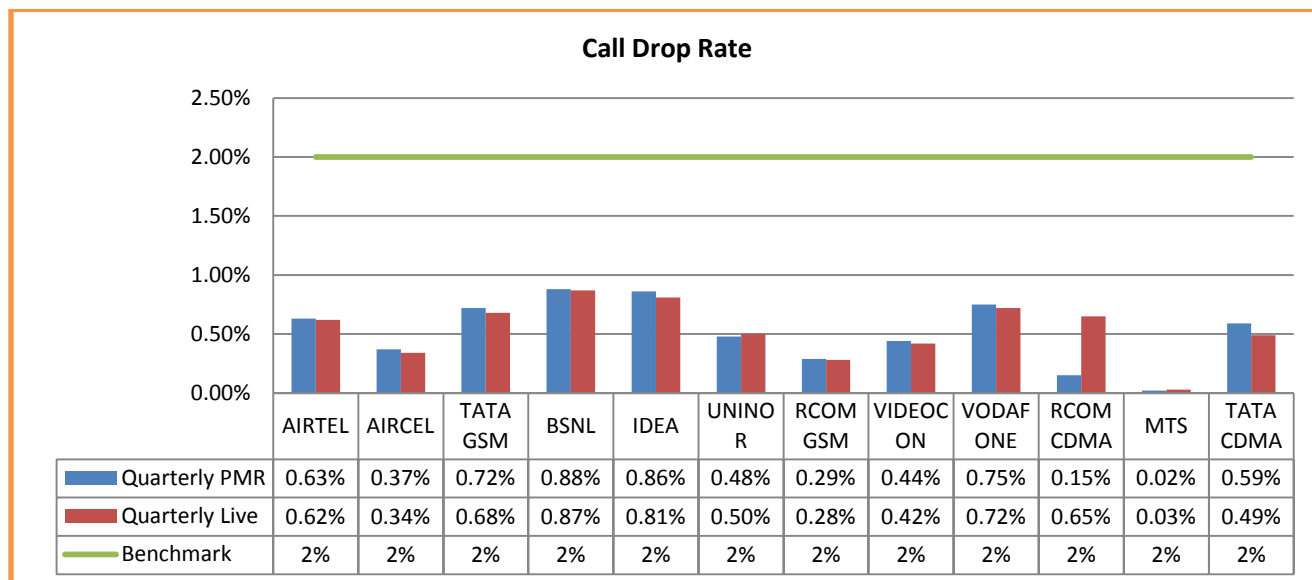
All operators are meeting the benchmarks.

5. TCH CONGESTION:



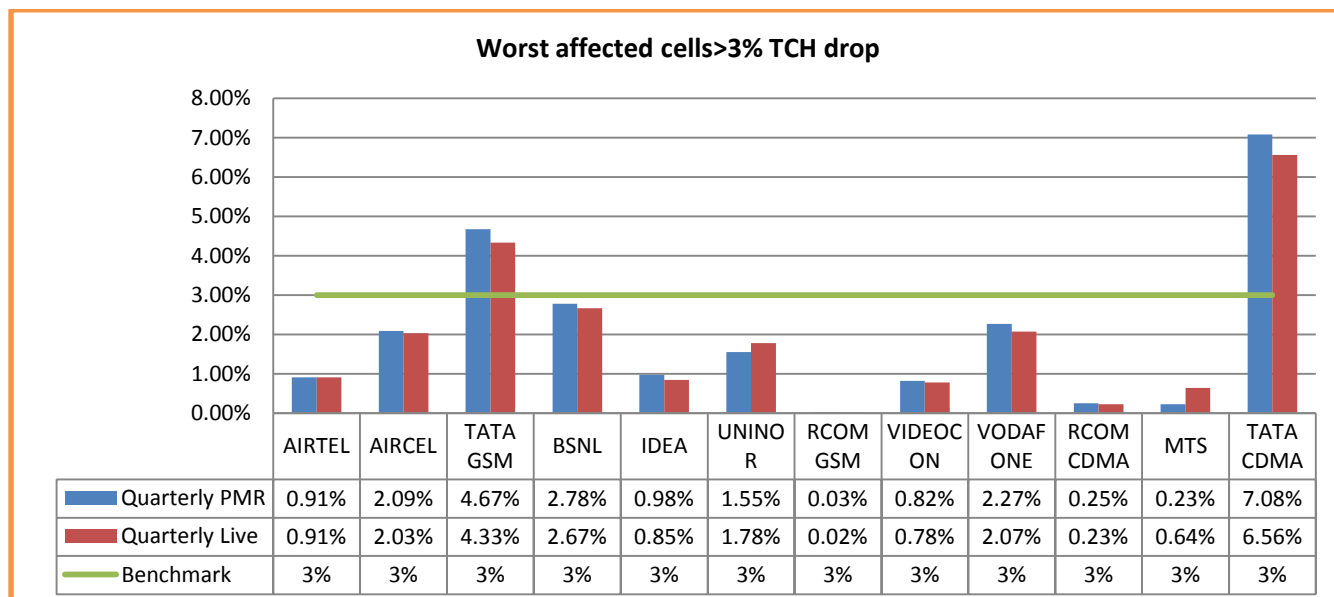
All operators are meeting the benchmarks.

6. CALL DROP RATE:



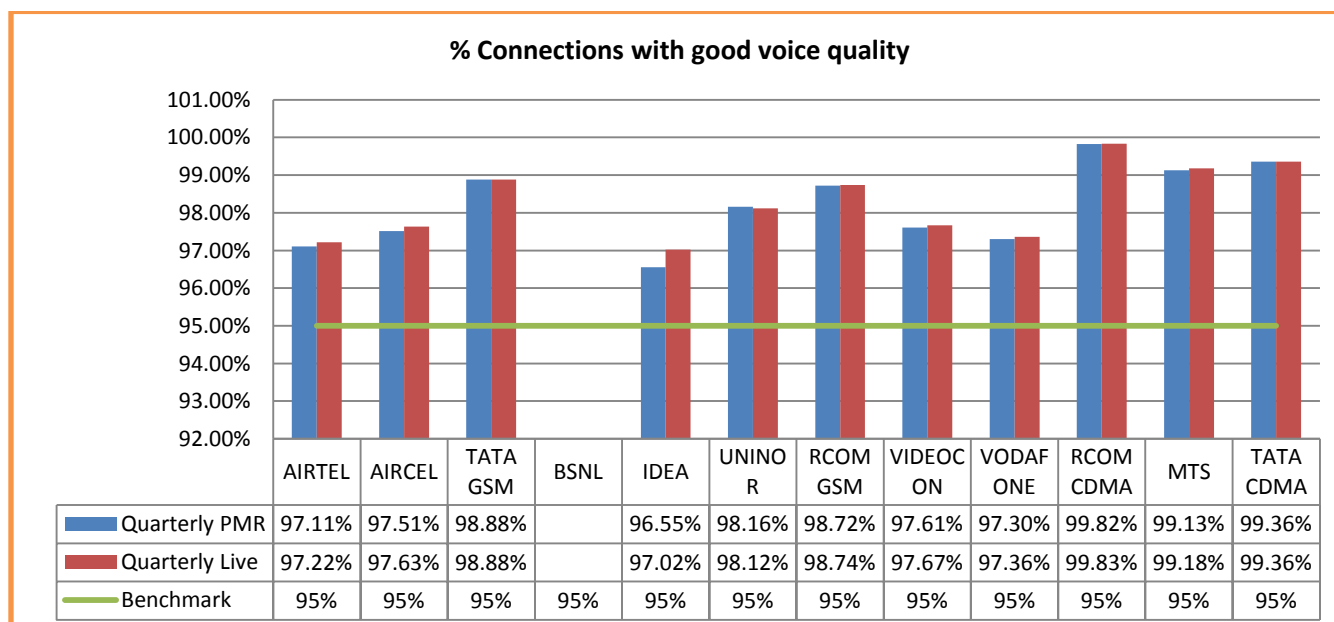
All operators are meeting the benchmarks.

7. WORST AFFECTED CELLS>3% TCH DROP:



All operators are meeting the benchmarks except Tata GSM, MTS and Tata CDMA.

8. PERCENTAGE OF CONNECTIONS WITH GOOD VOICE QUALITY:



All operators are meeting the benchmarks. BSNL has not provided data for the parameter "Connections with good voice quality" because its OMCR (Alcatel Lucent Technology being used by BSNL) does not Support this parameter.

9. QOS AUDIT OF BASIC (WIRELINE) SERVICE PROVIDERS



9. QOS AUDIT OF BASIC TELEPHONE SERVICE (WIRELINE)

The QoS audit for basic (wire line) service is to be done for the number of exchanges spread over in about 10% of SDCAs with each service providers in specified circles. Based on this criterion, the QoS audit for basic (wire line) service was undertaken for assessment of quarterly performance of the service providers for quarter ended June-2015. **Out of 2970 (Present no. of BSNL exchanges), audit was done for 148 sampled (27-Urban and 121-Rural) exchanges**, and one exchange each of Bharti, RCL, Vodafone & TTL. As Gujarat Circle is having 160 SDCAs, so 148 BSNL exchanges spread over 16 SDCAs (10% of total 160 SDCAs) have been taken for audit. List of all exchanges taken for QoS audit is attached as **Annex-1**.

Sr. No	Service Provider	Circle	Urban Exchange	Rural Exchange	Total Exchange	No. of Urban Exchanges Covered for audit	No. of Rural Exchanges Covered for audit	Total Exchanges Covered for audit
1	BHARTI-AIRTEL	Gujarat	1	0	1	1	0	1
2	RCL		2	0	2	1	0	1
3	TTL		3	0	3	1	0	1
4	VODAFONE		1	0	1	1	0	1
5	BSNL		545	2425	2970	27	121	148
Total Exchanges at present					2977	31	121	152

For BSNL exchanges, performance against each parameter has been evaluated by taking average of performance value of each parameter for all the audited exchanges. The average value of each parameter has been tabulated as follows:

9.1 SERVICE PROVIDER PERFORMANCE REPORT BASED ON QUARTERLY MEASUREMENT DATA VERIFICATION FOR BASIC TELEPHONE SERVICE (WIREDLINE) PROVIDERS:

AVERAGED QUARTERLY (APR TO JUN 15) AUDIT DATA FOR WIRELINE (BASIC) SERVICES - GUJARAT CIRCLE								
Wireline Audit Data		Benchmark	Audit Period	BHARTI AIRTEL	RCL	TTL	VODAFONE	BSNL
S/ N	Name of Parameter			WIRELINE SERVICE PROVIDERS				
1	Fault incidences							
	% of (No. of faults/100 subscribers /month)	< 7%	Quarterly	1.52%	0.53%	1.34%	0.43%	8.51%
2	Faults Repair/Restoration Time							
	% of fault repair by next working day (Urban Area)	>85%	Quarterly	92.59%	100%	98.00%	100%	68.73%
	% of fault repair Within 5 days (Urban Area)	100%	Quarterly	100%	100%	100%	100%	87.87%
	% of fault repair by next working day (Rural & hilly Area)	>75%	Quarterly	NA	NA	NA	NA	61.12%
	% of fault repair Within 5 days (Rural & hilly Area)	100%	Quarterly	NA	NA	NA	NA	84.60%
	Mean time to Repair(MTTR)	≤10 Hrs	Quarterly	6.18	4.50	4.03	4.33	7.55
3	Rent Rebate							
	Fault pending > 3 days & <7 days	Rebate for 7 days	Quarterly	0	0	1	0	15764
	Fault Pending > 7 days & < 15 days	Rebate for 15 days	Quarterly	0	0	1	0	5607
	Fault pending > 15 days	Rebate for 1 month	Quarterly	0	0	0	0	1681
4	Metering & Billing Credibility							
	% of disputed Bills over bills issued (Post Paid)	< 0.1%	Quarterly	0.010%	0.010%	0.008%	0.00%	0.05%
	% of Pre-paid Charging Complaints	< 0.1%	Quarterly	NA	NA	NA	NA	NA
	% of billing complaints (for post paid customer) / Charging/Credit/Validity (for Pre paid customer) resolved within 4 weeks	98% within 4 weeks	Quarterly	100%	100%	50.00%	NA	100%
	% of billing complaints (for post paid customer) / Charging/Credit/Validity (for Pre paid customer) resolved within 6 weeks	100% within 6 weeks	Quarterly	100%	100%	62.50%	NA	100%
	Period of applying credit/Waiver/Adjustment to customers account from the date of resolution of complaints	<=1 week	Quarterly	100%	100%	100%	NA	100%
5	POI Congestion							
	No. of POI's having congestion >0.5%		Quarterly	0.00%	0.00%	NP	0.00%	0.00%
6	Response Time to customer for assistance							
	% Accessibility of Call centre /customer Care (Total call attempt*100/ Total call successfully established)	>=95%	Quarterly	99.01%	96.40%	99.38%	99.596%	95.82%
	% age of calls answered by the operators (voice to voice) within 90 seconds .	>=95%	Quarterly	62.91%	98.37%	95.94%	100%	86.36%
7	Customer care(promptness in attending to customers request)							
	Termination / Closures	100% within <=7days	Quarterly	100%	100%	100%	100%	100%
	Time taken for refunds of deposit after closures	100% within 60 days	Quarterly	100%	100%	100%	100%	97.70%

- NA-Not Applicable
- NB: Response Time to customer for assistance data for BSNL belongs to whole Gujarat Circle.

9.2 SERVICE PROVIDER PERFORMANCE REPORT BASED ON 3 DAYS LIVE MEASUREMENT DATA VERIFICATION FOR BASIC TELEPHONE SERVICE (WIRELINE) PROVIDERS:

3 DAYS LIVE DATA FOR WIRELINE (BASIC) SERVICES – GUJARAT CIRCLE								
3 days live Wireline Audit Data		Benchmark	Audit Period	BHARTI AIRTEL	RCL	TTL	VODAFONE	BSNL
S/ N	Name of Parameter			WIRELINE SERVICE PROVIDERS				
1	POI Congestion							
	No. of POI's having congestion >0.5%		Live	0	0	0	0	0
2	Response Time to customer for assistance							
	A) Total no of calls attempted to customer care /Call center		Live	5003	1802	274	1142	NP
	B) Total no. of calls successfully established to customer care/Call center		Live	5003	1786	274	1137	NP
	C) % Accessibility of Call centre /customer Care (Total call attempt*100/ Total call successfully established)	>=95%	Live	100.00%	99.11%	100.00%	99.56%	NP
	D) Total Calls reached to agent desk for Voice to Voice (Total call attempt)		Live	333	1786	274	1137	NP
	E) Total number of calls answered by the operator (Voice to voice) within 90 seconds		Live	127	1783	229	1137	NP
	F) % age of calls answered by the operators (voice to voice) within 90 seconds (E *100/ D)	>=95%	Live	38.14%	99.83%	83.58%	100.00%	NP

NP: BSNL has not provided 3-days live data for the parameter "Response Time to customer for assistance" despite our best efforts.

9.3 KEY FINDINGS: BASIC TELEPHONE SERVICES (WIRELINE)

Fault Incidences: The audit of the service providers revealed that the performance of all service providers (except BSNL) was well within the benchmark. **BSNL** failed to meet the benchmark by achieving **8.51%** against the benchmark of **< 7 %**.

Fault Repair/Restoration Time: **BSNL** could not meet the benchmark of Fault repaired by next working day & within 5 days (Urban area) / (Rural area) with their performance as **68.73%, 87.87% / 84.60%** respectively.

Mean Time to Repair: All operators met the benchmark for MTTR.

Metering and Billing performance: For this parameter also, the performance of the service providers was found well within the compliance benchmarks. However, **TTL** remained under performed for parameters **Billing Complaints resolved within 4 weeks / within 6 weeks** with its performance as **50% and 62.50 %** respectively.

POI Congestion: All operators were found meeting the benchmark for this parameter.

Response Time to Customer for assistance: For percentage of calls getting connected to call center, the performance of all service providers was within the benchmark of **>95%**.

With respect to the parameter of **calls answered by operator (voice to voice)**, **BSNL, Airtel** could not meet the benchmark with their performance as **86.36% and 62.91%** respectively against the benchmark of **>= 95%**.

Bharti and **TTL** also failed to comply with the benchmark for this parameter during 3 days live measurements with their performance as **38.14% and 83.58%** respectively.

