REPORT

ON

AUDIT & ASSESSMENT OF QUALITY OF SERVICE

OF

CELLULAR MOBILE TELEPHONE SERVICE

BASIC (WIRELINE) SERVICE

&

BROADBAND SERVICE

FOR

TELECOM REGULATORY AUTHORITY OF INDIA

NORTH ZONE – JAMMU & KASHMIR SERVICE AREA

(JANUARY 2014 – MARCH 2014)

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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 **J&K circle** against the QoS bench marks laid down by TRAI in the respective regulations.

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1. BACKGROUND

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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 6thOctober, 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 (wireline) 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 is 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) is undertaken for J&K , Himachal Pradesh & Mumbai circles and for Broadband service, the audit is done for J&K , Himachal Pradesh, Haryana, Delhi & Mumbai Circles during the quarter January – March 2014.**

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.

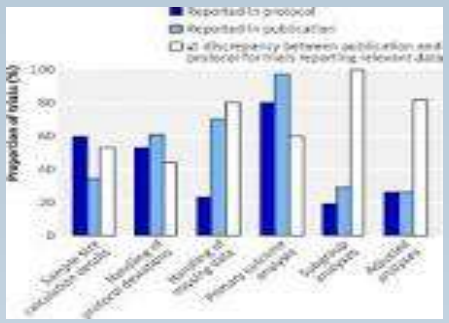
iii) Monthly audit based on one month data of the SPs.

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 J&K circle

Sl. No.	Name of Service Provider	Dates of live measurement Audit			Audit Location/Address
GSM Operators		Jan-14	Feb-14	March-14	
1	AIRCEL	7th Jan to 9th Jan	5th Feb to 7th Feb	5th March to 7th March	Dishnet Wireless Limited , 2nd floor North Block Bahu Plaza Jammu
2	AIRTEL	7th Jan to 9th Jan	8th to 10th Feb	8th March to 10th March	Bharti Airtel Campus, Plot No 21, Rajiv Gandhi Information and Technilogy Park, Chandigarh, 160101
3	BSNL	8th Jan to 10th Jan	8th Feb to 11th Feb	6th March to 8th March	BSNL 4th floor, Rail Head Complex Jammu
4	IDEA	6th Jan to 8th Jan	10th Feb to 12 Feb	10th March to 12 March	Idea Office Phase -7 Industrial Area,Mohali
5	RCOM GSM	12th Jan to 14th jan	9th Feb to11th Feb	8th March to 10th March	Reliance Communication Limited Narwal KC Business Park Jammu
6	VODAFONE	9th Jan to 11th Jan	10th Feb to 12th Feb	6th March to 8th March	Vodafone Spacetel Ltd. 4th floor (B) , North Block Bahu Plaza Complex Jammu-180004

For all the above operators, audit was conducted in all the three months of the Quarter ended March 2014.

3.2 SAMPLING FOR BASIC (WIRELINE) SERVICES

- The QoS audit for basic (wireline) service was to be done for the number of exchanges spread over in about 10% of SDCAs with each service providers in specified circles. **In J&K Circle, only BSNL is providing Basic (Wireline)** service and the same have been audited for their quality of service assessment.

Sl. No.	Name of Basic (Wireline) Service Provider
1	BSNL

3.3 SAMPLING FOR BROADBAND SERVICE PROVIDERS

- TUV–SUD South Asia had 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. **In J&K Circle, only BSNL is providing Broadband** service and the same have been audited for their quality of service assessment.

Sl. No.	Name of Broadband Service Provider
1	BSNL

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.

4.1 MONTHLY DATA VERIFICATION FOR CELLULAR MOBILE SERVICE PROVIDERS (NETWORK SERVICE QUALITY PARAMETER)

4.1 SERVICE PROVIDER PERFORMANCE REPORT BASED ON MONTHLY DATA VERIFICATION: NETWORK SERVICE QUALITY PARAMETER- CELLULAR MOBILE SERVICES.

BUSY HOUR OF VARIOUS SERVICE PROVIDERS:

Sl. No.	Name of Service Provider	Month of Audit	Network TCBH Hour
GSM Operators			
1	AIRCEL	March-14	21:00 - 22:00
2	AIRTEL	March-14	20:00 - 21:00
3	BSNL	March-14	19:00 - 20:00
4	IDEA	March-14	20:00 - 21:00
5	RCOM GSM	March-14	22:00 - 23:00
6	VODAFONE	March-14	22:00 - 23:00

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

SWITCHES/BSC/BTS DETAILS OF OPERATORS:

Sl. No.	Name of Service Provider	No. of MSC + GMSC	No. of BSC	No. of BTS	NSS make	BSS make
GSM Operators						
1	AIRCEL	6	22	2096	Ericsson	Ericsson
2	AIRTEL	11	30	2694	Ericsson	Ericsson
3	BSNL	8	22	1164	Ericsson	Ericsson, NSN & ZTE
4	IDEA	2	6	885	Ericsson	Ericsson
5	RCOM GSM	2	6	982	Huawei	Huawei
6	VODAFONE	4	15	1465	NSN	NSN

TABLES OF MONTHLY QOS PERFORMANCE:

TABLE: 1

CELLULAR MOBILE TELEPHONE SERVICES J&K CIRCLE- JAN-14 MONTH									
PMR Generation Data		Bench- mark	Audit Period	AIRCEL	AIRTEL	BSNL	IDEA	RCOM GSM	VODAFONE
S/N	Name of Parameter			GSM Operators					
	Network Service Quality Parameter								
1	**Network Availability**								
	a) BTS Accumulated Downtime	<=2%	Jan-14	0.57%	0.09%	0.91%	0.31%	0.33%	0.07%
	b) Worst affected BTSs due to downtime	<=2%	Jan-14	2.11%	0.15%	1.21%	1.92%	0.00%	0.37%
2	**Connection Establishment (Accessibility)**								
	a) CSSR (Call Setup Success Rate)	>=95%	Jan-14	97.15%	99.02%	98.35%	98.04%	99.63%	98.12%
	b) SDCCH/PAGING Channel congestion	<=1%	Jan-14	0.19%	0.14%	0.85%	0.07%	0.07%	0.01%
	c) TCH congestion	<=2%	Jan-14	1.80%	0.19%	1.31%	0.22%	0.04%	0.34%
3	**Connection maintenance (Retainability)**								
	a) CDR (Call Drop Rate)	<=2%	Jan-14	0.55%	0.47%	1.33%	1.17%	0.39%	0.66%
	b) Worst affected cells>3% TCH drop (Call drop) rate	<=3%	Jan-14	1.75%	0.96%	1.88%	2.05%	0.03%	2.63%
	c) Connections with good voice quality	>=95%	Jan-14	95.16%	98.51%	NP	95.47%	99.00%	98.52%
4	**No. of POI's having >=0.5% POI congestion**		Jan-14	0	0	0	0	0	0

NP-Data not provided: BSNL has not provided data for the parameter "Connections with good voice quality "because OMCR does not support this parameter.

TABLE: 2

CELLULAR MOBILE TELEPHONE SERVICES J&K CIRCLE- FEB-14 MONTH									
PMR Generation Data		**Bench- mark**	**Audit Period**	**AIRCEL**	**AIRTEL**	**BSNL**	**IDEA**	**RCOM GSM**	**VODAFONE**
S/N	**Name of Parameter**			**GSM Operators**					
	Network Service Quality Parameter								
1	**Network Availability**								
	a) BTS Accumulated Downtime	<=2%	Feb-14	0.65%	0.11%	1.07%	0.19%	0.21%	0.05%
	b) Worst affected BTSs due to downtime	<=2%	Feb-14	**2.49%**	0.11%	1.55%	1.20%	0.00%	0.07%
2	**Connection Establishment (Accessibility)**								
	a) CSSR (Call Setup Success Rate)	>=95%	Feb-14	97.70%	99.07%	98.40%	99.36%	99.59%	98.32%
	b) SDCCH/PAGING Channel congestion	<=1%	Feb-14	0.48%	0.12%	**1.19%**	0.13%	0.05%	0.00%
	c) TCH congestion	<=2%	Feb-14	1.89%	0.17%	1.28%	0.27%	0.04%	0.17%
3	**Connection maintenance (Retainability)**								
	a) CDR (Call Drop Rate)	<=2%	Feb-14	1.31%	0.48%	1.30%	1.17%	0.39%	0.56%
	b) Worst affected cells>3% TCH drop (Call drop) rate	<=3%	Feb-14	2.98%	0.94%	1.86%	2.57%	0.04%	2.61%
	c) Connections with good voice quality	>=95%	Feb-14	95.07%	98.43%	NP	95.41%	98.99%	98.47%
4	**No. of POI's having >=0.5% POI congestion**		Feb-14	0	0	0	0	0	0

NP-Data not provided: BSNL has not provided data for the parameter "Connections with good voice quality "because OMCR does not support this parameter

TABLE: 3

CELLULAR MOBILE TELEPHONE SERVICES J&K CIRCLE- MAR-14 MONTH									
PMR Generation Data		Bench- mark	Audit Period	AIRCEL	AIRTEL	BSNL	IDEA	RCOM GSM	VODAFONE
S/N	Name of Parameter			GSM Operators					
	Network Service Quality Parameter								
1	**Network Availability**								
	a) BTS Accumulated Downtime	<=2%	Mar-14	0.95%	0.13%	1.03%	0.30%	0.40%	0.13%
	b) Worst affected BTSs due to downtime	<=2%	Mar-14	6.20%	0.19%	1.72%	1.36%	0.00%	0.61%
2	**Connection Establishment (Accessibility)**								
	a) CSSR (Call Setup Success Rate)	>=95%	Mar-14	97.29%	98.90%	96.42%	99.16%	99.50%	98.47%
	b) SDCCH/PAGING Channel congestion	<=1%	Mar-14	0.55%	0.15%	0.70%	0.19%	0.01%	0.01%
	c) TCH congestion	<=2%	Mar-14	1.99%	0.27%	1.16%	0.47%	0.08%	0.42%
3	**Connection maintenance (Retainability)**								
	a) CDR (Call Drop Rate)	<=2%	Mar-14	1.35%	0.48%	1.22%	1.33%	0.43%	0.59%
	b) Worst affected cells>3% TCH drop (Call drop) rate	<=3%	Mar-14	2.92%	1.14%	1.89%	2.47%	0.05%	2.71%
	c) Connections with good voice quality	>=95%	Mar-14	95.11%	98.38%	NP	95.59%	98.85%	98.51%
4	**No. of POI's having >=0.5% POI congestion**		Mar-14	0	0	0	0	0	0

NP-Data not provided: BSNL has not provided data for the parameter "Connections with good voice quality "because OMCR does not support this parameter

TABLES OF QUARTERLY QOS PERFORMANCE:

TABLE: 4

QUARTERLY QOS PERFORMANCE (AVERAGE OF QE-MARCH-14) OF J&K CIRCLE									
PMR Generation Data		Bench- mark	Audit Period	AIRCEL	AIRTEL	BSNL	IDEA	RCOM GSM	VODAFONE
S/N	Name of Parameter			GSM Operators					
	Network Service Quality Parameter								
1	**Network Availability**								
	a) BTS Accumulated Downtime	<=2%	Quarterly	0.72%	0.11%	1.00%	0.27%	0.31%	0.08%
	b) Worst affected BTSs due to downtime	<=2%	Quarterly	3.60%	0.15%	1.47%	1.49%	0.00%	0.35%
2	**Connection Establishment (Accessibility)**								
	a) CSSR (Call Setup Success Rate)	>=95%	Quarterly	97.38%	99.00%	97.72%	98.85%	99.57%	98.30%
	b) SDCCH/PAGING Channel congestion	<=1%	Quarterly	0.41%	0.14%	0.91%	0.13%	0.04%	0.01%
	c) TCH congestion	<=2%	Quarterly	1.89%	0.21%	1.25%	0.32%	0.05%	0.31%
3	**Connection maintenance (Retainability)**								
	a) CDR (Call Drop Rate)	<=2%	Quarterly	1.07%	0.48%	1.28%	1.22%	0.40%	0.60%
	b) Worst affected cells>3% TCH drop (Call drop) rate	<=3%	Quarterly	2.55%	1.01%	1.88%	2.36%	0.04%	2.65%
	c) Connections with good voice quality	>=95%	Quarterly	95.11%	98.44%	NP	95.49%	98.95%	98.50%
4	**No. of POI's having >=0.5% POI congestion**		Quarterly	0	0	0	0	0	0

KEY FINDINGS: CELLULAR MOBILE SERVICES

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

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 J&K circle, all operators except Aircel were found meeting benchmark on the above parameters 'BTS accumulated downtime' and 'worst affected BTSs due to down time' in all the three months of the quarter. Only **Aircel** failed to meet the benchmark of the parameter 'Worst affected BTSs due to downtime' in all the three months of the quarter with its average performance of **3.60%.**

- **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 found to have met the benchmark on 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 pegging 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 .40 %) was for RCOM (GSM) 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 all operators have met the bench mark during the quarter.

Aircel has provided the data on monthly basis but not on daily basis as required for audit.

iii. Connections with good voice quality:

The Operators, mostly are measuring this parameter through the system generated data at their switches whereas BSNL measuring through their periodic drive tests. Hence, BSNL has not provided the data for this parameter. The audit results for this parameter indicates that **all operators have met the bench mark successfully during the quarter**.

4.2 CUSTOMER SERVICE QUALITY (CSD) PARAMETERS

4.2 CUSTOMER SERVICE QUALITY PARAMETERS MEASUREMENT-QE MAR-14:

CSD DATA FOR CELLULAR MOBILE TELEPHONE SERVICES-QE MARCH-14									
Quarterly CSD Audit Data		Bench- mark	Circle Name	AIRCEL	AIRTEL	BSNL	IDEA	RCOM GSM	VODAFONE
S/ N	Name of Parameter			GSM Operators					
	Customer Service Quality Parameters								
1	**Metering & Billing Credibility -Post Paid**								
	A) No. of bills issued during the quarter		*Jammu & Kashmir*	45511	93589	271763	22900	24204	38442
	B) No. of bills disputed including billing complaints during the quarter		*Jammu & Kashmir*	1	27	81	3	21	18
	C)% of billing complaints during the quarter	*<= 0.1%*	*Jammu & Kashmir*	0.00%	0.03%	0.03%	0.01%	0.09%	0.05%
2	**Metering & Billing Credibility -Pre Paid**								
	A) Total No. of Pre-paid customers at the end of the quarter		*Jammu & Kashmir*	1987293	2506591	911254	307736	707884	711979
	B) Total No. of complaints relating to charging, Credit and Validity during the quarter		*Jammu & Kashmir*	9	70	42	121	704	19
	C) % of Pre-paid Charging Complaints	*<= 0.1%*	*Jammu & Kashmir*	0.00%	0.00%	0.00%	0.04%	0.10%	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		*Jammu & Kashmir*	10	97	123	124	725	37
	B) No. of billing complaints for Post paid customers/Charging/Credit/Validity complaints for pre-paid customers resolved within 4 weeks during the quarter		*Jammu & Kashmir*	10	97	123	124	725	37
	C) % of billing complaints (for post paid customer) / Charging/Credit/Validity (for Pre paid customer) resolved within 4 weeks	*100 % within 4 week*	*Jammu & Kashmir*	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
	D) Period of applying credit/Waiver/Adjustment to customers account from the date of resolution of complaints	*<=1 week*	*Jammu & Kashmir*	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
4	**Response time to customers for assistance**								
	A) Accessibility of call centre/Customer Care	*>=95%*	*Jammu & Kashmir*	94.75%	99.79%	100.00%	95.66%	98.71%	100.00%
	B) % call answered by operators(voice to voice) within 60 sec.	*>=90%*	*Jammu & Kashmir*	92.50%	92.48%	**15.78%**	96.67%	92.87%	94.00%

5	**Termination/closure of service**								
	A) Total No. of requests for Termination / Closure of service received during the quarter		*Jammu & Kashmir*	434	604	425	189	90	176
	B) No. of requests for Termination / Closure of service complied within 7 days during the quarter		*Jammu & Kashmir*	434	604	425	189	90	176
	C) % of Termination/ Closure of service within 7 days	*<=7days*	*Jammu & Kashmir*	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
6	**Time taken for refunds of deposits after closures.**								
	A) No. of Payments/ Refunds due during the quarter		*Jammu & Kashmir*	537	81	425	71	95	45
	B) No. of Payments/ Refunds Cleared during the quarter		*Jammu & Kashmir*	537	81	425	71	95	45
	C) Time taken for refunds of deposits after closures.	*100% within 60 days*	*Jammu & Kashmir*	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

KEY FINDINGS*:*

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 is well within the prescribed bench mark of <=0.1 %.