Termination/Closures: For this parameter, the performance of all the service providers was within the prescribed benchmark.

Time taken for refund of deposit: In respect of this parameter, all operators complied with the benchmark except **BSNL** could not meet the benchmark by achieving performance level of **97.70%**.

*Thus, from the above findings that, it was concluded that the performance of **BSNL** was remained non-complied with in respect of the parameters **Fault Incidences, Fault Repair / Restoration Time and Calls answered by the operators (Voice to voice) and Time taken for Refunds**. **TTL** remained under performed for parameters **Billing Complaints resolved within 4 weeks / within 6 weeks**, whereas **Bharti Airtel** failed to achieve the benchmark of **Calls answered by the operators (Voice to voice)**. Hence, the concern operators need to improve their services for these parameters.*

9.4 INTER OPERATOR CALL ASSESSMENT (WIREFLINE)

Inter operator call assessment with a sample of 2x50 test calls for each Service provider operating in Mumbai Circle during the time 1000 to 1300 Hrs and 1500 to 1700 was carried out by TUV auditors. The test calls were made from one operator to another within the same licensed area to judge the ease of connectivity amongst the operators.

INTER OPERATOR CALL ASSESSMENT BASED ON LIVE MEASUREMENT							
Calling Operators	Circle Name	Total No. of calls Made	BSNL	TTL	BHARTI AIRTEL	RCL	VODAFONE
BSNL	Gujarat	100	--	100%	100%	100%	100%
TTL	Gujarat	100	100%	--	100%	100%	100%
BHARTI AIRTEL	Gujarat	100	100%	100%	--	100%	100%
RCL	Gujarat	100	100%	100%	100%	--	100%
VODAFONE	Gujarat	100	100%	100%	100%	100%	--

The result of the testing revealed that the inter connection performance among the operators was quite satisfactory. Thus there was no remarkable problem in interconnection from one operator to other operators.

9.5 LEVEL-1 LIVE CALLING (WIREFLINE)

LEVEL 1 LIVE CALLING							
Emergency no.	Circle Name	No. of calls made	BHARTI AIRTEL	RCL	TTL	VODAFONE	BSNL
100	Gujarat	30	√	√	√	√	√
108	Gujarat	30	√	√	√	√	√
1091	Gujarat	30	√	√	√	√	√
1095	Gujarat	30	√	√	√	√	√
1098	Gujarat	30	√	√	√	√	√

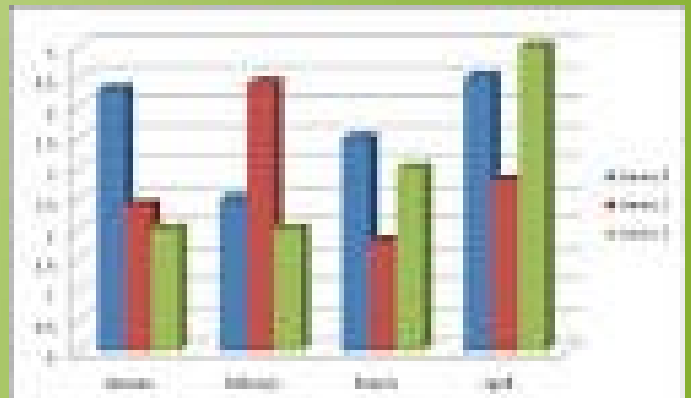
To assess the availability and efficiency of level 1 service such as police, fire, ambulance (emergency services) offered by BSNL, Bharti Airtel, Reliance, TTL and Vodafone, the calls were made from telephone provided by service providers, these services were found functional in the networks of all the service providers.

9.6 CUSTOMER CARE / HELPLINE ASSESSMENT (WIRELINER SERVICES)

LIVE CALLING TO CALL CENTRE							
Parameters	Benchmark	Circle Name	BHARTI AIRTEL	RCL	TTL	VODAFONE	BSNL
Total No. of calls Attempted		Gujarat	100	100	100	100	100
A) Total no of calls attempted to customer care/Call center		Gujarat	100	100	100	100	100
B) Total no. of calls successfully established to customer care/Call center		Gujarat	100	100	100	100	100
C) % Accessibility of Call centre /customer Care (Total call attempt*100/ Total call successfully established)	>=95%	Gujarat	100.00%	100.00%	100.00%	100.00%	100.00%
D) Total Calls reached to agent desk for Voice to Voice (Total call attempt)		Gujarat	100	100	100	100	100
E) Total number of calls answered by the operator (Voice to voice) within 90 seconds		Gujarat	100	100	100	100	100
F) % age of calls answered by the operators (voice to voice) within 90 seconds (E *100/ D)	>=95%	Gujarat	100.00%	100.00%	100.00%	100.00%	100.00%

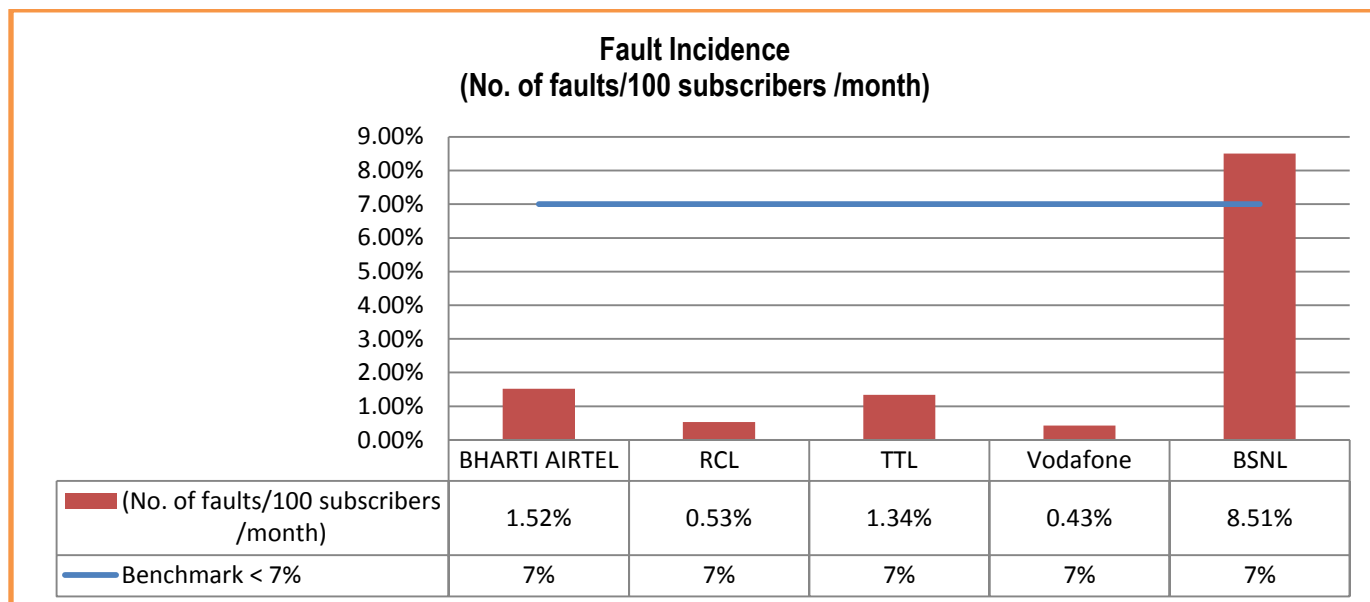
In case of calls answered by operators (voice to voice), when test calls were made to the call centers of different service providers, 100% of calls were answered by the call center operators within stipulated time in the network of Airtel, RCL, Vodafone, BSNL and TTL.

GRAPHICAL REPRESENTATION OF BASIC (WIRELINE) SERVICES



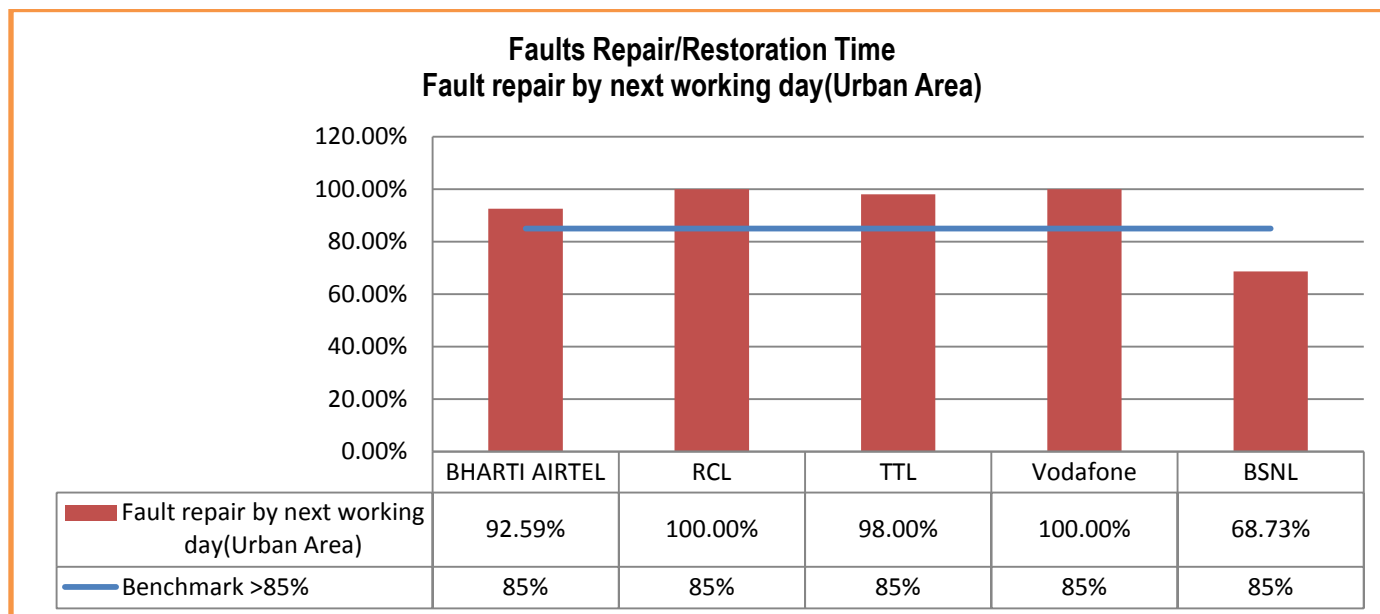
9.7 GRAPHICAL REPRESENTATION OF QUARTERLY PERFORMANCE OF THE BASIC TELEPHONE SERVICE (WIRELINE) PROVIDERS:

1) FAULT INCIDENCE:



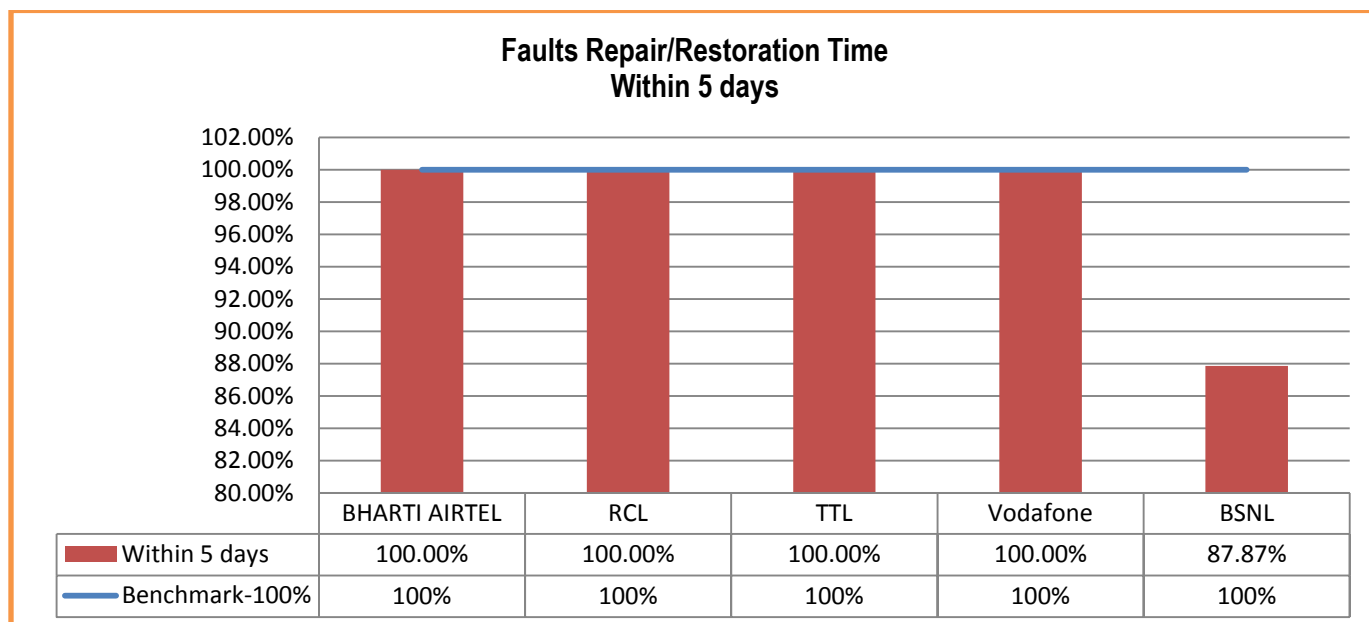
All Operators are meeting the benchmarks except BSNL.

2) FAULTS REPAIR/RESTORATION TIME:



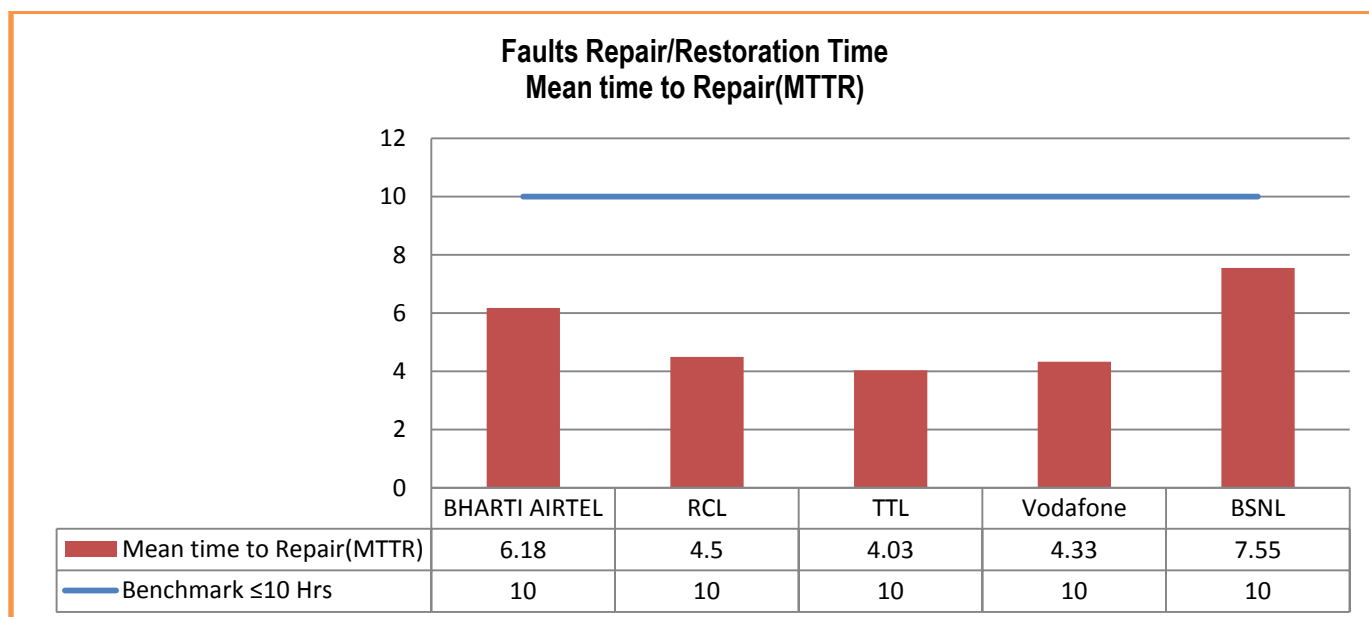
All Operators are meeting the benchmarks except BSNL.

3) FAULTS REPAIR/RESTORATION TIME WITHIN 5 DAYS:



All Operators are meeting the benchmarks except BSNL.