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 were found to have met the benchmarks for the above parameters.

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)

All service providers are in compliance with respect to the parameter accessibility of call center against the benchmark of 95%. **BSNL** was not found to have met the benchmark of 'calls answered by Operators (voice to voice) within 60 seconds'. It's achieved level was **15.78%,** which is way below the benchmark of 90%.

4. Termination/Closure of Service

In case of this parameters also, all service providers have settled the closure/termination within the benchmark of 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.

4.3 3-DAYS LIVE MEASUREMENT DATA VERIFICATION FOR CELLULAR MOBILE SERVICE PROVIDERS (NETWORK SERVICE QUALITY PARAMETER)

4.3 SERVICE PROVIDER PERFORMANCE REPORT BASED ON 3-DAYS LIVE MEASUREMENT DATA VERIFICATION CONDUCTED IN EACH MONTH OF THE QUARTER:

A) NETWORK SERVICE QUALITY PARAMETER- CELLULAR MOBILE SERVICES

TABLE: 1

CELLULAR MOBILE TELEPHONE SERVICES J&K CIRCLE- JAN-14 MONTH									
Live measurement Data		Bench- mark	Average of 3 Days	AIRCEL	AIRTEL	BSNL	IDEA	RCOM GSM	VODAFONE
S/N	Name of Parameter			GSM Operators					
	Network Service Quality Parameter								
1	**Network Availability**								
	a) BTS Accumulated Downtime	***<=2%***	Live data	0.75%	0.06%	1.54%	0.28%	0.24%	0.07%
	b) Worst affected BTSs due to downtime	***<=2%***	Live data	0.00%	0.00%	0.17%	0.00%	0.00%	0.00%
2	**Connection Establishment (Accessibility)**								
	a) CSSR (Call Setup Success Rate)	***>=95%***	Live data	95.63%	99.11%	98.30%	99.48%	99.64%	98.19%
	b) SDCCH/PAGING Channel congestion	***<=1%***	Live data	0.14%	0.09%	0.83%	0.06%	0.01%	0.00%
	c) TCH congestion	***<=2%***	Live data	1.63%	0.18%	1.33%	0.20%	0.03%	0.42%
3	**Connection maintenance (Retainability)**								
	a) CDR (Call Drop Rate)	***<=2%***	Live data	0.35%	0.46%	1.35%	1.17%	0.37%	0.68%
	b) Worst affected cells>3% TCH drop (Call drop) rate	***<=3%***	Live data	1.11%	1.03%	2.10%	2.42%	0.00%	2.54%
	c) Connections with good voice quality	***>=95%***	Live data	95.36%	98.55%	NP	95.58%	99.04%	98.59%
4	**No. of POI having >=0.5% congestion**		Live data	0	0	0	0	0	0

*NP-Not Provided

TABLE: 2

CELLULAR MOBILE TELEPHONE SERVICES J&K CIRCLE- FEB-14 MONTH									
Live measurement Data		Bench- mark	Average of 3 Days	AIRCEL	AIRTEL	BSNL	IDEA	RCOM GSM	VODAFONE
S/N	Name of Parameter			GSM Operators					
	Network Service Quality Parameter								
1	**Network Availability**								
	a) BTS Accumulated Downtime	***<=2%***	Live data	1.31%	0.08%	1.28%	0.17%	0.17%	0.03%
	b) Worst affected BTSs due to downtime	***<=2%***	Live data	0.00%	0.00%	0.17%	0.00%	0.00%	0.00%
2	**Connection Establishment (Accessibility)**								
	a) CSSR (Call Setup Success Rate)	***>=95%***	Live data	97.36%	98.96%	98.41%	99.27%	99.68%	97.98%
	b) SDCCH/PAGING Channel congestion	***<=1%***	Live data	0.23%	0.12%	0.78%	0.09%	0.01%	0.00%
	c) TCH congestion	***<=2%***	Live data	1.76%	0.23%	1.34%	0.29%	0.03%	0.38%
3	**Connection maintenance (retainability)**								
	a) CDR (Call Drop Rate)	***<=2%***	Live data	0.60%	0.49%	1.34%	1.15%	0.36%	0.67%
	b) Worst affected cells>3% TCH drop (Call drop) rate	***<=3%***	Live data	1.05%	0.86%	1.87%	1.98%	0.00%	2.60%
	c) Connections with good voice quality	***>=95%***	Live data	97.36%	98.41%	NP	95.16%	99.03%	98.62%
4	**No. of POI having >=0.5% congestion**		Live data	0	0	0	0	0	0

*NP-Not Provided

TABLE: 3

CELLULAR MOBILE TELEPHONE SERVICES J&K CIRCLE- MAR-14 MONTH									
Live measurement Data		Bench- mark	Average of 3 Days	AIRCEL	AIRTEL	BSNL	IDEA	RCOM GSM	VODAFONE
S/N	Name of Parameter			GSM Operators					
	Network Service Quality Parameter								
1	**Network Availability**								
	a) BTS Accumulated Downtime	***<=2%***	Live data	0.55%	0.05%	1.18%	1.39%	0.38%	0.07%
	b) Worst affected BTSs due to downtime	***<=2%***	Live data	0.00%	0.00%	0.17%	0.00%	0.00%	0.07%
2	**Connection Establishment (Accessibility)**								
	a) CSSR (Call Setup Success Rate)	***>=95%***	Live data	97.79%	99.12%	98.31%	98.75%	99.29%	98.78%
	b) SDCCH/PAGING Channel congestion	***<=1%***	Live data	0.27%	0.11%	0.71%	0.22%	0.02%	0.00%
	c) TCH congestion	***<=2%***	Live data	1.81%	0.17%	1.23%	0.86%	0.16%	0.15%
3	**Connection maintenance (Retainability)**								
	a) CDR (Call Drop Rate)	***<=2%***	Live data	1.29%	0.49%	1.25%	1.57%	0.41%	0.50%
	b) Worst affected cells>3% TCH drop (Call drop) rate	***<=3%***	Live data	2.96%	1.61%	2.04%	2.76%	0.02%	2.63%
	c) Connections with good voice quality	***>=95%***	Live data	95.14%	98.40%	NP	95.74%	98.89%	98.51%
4	**No. of POI having >=0.5% congestion**		Live data	0	0	0	0	0	0

*NP-Not Provided

TABLE OF QUARTERLY QOS PERFORMANCE OF 3-DAYS LIVE MEASUREMENT DATA:

TABLE: 4

QUARTERLY QOS PERFORMANCE OF 3-DAYS LIVE MEASUREMENT (AVERAGE OF QE-MARCH-14) – J&K CIRCLE									
Live measurement Data		Bench- mark	Average of 3 Days	AIRCEL	AIRTEL	BSNL	IDEA	RCOM GSM	VODAFONE
S/N	Name of Parameter			GSM Operators					
	Network Service Quality Parameter								
1	**Network Availability**								
	a) BTS Accumulated Downtime	***<=2%***	Quarterly	0.87%	0.06%	1.33%	0.61%	0.26%	0.06%
	b) Worst affected BTSs due to downtime	***<=2%***	Quarterly	0.00%	0.00%	0.17%	0.00%	0.00%	0.02%
2	**Connection Establishment (Accessibility)**								
	a) CSSR (Call Setup Success Rate)	***>=95%***	Quarterly	96.93%	99.06%	98.34%	99.17%	99.54%	98.32%
	b) SDCCH/PAGING Channel congestion	***<=1%***	Quarterly	0.21%	0.11%	0.77%	0.12%	0.01%	0.00%
	c) TCH congestion	***<=2%***	Quarterly	1.73%	0.19%	1.30%	0.45%	0.07%	0.32%
3	**Connection maintenance (Retainability)**								
	a) CDR (Call Drop Rate)	***<=2%***	Quarterly	0.75%	0.48%	1.30%	1.30%	0.38%	0.62%
	b) Worst affected cells>3% TCH drop (Call drop) rate	***<=3%***	Quarterly	1.71%	1.17%	2.00%	2.39%	0.01%	2.59%
	c) Connections with good voice quality	***>=95%***	Quarterly	95.95%	98.45%	NP	95.49%	98.99%	98.57%
4	**No. of POI having >=0.5% congestion**		Quarterly	0	0	0	0	0	0

*NP-Not Provided

KEY FINDING ON 3 DAYS LIVE MEASUREMENTS:

From three days live measurement assessment, it is found that the service providers are meeting the benchmarks of all the parameters. Thus the performance of the service providers is in sync with their performance on monthly basis.

B) CUSTOMER SERVICE QUALITY PARAMETER- CELLULAR MOBILE SERVICES

CSD 3 DAYS LIVE DATA FOR CELLULAR MOBILE TELEPHONE SERVICES-QE-MAR-14									
3 days live CSD Audit Data		Bench-mark	Circle Name	AIRCEL	AIRTEL	BSNL	IDEA	RCOM (GSM)	VODAFONE
S/N	Name of Parameter			GSM Operators					
RESPONSE TIME TO CUSTOMERS FOR ASSISTANCE									
1	*Total no of calls attempted to customer care/Call center*		*J & K*	188535	17341	1818	1046	48288	31427
	Total no. of calls successfully established to customer care/Call center		*J & K*	183946	17341	1818	998	47162	31427
	*% Accessibility of Call centre /customer Care (Total calls successfully established*100/ Total call attempt)*	>=95%	*J & K*	97.57%	100.00%	100.00%	95.41%	97.67%	100.00%
	Total Calls reached to agent desk for Voice to Voice (Total call attempt)		*J & K*	32586	32561	433	4509	933	6959
	Total number of calls answered by the operator (Voice to voice) within 60 seconds		*J & K*	29271	32171	2	4487	897	6846
	*% age of calls answered by operator(voice to voice) (Total calls successfully established within 60 Sec.*100/ Total call attempt)*	>=90%	*J & K*	**89.83%**	98.80%	**0.46%**	99.51%	96.14%	98.38%

CUSTOMER CARE / HELPLINE ASSESSMENT

LIVE CALLING TO CALL CENTRE							
Parameter	**Circle Name**	**AIRCEL**	**AIRTEL**	**BSNL**	**IDEA**	**RCOM (GSM)**	**VODAFONE**
Total No. of calls Attempted	*J & K*	100	100	100	100	100	100
Total no of calls attempted to customer care/Call center	*J & K*	100	100	100	100	100	100
Total no. of calls successfully established to customer care/Call center	*J & K*	100	100	100	100	100	100
% Accessibility of Call centre /customer Care (Total call attempt*100/ Total call successfully established)	*J & K*	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Total Calls reached to agent desk for Voice to Voice (Total call attempt)	*J & K*	100	100	100	100	100	100
Total number of calls answered by the operator (Voice to voice) within 60 seconds	*J & K*	98	100	96	100	100	98
% age of calls answered by operator(voice to voice) (Total call attempt*100/ Total call successfully established within 60 Sec.)	*J & K*	98.00%	100.00%	96.00%	100.00%	100.00%	98.00%

KEY FINDINGS: The results for three days live measurements revealed that all operators have met the benchmarks for the parameters 'Accessibility to call center'. However, in case of 'Call connection to operators (Voice to voice) within 60 seconds' only two operators namely **Aircel and BSNL** could not met the benchmark with their performance as **89.83% and 0.46%** respectively. Thus the performance of BSNL was very poor and way below the benchmark.

In case of calls answered by operators (voice to voice) within 60 seconds when test calls were made to the call centers, Aircel, BSNL and Vodafone could connect 98%, 96% and 98% of calls to the operator within 60 Seconds.

INTER OPERATOR CALLS ASSESSMENT

INTER OPERATOR CALLS ASSESSMENT

Inter operator call assessment with a sample of 2x50 test calls for each Service provider operating in J&K 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	BSNL	IDEA	RCOM GSM	VODAFONE
AIRCEL	J&K	--	100.00%	100.00%	100.00%	100.00%	100.00%
AIRTEL	J&K	100.00%	--	100.00%	100.00%	100.00%	100.00%
BSNL	J&K	95.00%	100.00%	--	100.00%	100.00%	100.00%
IDEA	J&K	100.00%	100.00%	100.00%	--	100.00%	100.00%
RCOM GSM	J&K	100.00%	100.00%	100.00%	100.00%	--	100.00%
VODAFONE	J&K	100.00%	100.00%	100.00%	100.00%	100.00%	--

The result of the testing revealed that the inter connection performance among the operators was quite satisfactory. However, in one case where Calls attempted from BSNL to Aircel was 95%. There was hardly any problem in interconnection from one operator to other operators.

LEVEL-1 LIVE CALLING

LEVEL-1 LIVE CALLING

LEVEL 1 LIVE CALLING									
Emergency no.	Circle Name	SSA Name	No. of calls made	AIRCEL	AIRTEL	BSNL	IDEA	RCOM (GSM)	VODAFONE
100	*J&K*	*Jammu*	*50*	✔	✔	✔	✔	✔	✔
101	*J&K*	*Udhampur*	*50*	✔	✔	✔	✔	✔	✔
102	*J&K*	*Rajouri*	*50*	✔	✔	✔	✔	✔	✔

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 from mobile phones provided by the service providers. In these SSA of J&K service areas, the emergency services as mentioned in the above table were found functional in the networks of all the service providers.

5. DRIVE TEST

5. 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 **Jammu, Udampur and Rajouri** in the months of January, February and March 2014 respectively, covering minimum 300 Km distance in each SSA . 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 FERs 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: 1

OPERATOR-ASSISTED DRIVE TEST AT JAMMU SSA IN JAN-14 MONTH- J&K CIRCLE									
S/N	Parameter	SSA Name: Jammu	Drive Test Period	AIRCEL	AIRTEL	BSNL	IDEA	RCOM GSM	VODAFONE
				GSM Operators					
1	Call Attempts	Day 1	Jan-14	109	83	ND	89	88	90
		Day 2	Jan-14	97	98	ND	95	92	100
		Day 3	Jan-14	134	127	ND	129	116	117
		Overall SSA	**Total**	**340**	**298**	**ND**	**313**	**296**	**307**
2	Blocked Call Rate	Day 1	Jan-14	0.00%	0.00%	ND	0.00%	0.00%	0.00%
		Day 2	Jan-14	0.00%	0.00%	ND	0.00%	0.00%	0.00%
		Day 3	Jan-14	0.00%	0.00%	ND	0.00%	0.00%	0.00%
		Overall SSA	**Total**	**0.00%**	**0.00%**	**ND**	**0.00%**	**0.00%**	**0.00%**
3	Dropped Call Rate	Day 1	Jan-14	0.00%	0.00%	ND	0.00%	0.00%	0.00%
		Day 2	Jan-14	0.00%	0.00%	ND	0.00%	0.00%	0.00%
		Day 3	Jan-14	0.00%	0.00%	ND	0.00%	0.00%	0.00%
		Overall SSA	**Total**	**0.00%**	**0.00%**	**ND**	**0.00%**	**0.00%**	**0.00%**
4	PERCENTAGE CONNECTIONS WITH GOOD VOICE QUALITY (=>95%)								
	(a) 0-4 (w/o frequency hopping for CDMA Operators)	Day 1	Jan-14	NA	NA	NA	NA	NA	NA
		Day 2	Jan-14	NA	NA	NA	NA	NA	NA
		Day 3	Jan-14	NA	NA	NA	NA	NA	NA
		Overall SSA	**Total**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	(b) 0-5 (with frequency hopping for GSM Operators)	Day 1	Jan-14	96.88%	98.61%	ND	95.71%	97.09%	97.87%
		Day 2	Jan-14	96.36%	98.31%	ND	95.81%	96.03%	97.58%
		Day 3	Jan-14	96.56%	98.31%	ND	95.94%	97.97%	97.04%
		Overall SSA	**Total**	**96.57%**	**98.38%**	**ND**	**95.84%**	**97.30%**	**97.47%**
5	SERVICE COVERAGE								
	In door (>= -75dBm)	Day 1	Jan-14	26.32%	97.20%	ND	52.39%	54.50%	83.65%
		Day 2	Jan-14	67.80%	96.49%	ND	69.80%	52.31%	82.97%
		Day 3	Jan-14	81.90%	95.68%	ND	47.05%	46.81%	90.01%
		Overall SSA	**Total**	**60.17%**	**96.28%**	**ND**	**56.18%**	**51.35%**	**85.76%**
	In-vehicle (>= -85dBm)	Day 1	Jan-14	97.94%	99.85%	ND	92.40%	90.52%	96.91%
		Day 2	Jan-14	98.18%	99.46%	ND	95.89%	90.74%	95.16%
		Day 3	Jan-14	98.86%	98.44%	ND	95.42%	88.80%	97.79%
		Overall SSA	**Total**	**98.31%**	**99.08%**	**ND**	**94.83%**	**90.05%**	**96.65%**
	Outdoor- in city (>= -95dBm)	Day 1	Jan-14	99.91%	99.95%	ND	99.50%	99.27%	99.75%
		Day 2	Jan-14	99.81%	99.82%	ND	99.50%	98.93%	98.75%
		Day 3	Jan-14	99.84%	99.98%	ND	99.86%	98.94%	99.56%
		Overall SSA	**Total**	**99.85%**	**99.93%**	**ND**	**99.65%**	**99.05%**	**99.34%**
6	Call Setup Success Rate (>=95%)	Day 1	Jan-14	100.00%	100.00%	ND	100.00%	100.00%	100.00%
		Day 2	Jan-14	100.00%	100.00%	ND	100.00%	100.00%	100.00%
		Day 3	Jan-14	100.00%	100.00%	ND	100.00%	100.00%	100.00%
		Overall SSA	**Total**	**100.00%**	**100.00%**	**ND**	**100.00%**	**100.00%**	**100.00%**

7	Hand Over Success Rate (HOSR)	Day 1	Jan-14	100.00%	100.00%	ND	100.00%	100.00%	100.00%
		Day 2	Jan-14	100.00%	100.00%	ND	100.00%	100.00%	100.00%
		Day 3	Jan-14	100.00%	100.00%	ND	100.00%	100.00%	100.00%
		Overall SSA	**Total**	**100.00%**	**100.00%**	**ND**	**100.00%**	**100.00%**	**100.00%**

- **NA-Not Applicable**
- **ND: Not done: BSNL did not turn up for the drive test in Jammu SSA.**

DRIVE TEST TABLE: 2

OPERATOR-ASSISTED DRIVE TEST AT JAMMU SSA IN JAN-14 MONTH- J&K CIRCLE - INDOOR										
S/N	Parameter	Jammu SSA	Drive Test Period	Indoor Location	AIRCEL	AIRTEL	BSNL	IDEA	RCOM GSM	VODAFONE
					GSM Operators					
1	Call Attempts	Day 1	Jan-14	Pahalwan Sweets	10	10	ND	10	10	10
		Day 2	Jan-14	Bahu Plaza	10	10	ND	10	10	10
		Day 3	Jan-14	High Court Panjthirithi	10	10	ND	10	10	10
		Overall SSA	**Jan-14**		**30**	**30**	**ND**	**30**	**30**	**30**
2	Blocked Call Rate	Day 1	Jan-14	Pahalwan Sweets	0.00%	0.00%	ND	0.00%	0.00%	0.00%
		Day 2	Jan-14	Bahu Plaza	0.00%	0.00%	ND	0.00%	0.00%	0.00%
		Day 3	Jan-14	High Court Panjthirithi	0.00%	0.00%	ND	0.00%	0.00%	0.00%
		Overall SSA	**Jan-14**		**0.00%**	**0.00%**	**ND**	**0.00%**	**0.00%**	**0.00%**
3	Dropped Call Rate (<=2%)	Day 1	Jan-14	Pahalwan Sweets	0.00%	0.00%	ND	0.00%	0.00%	0.00%
		Day 2	Jan-14	Bahu Plaza	0.00%	0.00%	ND	0.00%	0.00%	0.00%
		Day 3	Jan-14	High Court Panjthirithi	0.00%	0.00%	ND	0.00%	0.00%	0.00%
		Overall SSA	**Jan-14**		**0.00%**	**0.00%**	**ND**	**0.00%**	**0.00%**	**0.00%**
4	**Percentage connections with good voice quality (=>95%)**									
	(a) 0-4 (w/o frequency hopping for CDMA Operators)	Day 1	Jan-14	Pahalwan Sweets	NA	NA	NA	NA	NA	NA
		Day 2	Jan-14	Bahu Plaza	NA	NA	NA	NA	NA	NA
		Day 3	Jan-14	High Court Panjthirithi	NA	NA	NA	NA	NA	NA
		Overall SSA	**Jan-14**		**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	(b) 0-5 (with frequency hopping for GSM Operators)	Day 1	Jan-14	Pahalwan Sweets	99.40%	100.00%	ND	99.11%	98.36%	98.37%
		Day 2	Jan-14	Bahu Plaza	98.18%	96.35%	ND	98.47%	98.27%	98.86%
		Day 3	Jan-14	High Court Panjthirithi	99.70%	98.39%	ND	99.22%	99.57%	96.81%
		Overall SSA	**Jan-14**		**98.87%**	**98.88%**	**ND**	**98.93%**	**98.74%**	**98.02%**
5	**Service Coverage**									
	In door (>= -75dBm)	Day 1	Jan-14	Pahalwan Sweets	31.95%	100.00%	ND	9.10%	84.39%	89.42%
		Day 2	Jan-14	Bahu Plaza	71.75%	94.09%	ND	100.00%	48.60%	100.00%
		Day 3	Jan-14	High Court Panjthirithi	44.03%	23.56%	ND	16.32%	10.76%	96.67%
		Overall SSA	**Jan-14**		**54.66%**	**65.78%**	**ND**	**41.72%**	**48.07%**	**95.37%**
	In-vehicle (>= -85dBm)	Day 1	Jan-14	Pahalwan Sweets	99.71%	100.00%	ND	92.88%	99.86%	99.92%
		Day 2	Jan-14	Bahu Plaza	99.85%	100.00%	ND	100.00%	99.26%	100.00%
		Day 3	Jan-14	High Court Panjthirithi	100.00%	65.32%	ND	98.18%	92.44%	99.85%

		Overall SSA	**Jan-14**		**99.85%**	**84.79%**	**ND**	**97.02%**	**97.16%**	**99.92%**
	Outdoor- in city (>= -95dBm)	Day 1	Jan-14	Pahalwan Sweets	100.00%	100.00%	ND	99.85%	100.00%	100.00%
		Day 2	Jan-14	Bahu Plaza	100.00%	100.00%	ND	100.00%	100.00%	100.00%
		Day 3	Jan-14	High Court Panjthirithi	100.00%	99.52%	ND	100.00%	99.93%	100.00%
		Overall SSA	**Jan-14**		**100.00%**	**99.79%**	**ND**	**99.95%**	**99.98%**	**100.00%**
6	**Call Setup Success Rate (>=95%)**	Day 1	Jan-14	Pahalwan Sweets	100.00%	100.00%	ND	100.00%	100.00%	100.00%
		Day 2	Jan-14	Bahu Plaza	100.00%	100.00%	ND	100.00%	100.00%	100.00%
		Day 3	Jan-14	High Court Panjthirithi	100.00%	100.00%	ND	100.00%	100.00%	100.00%
		Overall SSA	**Jan-14**		**100.00%**	**100.00%**	**ND**	**100.00%**	**100.00%**	**100.00%**
7	**Hand Over Success Rate (HOSR)**	Day 1	Jan-14	Pahalwan Sweets	100.00%	100.00%	ND	100.00%	100.00%	100.00%
		Day 2	Jan-14	Bahu Plaza	100.00%	100.00%	ND	100.00%	100.00%	100.00%
		Day 3	Jan-14	High Court Panjthirithi	100.00%	100.00%	ND	100.00%	100.00%	100.00%
		Overall SSA	**Jan-14**		**100.00%**	**100.00%**	**ND**	**100.00%**	**100.00%**	**100.00%**

DRIVE TEST TABLE: 3

OPERATOR-ASSISTED DRIVE TEST AT UDHAMPUR SSA IN FEB-14 MONTH- J&K CIRCLE									
S/N	Parameter	SSA Name: Udhampur	Drive Test Period	Aircel	Airtel	BSNL	Idea	Reliance GSM	Vodafone
				GSM Operators					
1	Call Attempts	Day 1	Feb-14	117	150	141	134	133	127
		Day 2	Feb-14	117	120	119	65	124	107
		Day 3	Feb-14	103	104	99	NS	96	92
		Overall SSA	**Total**	**337**	**374**	**359**	**199**	**353**	**326**
2	Blocked Call Rate	Day 1	Feb-14	0.00%	0.00%	3.55%	0.00%	0.00%	0.00%
		Day 2	Feb-14	0.00%	0.00%	2.52%	0.00%	0.81%	0.00%
		Day 3	Feb-14	0.00%	0.00%	3.03%	NS	0.00%	0.00%
		Overall SSA	**Total**	**0.00%**	**0.00%**	**3.06%**	**0.00%**	**0.28%**	**0.00%**
3	Dropped Call Rate (<=2%)	Day 1	Feb-14	0.85%	0.00%	1.47%	0.75%	0.00%	0.79%
		Day 2	Feb-14	0.85%	0.00%	1.72%	0.00%	0.00%	0.00%
		Day 3	Feb-14	0.00%	0.00%	1.04%	NS	0.00%	0.00%
		Overall SSA	**Total**	**0.59%**	**0.00%**	**1.44%**	**0.50%**	**0.00%**	**0.31%**
4	PERCENTAGE CONNECTIONS WITH GOOD VOICE QUALITY (=>95%)								
	(a) 0-4 (w/o frequency hopping for CDMA Operators)	Day 1	Feb-14	NA	NA	NA	NA	NA	NA
		Day 2	Feb-14	NA	NA	NA	NA	NA	NA
		Day 3	Feb-14	NA	NA	NA	NA	NA	NA
		Overall SSA	**Total**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	(b) 0-5 (with frequency hopping for GSM Operators)	Day 1	Feb-14	97.21%	98.83%	95.84%	96.27%	98.38%	98.35%
		Day 2	Feb-14	96.01%	98.26%	95.97%	96.08%	98.24%	98.67%
		Day 3	Feb-14	96.53%	98.55%	97.13%	NS	97.59%	99.03%
		Overall SSA	**Total**	**96.54%**	**98.57%**	**96.25%**	**96.20%**	**98.12%**	**98.65%**
5	SERVICE COVERAGE								
	In door (>= -75dBm)	Day 1	Feb-14	75.10%	72.31%	56.63%	38.28%	56.63%	76.92%
		Day 2	Feb-14	70.83%	54.89%	52.82%	53.36%	49.63%	57.37%
		Day 3	Feb-14	90.05%	58.77%	47.98%	NS	56.35%	73.21%
		Overall SSA	**Total**	**78.33%**	**62.75%**	**52.87%**	**43.30%**	**54.04%**	**69.73%**
	In-vehicle (>= -85dBm)	Day 1	Feb-14	97.61%	98.17%	83.38%	75.16%	88.74%	92.89%
		Day 2	Feb-14	99.45%	93.53%	70.73%	82.91%	86.66%	84.86%
		Day 3	Feb-14	98.78%	98.53%	82.30%	NS	88.09%	92.58%
		Overall SSA	**Total**	**98.67%**	**96.81%**	**78.63%**	**77.74%**	**87.83%**	**90.29%**
	Outdoor- in city (>= -95dBm)	Day 1	Feb-14	99.78%	99.82%	97.90%	98.32%	99.73%	98.28%
		Day 2	Feb-14	99.87%	99.87%	96.05%	99.26%	98.35%	97.63%
		Day 3	Feb-14	99.92%	99.99%	98.29%	NS	98.87%	99.75%

		Overall SSA	**Total**	**99.86%**	**99.89%**	**97.36%**	**98.64%**	**99.01%**	**98.50%**
6	**Call Setup Success Rate (>=95%)**	Day 1	Feb-14	100.00%	100.00%	96.45%	100.00%	100.00%	100.00%
		Day 2	Feb-14	100.00%	100.00%	97.48%	100.00%	99.19%	100.00%
		Day 3	Feb-14	100.00%	100.00%	96.97%	NS	100.00%	100.00%
		Overall SSA	**Total**	**100.00%**	**100.00%**	**96.94%**	**100.00%**	**99.72%**	**100.00%**
7	**Hand Over Success Rate (HOSR)**	Day 1	Feb-14	100.00%	100.00%	97.25%	98.68%	100.00%	99.62%
		Day 2	Feb-14	100.00%	97.35%	96.58%	100.00%	100.00%	99.53%
		Day 3	Feb-14	99.00%	100.00%	99.09%	NS	98.99%	100.00%
		Overall SSA	**Total**	**99.65%**	**99.19%**	**97.51%**	**99.24%**	**99.66%**	**99.17%**