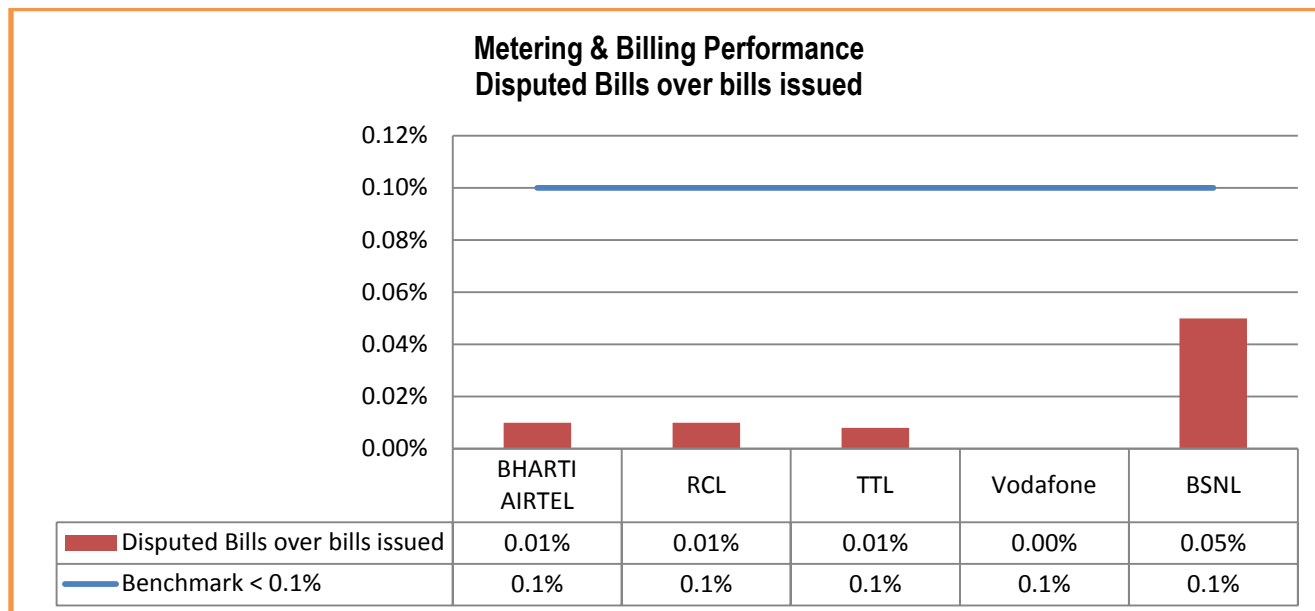
4) MEAN TIME TO REPAIR (MTTR):



All Operators are meeting the benchmarks.

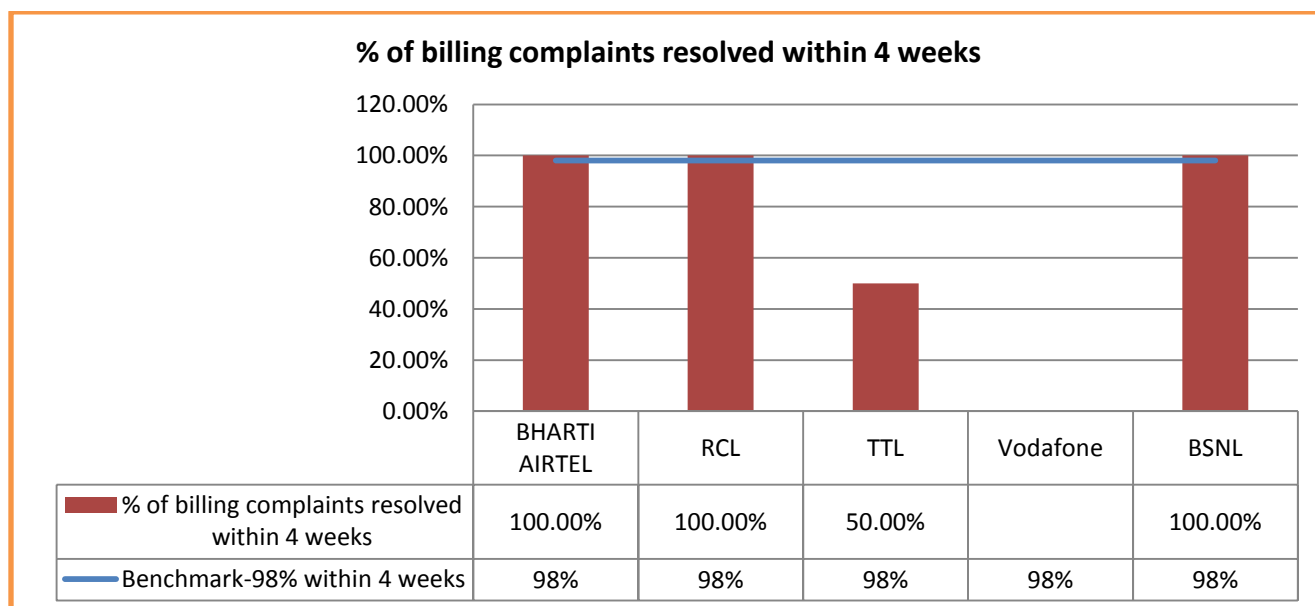
5) METERING & BILLING PERFORMANCE:

a) DISPUTED BILLS OVER BILL ISSUED :



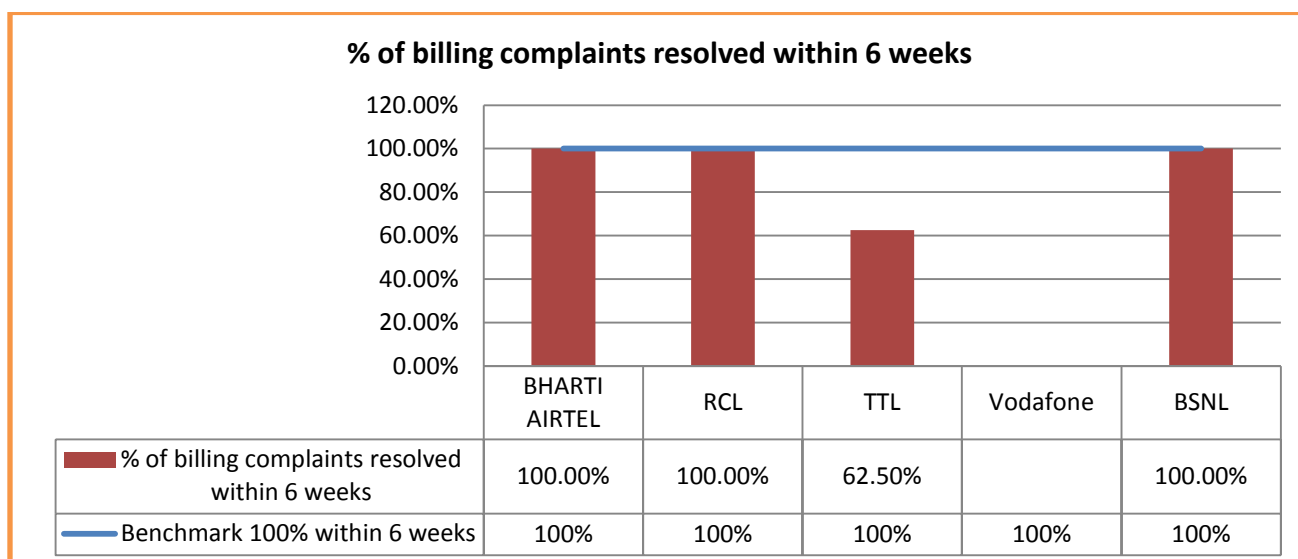
All Operators are meeting the benchmarks.

b) BILLING COMPLAINT RESOLUTION WITHIN 4 WEEKS:



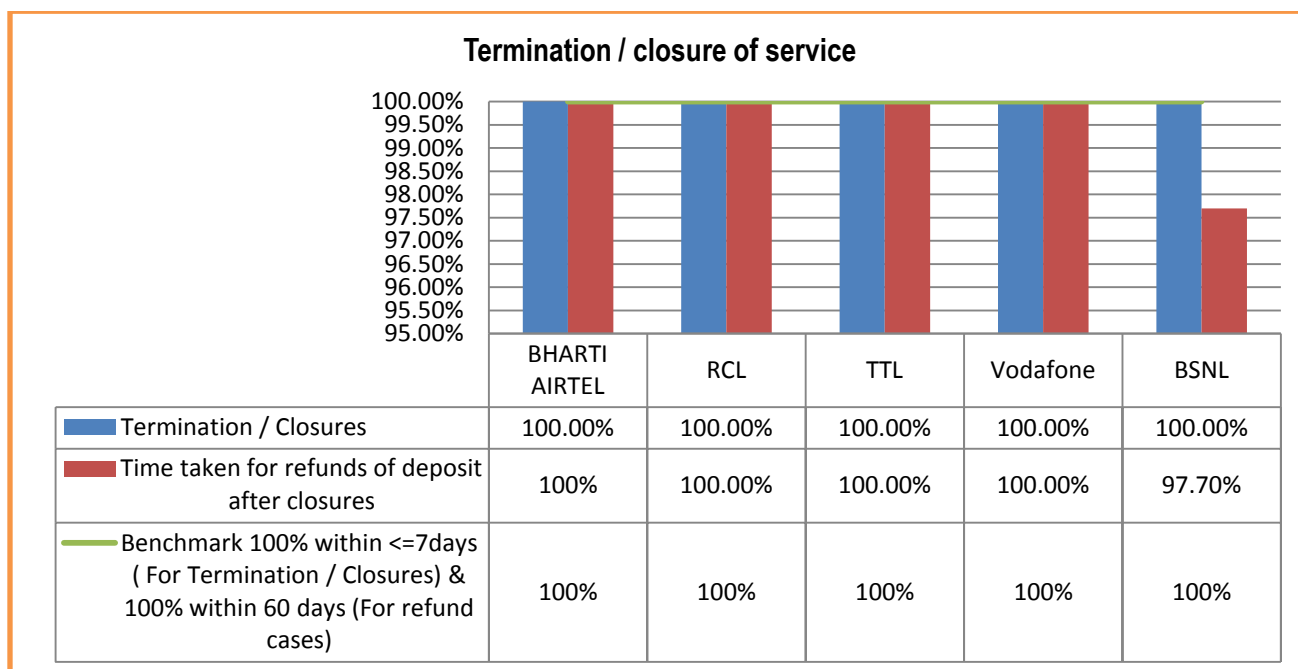
All Operators are meeting the benchmarks except TTL.

c) BILLING COMPLAINT RESOLUTION WITHIN 6 WEEKS:



All Operators are meeting the benchmarks except TTL.

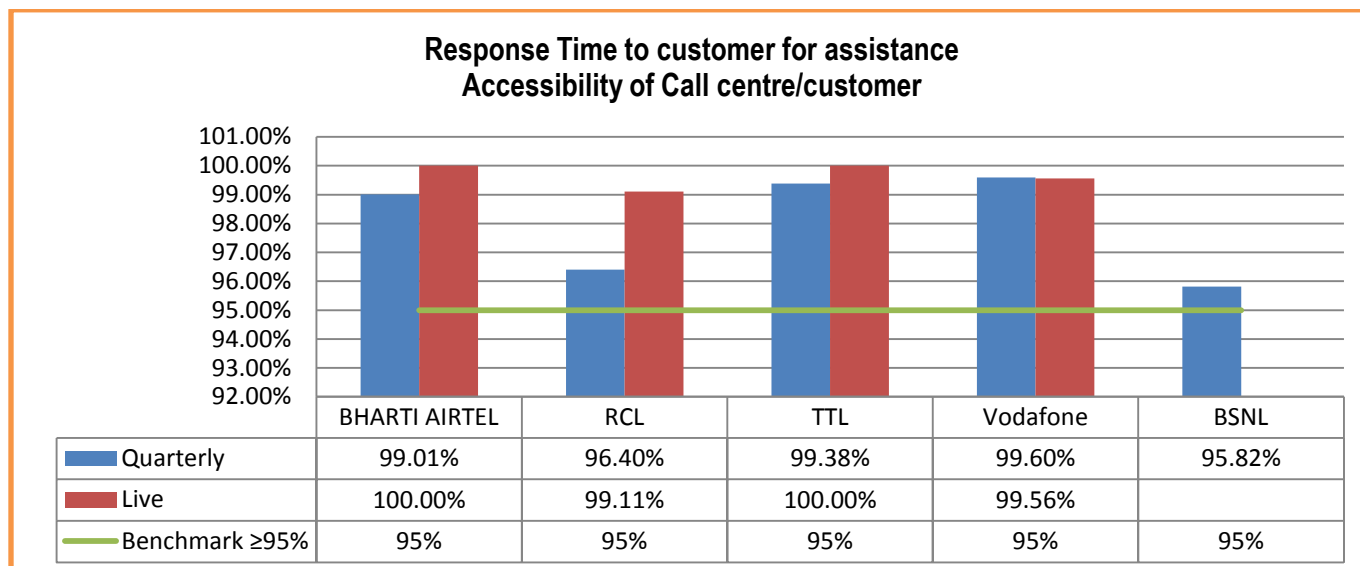
6) TERMINATION & CLOSURES:



All Operators are meeting the benchmarks except BSNL.

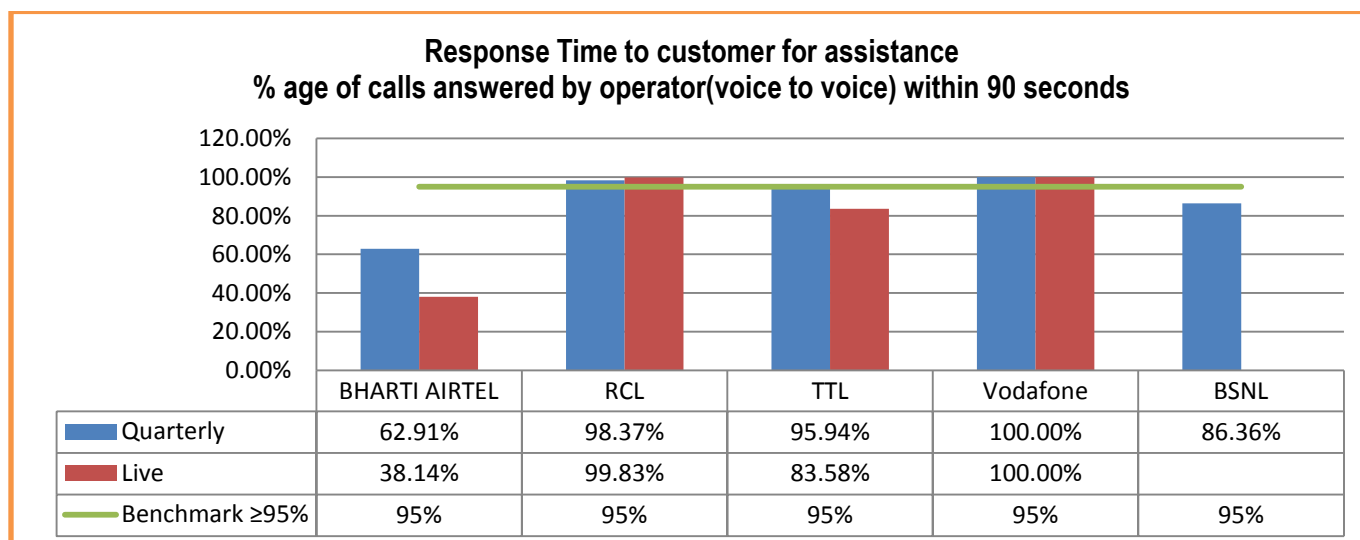
9.8 GRAPHICAL REPRESENTATION OF PERFORMANCE OF THE BASIC TELEPHONE SERVICE (WIRELINE) PROVIDERS V/S 3-DAYS LIVE MEASUREMENT:

1) RESPONSE TIME TO CUSTOMER FOR ASSISTANCE (ACCESSIBILITY OF CALL CENTRE/CUSTOMER CARE):



All Operators are meeting the benchmarks. BSNL has not provided 3 days live data for this parameter.

2) RESPONSE TIME TO CUSTOMER FOR ASSISTANCE (CALL ANSWERED BY OPERATOR):



All Operators are meeting the benchmarks except Bharti Airtel, BSNL and TTL (3 days live audit). BSNL has not provided 3 days live data for this parameter.

10. QOS AUDIT OF BROADBAND SERVICE PROVIDERS



10. QOS AUDIT OF BROADBAND SERVICE PROVIDERS

TUV-SUD South Asia was required to conduct the audit and assessment of Quality of Service of Broadband Service only in respect of the service providers who were having broadband subscriber base of more than 10,000 subscribers in their licensed service area, for 5% of Point of Presence (PoPs) spread over in 10% SDCAs in specified Telecom Circle. Location of PoPs, covered for QoS audit is attached below.

Discussion with the broadband service providers revealed that they are maintaining their networks data on centralized basis so audit has been done for the centralized data. The following Broadband service providers were covered for QoS audit --

SL. NO.	NAME OF BROADBAND SERVICE PROVIDERS	LOCATION OF AUDIT / POP
1	BROADBAND PACENET (I) PVT. LTD.	B-8 ,MAROL INDUSTRIAL AREA,NEXT TO MIDC POLICE STATION,ANSHERI EAST MUMBAI 400 093
2	GUJRAT TELELINK	2ND FLOOR, SAHAJANAND SHOPPING CENTRE, OPP SWAMINARAYAN TEMPLE, SHAHIBAUG, AHMEDABAD-380004
3	SPIDIGO (CHANDRANET) PVT LTD	401, PARSHWA TOWER, NR. PAKWAN II RESTAURANT, SG HIGHWAY, AHMEDABAD, GUJARAT-380054
4	INDUSLAND MEDIA	IN CENTRE, 49/50, MIDC, 12TH ROAD, ANDHERI (EAST), MUMBAI- 400 093,
5	AIRTEL BHARTI	2ND FLOOR ZODIAC SQUARE, OPP GURUDWARA, NEAR S.G. HIGHWAY, AHMEDABAD.
6	RELIANCE (RCL)	DAKC KOPARKHAIRNE NAVI MUMBAI
7	TATA TELE LIMITED (TTL)	TATA DOCOMO,4TH FLOOR, GUJARAT BHAVAN, OPP M J LIBRARY,ELISBRIDGE, AHMEDABAD-380007
8	TATA COMMUNICATION LIMITED (TCL)	TATA DOCOMO,4TH FLOOR, GUJARAT BHAVAN, OPP M J LIBRARY,ELISBRIDGE, AHMEDABAD-380006
9	NOIDA SOFTWARE PRIVATE LIMITED	6-2ND FLOOR,AARON COMPLEX,ABOVE JAY HIND SWEETS ,OPP INDUCTOTHERM,BOPAL, AHMEDABAD-380058
10	TIKONA DIGITAL NETWORKS PVT LTD	TIKONA DIGITAL NETWORKS PVT LTD,705, SEARS TOWERS,GULBAI TEKRA, OFF.CG ROAD, AHMEDABAD
11	YOU-BROADBAND	2ND FLOOR, SARTHIK BUILDING, NR. FUN REPUBLIC, RAMDEVNAGAR, SATELLITE AREA, AHMEDABAD-380015
12	HATHWAY	C/O, HATHWAY CABLE & DATACOM LTD. 9003/9004 , WORLD TRADE CENTER, UDHNA DARWAJA, RINGROAD, SURAT- 395002
13	BSNL	ALL SELACTED EXCHANGE/POP IN GUJARAT CIRCLE

10.1 QUARTERLY MEASUREMENT DATA FOR BROADBAND SERVICE PROVIDERS:

AVERAGED QUARTERLY (APR TO JUN-15) AUDIT DATA FOR BROADBAND SERVICES															
Broadband Audit Data		Bench- mark	AIRTEL	GTPL	HATHWAY	NSTPL	SPIDIGO	TCL	TIKONA	TTL	YOU BB	PACENET	RCL	INDUS	BSNL
S/ N	Name of Parameter		BROADBAND SERVICE PROVIDERS												
1	Service Provisioning/Activation Time														
	A) No of connections registered during the period		3260	17850	3514	290	2716	0	4738	773	6835	325	117	82	1259
	B) Total number of connections provided within 15 days of registration on demand during the period		3260	17763	3452	290	2716	0	4738	773	6804	325	117	68	1259
	C) % age of connections provided within 15 days of registration on demand (subject to technical feasibility)	<15 days	100%	99.51%	98.24%	100%	100%	100%	100%	100%	99.55%	100%	100%	82.92%	100%
	D)Total number of connections provided after 15 days of registration on demand		NA	0	52	NA	NA	NA	NA	NA	31	NA	NA	14	NA
	E) %age of connections provided after 15 days of registration on demand		NA	99.51%	99.71%	NA	NA	NA	NA	NA	100%	NA	NA	100%	NA
	F) In all cases where payment towards installation charge & SD is taken and the Broadband connection is not provided within 15 working days	credit @ Rs.10/ per day.	NA	87	NA	NA	NA	NA	NA	NA	31	NA	NA	NA	NA
2	Fault Repair/Restoration Time														
	A) Total number of faults registered during the period		4676	121577	44285	382	89584	6203	12891	2122	57583	7486	2750	620	31265

AVERAGED QUARTERLY (APR TO JUN-15) AUDIT DATA FOR BROADBAND SERVICES															
Broadband Audit Data		Bench- mark	AIRTEL	GTPL	HATHWAY	NSTPL	SPIDIGO	TCL	TIKONA	TTL	YOU BB	PACENET	RCL	INDUS	BSNL
S/ N	Name of Parameter		BROADBAND SERVICE PROVIDERS												
	B) Total number of faults repaired by next working day		4366	115103	38754	382	82480	5688	11791	1964	51973	7486	2750	620	19240
	C) % age of faults repaired by next working day	>90%	93.37%	94.67%	87.51%	100%	92.07%	91.70%	91.47%	92.55%	90.26%	100%	100%	100%	61.54%
	D) Total number of faults repaired within three working days		4642	120361	42437	382	88849	6019	12795	2100	57029	7486	2750	620	26003
	E)% age of faults repaired within three working days	≥99%	99.27%	99.00%	95.83%	100%	99.18%	97.03%	99.26%	98.96%	99.04%	100%	100%	100%	83.17%
3	Rent 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)		NP	503	NP	NA	20	NP	24	NP	617	NA	NA	NA	42
	B) Faults Pending for > 7 working days and < 15 working days: (Rebate equivalent to 15 days of minimum monthly charge or equivalent usage allowance)		NP	170	NP	NA	67	NP	44	NP	231	NA	NA	NA	2
	C) Faults Pending for > 15 working days:(Rebate equivalent to one month of minimum monthly charge or equivalent usage allowance)		NP	81	NP	NA	85	NP	51	NP	79	NA	NA	NA	0

AUDIT & ASSESSMENT OF QOS FOR QE-JUNE- 2015-GUJARAT CIRCLE



AVERAGED QUARTERLY (APR TO JUN-15) AUDIT DATA FOR BROADBAND SERVICES															
Broadband Audit Data		Bench- mark	AIRTEL	GTPL	HATHWAY	NSTPL	SPIDIGO	TCL	TIKONA	TTL	YOU BB	PACENET	RCL	INDUS	BSNL
S/ N	Name of Parameter		BROADBAND SERVICE PROVIDERS												
4	Billing Performance														
	A) Total bills generated during period		90440	NA	NA	NA	NA	5257	46609	9583	NA	NA	58135	NA	421716
	B) Total complaints received from customers/ Bills disputed		17	NA	NA	NA	NA	0	265	23	NA	NA	91	NA	158
	C) Billing complaints per 100 bills issued	<2%	0.02%	NA	NA	NA	NA	NA	0.57%	0.24%	NA	NA	0.16%	NA	0.04%
	D) Total number of complaints resolved in 4 weeks from date of receipt		17	NA	NA	NA	NA	NA	265	12	NA	NA	91	NA	157
	E) %age billing complaints resolved in 4 weeks	100%	100%	NA	NA	NA	NA	NA	100%	52.17%	NA	NA	100%	NA	99.37%
	F) Total number of cases requiring refund of deposits after closure		12	NA	NA	NA	NA	12	21	0	NA	NA	5	NA	5454
	G) Total number of cases where refund was made in <60 days		12	NA	NA	NA	NA	0	21	NA	NA	NA	5	NA	5454
5	H) Percentage cases in which refund received within 60 days	100%	100%	NA	NA	NA	NA	0.00%	100%	NA	NA	NA	100%	NA	100%
	Response time to the customer for assistance % age of calls answered by operator (Voice to Voice)														
	A) Total number of calls received by the operator		50434	123844	112455	382	192772	155920	123305	4072	332871	7486	101370	620	109073
	B) Total number of calls answered by the operator within 60 seconds		27359	119260	102308	382	192772	96546	77226	3534	223173	7486	95238	620	74720
	C) % age calls answered by the operator in 60 seconds	>60%	54.25%	96.30%	90.98%	100.00%	100.00%	61.92%	62.63%	86.79%	67.04%	100.00%	93.95%	100.00%	68.50%

AUDIT & ASSESSMENT OF QOS FOR QE-JUNE- 2015-GUJARAT CIRCLE



AVERAGED QUARTERLY (APR TO JUN-15) AUDIT DATA FOR BROADBAND SERVICES															
Broadband Audit Data		Bench- mark	AIRTEL	GTPL	HATHWAY	NSTPL	SPIDIGO	TCL	TIKONA	TTL	YOU BB	PACENET	RCL	INDUS	BSNL
S/ N	Name of Parameter		BROADBAND SERVICE PROVIDERS												
	D) Total number of calls answered by the operator within 90 seconds		31265	122605	107126	382	192772	101533	100645	3669	265709	7486	96125	620	84735
	E) % age calls answered by the operator within 90 seconds	>80%	61.99%	99.00%	95.26%	100.00%	100.00%	65.12%	81.62%	90.10%	79.82%	100.00%	94.83%	100.00%	77.69%
6	Bandwidth Utilization/ Throughput:														
6.1	POP to ISP Gateway Node [Intra-network] Link(s)														
	A) Total Bandwidth Available at the link for the period days		89872	46892	18432	720	10785	122880	15417	6144	NP	1710	21000	210	164611.02
	B) Total Bandwidth utilized during the period during TCBH (In Mbps)		16003.59	41384	8396.8	573	5334	67102.72	10139.2	4853.76	NP	931	6114	98	50976.71
	C) % age Bandwidth utilized during the period	<80%	17.81%	88.25%	45.56%	79.58%	49.46%	54.61%	65.77%	79.00%	NP	54.44%	29.11%	46.67%	30.97%
6.2	ISP Gateway Node to IGSP / NIXI Node upstream Link(s) for International connectivity														
	A) Total number of upstream links for International connectivity		NA	NA	NA	NA	12	99	26	3	27	3	33	NA	NA
	B) Number of Links having Bandwidth utilization > 90% during TCBH		NA	NA	NA	NA	0	0	0	0	0	0	0	NA	NA
	C) Total international bandwidth available from ISP Node to IGSP/NIXI/NAP		NA	NA	NA	NA	7155	30	9210	53.88	10650	1710	318000	NA	NA
	D) Total international bandwidth utilization during peak hours (TCBH) in Mbps		NA	NA	NA	NA	5334	11.5	6697	41.10	8035	931	164132	NA	NA
	E) %age International Bandwidth utilization during peak hours (TCBH)	<80%	NA	NA	NA	NA	74.55%	38.33%	72.71%	76.28%	75.45%	54.44%	51.61%	NA	NA
6.3	Broadband Connection Speed (download) - from ISP Node to User														

AUDIT & ASSESSMENT OF QOS FOR QE-JUNE- 2015-GUJARAT CIRCLE

AVERAGED QUARTERLY (APR TO JUN-15) AUDIT DATA FOR BROADBAND SERVICES															
Broadband Audit Data		Bench- mark	AIRTEL	GTPL	HATHWAY	NSTPL	SPIDIGO	TCL	TIKONA	TTL	YOU BB	PACENET	RCL	INDUS	BSNL
S/ N	Name of Parameter		BROADBAND SERVICE PROVIDERS												
	A) Total committed download speed to the sample subscribers (In mpbs)		14	12	15360	3	6	4.5	12.0	12.0	6.0	4.10	120	NP	24
	B) Total average download speed observed for the sample subscribers during TCBH (In Mpbs)		14.76	10.50	15260	2.94	5.95	4.15	10.93	10.48	5.26	3.74	112.67	NP	19.82
	C) % age subscribed speed available to the subscriber during TCBH	>80%	105.43%	87.50%	99.35%	98.00%	99.17%	92.22%	91.08%	87.33%	87.67%	91.31%	93.89%	NP	82.58%
7	Service Availability/Uptime														
	A) Total operational Hours		65839152	207836208	2184	2184	2184	3071664	2184	211824	185135100	2184	2184	2184	8736
	B) Total downtime (In hours)		6108.795	3398714	3	0	0	28926.58	0.2904	286	2469908	0	9.11	0	107.95
	C) Total time when the service was available (In Hrs)		65833043	204437494	2181	2184	2184	3042737	2183.7	211538	182665192	2184	2174.89	2148	8627.65
	D) % age of Service availability uptime	>98%	99.99%	98.36%	99.86%	100%	100%	99.06%	99.99%	99.86%	98.67%	100%	99.58%	100%	98.76%
8	Packet Loss														
	A) Total number of ping packets transmitted		91000	3000	3000	3000	3000	91000	3000	3000	3000	91000	91000	3000	91000
	B) Total number of ping packets lost		0.00	9.00	4.00	0.00	0.00	0.00	0.00	6.00	0.00	1885	346	0.00	0
	C) % age packet loss	<1%	0.00%	0.30%	0.13%	0.00%	0.00%	0.00%	0.00%	0.20%	0.00%	2.07%	0.38%	0.00%	0.00%
9	Network latency (for wired broadband access)														
9.1	Network Latency from User reference point at POP/ISP Node to IGSP/NIXI gateway														
	A) Total number of ping packets transmitted		91000	NA	3000	3000	NA	91000	NA	3000	3000	91000	3000	NA	NP
	C) Average round trip time for all the ping transmitted	<120 ms	29.65	NA	64.00	10.00	NA	13.33	NA	86.47	8.56	98.38	7	NA	NP

AVERAGED QUARTERLY (APR TO JUN-15) AUDIT DATA FOR BROADBAND SERVICES															
Broadband Audit Data		Bench- mark	AIRTEL	GTPL	HATHWAY	NSTPL	SPIDIGO	TCL	TIKONA	TTL	YOU BB	PACENET	RCL	INDUS	BSNL
S/ N	Name of Parameter		BROADBAND SERVICE PROVIDERS												
9.2	Network Latency from User reference point at ISP Node to nearest NAP Port abroad (Terrestrial)														
	A) Total number of ping packets transmitted		64000	NA	3000	NA	NA	91000	NA	3400	3000	91000	3000	NA	NP
	C) Average round trip tip time for all the ping transmitted	<350 ms	62.91	NA	142.33	NA	NA	273.33	NA	61.33	273.12	99.46	8.33	NA	NP
9.3	Network Latency from User reference point at ISP Node to nearest NAP Port abroad (Satellite)														
	A) Total number of ping packets transmitted		No satellite Connectivity												
	B) Total round trip time for all the ping packets transmitted during the period														
	C) Average round trip tip time for all the ping transmitted	<800 ms													

NA: Not applicable

NP: Data not provided

GTPL, Hathway, NSTPL, Spidigo, You Broadband, Pacenet and Indus media, do not have postpaid services.