- **NA-Not Applicable**

DRIVE TEST TABLE: 4

OPERATOR-ASSISTED DRIVE TEST AT UDHAMPUR SSA IN FEB-14 MONTH- J&K CIRCLE - INDOOR										
S/N	Parameter	Udhampur SSA	Drive Test Period	Indoor Location	AIRCEL	AIRTEL	BSNL	IDEA	RCOM GSM	VODAFONE
					GSM Operators					
1	Call Attempts	Day 1	Feb-14	Prem Restaurent Kud	10	10	10	10	10	10
		Day 2	Feb-14	J&K Bank Kisatwar	10	10	10	NS	10	10
		Day 3	Feb-14	Hotel Ramban Residency	10	10	10	10	10	10
		Overall SSA	**Feb-14**		**30**	**30**	**30**	**20**	**30**	**30**
2	Blocked Call Rate	Day 1	Feb-14	Prem Restaurent Kud	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Day 2	Feb-14	J&K Bank Kisatwar	0.00%	0.00%	0.00%	NS	0.00%	0.00%
		Day 3	Feb-14	Hotel Ramban Residency	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Overall SSA	**Feb-14**		**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**
3	Dropped Call Rate (<=2%)	Day 1	Feb-14	Prem Restaurent Kud	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Day 2	Feb-14	J&K Bank Kisatwar	0.00%	0.00%	0.00%	NS	0.00%	0.00%
		Day 3	Feb-14	Hotel Ramban Residency	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Overall SSA	**Feb-14**		**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)	Day 1	Feb-14	Prem Restaurent Kud	NA	NA	NA	NA	NA	NA
		Day 2	Feb-14	J&K Bank Kisatwar	NA	NA	NA	NA	NA	NA
		Day 3	Feb-14	Hotel Ramban Residency	NA	NA	NA	NA	NA	NA
		Overall SSA	**Feb-14**		**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	(b) 0-5 (with frequency hopping for GSM Operators)	Day 1	Feb-14	Prem Restaurent Kud	98.84%	98.46%	95.36%	99.69%	98.39%	99.01%
		Day 2	Feb-14	J&K Bank Kisatwar	98.83%	96.35%	98.94%	NS	99.47%	98.33%
		Day 3	Feb-14	Hotel Ramban Residency	95.72%	99.62%	99.35%	97.39%	99.28%	99.57%
		Overall SSA	**Feb-14**		**97.80%**	**98.74%**	**97.95%**	**98.54%**	**99.12%**	**98.97%**
5	**Service Coverage**									
	In door (>= -75dBm)	Day 1	Feb-14	Prem Restaurent Kud	30.69%	99.31%	75.30%	73.44%	76.34%	90.05%
		Day 2	Feb-14	J&K Bank Kisatwar	91.93%	94.09%	99.21%	NS	63.37%	95.80%
		Day 3	Feb-14	Hotel Ramban Residency	91.79%	34.94%	53.61%	69.23%	78.70%	99.51%
		Overall SSA	**Feb-14**		**71.73%**	**71.20%**	**76.82%**	**71.33%**	**72.56%**	**95.12%**
	In-vehicle (>= -85dBm)	Day 1	Feb-14	Prem Restaurent Kud	100.00%	99.65%	100.00%	90.81%	99.59%	99.06%
		Day 2	Feb-14	J&K Bank Kisatwar	100.00%	100.00%	100.00%	NS	99.27%	99.77%
		Day 3	Feb-14	Hotel Ramban Residency	100.00%	100.00%	99.20%	94.41%	98.27%	100.00%

		Overall SSA	**Feb-14**		**100.00%**	**99.84%**	**99.74%**	**92.61%**	**98.97%**	**99.61%**
	Outdoor- in city (>= -95dBm)	Day 1	Feb-14	Prem Restaurent Kud	100.00%	100.00%	100.00%	98.58%	100.00%	100.00%
		Day 2	Feb-14	J&K Bank Kisatwar	100.00%	100.00%	100.00%	NS	100.00%	100.00%
		Day 3	Feb-14	Hotel Ramban Residency	100.00%	100.00%	100.00%	99.44%	99.86%	100.00%
		Overall SSA	**Feb-14**		**100.00%**	**100.00%**	**100.00%**	**99.01%**	**99.95%**	**100.00%**
6	**Call Setup Success Rate (>=95%)**	Day 1	Feb-14	Prem Restaurent Kud	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
		Day 2	Feb-14	J&K Bank Kisatwar	100.00%	100.00%	100.00%	NS	100.00%	100.00%
		Day 3	Feb-14	Hotel Ramban Residency	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
		Overall SSA	**Feb-14**		**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**
7	**Hand Over Success Rate (HOSR)**	Day 1	Feb-14	Prem Restaurent Kud	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
		Day 2	Feb-14	J&K Bank Kisatwar	100.00%	100.00%	100.00%	NS	100.00%	100.00%
		Day 3	Feb-14	Hotel Ramban Residency	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
		Overall SSA	**Feb-14**		**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

DRIVE TEST TABLE: 5

OPERATOR-ASSISTED DRIVE TEST AT RAJOURI SSA IN MARCH-14 MONTH- J&K CIRCLE									
S/N	Parameter	SSA Name: Rajouri	Drive Test Period	Aircel	Airtel	BSNL	Idea	Reliance GSM	Vodafone
				GSM Operators					
1	Call Attempts	Day 1	Mar-14	67	81	96	28	55	30
		Day 2	Mar-14	105	110	109	104	61	60
		Day 3	Mar-14	73	72	118	77	76	86
		Overall SSA	**Total**	**245**	**263**	**323**	**209**	**192**	**176**
2	Blocked Call Rate	Day 1	Mar-14	1.49%	0.00%	1.04%	0.00%	1.82%	0.00%
		Day 2	Mar-14	0.00%	0.91%	2.75%	0.00%	0.00%	0.00%
		Day 3	Mar-14	1.37%	0.00%	2.54%	0.00%	0.00%	0.00%
		Overall SSA	**Total**	**0.82%**	**0.38%**	**2.17%**	**0.00%**	**0.52%**	**0.00%**
3	Dropped Call Rate (<=2%)	Day 1	Mar-14	0.00%	0.00%	1.06%	0.00%	0.00%	0.00%
		Day 2	Mar-14	0.00%	0.00%	1.92%	0.96%	0.00%	0.00%
		Day 3	Mar-14	0.00%	0.00%	0.88%	0.00%	0.00%	0.00%
		Overall SSA	**Total**	**0.00%**	**0.00%**	**1.28%**	**0.48%**	**0.00%**	**0.00%**
4	PERCENTAGE CONNECTIONS WITH GOOD VOICE QUALITY (=>95%)								
	(a) 0-4 (w/o frequency hopping for CDMA Operators)	Day 1	Mar-14	NA	NA	NA	NA	NA	NA
		Day 2	Mar-14	NA	NA	NA	NA	NA	NA
		Day 3	Mar-14	NA	NA	NA	NA	NA	NA
		Overall SSA	**Total**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	(b) 0-5 (with frequency hopping for GSM Operators)	Day 1	Mar-14	97.27%	97.87%	95.50%	98.56%	97.92%	98.93%
		Day 2	Mar-14	96.45%	97.29%	95.57%	97.29%	98.40%	98.53%
		Day 3	Mar-14	97.15%	97.34%	95.12%	96.34%	98.07%	98.90%
		Overall SSA	**Total**	**97.09%**	**97.47%**	**95.39%**	**97.12%**	**98.12%**	**98.78%**
5	SERVICE COVERAGE								
	In door (>= -75dBm)	Day 1	Mar-14	85.30%	77.12%	71.56%	53.73%	32.16%	78.47%
		Day 2	Mar-14	66.84%	52.84%	58.08%	69.89%	46.58%	63.71%
		Day 3	Mar-14	62.44%	84.40%	79.60%	55.48%	41.67%	61.22%
		Overall SSA	**Total**	**75.40%**	**70.18%**	**69.84%**	**62.40%**	**39.98%**	**65.09%**
	In-vehicle (>= -85dBm)	Day 1	Mar-14	95.83%	94.71%	89.82%	87.67%	72.72%	96.88%
		Day 2	Mar-14	93.64%	97.75%	93.72%	90.63%	85.64%	92.01%
		Day 3	Mar-14	96.89%	98.08%	96.07%	81.45%	73.42%	87.29%
		Overall SSA	**Total**	**95.64%**	**96.99%**	**93.39%**	**86.87%**	**76.67%**	**90.58%**
	Outdoor- in city (>= -95dBm)	Day 1	Mar-14	99.72%	99.80%	98.96%	99.45%	97.61%	99.86%
		Day 2	Mar-14	99.53%	99.94%	99.36%	99.66%	98.93%	99.61%
		Day 3	Mar-14	99.82%	99.94%	99.64%	98.65%	97.32%	97.96%

		Overall SSA	**Total**	**99.70%**	**99.90%**	**99.34%**	**99.26%**	**97.87%**	**98.85%**
6	**Call Setup Success Rate (>=95%)**	Day 1	Mar-14	98.51%	100.00%	97.92%	100.00%	98.18%	100.00%
		Day 2	Mar-14	100.00%	99.09%	95.41%	100.00%	100.00%	100.00%
		Day 3	Mar-14	98.63%	100.00%	96.61%	100.00%	100.00%	100.00%
		Overall SSA	**Total**	**99.18%**	**99.62%**	**96.59%**	**100.00%**	**99.48%**	**100.00%**
7	**Hand Over Success Rate (HOSR)**	Day 1	Mar-14	100.00%	98.98%	96.70%	100.00%	100.00%	100.00%
		Day 2	Mar-14	98.41%	100.00%	98.50%	98.82%	100.00%	100.00%
		Day 3	Mar-14	100.00%	100.00%	96.26%	100.00%	97.73%	100.00%
		Overall SSA	**Total**	**99.32%**	**99.83%**	**97.03%**	**99.22%**	**99.08%**	**100.00%**

- **NA-Not Applicable**

DRIVE TEST TABLE: 6

OPERATOR-ASSISTED DRIVE TEST AT RAJOURI SSA IN MARCH-14 MONTH- J&K CIRCLE - INDOOR										
S/N	Parameter	Rajouri SSA	Drive Test Period	Indoor Location	AIRCEL	AIRTEL	BSNL	IDEA	RCOM GSM	VODAFONE
					GSM Operators					
1	Call Attempts	Day 1	Mar-14	Asian Hotel	10	10	10	10	10	10
		Day 2	Mar-14	Khan Plaza	10	10	10	10	10	10
		Day 3	Mar-14	Singh Hotel	10	10	10	10	10	10
		Overall SSA	**Mar-14**		**30**	**30**	**30**	**30**	**30**	**30**
2	Blocked Call Rate	Day 1	Mar-14	Asian Hotel	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Day 2	Mar-14	Khan Plaza	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Day 3	Mar-14	Singh Hotel	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Overall SSA	**Mar-14**		**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**
3	Dropped Call Rate (<=2%)	Day 1	Mar-14	Asian Hotel	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Day 2	Mar-14	Khan Plaza	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Day 3	Mar-14	Singh Hotel	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
		Overall SSA	**Mar-14**		**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)	Day 1	Mar-14	Asian Hotel	NA	NA	NA	NA	NA	NA
		Day 2	Mar-14	Khan Plaza	NA	NA	NA	NA	NA	NA
		Day 3	Mar-14	Singh Hotel	NA	NA	NA	NA	NA	NA
		Overall SSA	**Mar-14**		**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
	(b) 0-5 (with frequency hopping for GSM Operators)	Day 1	Mar-14	Asian Hotel	98.84%	98.81%	96.39%	99.57%	98.17%	98.96%
		Day 2	Mar-14	Khan Plaza	97.73%	100.00%	99.02%	99.68%	99.17%	98.36%
		Day 3	Mar-14	Singh Hotel	99.24%	99.61%	97.71%	97.54%	99.20%	99.45%
		Overall SSA	**Mar-14**		**98.77%**	**99.54%**	**97.80%**	**98.03%**	**98.87%**	**98.93%**
5	**Service Coverage**									
	In door (>= -75dBm)	Day 1	Mar-14	Asian Hotel	30.69%	86.27%	97.05%	44.08%	41.02%	99.62%
		Day 2	Mar-14	Khan Plaza	99.64%	100.00%	92.45%	99.81%	35.95%	99.00%
		Day 3	Mar-14	Singh Hotel	37.17%	97.38%	81.16%	87.96%	0.00%	90.51%
		Overall SSA	**Mar-14**		**47.30%**	**95.42%**	**89.99%**	**77.22%**	**23.04%**	**96.36%**
	In-vehicle (>= -85dBm)	Day 1	Mar-14	Asian Hotel	100.00%	100.00%	100.00%	95.80%	98.59%	100.00%
		Day 2	Mar-14	Khan Plaza	100.00%	100.00%	100.00%	99.93%	87.78%	100.00%
		Day 3	Mar-14	Singh Hotel	99.63%	100.00%	99.76%	99.93%	14.26%	99.81%
		Overall SSA	**Mar-14**		**99.85%**	**100.00%**	**99.92%**	**98.54%**	**61.51%**	**99.94%**

	Outdoor- in city (>= -95dBm)	Day 1	Mar-14	Asian Hotel	100.00%	100.00%	100.00%	99.89%	100.00%	100.00%
		Day 2	Mar-14	Khan Plaza	100.00%	100.00%	100.00%	100.00%	99.38%	100.00%
		Day 3	Mar-14	Singh Hotel	100.00%	100.00%	100.00%	99.96%	96.90%	99.96%
		Overall SSA	**Mar-14**		**100.00%**	**100.00%**	**100.00%**	**99.95%**	**98.57%**	**99.99%**
6	**Call Setup Success Rate (>=95%)**	Day 1	Mar-14	Asian Hotel	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
		Day 2	Mar-14	Khan Plaza	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
		Day 3	Mar-14	Singh Hotel	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
		Overall SSA	**Mar-14**		**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**
7	**Hand Over Success Rate (HOSR)**	Day 1	Mar-14	Asian Hotel	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
		Day 2	Mar-14	Khan Plaza	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
		Day 3	Mar-14	Singh Hotel	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
		Overall SSA	**Mar-14**		**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

DETAIL OF THE ROUTES COVERED DURING THE DRIVE TESTS:

DRIVE TEST TABLE: 7

DRIVE TEST ROUTE OF JAN TO MAR - 14 – J&K CIRCLE							
Name of SSA	Drive test Period	Day 1		Day 2		Day 3	
		Name of SDCA Covered	Route Covered	Name of SDCA Covered	Route Covered	Name of SDCA Covered	Route Covered
JAMMU	Jan-14	Jammu, Samba Hiranagar **(120 Km)**	Bahu Plaza , Greater Kailash ,Baribrahmna,Vijaypur,Gurah Salathia,Samba, Ghagwal, Hiranagar	Sidhra, Nagrota,Narwal **(108 Km)**	Panjthirthi , Sidhra Nagrota , Jagti, Bajalta,Narwal, Bathindi, Transport Nagar, Channi Himmat,Kachi Chawni,Bakshi Nagar	Akhnoor, Talab Tillo,Bantalab **(110 Km)**	Jewel,Talab Tillo,Gole Gujral,Akhnoor,Bantalab,Kot Bhalwal,Jewel Choowk,Gujjar Nagar
UDHAMPUR	Feb-14	Udhampur, Ramnagar **(110 Km)**	Gaddi Udhampur, Jib Majalata, Hartyare Village,Udhampur Railway Station, Thonda Poddar,Ritti, Ganghot,Ramnagar Highway Ramnagar City,Slada Chenani,Kud	Kishtwar **(107 Km)**	E City,Thor,Ramghar Pani, Assar, Khillani, Gath,Tathri,Kandani, Lonpura ,Kishtwar Busstand,Kishtwar Police Line ,Jktdc Complex	Bhaderwah,Doda,Ramban ((**105 Km)**	Bhaderwah Busstand, Saronsari,Dradu,Tipri Bhalra ,Pranoo,Pull Doda , Batote City,Sarsi, Champa,Dalwas,Sunderkot City,Maitra Ramban
RAJOURI	Mar-14	Kalakot **(109 Km)**	Sunderbani ,Siot Morh, Kalakot City,Rajouri Bridge	Poonch **(100 Km)**	Rajouri Bridge, Mankote, Bg, Surenkot, Baffliaz,Poonch	Rajouri, Nowshera **(110 Km)**	Mendhar, Rajouri City,Thanamandi,Nowshera,Siot

SSA WISE DRIVE TEST OBSERVATION:

DRIVE TEST TABLE: 8

DRIVE TEST OBSERVATION OF JAMMU SSA - JAN-14

S NO	Name of SP	Month	SSA Covered	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	Jan-14	Jammu	Jammu, Samba & Hiranagar	Poor Level & Quality at Sarore, Poor Quality at Vijay Nagar outer, Samba outer, Poor Level & Quality main Road to Hiranagar City Road	Sidhra, Nagrota, Narwal	Poor Level between Jagiti Township to Shidhra Bridge, No Coverage between Bajalta to Shidra Bridge Road, Poor Level between Narwal to Shirdra Bridge Road, Poor Level & Quality near PanjTrithi	Akhanoor, Bantalab	Poor Quality near Panjtrithi, Janipur, Talab Tillo, Kot barwal outer towards Akhnoor city
2	AIRTEL				---		No Coverage between Jagiti Township to Shidhra Bridge		Poor Level near Kot Barwal
3	BSNL				Not Joined the DT		Not Joined the DT		Not Joined the DT
4	IDEA				Poor Level between Vijay Nagar to Samba and Hiranagar City		Poor Level & Quality between Jagiti Township to Shidhra Bridge, Bajalta to Shidra Bridge Road, Poor Level between Narwal to Shirdra Bridge Road		No Coverage between Kot Barwal to Akhnoor outer, Poor Quality near Bantalab
5	RCOM GSM				Poor Level between Vijay Nagar Outer and between Samba to Ghagwal		Poor Level & Quality between Jagiti Township to Shidhra Bridge, Bajalta to Shidra Bridge Road, Poor Level between Narwal to Shirdra Bridge Road		No Coverage between Kot Barwal to Akhnoor outer, Poor level Bantalab to Kot Barwal
6	VODAFONE				---		Poor Level between Jagiti Township to Shidhra Bridge, No Coverage between Bajalta to Shidra Bridge Road, Poor Level between Narwal to Shirdra Bridge Road		No Coverage at Akhnoor City, Poor Level between Kot Barwal to Akhnoor Road

DRIVE TEST TABLE: 9

DRIVE TEST OBSERVATION OF UDHAMPUR SSA - FEB-14

S NO	Name of SP	Month	SSA Covered	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	Feb-14	Udhampur	Udhampur, Ramnagar	Poor Quality near Gadi Udhampur	Kishatwar	Poor Level near Ramnagar, Khodapani, Khillani, Between Tahari to Kandhani and near Lonapura	Bhadarwaha, Doda & Ramban	Poor Quality between Ramaban City to Mitra Ramban, near Doda bustatnd and Poor Level & Quality near Prano, Bhalra & Tipri
2	AIRTEL				Poor Quality near Chenani, Slada, Poor Level between Ratti to Ramnagar		Poor Level & Quality near Assar Village, Poor Level Thalela & Kandhani, Poor Quality & Level Lonapura		poor Level between Prano to Dradu and near Saronsar
3	BSNL				Poor Level & Quality near Tmoh Udhampur, Ratii Villgae, Poor Coverage & Quality near chenani, Slada		Poor Level & Quality at Thore, Khodapani, Assar, Khallali and Outer of Pull Doda, Poor Level & Quality between Ghat & Thalela, Kandhani, lonapura		Poor Level & Quality near Bhatti and outer of Pull Doda
4	IDEA				No Coverage at Damsan, Railway Station Road, Ratti, Kogha, Hartaye and Poor Level at outside of all SDCA		No Coverage at BHADERWAH BUSSTAND, SARONSARI,DRADU,TIPRI, BHALRA,PRANOO,PULL DODA,DODA BUSSTAND		No Coverage at Area Covered in Day 3
5	RCOM GSM				No Coverage between Ratti to Ramnagar, Hartaye Village, Poor Level near Thanda Podar and Salda Village		Poor Level & Quality at Thore, Khodapani, Assar, Khallali and Outer of Pull Doda, Poor Level & Quality between Ghat & Tathari via Thalela		poor Level between Prano to Dradu and near Saronsar
6	VODAFONE				No Coverage at Hartaye, Ganghot Village, Poor Level near Udhapur aRailway Station, between ThandaPodar to Thill, near Ratti, Poor Coverage & Quality near chenani, Slada		No Coverage between thore to Ramghar, Poor Level between Khoda Pani to Assar, between Khillani to Pull Doda, Ghat to Thalela and near Lonpura		Poor Level near Pull Doda to Prano Road, Poor Level & Quality at Tipri Village, Poor level near Dalwas and outer of Batote City

DRIVE TEST TABLE: 10

DRIVE TEST OBSERVATION OF RAJOURI SSA - MAR-14

S NO	Name of SP	Month	SSA Covered	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	Mar-14	Rajouri	Kalakot	Poor Rx Level near Sialsui, No Coverage at Bathare, Poor level & Quality near Bhalhara, Bhakar, Balshama	Poonch	Poor Level & Quality near Narenwali	Rajouri & Nowshera	Poor Level between Saaj to Kheore, between Chingus to Sranoo, near Nowshera bus stand
2	AIRTEL				Poor Level & Quality near Dharamsal, Nariyan & Danesar, Poor Quality at outer of Sunderban		Poor Qulity patch near Manjakote, Deri Relyote & Surankot Bus Stand		Poor Quality near Bathuni, Saranoo & Nariyan, Poor Level near Dandesar
3	BSNL				Poor Level & Quality near Dharamsal		No Coverage between Jarenwali to Sangiot, Poor Qulity patch near Manjakote, Deri Relyote		Poor Level & Quality between Saaj to Kheore, near Sarnoo, Narania, Dhalial Villages
4	IDEA				No Coverage at Kalakote & Dandeshwar Village, Poor Level between Balshama to Siot		No Coverage at Daundak & Surankot, Poor Level between Drava to Bafliaz		No Coverage at Kallar, Dhaliyan, Anyapur, Kallar-Nariyan & Bagnoti Villages, Poor Level at Nowshera bus stand
5	RCOM GSM				No Coverage at Sialsui, Bhalhara, Bhakar Village, Poor Level at Siot & Thandapani		Poor Level at Surankot bus stand, Sangiot & Jaren wali		No Coverage at Ayanpur, Poor Level between Saaj to Kheore, Poor Level & Quality between Chingus to Sranoo
6	VODAFONE				No Coverage at Kalakote Village, Poor Level near Balshama outers		No Coverage between Dandisar to Sangiot to Jaren wali, Lassana to Punch City, Poor Level between Drava to Bafliaz		Poor Level between Saaj to Kheore, No coverage between Dhalial to Narania, Dhalial cillage, Poor Level & Quality between Chingus to Sranoo

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

(i) **In the Month of Jan-14**, drive tests were conducted across Jammu SSA covering Jammu, Samba Hiranagar Sidhra, Nagrota, Narwal Akhnoor, Talab Tillo and Bantalab SDCAs. BSNL did not turn up for drive test at Jammu. The performance of all service providers was found satisfactory as they were meeting all the benchmarks.

(ii) **In the Month of Feb-14**, drive tests were conducted across Udhampur SSA covering Udhampur, Ramnagar, Kishtwar, Bhaderwah,Doda and Ramban SDCAs. The performance of all service providers across this SSA was also found satisfactory as they were meeting all the benchmarks.

(iii) **In the month of March-14**, drive tests were conducted at Rajouri SSA covering Kalakot, Poonch, Rajouri and Nowshera. Like other SSAs, the performance of all service providers across this SSA also was found satisfactory as they were meeting all the benchmarks.

Thus the results of drive tests indicate that operators have performed well within the benchmarks in all the three SSAs where drive tests were conducted during the quarter. **However, the deficiencies with respect to inadequate coverage and voice quality, encountered by different Service providers at the various places as shown in the drive tests plots, are detailed in the above tables- 8, 9 & 10.**

6. ESSENCE OF COMPLIANCE REPORT OF SERVICE PROVIDERS WITH RESPECT TO THE QOS

6. ESSENCE OF COMPLIANCE REPORT OF SERVICE PROVIDERS WITH RESPECT TO THE QOS

From monthly PMR audit & 3 days live findings, it can be concluded that the performance of the service providers in the service area J&K is satisfactory for **Network Parameters** as all of them except **Aircel**, were found meeting the benchmarks of all the parameters**.** . Only Aircel failed to meet the benchmark of the parameter 'Worst affected BTSs due to downtime' in all the three months of the quarter with its average performance of **3.60%.**

With regard to the **Customer Service Quality Parameters,** it was revealed that all operators were largely in well compliance of most of the parameters on Metering and Billing Credibility, Response Time to Customers, Termination of Service and Time taken for refunds. Only **BSNL** was non-compliant of the benchmark of 'calls answered by Operators (voice to voice) within 60 seconds' with its performance as **15.78%** against the benchmark of 90%.

The results of drive tests indicated that operators have performed well within the benchmarks in all the three SSAs where drive tests were conducted during the quarter.

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7. DETAILED NETWORK DATA ASSESSMENT OF CELLULAR MOBILE TELEPHONE SERVICES

7. DETAILED NETWORK DATA ASSESSMENT OF CELLULAR MOBILE TELEPHONE SERVICES J&K CIRCLE:

TABLE: 1

Detailed Network Data Assessment of Cellular Mobile Telephone Services- J&K Circle- Jan-14 month									
S/N	Name of Parameter	Bench-mark	Audit Period	AIRCEL	AIRTEL	BSNL	IDEA	RCOM GSM	VODAFONE
				GSM Operators					
Network Service Quality Parameter									
1	**Network Availability**								
	a) Total no. of BTSs in the licensed service area		Jan-14	2081	2660	1159	833	982	1365
	b) Sum of downtime of BTSs in a month in hours i.e. total outage time of all BTSs in hours during a month		Jan-14	8819.25	1793.48	7864	1926.20	2401	665.50
	c) BTS Accumulated Downtime	<=2%	Jan-14	0.57%	0.09%	0.91%	0.31%	0.33%	0.07%
	d) No. of BTSs having accumulated downtime of >24 hours in a month		Jan-14	44	4	14	16	0	5
	e) Worst affected BTSs due to downtime	<=2%	Jan-14	2.11%	0.15%	1.21%	1.92%	0.00%	0.37%
2	**Connection Establishment (Accessibility)**								
	a) CSSR (Call Setup Success Rate)	>=95%	Jan-14	97.15%	99.02%	98.35%	98.04%	99.63%	98.12%
	b) SDCCH/PAGING Congestion	<=1%	Jan-14	0.19%	0.14%	0.85%	0.07%	0.07%	0.01%
	c) TCH congestion	<=2%	Jan-14	1.80%	0.19%	1.31%	0.22%	0.04%	0.34%
3	**Connection Maintenance (Retainability)**								
	a) Call Drop Rate (CDR)	<=2%	Jan-14	0.55%	0.47%	1.33%	1.17%	0.39%	0.66%
	b) Worst affected cells>3% TCH drop	<=3%	Jan-14	1.75%	0.96%	1.88%	2.05%	0.03%	2.63%
	c) % of connections with good voice quality	>=95%	Jan-14	95.16%	98.51%	NP	95.47%	99.00%	98.52%
	d) Total No. of cells exceeding 3% TCH drop (call drop)		Jan-14	109	75	54	49	1	108
	e) Total no. of cells (Sector) in the licensed service area		Jan-14	6222	7791	2855	2411	2938	4114
4	**No. of POI's having >=0.5% POI congestion**								
	No. of POI's having >=0.5% POI congestion		Jan-14	0	0	0	0	0	0
	Name of POI not meeting the benchmark		Jan-14	0	0	0	0	0	0
5	**Network Data**								
	a) Equipped Capacity of Network in Erlang		Jan-14	128835	122020	64000	28389	40000	28946
	b) Total traffic in TCBH in erlang (Avg.)		Jan-14	73215	84544	31168	12221	16557	20599
	c) Total no. of customers served (as per VLR) on last day of the month		Jan-14	1748650	2472771	828367	537426	374241	622991

*NP-Not Provided

TABLE: 2

Detailed Network Data Assessment of Cellular Mobile Telephone Services-3 days live- J&K Circle- Jan-14 month									
S/N	Name of Parameter	Bench-mark	Average of 3 Days	AIRCEL	AIRTEL	BSNL	IDEA	RCOM GSM	VODAFONE
				GSM Operators					
Network Service Quality Parameter									
1	**Network Availability**								
	a) Total no. of BTSs in the licensed service area		Live data	2077	2634	1154	805	982	1329
	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	1117.08	104.57	1277	160.01	173	63.61
	c) BTS Accumulated Downtime	<=2%	Live data	0.75%	0.06%	1.54%	0.28%	0.24%	0.07%
	d) No. of BTSs having accumulated downtime of >24 hours in a month		Live data	0	0	2	0	0	0
	e) Worst affected BTSs due to downtime	<=2%	Live data	0.00%	0.00%	0.17%	0.00%	0.00%	0.00%
2	**Connection Establishment (Accessibility)**								
	a) CSSR (Call Setup Success Rate)	>=95%	Live data	95.63%	99.11%	98.30%	99.48%	99.64%	98.19%
	b) SDCCH/PAGING Congestion	<=1%	Live data	0.14%	0.09%	0.83%	0.06%	0.01%	0.00%
	c) TCH congestion	<=2%	Live data	1.63%	0.18%	1.33%	0.20%	0.03%	0.42%
3	**Connection Maintenance (Retainability)**								
	a) Call Drop Rate (CDR)	<=2%	Live data	0.35%	0.46%	1.35%	1.17%	0.37%	0.68%
	b) Worst affected cells>3% TCH drop	<=3%	Live data	1.11%	1.03%	2.10%	2.42%	0.00%	2.54%
	c) % of connections with good voice quality	>=95%	Live data	95.36%	98.55%	NP	95.58%	99.04%	98.59%
	d) d) Total No. of cells exceeding 3% TCH drop (call drop)		Live data	69	80	61	58	0	102
	e) Total no. of cells (Sector) in the licensed service area		Live data	6209	7713	2909	2401	2935	4007
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
	Name of POI not meeting the benchmark		Live data	0	0	0	0	0	0