10.2 SERVICE PROVIDER PERFORMANCE REPORT BASED ON 3 DAYS MEASUREMENT DATA VERIFICATION FOR BROADBAND SERVICE PROVIDERS:

3 DAYS LIVE DATA FOR BROADBAND SERVICES															
3 days live Broadband Audit Data		Bench- mark	AIRTEL	GTPL	HATHWAY	NSTPL	SPIDIGO	TCL	TIKONA	TTL	YOU BB	PACENET	RCL	INDUS	BSNL
S/ N	Name of Parameter		BROADBAND SERVICE PROVIDERS												
1	Response time to the customer for assistance % age of calls answered by operator (Voice to Voice)														
	A) Total number of calls received by the operator		1731	12973	4302	NP	8352	115	6883	224	11794	278	4205	62	5441
	B) Total number of calls answered by the operator within 60 seconds		545	8659	3856	NP	8352	112	4130	171	5346	278	4150	62	4219
	C) % age calls answered by the operator in 60 seconds	>60%	31.48%	66.75%	89.63%	NP	100.00%	97.39%	60.00%	76.34%	45.33%	100.00%	98.69%	100.00%	77.54%
	D) Total number of calls answered by the operator within 90 seconds		691	10970	4302	NP	8352	113	5567	187	5962	278	4150	62	4745
	E) % age calls answered by the operator within 90 seconds	>80%	39.92%	84.56%	100.00%	NP	100.00%	98.26%	80.88%	83.48%	50.55%	100.00%	100.00%	100.00%	87.21%
2	Bandwidth Utilization/ Throughput:														
2.1	POP to ISP Gateway Node [Intra-network] Link(s)														
	A) Total Bandwidth Available at the link for the period days		92328	17790	18432	750	11880	122880	16242	6144	NP	570	7000	210	159636.60
	B) Total Bandwidth utilized during the period during TCBH (In Mbps)		17531.5	15289	7402.2	234.7	5358	1509376	10359.77	4853.76	NP	376.67	2788	58.33	25538.99
	C) % age Bandwidth utilized during the period	<80%	18.99%	85.94%	40.160%	31.29%	45.10%	1.22%	63.78%	79.00%	NP	66.03%	39.82%	27.77%	16.00%
2.2	ISP Gateway Node to IGSP / NIXI Node upstream Link(s) for International connectivity														
	A) Total number of upstream links for International connectivity		NA	NA	NA	NA	12	105	27	3	27	3.00	11	NA	NA
	B) Number of Links having Bandwidth utilization > 90% during TCBH		NA	NA	NA	NA	0	0	0	0	0	0	0	NA	NA

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3 DAYS LIVE DATA FOR BROADBAND SERVICES															
3 days live Broadband Audit Data		Bench- mark	AIRTEL	GTPL	HATHWAY	NSTPL	SPIDIGO	TCL	TIKONA	TTL	YOU BB	PACENET	RCL	INDUS	BSNL
S/ N	Name of Parameter		BROADBAND SERVICE PROVIDERS												
	C) Total international bandwidth available from ISP Node to IGSP/NIXI/NAP		NA	NA	NA	NA	7155	30	10080	53.88	11025.00	570.00	106000	NA	NA
	D) Total international bandwidth utilization during peak hours (TCBH) in Mbps		NA	NA	NA	NA	5358	14	7801	43.72	8265.00	376.67	78150.57	NA	NA
	E) %age International Bandwidth utilization during peak hours (TCBH)	<80%	NA	NA	NA	NA	74.88%	46.67%	77.39%	81.14%	74.966%	66.03%	73.70	NA	NA
2.3	Broadband Connection Speed (download) - from ISP Node to User														
	A) Total committed download speed to the sample subscribers (In mpbs)		10.00	12.00	15360.00	3.00	6.00	4.50	12.00	3.00	6.00	4.10	2.00	6.14	31.39
	B) Total average download speed observed for the sample subscribers during TCBH (In Mbps)		10.46	10.50	15260.00	2.94	5.98	0.04	9.91	2.93	5.90	3.74	1.88	5.74	28.65
	C) % age subscribed speed available to the subscriber during TCBH	>80%	100.00%	87.50%	99.35%	98.00%	99.67%	96.44%	82.58%	97.67%	98.33%	91.30%	94.16%	93.39%	91.28%
3	Packet Loss														
	A) Total number of ping packets transmitted		3000	3000	3000	3000	3000	3000	3000	3000	3000	1000	1000	3000	12000
	B) Total number of ping packets lost		12	9	5	0	4	0	0	0	0	22.67	0	0.00	5.36
	C) % age packet loss	<1%	0.40%	0.30%	0.17%	0.00%	0.13%	0.00%	0.00%	0.00%	0.00%	2.26%	0.00%	0.00%	0.04%
4	Network latency (for wired broadband access)														
4.1	Network Latency from User reference point at POP/ISP Node to IGSP/NIXI gateway														
	A) Total number of ping packets transmitted		3000	NA	3000	3000	NA	3000	NA	3000	3000	1000	3000	3000	3000
	C) Average round trip tip time for all the ping transmitted	<120 ms	25.667	NA	64.000	10.000	NA	23.000	NA	51.667	8.667	58	1.48	19	32.52
4.2	Network Latency from User reference point at ISP Node to nearest NAP Port abroad (Terrestrial)														
	A) Total number of ping packets transmitted		3000	NA	3000	3000	NA	3000	NA	3600	3000	1000	1000	NA	3000

3 DAYS LIVE DATA FOR BROADBAND SERVICES															
3 days live Broadband Audit Data		Bench-mark	AIRTEL	GTPL	HATHWAY	NSTPL	SPIDIGO	TCL	TIKONA	TTL	YOU BB	PACENET	RCL	INDUS	BSNL
S/ N	Name of Parameter		BROADBAND SERVICE PROVIDERS												
	C) Average round trip tip time for all the ping transmitted	<350 ms	89.60	NA	29.00	138	NA	288	NA	61.6	273.12	33	1.50	NA	162.02
4.3	Network Latency from User reference point at ISP Node to nearest NAP Port abroad (Satellite)														
	A) Total number of ping packets transmitted		No satellite Connectivity												
	B) Total round trip time for all the ping packets transmitted during the period														
	C) Average round trip tip time for all the ping transmitted	<800 ms													
5	Service Availability/Uptime														
	A) Total operational Hours		2167056	72	72	72	72	96696	72	6912	188160576	72	72	72	288
	B) Total downtime (In hours)		0	0	0	0	0	667.54	0.3	18	3565	0.00	0	0.00	1.86
	C) Total time when the service was available (In Hrs)		2167056	72	72	72	72	96028.46	71.96	6894	188157011	72	72	72	286.14
	D) % age of Service availability uptime	>98%	100.00%	100.00%	100.00%	100.00%	100.00%	99.31%	99.94%	99.74%	100.00%	100.00%	100.00%	100.00%	99.35%

NA: Not applicable

10.3 KEY FINDINGS: BROADBAND SERVICES

Service Provisioning / Activation Time: The audit of the service providers revealed that **GTPL, Hathway, You Broadband and Indus Media** failed to meet the benchmark of the parameter **Connection within 15 days** with their performance as **99.51%, 98.24, 99.55% and 82.92%** respectively.

Fault Repair/Restoration Time: With regards to the fault related parameters, the performance of the service providers was within TRAI norms except for **Hathway, BSNL, TCL and TTL**. **Hathway and BSNL** failed to meet the benchmark of parameter **Fault repaired by next working day** with their performance as **87.51% and 61.54% respectively**. Whereas, **Hathway, TCL, TTL and BSNL** remained short of benchmark of parameter **Fault repaired within three days** with their achieved level as **95.83%, 97.03%, 98.96% and 83.17% respectively**.

Billing Performance: For this parameter the performance of the service providers was found well within the compliance benchmarks. However, in case of parameter **Billing Complaints resolved within 4 weeks**, **TTL and BSNL** could not meet the benchmark with their performance level as **52.17% and 99.37%** against the benchmark of 100%. Thus TTL was way below the benchmark.

Regarding the parameter of **Refunds**, **TCL** could not settle even a single case out of 12 cases due for refunds after closure.

Response Time to Customer for assistance by operator (Voice to Voice): For percentage of calls getting connected to call center and answered, all service providers were found meeting the benchmark for this parameter except **Airtel, TCL, You Broadband and BSNL**. **Airtel** could not meet the benchmark for the parameter “**% age calls answered by the operator within 60 seconds**”; and “**% age calls answered by the operator within 90 seconds**”; its achievement level was **54.25%** and **61.99%** respectively.

Whereas, **TCL, You Broadband and BSNL** remained under performed for parameter “**% age calls answered by the operator within 90 seconds**”; with their performance level as **65.12%, 79.82% and 77.69%** respectively.

Live measurement: **Airtel and You Broadband** also failed to meet the benchmark for the same parameter during 3 days live measurement and its achievement level was **31.48%, 45.33% (Within 60 Sec.) and 39.92%, 50.55% (Within 90 Sec.)** respectively.

Bandwidth Utilization/ Throughput: All the service providers were found using Multiple Router Traffic Grapher (MRTG) and also it was observed that all service providers were reporting combined bandwidth utilization for corporate customers and household customers.

The performance of service providers with respect of these parameters was found satisfactory i.e. within benchmark during quarterly audit as well as 3 days live measurement except **GPTL** could not meet the benchmark for the parameter **%age Bandwidth utilization during the period (88.25%)**. **GPTL** also failed to meet the benchmark (85.94%) during 3 days live measurement against the benchmark of <80%.

Service Availability/Uptime: All service providers were found meeting the benchmark for this parameter.

Packet Loss and Network Latency: It was observed that almost all operators were measuring packet loss and latency by conducting ping test on random basis for their internal assessment. Only **Pacenet** failed to achieve the benchmark with its achieved level as **2.07%** against the benchmark of <1%.

However, the ping test conducted during live measurement revealed that all service providers were meeting the benchmark prescribed by TRAI except **Pacenet (2.26%)**.

10.4 CUSTOMER CARE / HELPLINE ASSESSMENT

LIVE CALLING TO CALL CENTRE FOR BROADBAND SERVICES													
Parameter	BHARTI AIRTEL	GTPL	HATHWAY	NSTPL	SPIDIGO	TCL	TIKONA	TTL	YOU BROADBAND	BROADBAND PACENET	RELIANCE	INDUS MEDIA	BSNL
Total No. of calls Attempted	100	100	100	NA	100	100	100	100	100	100	100	100	100
Total number of calls answered by the operator within 60 seconds	100	80	100	NA	100	100	100	100	100	100	100	100	86
% age calls answered by the operator in 60 seconds	100.00%	80.00%	100.00%	NA	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	86.00%
Total number of calls answered by the operator within 90 seconds	100	90	100	NA	100	100	100	100	100	100	100	100	93
% age calls answered by the operator within 90 seconds	100.00%	90.00%	100.00%	NA	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	93.00%

In case of calls answered by operators (voice to voice) within 60 seconds and 90 seconds, when test calls were made to the call centers, all broadband service providers were found meeting the TRAI prescribed benchmark. **GTPL and BSNL** could connect 80% and 86% calls respectively within 60 seconds whereas GTPL and BSNL could connect 90% and 93% calls respectively within 90 seconds.

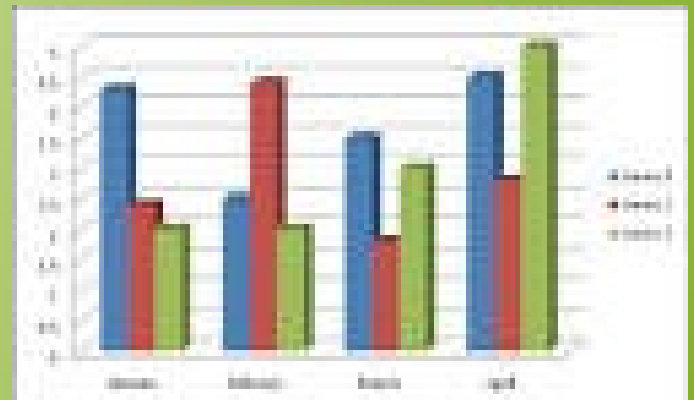
10.5 LIVE CALLING FOR BILLING COMPLAINTS

TELEPHONIC INTERVIEW FOR BILLING COMPLAINTS													
Parameter	BHARTI AIRTEL	GTPL	HATHWAY	NSTPL	SPIDIGO	TCL	TIKONA	TTL	YOU BROADBAND	BROADBAND PACENET	RELIANCE	INDUS MEDIA	BSNL
Total No. of calls Attempted	17	NA	NA	NA	NA	0	100	23	NA	NA	91	NA	100
Total No. of calls Answered	15	NA	NA	NA	NA	NA	100	18	NA	NA	85	NA	100
Cases resolved within 4 weeks	15	NA	NA	NA	NA	NA	100	18	NA	NA	85	NA	100
%age of cases resolved	100%	NA	NA	NA	NA	NA	100%	100%	NA	NA	100%	NA	100%

NA: Not applicable due to Pre-Paid model.

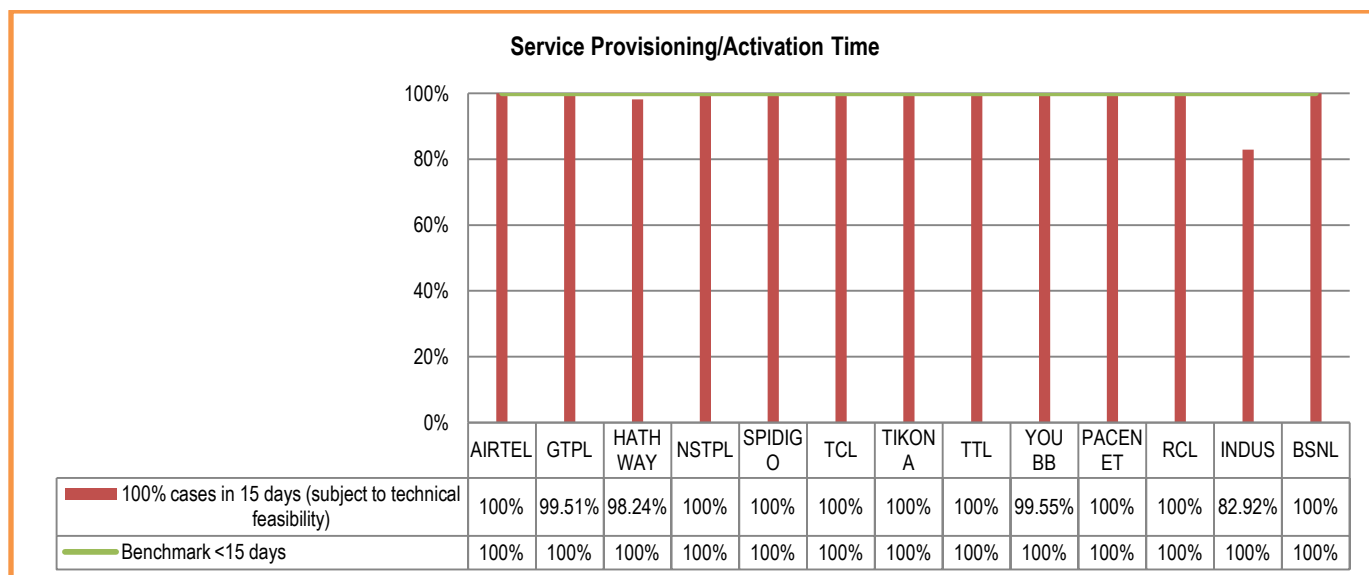
To test the Service Providers performance on billing related complaints and their resolutions, TUV-SUD auditors conducted a customer feedback calling for about random 100 nos. of customers. However, in some cases, the number of customers contacted for verification was very less due to less number of billing complaints. During live calling, some of the customers did not attend the calls while few others reported that their complaints have been resolved but did not remember about the duration of their resolution. However, most of the customers reported their satisfaction on resolution of the billing complaints.

GRAPHICAL REPRESENTATION OF BROADBAND SERVICES



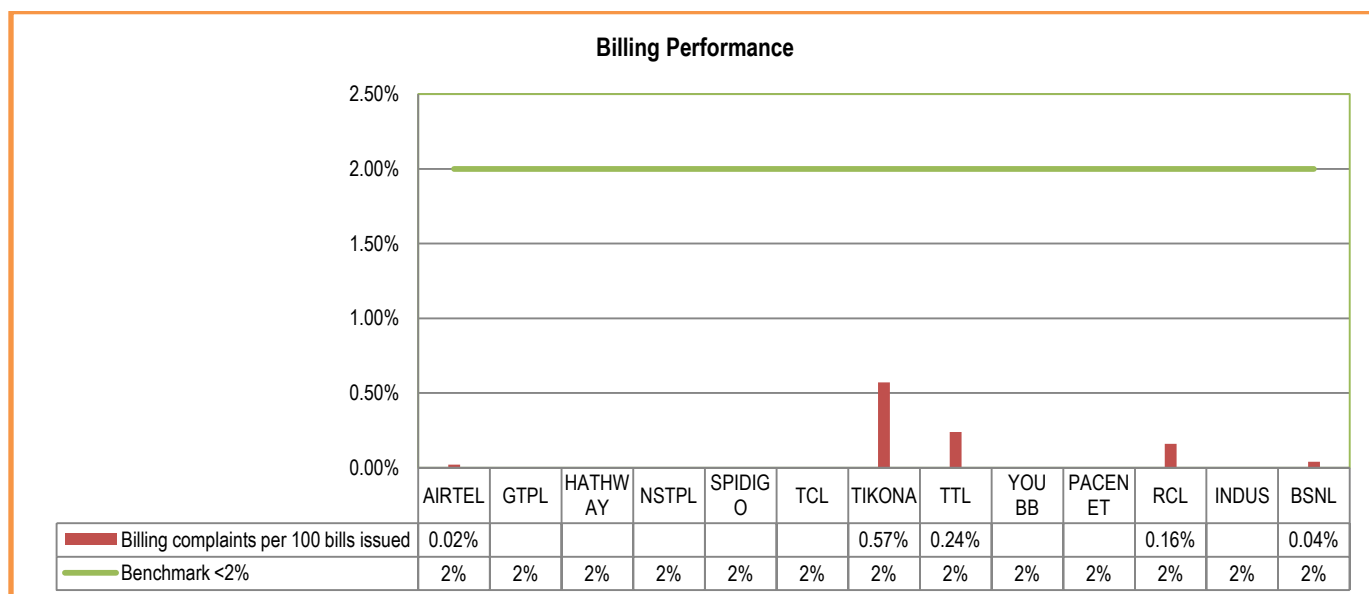
10.6 GRAPHICAL REPRESENTATION OF QUARTERLY PERFORMANCE OF BROADBAND SERVICE PROVIDERS:

1. SERVICE PROVISIONING/ACTIVATION TIME:



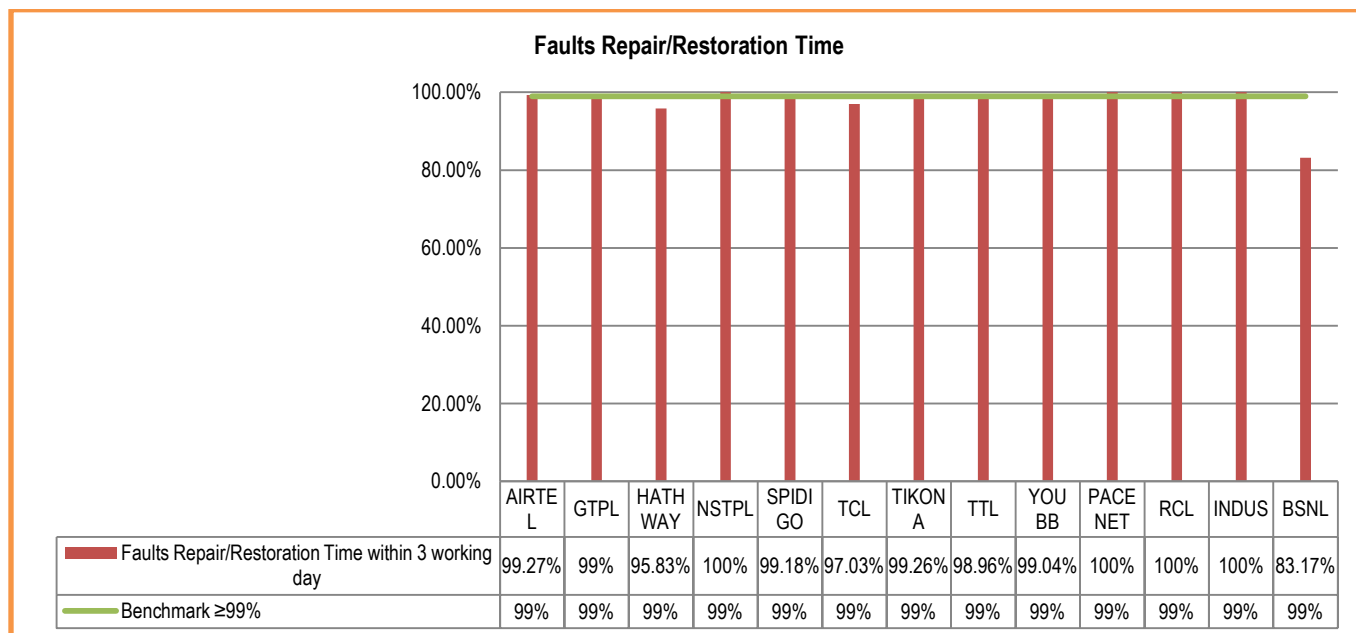
All Operators are meeting the benchmarks except GTPL, Hathway, You Broadband, Indus media.

2. BILLING PERFORMANCE:



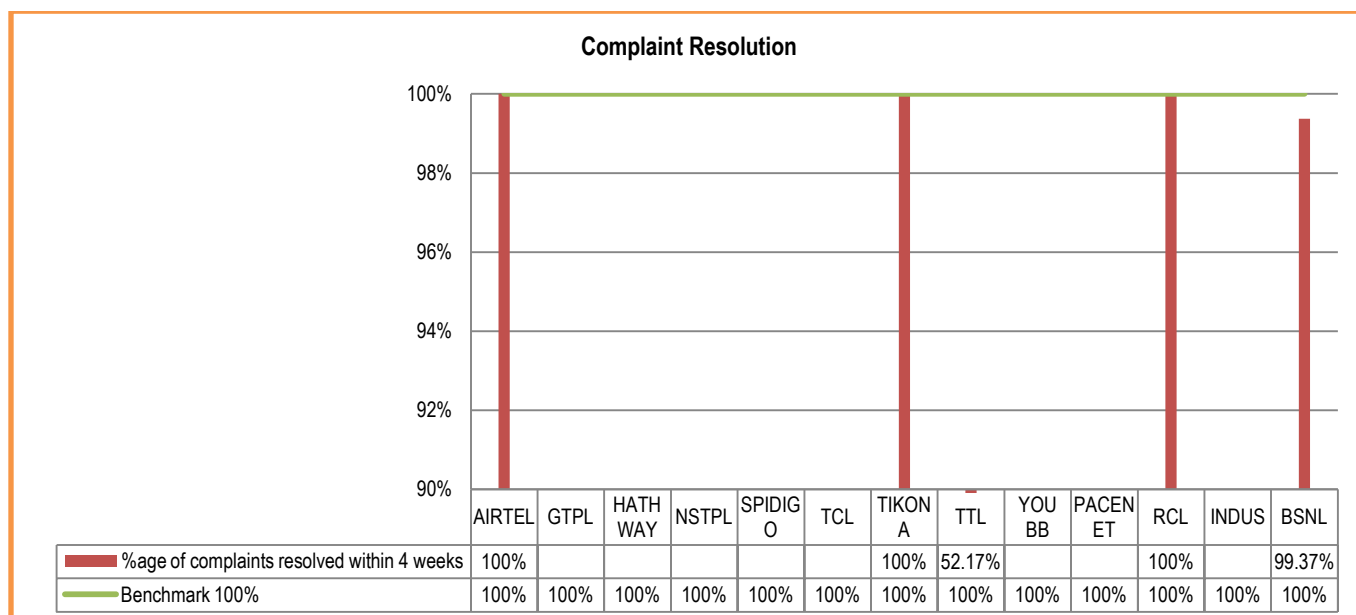
All Operators are meeting the benchmarks. In case of GTPL, Hathway, NSTPL, Spidigo, You Broadband, Pacenet and Indus, they do not have postpaid services.

3. FAULTS REPAIR/RESTORATION TIME:



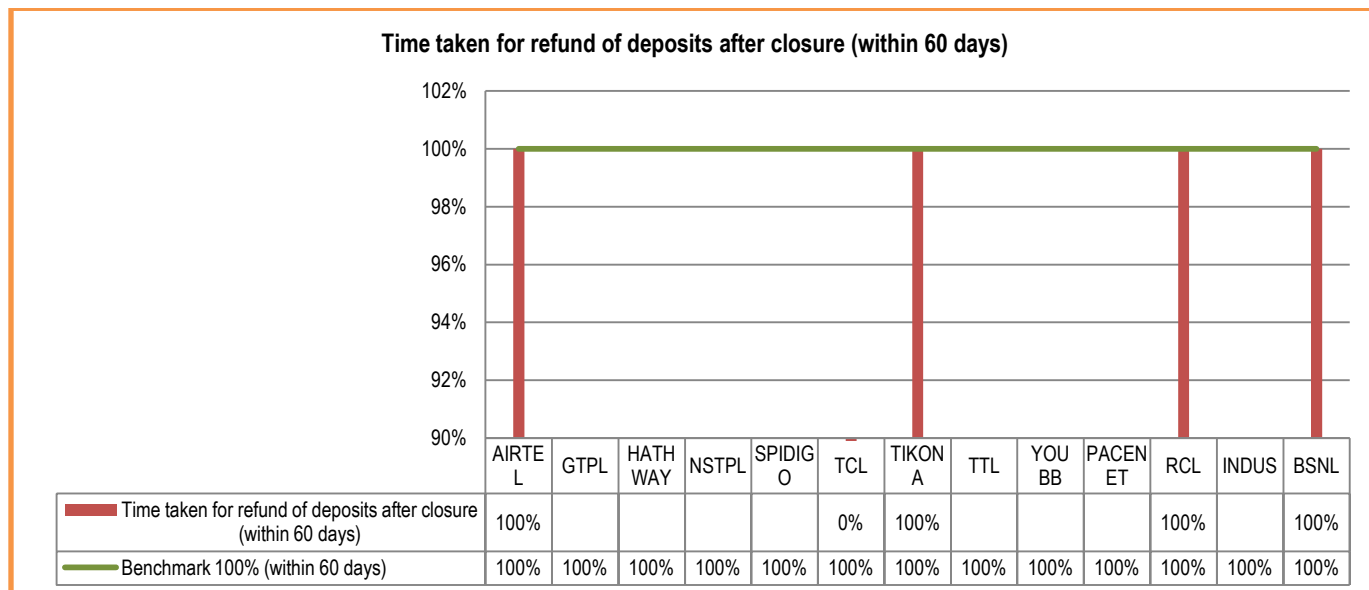
All Operators are meeting the benchmarks except Hathway, TCL and BSNL.

4. COMPLAINT RESOLUTION:



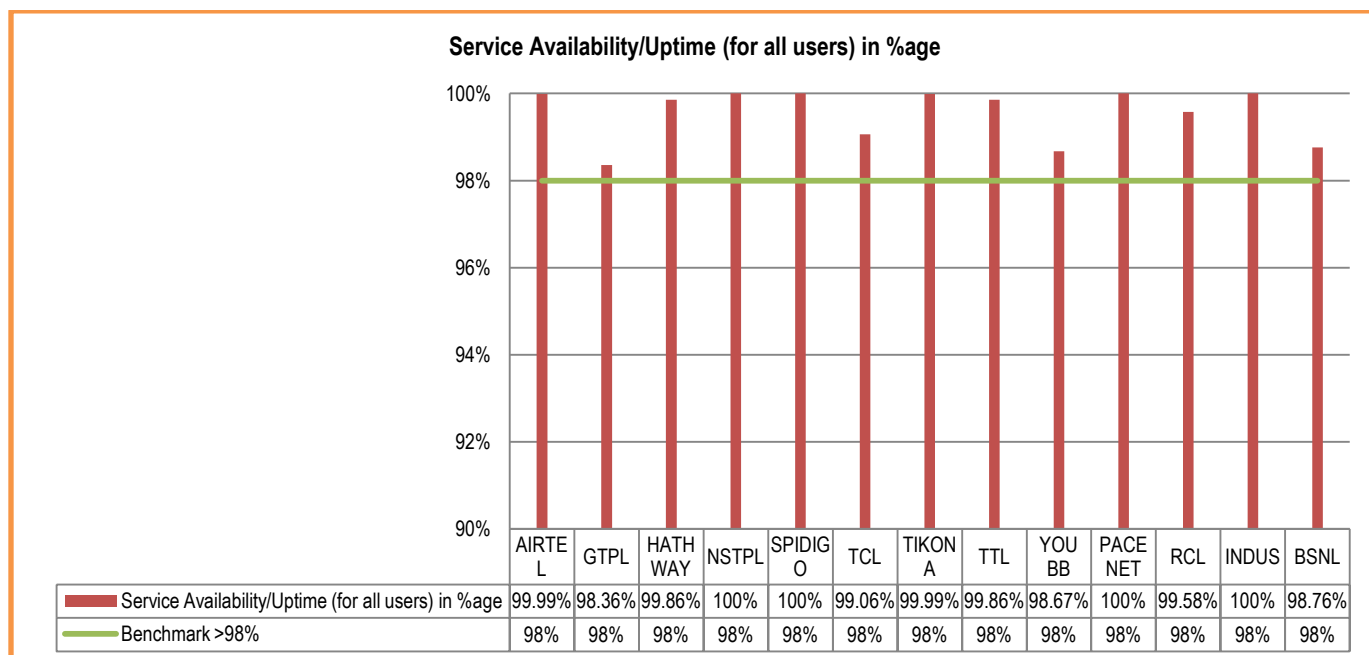
All Operators are meeting the benchmarks except TTL and BSNL. In case of GTPL, Hathway, NSTPL, Spidigo, You Broadband, Pacenet and Indus, they do not have postpaid services.

5. REFUND:



All Operators are meeting the benchmarks except TCL. In case of GTPL, Hathway, NSTPL, Spidigo, You Broadband, Pacenet and Indus, they do not have postpaid services.

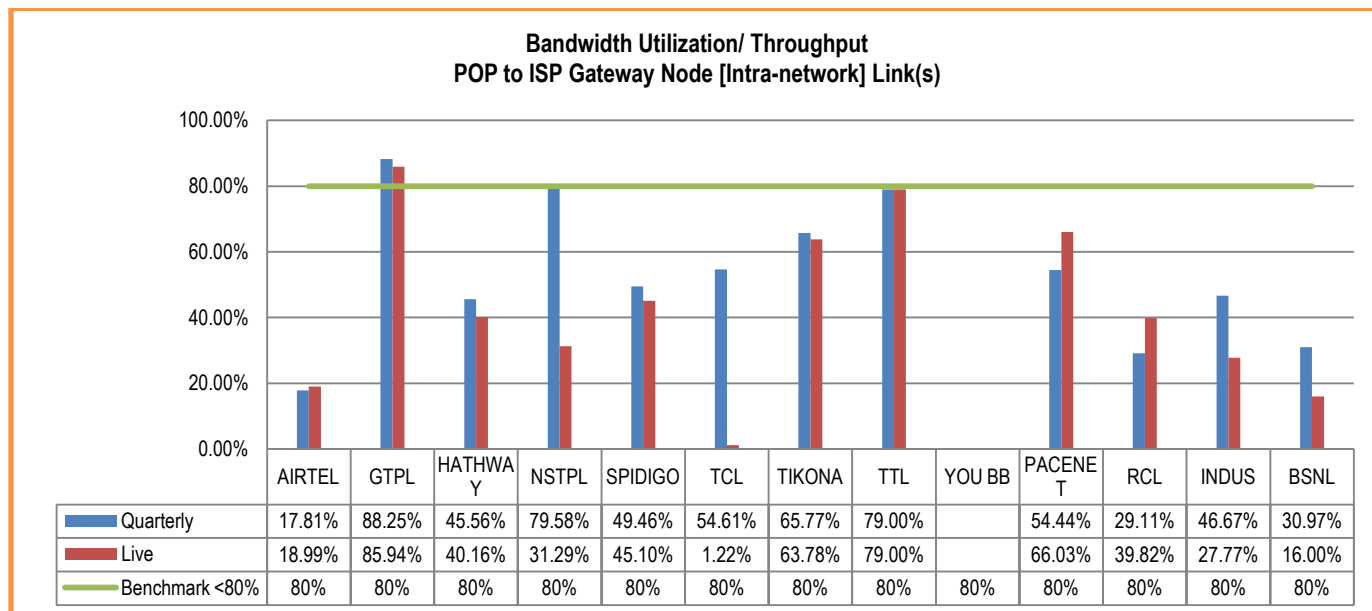
6. SERVICE AVAILABILITY/UPTIME:



All Operators are meeting the benchmarks.