*NP-Not Provided

TABLE: 3

Detailed Network Data Assessment of Cellular Mobile Telephone Services- J&K Circle- Feb-14 month									
S/N	Name of Parameter	Bench-mark	Audit Period	AIRCEL	AIRTEL	BSNL	IDEA	RCOM GSM	VODAFONE
				GSM Operators					
Network Service Quality Parameter									
1	**Network Availability**								
	a) Total no. of BTSs in the licensed service area		Feb-14	2087	2680	1159	835	982	1420
	b) Sum of downtime of BTSs in a month in hours i.e. total outage time of all BTSs in hours during a month		Feb-14	9070.28	2056.62	8311	1068.69	1403	445.21
	c) BTS Accumulated Downtime	<=2%	Feb-14	0.65%	0.11%	1.07%	0.19%	0.21%	0.05%
	d) No. of BTSs having accumulated downtime of >24 hours in a month		Feb-14	52	3	18	10	0	1
	e) Worst affected BTSs due to downtime	<=2%	Feb-14	2.49%	0.11%	1.55%	1.20%	0.00%	0.07%
2	**Connection Establishment (Accessibility)**								
	a) CSSR (Call Setup Success Rate)	>=95%	Feb-14	97.70%	99.07%	98.40%	99.36%	99.59%	98.32%
	b) SDCCH/PAGING Congestion	<=1%	Feb-14	0.48%	0.12%	1.19%	0.13%	0.05%	0.00%
	c) TCH congestion	<=2%	Feb-14	1.89%	0.17%	1.28%	0.27%	0.04%	0.17%
3	**Connection Maintenance (Retainability)**								
	a) Call Drop Rate (CDR)	<=2%	Feb-14	1.31%	0.48%	1.30%	1.17%	0.39%	0.56%
	b) Worst affected cells>3% TCH drop	<=3%	Feb-14	2.98%	0.94%	1.86%	2.57%	0.04%	2.61%
	c) % of connections with good voice quality	>=95%	Feb-14	95.07%	98.43%	NP	95.41%	98.99%	98.47%
	d) Total No. of cells exceeding 3% TCH drop (call drop)		Feb-14	186	74	53	64	1	109
	e) Total no. of cells (Sector) in the licensed service area		Feb-14	6240	7851	2867	2495	2938	4179
4	**No. of POI's having >=0.5% POI congestion**								
	No. of POI's having >=0.5% POI congestion		Feb-14	0	0	0	0	0	0
	Name of POI not meeting the benchmark		Feb-14	0	0	0	0	0	0
5	**Network Data**								
	a) Equipped Capacity of Network in Erlang		Feb-14	129007	118809	64000	22237	40000	29294
	b) Total traffic in TCBH in erlang (Avg.)		Feb-14	74350	84865	31168	9730	16688	21323
	c) Total no. of customers served (as per VLR) on last day of the month		Feb-14	1771660	2510509	828367	303040	386106	638431

*NP-Not Provided

TABLE: 4

Detailed Network Data Assessment of Cellular Mobile Telephone Services-3 days live- J&K Circle- Feb-14 month									
S/N	Name of Parameter	Bench-mark	Average of 3 Days	AIRCEL	AIRTEL	BSNL	IDEA	RCOM GSM	VODAFONE
				GSM Operators					
Network Service Quality Parameter									
1	**Network Availability**								
	a) Total no. of BTSs in the licensed service area		Live data	2070	2660	1159	833	982	1365
	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	1945	152.1	1072	99.07	123	26.60
	c) BTS Accumulated Downtime	<=2%	Live data	1.31%	0.08%	1.28%	0.17%	0.17%	0.03%
	d) No. of BTSs having accumulated downtime of >24 hours in a month		Live data	0	0	2	0	0	0
	e) Worst affected BTSs due to downtime	<=2%	Live data	0.00%	0.00%	0.17%	0.00%	0.00%	0.00%
2	**Connection Establishment (Accessibility)**								
	a) CSSR (Call Setup Success Rate)	>=95%	Live data	97.36%	98.96%	98.41%	99.27%	99.68%	97.98%
	b) SDCCH/PAGING Congestion	<=1%	Live data	0.23%	0.12%	0.78%	0.09%	0.01%	0.00%
	c) TCH congestion	<=2%	Live data	1.76%	0.23%	1.34%	0.29%	0.03%	0.38%
3	**Connection Maintenance (Retainability)**								
	a) Call Drop Rate (CDR)	<=2%	Live data	0.60%	0.49%	1.34%	1.15%	0.36%	0.67%
	b) Worst affected cells>3% TCH drop	<=3%	Live data	1.05%	0.86%	1.87%	1.98%	0.00%	2.60%
	c) % of connections with good voice quality	>=95%	Live data	97.36%	98.41%	NP	95.16%	99.03%	98.62%
	d) Total No. of cells exceeding 3% TCH drop (call drop)		Live data	65	67	55	49	0	107
	e) Total no. of cells (Sector) in the licensed service area		Live data	6219	7791	2933	2489	2398	4114
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
	Name of POI not meeting the benchmark		Live data	0	0	0	0	0	0

*NP-Not Provided

TABLE: 5

Detailed Network Data Assessment of Cellular Mobile Telephone Services- J&K Circle- Mar-14 month									
S/N	Name of Parameter	Bench-mark	Audit Period	AIRCEL	AIRTEL	BSNL	IDEA	RCOM GSM	VODAFONE
				GSM Operators					
Network Service Quality Parameter									
1	**Network Availability**								
	a) Total no. of BTSs in the licensed service area		Mar-14	2096	2694	1164	885	982	1465
	b) Sum of downtime of BTSs in a month in hours i.e. total outage time of all BTSs in hours during a month		Mar-14	14789.25	2693.47	8955	1986.04	2899	1408.66
	c) BTS Accumulated Downtime	<=2%	Mar-14	0.95%	0.13%	1.03%	0.30%	0.40%	0.13%
	d) No. of BTSs having accumulated downtime of >24 hours in a month		Mar-14	130	5	20	12	0	9
	e) Worst affected BTSs due to downtime	<=2%	Mar-14	6.20%	0.19%	1.72%	1.36%	0.00%	0.61%
2	**Connection Establishment (Accessibility)**								
	a) CSSR (Call Setup Success Rate)	>=95%	Mar-14	97.29%	98.90%	96.42%	99.16%	99.50%	98.47%
	b) SDCCH/PAGING Congestion	<=1%	Mar-14	0.55%	0.15%	0.70%	0.19%	0.01%	0.01%
	c) TCH congestion	<=2%	Mar-14	1.99%	0.27%	1.16%	0.47%	0.08%	0.42%
3	**Connection Maintenance (Retainability)**								
	a) Call Drop Rate (CDR)	<=2%	Mar-14	1.35%	0.48%	1.22%	1.33%	0.43%	0.59%
	b) Worst affected cells>3% TCH drop	<=3%	Mar-14	2.92%	1.14%	1.89%	2.47%	0.05%	2.71%
	c) % of connections with good voice quality	>=95%	Mar-14	95.11%	98.38%	NP	95.59%	98.85%	98.51%
	d) Total No. of cells exceeding 3% TCH drop (call drop)		Mar-14	183	90	51	62	2	118
	e) Total no. of cells (Sector) in the licensed service area		Mar-14	6267	7893	2752	2511	2938	4340
4	**No. of POI's having >=0.5% POI congestion**								
	No. of POI's having >=0.5% POI congestion		Mar-14	0	0	0	0	0	0
	Name of POI not meeting the benchmark		Mar-14	0	0	0	0	0	0
5	**Network Data**								
	a) Equipped Capacity of Network in Erlang		Mar-14	128629	118061	64000	22441	40000	30553
	b) Total traffic in TCBH in erlang (Avg.)		Mar-14	71848	83478	31168	10189	16727	22160
	c) Total no. of customers served (as per VLR) on last day of the month		Mar-14	1804264	2565496	828367	326462	398930	672292

*NP-Not Provided

TABLE: 6

Detailed Network Data Assessment of Cellular Mobile Telephone Services-3 days live- J&K Circle- Mar-14 month									
S/N	Name of Parameter	Bench-mark	Average of 3 Days	AIRCEL	AIRTEL	BSNL	IDEA	RCOM GSM	VODAFONE
				GSM Operators					
Network Service Quality Parameter									
1	**Network Availability**								
	a) Total no. of BTSs in the licensed service area		Live data	2082	2680	1164	835	982	1420
	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	831.94	96.53	991	835.07	272	75.16
	c) BTS Accumulated Downtime	<=2%	Live data	0.55%	0.05%	1.18%	1.39%	0.38%	0.07%
	d) No. of BTSs having accumulated downtime of >24 hours in a month		Live data	0	0	2	0	0	1
	e) Worst affected BTSs due to downtime	<=2%	Live data	0.00%	0.00%	0.17%	0.00%	0.00%	0.07%
2	**Connection Establishment (Accessibility)**								
	a) CSSR (Call Setup Success Rate)	>=95%	Live data	97.79%	99.12%	98.31%	98.75%	99.29%	98.78%
	b) SDCCH/PAGING Congestion	<=1%	Live data	0.27%	0.11%	0.71%	0.22%	0.02%	0.00%
	c) TCH congestion	<=2%	Live data	1.81%	0.17%	1.23%	0.86%	0.16%	0.15%
3	**Connection Maintenance (Retainability)**								
	a) Call Drop Rate (CDR)	<=2%	Live data	1.29%	0.49%	1.25%	1.57%	0.41%	0.50%
	b) Worst affected cells>3% TCH drop	<=3%	Live data	2.96%	1.61%	2.04%	2.76%	0.02%	2.63%
	c) % of connections with good voice quality	>=95%	Live data	95.14%	98.40%	NP	95.74%	98.89%	98.51%
	d) Total No. of cells exceeding 3% TCH drop (call drop)		Live data	185	77	58	69	1	112
	e) Total no. of cells (Sector) in the licensed service area		Live data	6246	7851	2866	2490	2938	4279
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
	Name of POI not meeting the benchmark		Live data	0	0	0	0	0	0

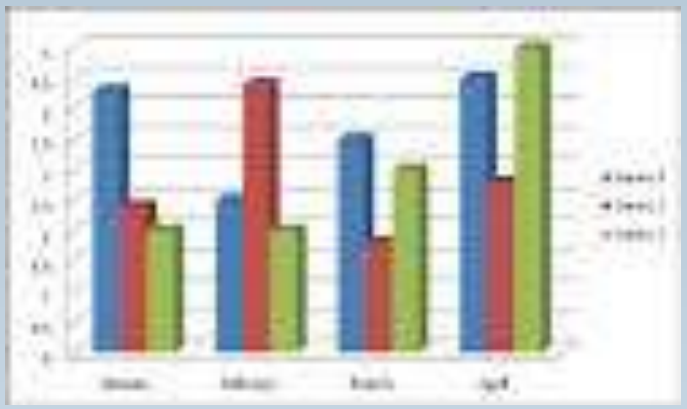
*NP-Not Provided

8. GRAPHICAL REPRESENTATION (CELLULAR MOBILE SERVICE PROVIDERS)

AVERAGED QUARTERLY PMR

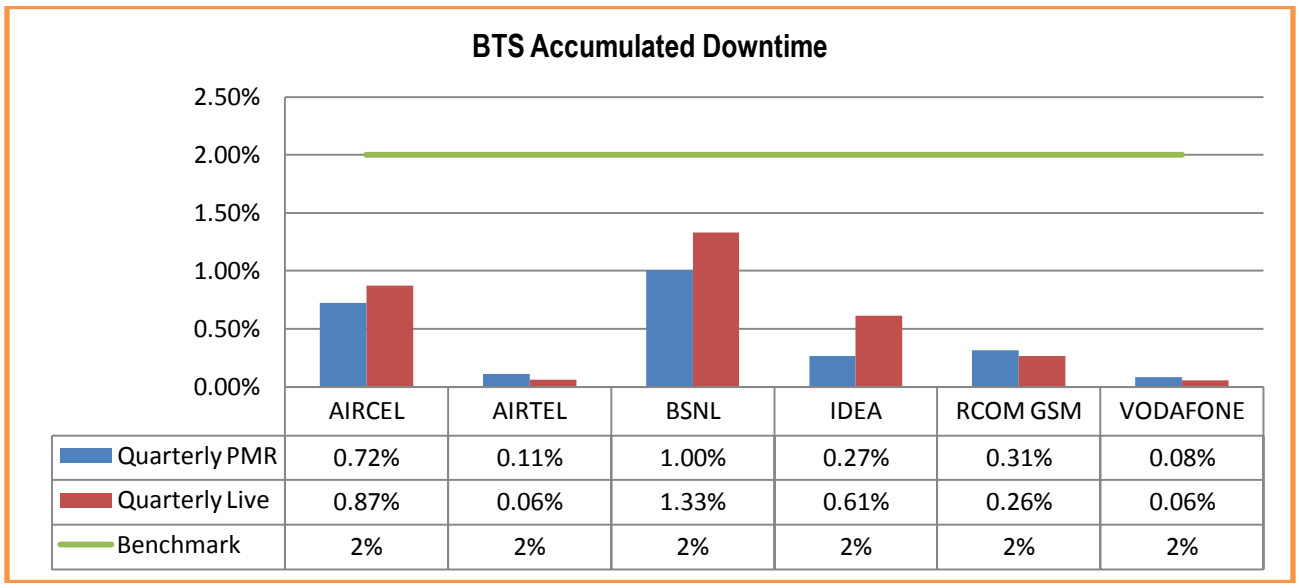
V/S

AVERAGED QUARTERLY 3-DAYs LIVE MEASURMENT



8. GRAPHICAL REPRESENTATION OF PERFORMANCE OF THE CELLULAR MOBILE SERVICE PROVIDERS-MONTHLY V/S 3-DAYS LIVE MEASUREMENT:

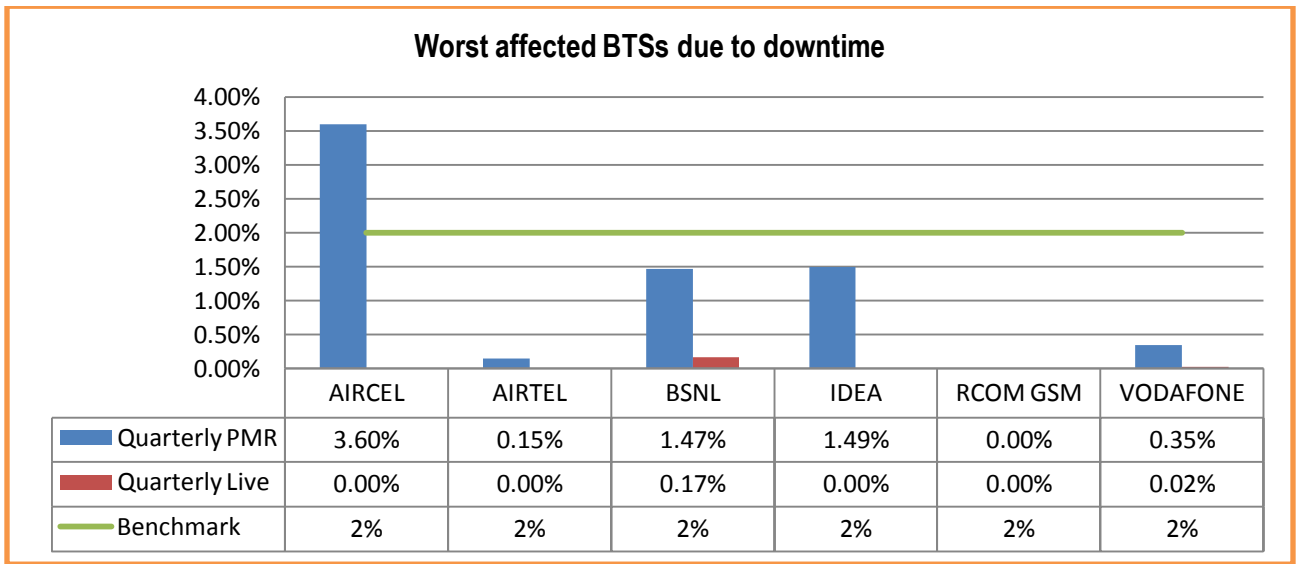
1) BTS ACCUMULATED DOWNTIME :