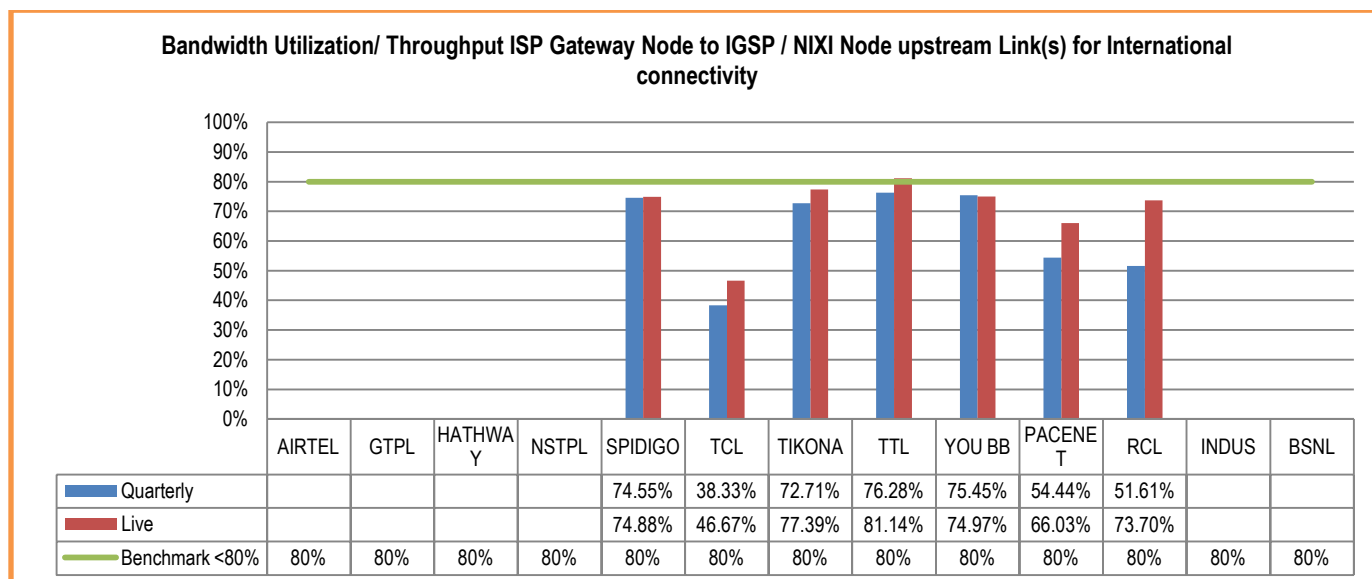
10.7 GRAPHICAL REPRESENTATION OF PERFORMANCE OF THE BROADBAND SERVICE PROVIDERS V/S 3-DAYS LIVE MEASUREMENT:

1. BROADBAND UTILIZATION/THROUGHPUT POP TO ISP GATEWAY NODE:



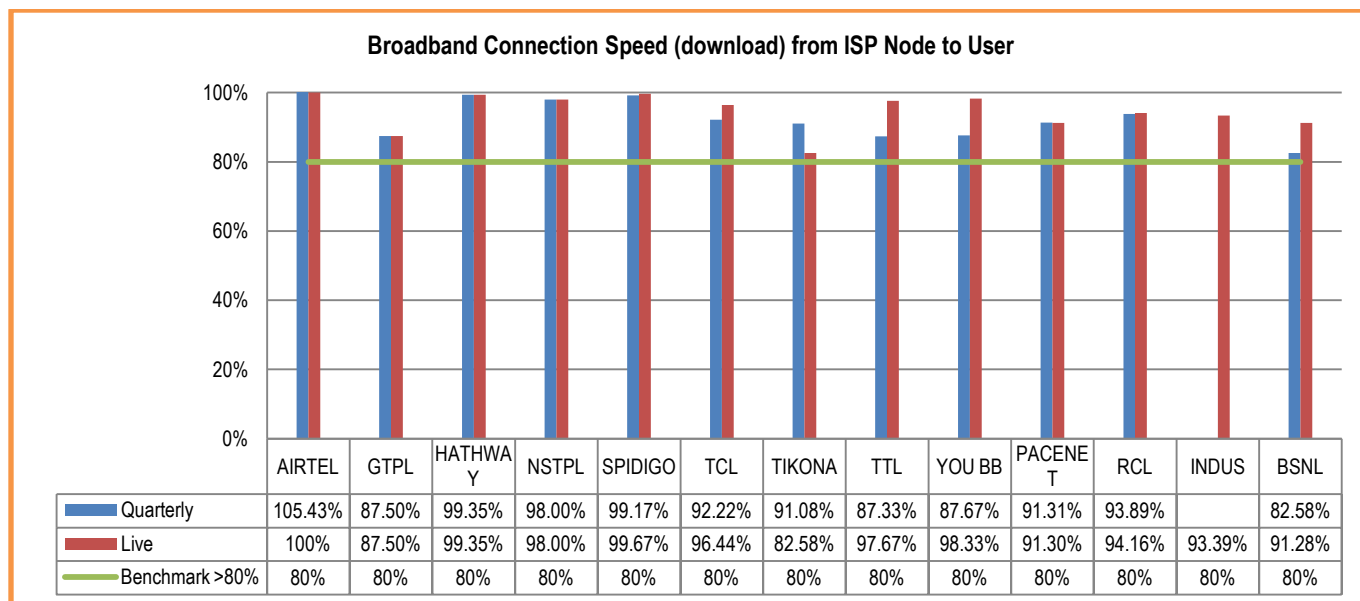
All Operators are meeting the benchmarks except GTPL.

2. BROADBAND UTILIZATION/THROUGHPUT ISP GATEWAY NODE TO IGSP/NIXI NODE:



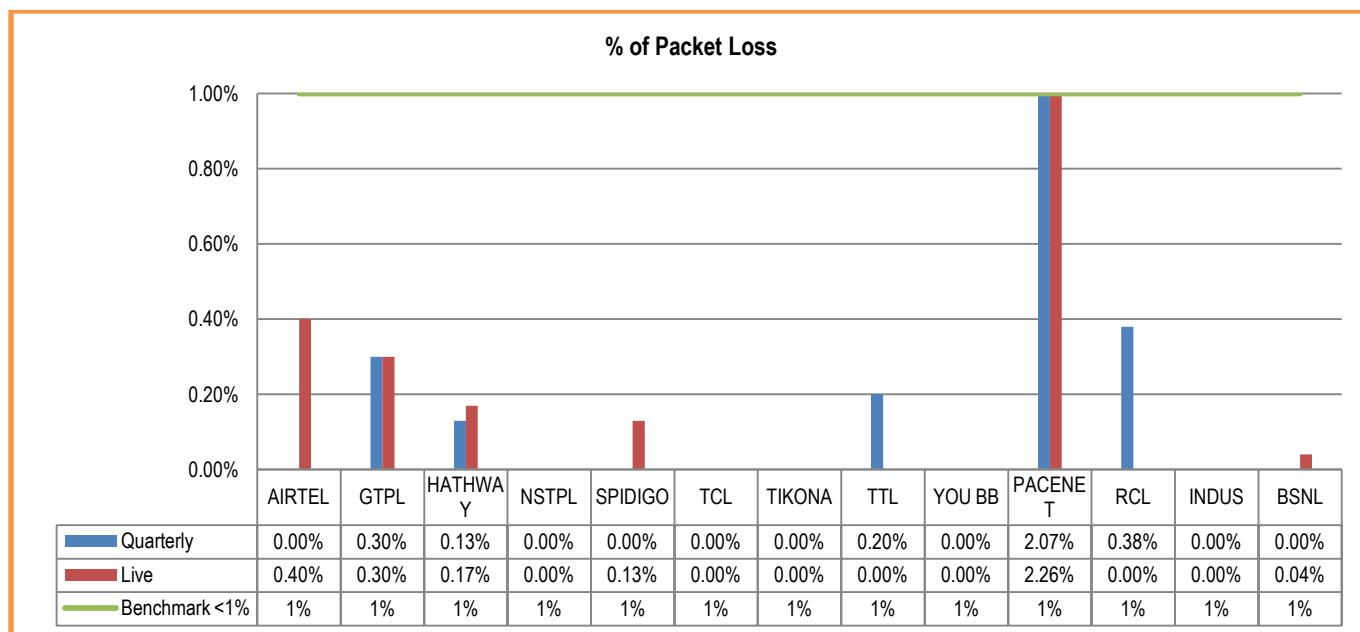
All Operators are meeting the benchmarks except TTL during 3 days live measurement.

3. BROADBAND CONNECTION SPEED (DOWNLOAD) FROM ISP NODE TO USER:



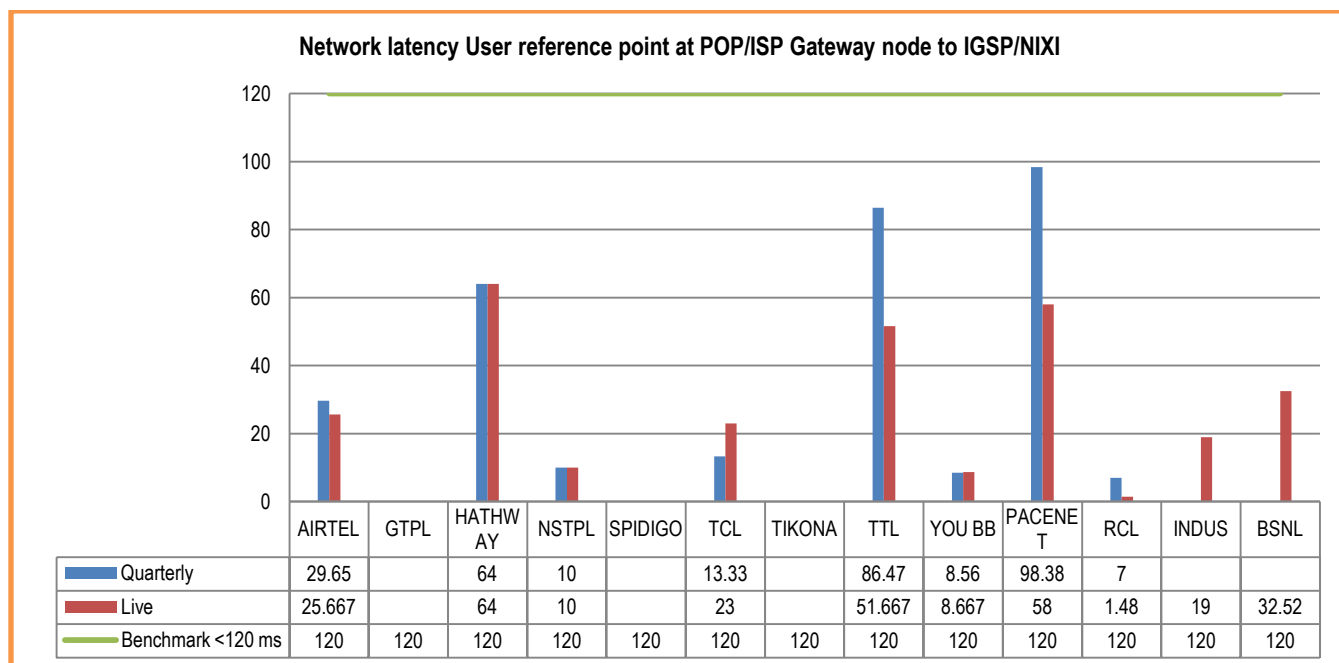
All Operators are meeting the benchmarks.

4. PACKET LOSS:



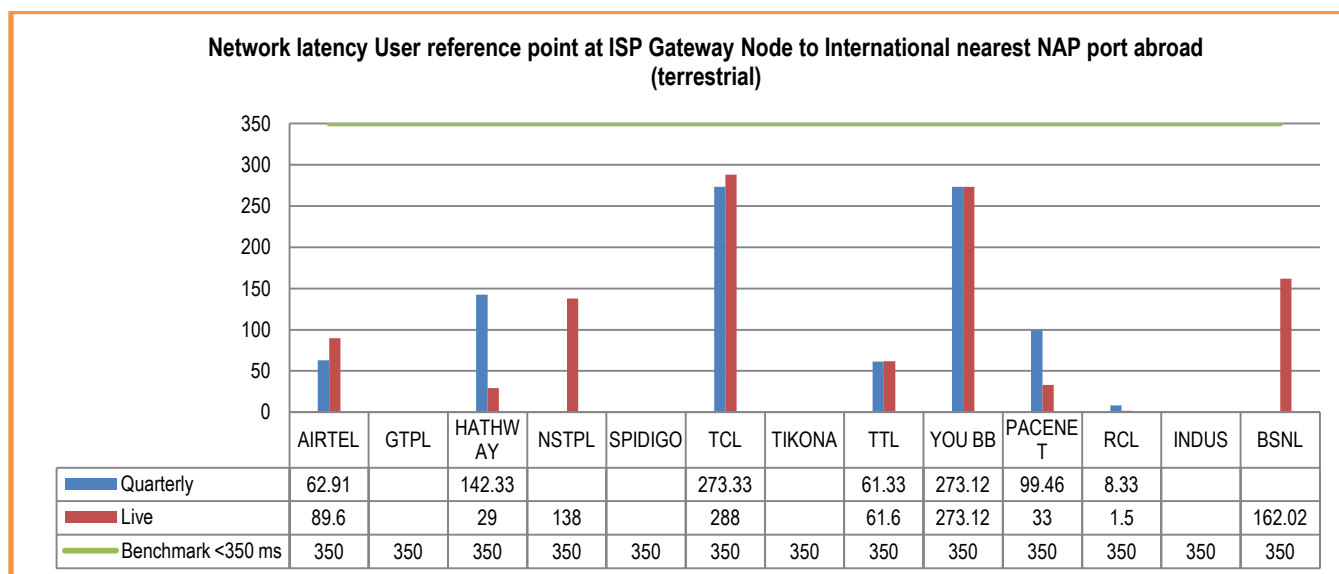
All Operators are meeting the benchmarks except Pacenet.

5. NETWORK LATENCY USER REFERENCE POINT AT POP/ISP GATEWAY NODE TO IGSP/NIXI:



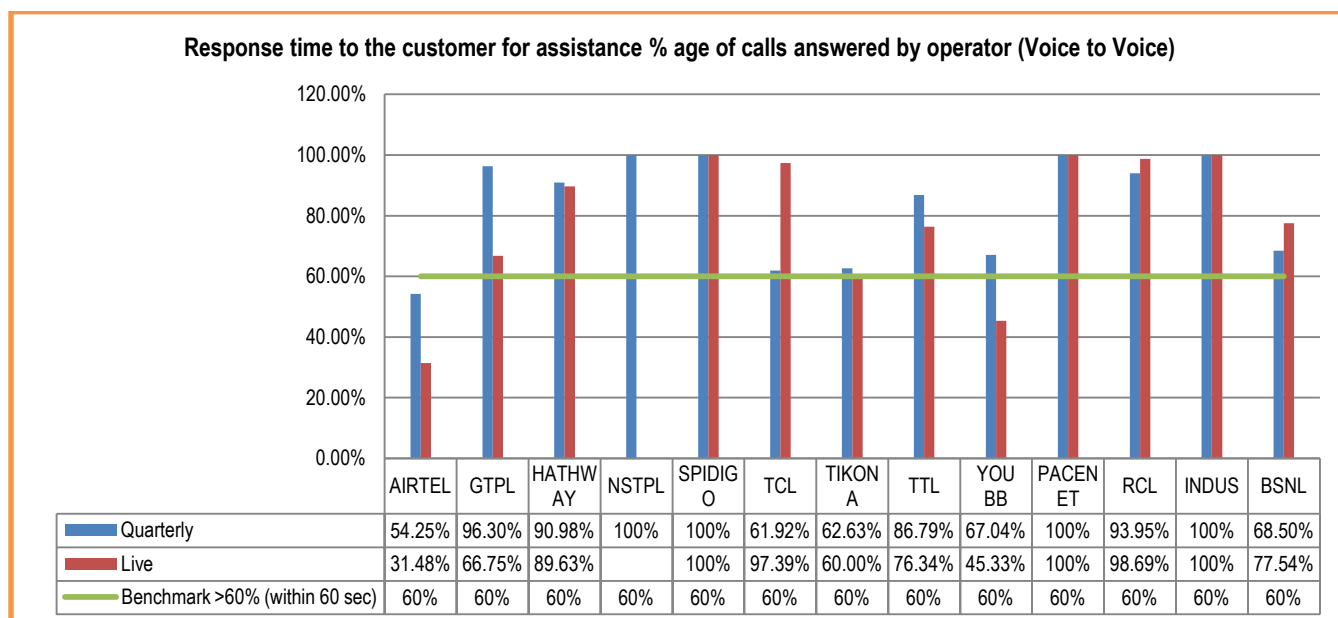
All Operators are meeting the benchmarks.

6. NETWORK LATENCY USER REFERENCE POINT AT ISP GATEWAY NODE TO INTERNATIONAL NEAREST NAP PORT ABROAD (TERRESTRIAL):



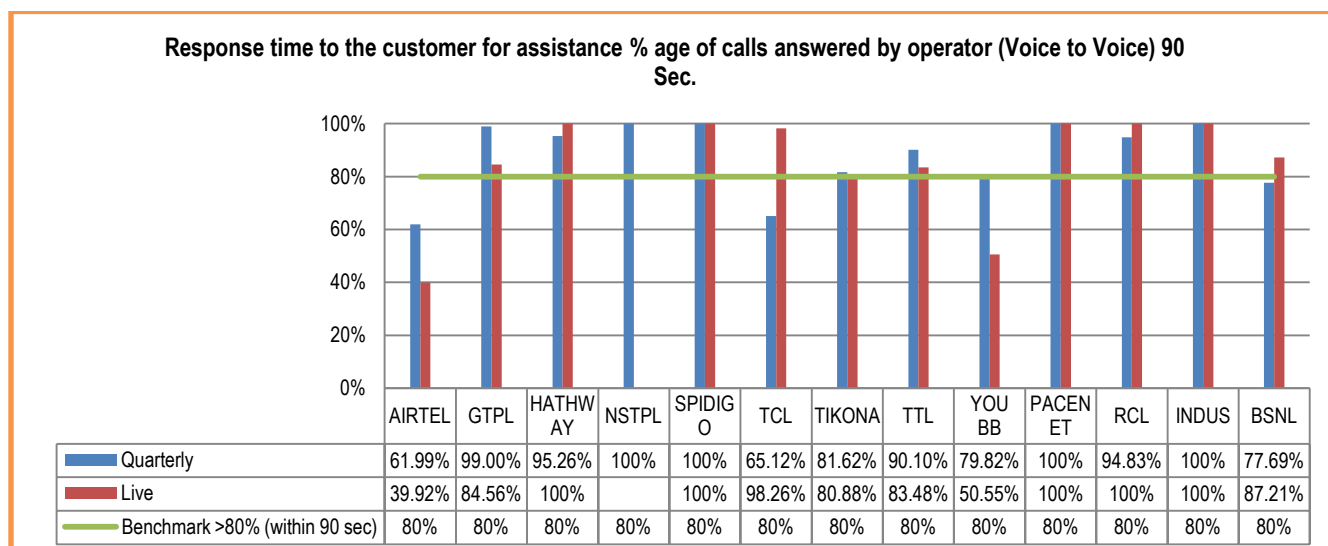
All Operators are meeting the benchmarks.

7. RESPONSE TIME TO THE CUSTOMER FOR ASSISTANCE ACCESSIBILITY BY OPERATOR WITHIN 60 SECONDS:



All Operators are meeting the benchmarks except Bharti Airtel and You Broadband (3 days live).

8. RESPONSE TIME TO THE CUSTOMER FOR ASSISTANCE ACCESSIBILITY BY OPERATOR WITHIN 90 SECONDS:



All Operators are meeting the benchmarks except Bharti Airtel, TCL, You Broadband and BSNL.

Annex-1

List of BSNL exchanges covered for Wireline & Broadband audit:-

S. No	SSA	SDCA	Exchange Name	Exchange Code/Level	Exchange Type
1	Ahmedabad	Ahmedabad	JAMALPUR	EWSD	Urban
2	Ahmedabad	Ahmedabad	NARANPURA	5ESS	Urban
3	Ahmedabad	Ahmedabad	NAVRANGPURA	EWSD	Urban
4	Ahmedabad	Ahmedabad	VASNA	EWSD	Urban
5	Ahmedabad	Ahmedabad	VASTRAPUR	EWSD RSU	Urban
6	Ahmedabad	Dhanduka	Dhanduka	C-DOT	Urban
7	Ahmedabad	Dhanduka	AKRU	AN_RAX	Rural
8	Ahmedabad	Dhanduka	ANALI BHIMJI	AN_RAX	Rural
9	Ahmedabad	Dhanduka	BAJARADA	AN_RAX	Rural
10	Ahmedabad	Dhanduka	CHER	AN_RAX	Rural
11	Ahmedabad	Dhanduka	DHOLERA	AN_RAX	Rural
12	Ahmedabad	Dhanduka	FEDRA	AN_RAX	Rural
13	Ahmedabad	Dhanduka	KHASTA	AN_RAX	Rural
14	Ahmedabad	Dhanduka	PACCHAM	AN_RAX	Rural
15	Ahmedabad	Dhanduka	PIPALI	AN_RAX	Rural
16	Ahmedabad	Dhanduka	VAGAD	AN_RAX	Rural
17	Ahmedabad	Dholka	Dholka	CDOT	Urban
18	Ahmedabad	Dholka	BADARKHA	AN_RAX	Rural
19	Ahmedabad	Dholka	BAGODRA	AN_RAX	Rural
20	Ahmedabad	Dholka	MOTI BORU	AN_RAX	Rural
21	Ahmedabad	Dholka	DHOLKA GIDC	CDOT RSU	Rural
22	Ahmedabad	Dholka	GUNDI	AN_RAX	Rural
23	Ahmedabad	Dholka	KALYANGADH	AN_RAX	Rural
24	Ahmedabad	Dholka	KANOTAR	AN_RAX	Rural
25	Ahmedabad	Dholka	KAUKA	CDOT RSU	Rural
26	Ahmedabad	Dholka	KELIA VASNA	CDOT RSU	Rural
27	Ahmedabad	Dholka	KERALA GIDC	CDOT RSU	Rural
28	Ahmedabad	Dholka	KOTH	CDOT RSU	Rural
29	Ahmedabad	Viramgam	VIRAMGAM	CDOT	Urban
30	Ahmedabad	Viramgam	ASALGAM	AN_RAX	Rural
31	Ahmedabad	Viramgam	DETROJ	CDOT RSU	Rural
32	Ahmedabad	Viramgam	HANSALPUR	AN_RAX	Rural
33	Ahmedabad	Viramgam	KAMIJALA	AN_RAX	Rural
34	Ahmedabad	Viramgam	KARAKTHAL	AN_RAX	Rural
35	Ahmedabad	Viramgam	KTSN RD	CDOT RSU	Rural

S. No	SSA	SDCA	Exchange Name	Exchange Code/Level	Exchange Type
36	Ahmedabad	Viramgam	MANDAL	CDOT RSU	Rural
37	Ahmedabad	Viramgam	MANIPURA	AN_RAX	Rural
38	Ahmedabad	Viramgam	MOTA GORAIYA	AN_RAX	Rural
39	Ahmedabad	Viramgam	ODHAV	AN_RAX	Rural
40	Jamnagar	Jamnagar	JMN-1 OCB KV Road	OCB 283 RSU	Urban
41	Jamnagar	Jamnagar	ALIABADA	CDOT RSU	Rural
42	Jamnagar	Jamnagar	CHANDRAGADH	AN_RAX	Rural
43	Jamnagar	Jamnagar	DADIA	CDOT RSU	Rural
44	Jamnagar	Jamnagar	DHUTARPAR-1	AN_RAX	Rural
45	Jamnagar	Jamnagar	FALLA	CDOT RSU	Rural
46	Jamnagar	Jamnagar	JAMVANTHALI	CDOT RSU	Rural
47	Jamnagar	Jamnagar	JIVAPAR	AN_RAX	Rural
48	Jamnagar	Jamnagar	MATWA-1	AN_RAX	Rural
49	Jamnagar	Jamnagar	MOTI BANUGAR	CDOT RSU	Rural
50	Jamnagar	Jamnagar	MOTI KHAVDI	CDOT RSU	Rural
51	Jamnagar	Jamnagar	NAGHEDI	AN_RAX	Rural
52	Jamnagar	Jamnagar	SAPAR	AN_RAX	Rural
53	Jamnagar	Jamkhabalia	JAMKHAMBHALLIA	CDOT	Urban
54	Jamnagar	Jamkhabalia	BERAJA-1	AN_RAX	Rural
55	Jamnagar	Jamkhabalia	BHADTHAR-1	AN_RAX	Rural
56	Jamnagar	Jamkhabalia	BHANDARIA-1	AN_RAX	Rural
57	Jamnagar	Jamkhabalia	HANSTHAL-1	AN_RAX	Rural
58	Jamnagar	Jamkhabalia	KAJURDA	CDOT RSU	Rural
59	Jamnagar	Jamkhabalia	MOVAN-1	AN_RAX	Rural
60	Jamnagar	Jamkhabalia	SAMORE-1	AN_RAX	Rural
61	Jamnagar	Jamkhabalia	SINHAN AHIR	AN_RAX	Rural
62	Jamnagar	Jamkhabalia	VADINAR	CDOT RSU	Rural
63	Jamnagar	Bhatiya	BHATIA	CDOT	Rural
64	Jamnagar	Bhatiya	BHOGAT-1	AN_RAX	Rural
65	Jamnagar	Bhatiya	GADHKA	CDOT RSU	Rural
66	Jamnagar	Bhatiya	JAMDEVALIA-1	AN_RAX	Rural
67	Jamnagar	Bhatiya	JAMKALYANPUR	CDOT RSU	Rural
68	Jamnagar	Bhatiya	JAMRAVAL	CDOT RSU	Rural
69	Jamnagar	Bhatiya	LAMBA BUNDER	CDOT RSU	Rural
70	Jamnagar	Bhatiya	RAJPARA-1	AN_RAX	Rural
71	Jamnagar	Bhatiya	RAN	AN_RAX	Rural
72	Jamnagar	Dwarka	ARAMBHADA	CDOT RSU	Urban
73	Jamnagar	Dwarka	DWARKA	CDOT	Urban

S. No	SSA	SDCA	Exchange Name	Exchange Code/Level	Exchange Type
74	Jamnagar	Dwarka	OKHA	CDOT RSU	Urban
75	Valsad	Valsad	VALSAD	CDOT	Urban
76	Valsad	Valsad	VALSAD	CDOT	Urban
77	Valsad	Valsad	ATUL	CDOT RSU	Urban
78	Valsad	Valsad	DUNGRI	CDOT RSU	Rural
79	Valsad	Valsad	FALDHARA	CDOT RSU	Rural
80	Valsad	Valsad	KAKWADI	CDOT RSU	Rural
81	Valsad	Valsad	KALWADA	CDOT RSU	Rural
82	Valsad	Valsad	RONVEL	CDOT RSU	Rural
83	Valsad	Valsad	TIGHRA	CDOT RSU	Rural
84	Valsad	Vapi	VPI	CDOT	Urban
85	Valsad	Vapi	DADRA	OCB 283 RSU	Rural
86	Valsad	Vapi	DAPADA	CDOT RSU	Rural
87	Valsad	Vapi	DEGAM	CDOT RSU	Rural
88	Valsad	Vapi	KHANVEL	CDOT RSU	Rural
89	Valsad	Vapi	M - WAGHCHHIPA	CDOT RSU	Rural
90	Valsad	Vapi	MORAI	OCB 283 RSU	Rural
91	Valsad	Vapi	NARGOL	CDOT RSU	Rural
92	Valsad	Vapi	NAROLI	CDOT RSU	Rural
93	Valsad	Dharmpur	DPORSU	CDOT RSU	Urban
94	Valsad	Dharmpur	KAPRADA	AN_RAX	Rural
95	Valsad	Dharmpur	MOTA PONDHA	AN_RAX	Rural
96	Valsad	Dharmpur	NANA PONDHA	CDOT RSU	Rural
97	Valsad	Dharmpur	SUKHALA	AN_RAX	Rural
98	Valsad	BILIMORA	CHIKHLI	CDOT	Urban
99	Valsad	BILIMORA	AMADHARA	OCB 283 RSU	Rural
100	Valsad	BILIMORA	AMALSAD	CDOT RSU	Rural
101	Valsad	BILIMORA	BHAT	OCB_283	Rural
102	Valsad	BILIMORA	DEGAM	CDOT RSU	Rural
103	Valsad	BILIMORA	DHOLAI	OCB_283	Rural
104	Valsad	BILIMORA	FADVEL	OCB 283 RSU	Rural
105	Valsad	BILIMORA	GHEJ	CDOT RSU	Rural
106	Valsad	BILIMORA	KAKADVEL	AN_RAX	Rural
107	Valsad	BILIMORA	KAKADVERI	AN_RAX	Rural
108	Valsad	BILIMORA	KHAREL	CDOT RSU	Rural
109	Valsad	BILIMORA	KHERGAM	OCB 283 RSU	Rural
110	Valsad	BILIMORA	MASA	OCB 283 RSU	Rural
111	Junagarh	JUNAGARH	JND GHB	CDOT	Urban
112	Junagarh	JUNAGARH	JND GIDC	E10B	Urban

S. No	SSA	SDCA	Exchange Name	Exchange Code/Level	Exchange Type
113	Junagarh	JUNAGARH	JND JR	CDOT	Urban
114	Junagarh	JUNAGARH	JND JSP	CDOT RSU	Urban
115	Junagarh	JUNAGARH	JND SB	CDOT RSU	Urban
116	Junagarh	JUNAGARH	AMBALIYA	AN_RAX	Rural
117	Junagarh	JUNAGARH	BAGDU	CDOT RSU	Rural
118	Junagarh	JUNAGARH	BILKHA	CDOT RSU	Rural
119	Junagarh	JUNAGARH	CHOKI	AN_RAX	Rural
120	Junagarh	JUNAGARH	KHADIA	AN_RAX	Rural
121	Junagarh	JUNAGARH	MAJEVADI	AN_RAX	Rural
122	Junagarh	JUNAGARH	MAKHIYALA	AN_RAX	Rural
123	Junagarh	JUNAGARH	SANKHADAVADAR	AN_RAX	Rural
124	Junagarh	JUNAGARH	VADAL	CDOT RSU	Rural
125	Junagarh	JUNAGARH	VIJAPUR	AN_RAX	Rural
126	Junagarh	KESHOD	KESHOD	CDOT	Urban
127	Junagarh	KESHOD	AGATRAI	CDOT RSU	Rural
128	Junagarh	KESHOD	AJAB	CDOT RSU	Rural
129	Junagarh	KESHOD	BALAGAM	AN_RAX	Rural
130	Junagarh	KESHOD	BAMANSA GHED	AN_RAX	Rural
131	Junagarh	KESHOD	KEVADRA	CDOT RSU	Rural
132	Junagarh	KESHOD	KHIRASARAGHED	AN_RAX	Rural
133	Junagarh	KESHOD	KOYLANA	CDOT RSU	Rural
134	Junagarh	KESHOD	MESVAN	CDOT RSU	Rural
135	Junagarh	MANGROL	MANGROL	CDOT	Urban
136	Junagarh	MANGROL	ARENA	AN_RAX	Rural
137	Junagarh	MANGROL	BAGASARAGHED	AN_RAX	Rural
138	Junagarh	MANGROL	DHELANA	AN_RAX	Rural
139	Junagarh	MANGROL	DIVARANA	AN_RAX	Rural
140	Junagarh	MANGROL	JUTHAL	AN_RAX	Rural
141	Junagarh	MANGROL	SHIL	AN_RAX	Rural
142	Junagarh	KODINAR	KODINAR	CDOT	Urban
143	Junagarh	KODINAR	ALIDAR	AN_RAX	Rural
144	Junagarh	KODINAR	AMBUJA NAGAR	CDOT RSU	Rural
145	Junagarh	KODINAR	CHHACHHAR	AN_RAX	Rural
146	Junagarh	KODINAR	DOLASA	AN_RAX	Rural
147	Junagarh	KODINAR	GHANTVAD	AN_RAX	Rural
148	Junagarh	KODINAR	KADODARA	AN_RAX	Rural