	AIRCEL	AIRTEL	BSNL	IDEA	RCOM GSM	VODAFONE
Quarterly PMR	0.72%	0.11%	1.00%	0.27%	0.31%	0.08%
Quarterly Live	0.87%	0.06%	1.33%	0.61%	0.26%	0.06%
Benchmark	2%	2%	2%	2%	2%	2%

All operators are meeting the benchmarks.

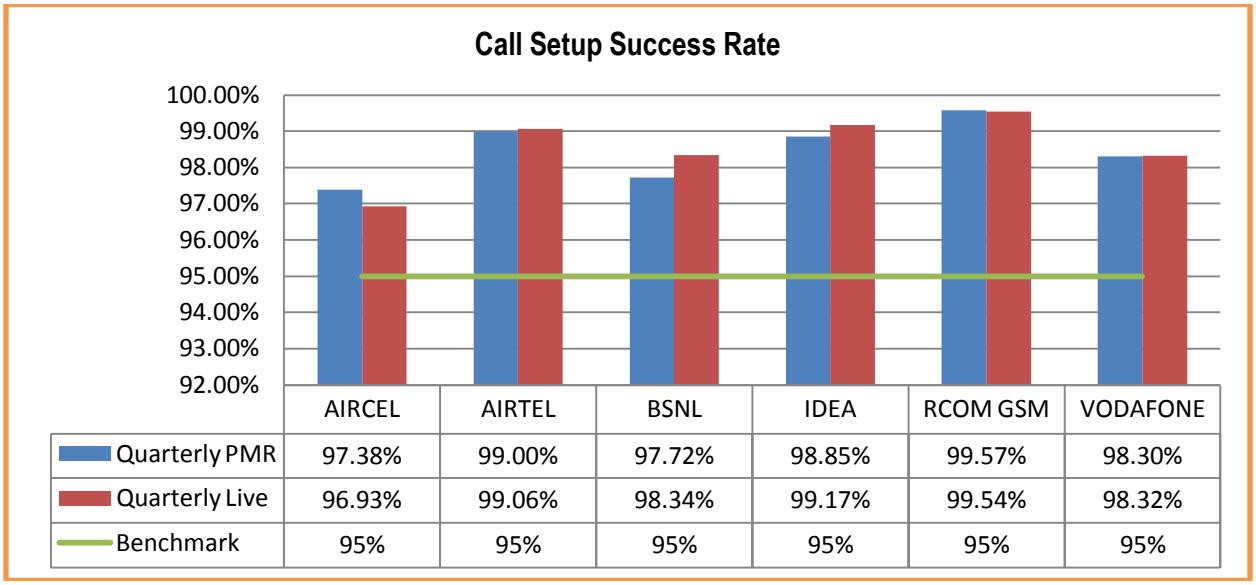
2) WORST AFFECTED BTSS DUE TO DOWNTIME :



	AIRCEL	AIRTEL	BSNL	IDEA	RCOM GSM	VODAFONE
Quarterly PMR	3.60%	0.15%	1.47%	1.49%	0.00%	0.35%
Quarterly Live	0.00%	0.00%	0.17%	0.00%	0.00%	0.02%
Benchmark	2%	2%	2%	2%	2%	2%

All operators are meeting the benchmarks except Aircel.

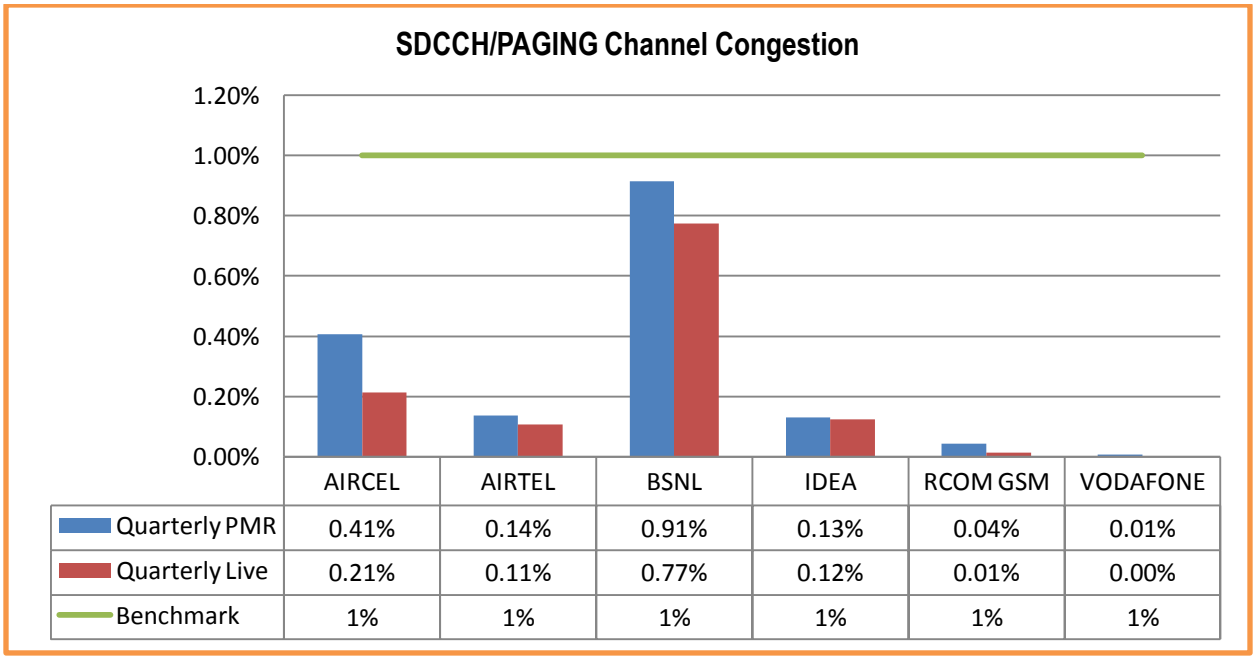
3) CALL SETUP SUCCESS RATE :



	AIRCEL	AIRTEL	BSNL	IDEA	RCOM GSM	VODAFONE
Quarterly PMR	97.38%	99.00%	97.72%	98.85%	99.57%	98.30%
Quarterly Live	96.93%	99.06%	98.34%	99.17%	99.54%	98.32%
Benchmark	95%	95%	95%	95%	95%	95%

All operators are meeting the benchmarks.

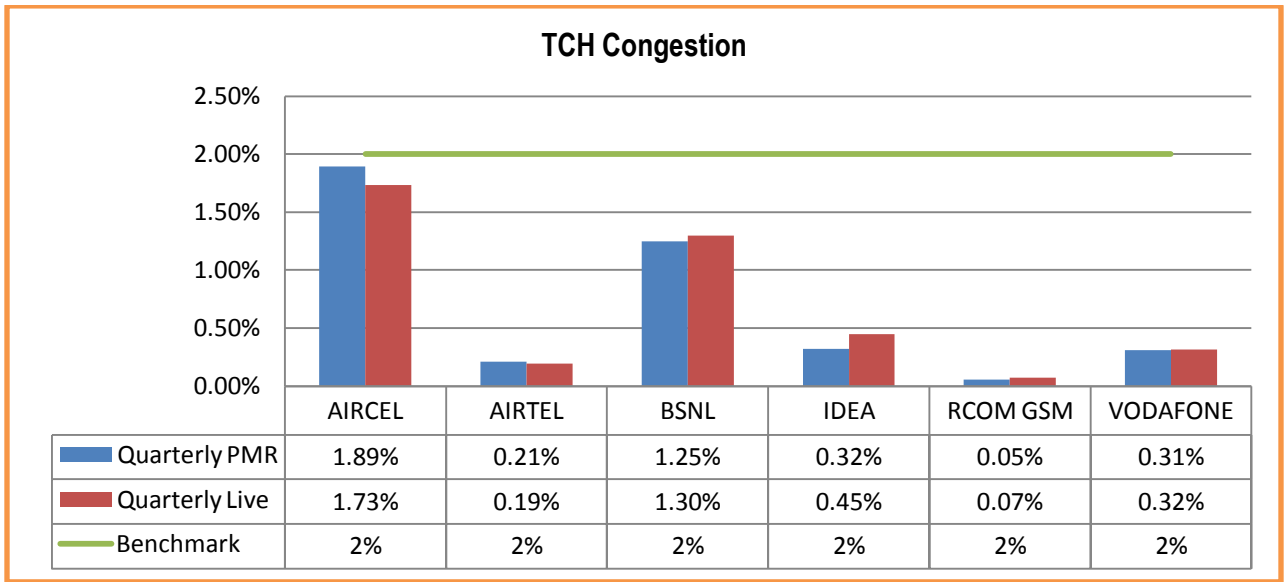
4) SDCCH/PAGING CHANNEL CONGESTION :



	AIRCEL	AIRTEL	BSNL	IDEA	RCOM GSM	VODAFONE
Quarterly PMR	0.41%	0.14%	0.91%	0.13%	0.04%	0.01%
Quarterly Live	0.21%	0.11%	0.77%	0.12%	0.01%	0.00%
Benchmark	1%	1%	1%	1%	1%	1%

All operators are meeting the benchmarks.

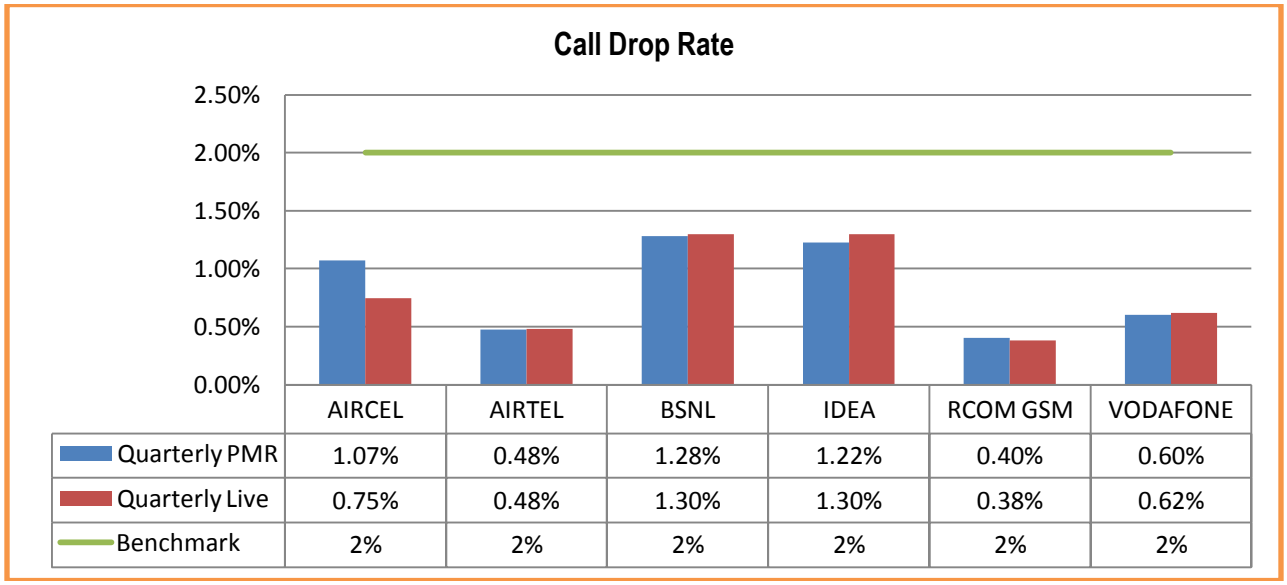
5) TCH CONGESTION :



	AIRCEL	AIRTEL	BSNL	IDEA	RCOM GSM	VODAFONE
Quarterly PMR	1.89%	0.21%	1.25%	0.32%	0.05%	0.31%
Quarterly Live	1.73%	0.19%	1.30%	0.45%	0.07%	0.32%
Benchmark	2%	2%	2%	2%	2%	2%

All operators are meeting the benchmarks.

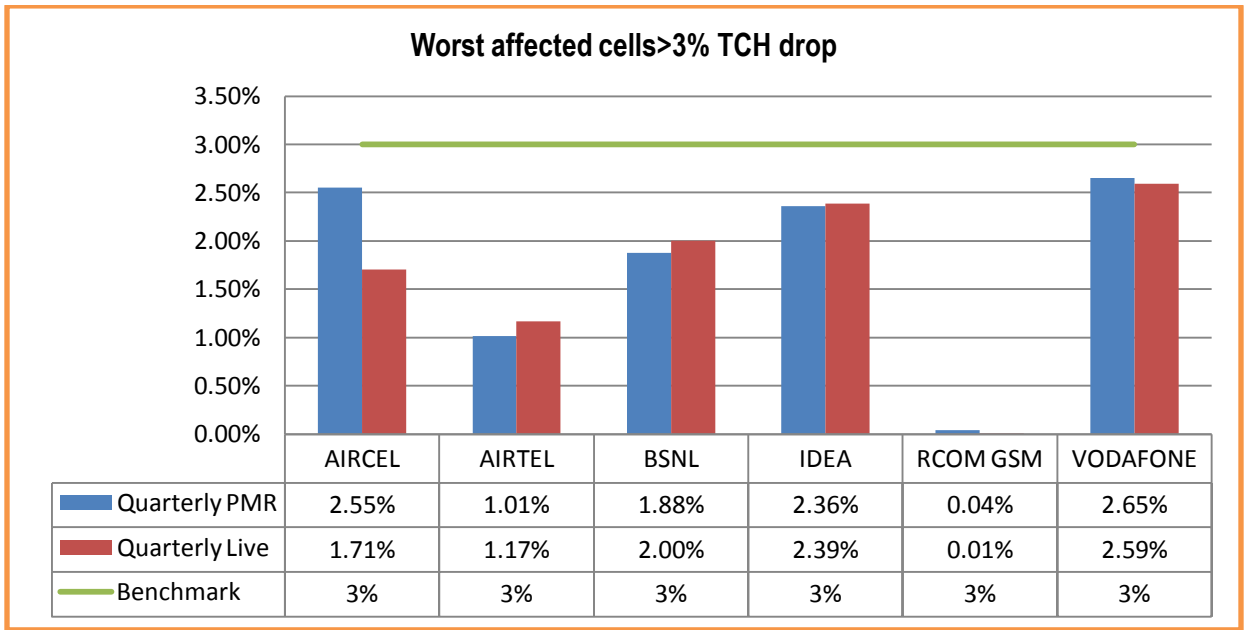
6) CALL DROP RATE :



	AIRCEL	AIRTEL	BSNL	IDEA	RCOM GSM	VODAFONE
Quarterly PMR	1.07%	0.48%	1.28%	1.22%	0.40%	0.60%
Quarterly Live	0.75%	0.48%	1.30%	1.30%	0.38%	0.62%
Benchmark	2%	2%	2%	2%	2%	2%

All operators are meeting the benchmarks.

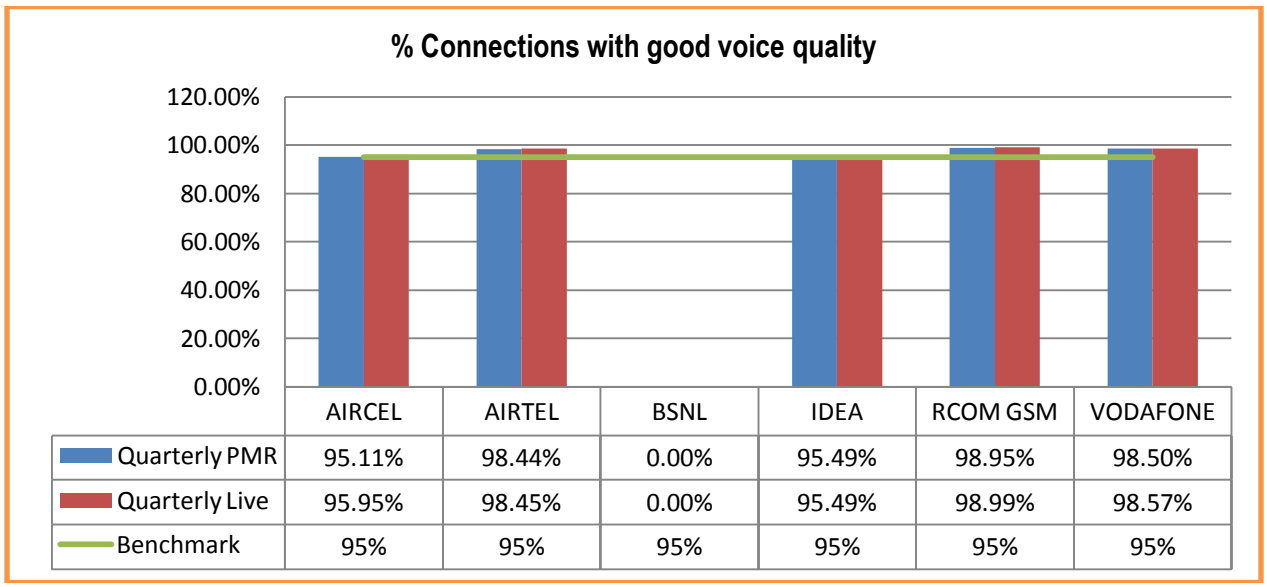
7) WORST AFFECTED CELLS>3% TCH DROP :



	AIRCEL	AIRTEL	BSNL	IDEA	RCOM GSM	VODAFONE
Quarterly PMR	2.55%	1.01%	1.88%	2.36%	0.04%	2.65%
Quarterly Live	1.71%	1.17%	2.00%	2.39%	0.01%	2.59%
Benchmark	3%	3%	3%	3%	3%	3%

All operators are meeting the benchmarks.

8) PERCENTAGE OF CONNECTIONS WITH GOOD VOICE QUALITY :



	AIRCEL	AIRTEL	BSNL	IDEA	RCOM GSM	VODAFONE
Quarterly PMR	95.11%	98.44%	0.00%	95.49%	98.95%	98.50%
Quarterly Live	95.95%	98.45%	0.00%	95.49%	98.99%	98.57%
Benchmark	95%	95%	95%	95%	95%	95%

All operators are meeting the benchmarks. BSNL has not provided the data for the parameter 'Good Voice Quality'.

9. QOS AUDIT OF BASIC (WIRELINE) SERVICE PROVIDERS

9. QOS AUDIT OF BASIC TELEPHONE SERVICE (WIRELINE)

The QoS audit for basic (wire line) service was undertaken for assessment of quarterly performance of the service providers for quarter ended March-2014. In J&K Circle, the QoS audit of Basic (wireline) Service is done for BSNL only. M/S Tata Teleservices (TTL) is not providing their Basic (wireline) service in J&K Circle, as confirmed by TTL in writing. For BSNL, **Total 19 Exchanges (6 Urban + 13 Rural)** were required to be audited in about 10 % of SDCAs. Since J&K is a small Telecom Circle having only 5 SSAs and 34 SDCAs, we have audited 19 exchanges covering 8 SDCAs spread over all the SSAs to cover more area of the J&K Circle. Detail of 6 Urban and 19 Rural exchanges where QoS audit was undertaken is given in Table at Annex 1. The performance of the Service providers against each parameter has been evaluated by taking average of performance value of each parameter for all the exchanges of the respective service providers. The averaged value of each parameter has been tabulated as follows:

AVERAGED AUDITED DATA FOR WIRELINE (BASIC) SERVICES – J&K CIRCLE				
Sl. No.	**Parameters**	**Benchmark**	**Audit Period**	**BSNL**
1	**Fault incidences**			
	(No. of faults/100 subscribers /month)	< 5%	*Quarterly*	4.95%
2	**Faults Repair/Restoration Time**			
	Fault repair by next working day(Urban Area)	>90%	*Quarterly*	94.87%
	Within 3 days day	100%	*Quarterly*	100.00%
	Fault repair by next working day(Rural & hilly Area)	>90%	*Quarterly*	91.52%
	Within 5 days	100%	*Quarterly*	**96.39%**
	Mean time to Repair(MTTR)	≤8 Hrs	*Quarterly*	7.00
3	**Rent Rebate**			
	Fault pending > 3 days & <7 days	Rebate for 7 days	*Quarterly*	0
	Fault Pending > 7 days & < 15 days	Rebate for 15 days	*Quarterly*	0
	Fault pending > 15 days	Rebate for 1 month	*Quarterly*	0
4	**Call Completion Ratio (CCR) & Answer to seizure Ratio(ASR)**			
	CCR	> 55% (CCR)	*Quarterly*	68.26%
5	**Metering & Billing Performance**			
	% of disputed Bills over bills issued (Post Paid)	< 0.1%	*Quarterly*	0.005%
	% of Pre-paid Charging Complaints	< 0.1%	*Quarterly*	NA
	% of billing complaints resolved within 4 weeks	100%	*Quarterly*	100.00%
	Period of all refunds/payments from the date of resolution of complaints within 1weeks	100%	*Quarterly*	100.00%
6	**POI Congestion**			

	No. of POI's having congestion >0.5%		*Quarterly*	0
7	**Response Time to customer for assistance**			
	Accessibility of Call centre/customer Care within 40 sec.	>=95%	*Quarterly*	96.00%
	% age of calls answered by operator(voice to voice) within 60 seconds	>=90%	*Quarterly*	**71.00%**
8	**Customer care(promptness in attending to customers request)**			
	Termination / Closures	100%	*Quarterly*	100.00%
	Time taken for refunds of deposit after closures	100%	*Quarterly*	100.00%

- **NA-Not Applicable**

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

3 DAYS LIVE MEASUREMENT DATA FOR WIRELINE (BASIC) SERVICES- J&K CIRCLE				
Sl No.	**Parameters**	**Benchmark**	**Audit Period**	**BSNL**
1	**Call Completion Ratio (CCR) & Answer to seizure Ratio(ASR)**			
	CCR	> 55% (CCR)	*Quarterly*	62.09%
2	**POI Congestion**			
	No. of POI's having congestion >0.5%		*Quarterly*	0
3	**Response Time to customer for assistance**			
	Accessibility of Call centre/customer Care within 40 seconds	≥95%	*Quarterly*	100.00%
	% age of calls answered by operator(voice to voice) within 60 seconds	≥90%	*Quarterly*	100.00%

KEY FINDINGS*:* BASIC TELEPHONE SERVICES (WIRELINE)

Fault Incidences: The audit of the service providers revealed that the performance of the service provider was well within the benchmark.

Fault Repair/Restoration Time: For this parameter, **BSNL** failed to meet the benchmark of fault repaired within 5 days in Rural & hilly areas. The performance of **BSNL** was **96.39%** against the benchmark of 100%.

Mean Time to Repair: The operator was found to be meeting the benchmark on this parameter at various exchanges against the benchmark of ≤8 Hrs.

Call Completion Rate/Answer to seizure ratio: The operator was found comfortably meeting the benchmark on this parameter at various exchanges against the benchmark of > 55%.

Metering and Billing performance: For this parameter also, the performance of the service provider was found well within the compliance benchmarks.

Response Time to Customer for assistance: For percentage of calls getting connected to call center and answered, **BSNL** could not meet the TRAI benchmark. **BSNL** could connect **71.00 %** of calls with respect to the parameter of calls answered by operator (voice to voice within 60 seconds) against the benchmark of >= 90%.

Termination/Closures: For this parameter also, the performance of the service provider was found well within the compliance of benchmarks.

Thus, from the above findings that, it was concluded that the performance of BSNL was not up to the benchmark in respect of the parameters Fault Repairs/Restoration Time, and Response time to customer for assistance. Hence, BSNL needs to improve their services in respect of these parameters.

INTER OPERATOR CALL ASSESSMENT

As BSNL is the only operator providing the Basis Wireline services, so the testing for inter operator call assessment was irrelevant.

LEVEL-1 LIVE CALLING

LEVEL 1 LIVE CALLING								
Emergency no.	**Circle Name**	**No. of calls made**	**BSNL-Jammu SSA**	**BSNL-Udhampur SSA**	**BSNL-Rajouri SSA**	**BSNL-Srinagar SSA**	**BSNL - Kathua SDCA**	**BSNL - Pulawama SDCA**
100	*HP*	20	✔	✔	✔	✔	✔	✔
101	*HP*	40	✔	✔	✔	✔	✔	✔
102	*HP*	40	✔	✔	✔	✔	✔	✔

To assess the availability and efficiency of level 1 services such as police, fire, ambulance (emergency services) offered by the BSNL, the calls were made from telephone provided by the BSNL in different SSAs and SDCAs. In J&K circle, these services were found functional in the networks of service provider.

CUSTOMER CARE / HELPLINE ASSESSMENT

LIVE CALLING TO CALL CENTRE							
Parameter	**Circle Name**	**BSNL-Jammu SSA**	**BSNL-Udhampur SSA**	**BSNL-Rajouri SSA**	**BSNL-Srinagar SSA**	**BSNL - Kathua SDCA**	**BSNL - Pulawama SDCA**
Total No. of calls Attempted	*HP*	100	100	100	100	100	100
Total No. of calls connected to IVR	*HP*	100	100	100	100	100	100
Calls got connected to agent within 60 Sec	*HP*	100	100	100	100	100	100
%age of calls got answered	*HP*	100%	100%	100%	100%	100%	100%

In case of calls answered by operators (voice to voice) within 60 seconds when test calls were made to the call Centers, BSNL managed to connect 100% calls to their respective call center.

11. QOS AUDIT OF BROADBAND SERVICE PROVIDERS

11. QUALITY OF SERVICE AUDIT OF BROADBAND SERVICE PROVIDERS

TUV–SUD South Asia conducted 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. In J&K Circle, the QoS audit of Broadband Service is done for BSNL only. M/S Tata Communication Limited (TCL) is not providing their Broadband service in J&K Circle, as confirmed by TCL in writing.

Sl. No.	Name of Broadband Service Provider
1	BSNL

THE AUDITED DATA HAS BEEN GIVEN IN THE FOLLOWING TABLE:

Averaged Audited data for Broadband Services – J&K Circle				
S/N	**Parameter**	**Benchmark**	**Period**	**BSNL**
1	**Service Provisioning/Activation Time**			
	100% cases in 15 days (subject to technical feasibility)	**<15 days**	**Quarterly**	100.00%
	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.**	**Quarterly**	0
2	**Faults Repair/Restoration Time**			
	By next working day	**>90%**	**Quarterly**	98.78%
	within 3 working day	**≥99%**	**Quarterly**	100.00%
2.1	**Rebate**			
	Faults Pending for > 3 working days and < 7 working days: (Rebate equivalent to 7 days of minimum monthly charge or equivalent usage allowance)		**Quarterly**	0
	Faults Pending for > 7 working days and < 15 working days: (Rebate equivalent to 15 days of minimum monthly charge or equivalent usage allowance)		**Quarterly**	0
	Faults Pending for > 15 working days:(Rebate equivalent to one month of minimum monthly charge or equivalent usage allowance)		**Quarterly**	0
3	**Billing Performance**			
	Billing complaints per 100 bills issued	**<2%**	**Quarterly**	0.01%
	%age of complaints resolved within 4 weeks	**100%**	**Quarterly**	100.00%
	Time taken for refund of deposits after closure (within 60 days)	**100%**	**Quarterly**	90.23%
4	**Response time to the customer for assistance % age of calls answered by operator (Voice to Voice)**			
	within 60 sec	**>60%**	**Quarterly**	64.58%

	within 90 sec	>80%	Quarterly	75.47%
5	**Bandwidth Utilization/ Throughput:**			
	POP to ISP Gateway Node [Intra-network] Link(s)	<80%	Quarterly	53.01%
	ISP Gateway Node to IGSP / NIXI Node upstream Link(s) for International connectivity	<80%	Quarterly	NA
	Broadband Connection Speed (download) - from ISP Node to User	>80%	Quarterly	88.58%
6	**Service Availability/Uptime (for all users) in %age**			
	Service Availability (%)	>98%	Quarterly	99.88%
7	**Packet Loss**			
	% of Packet loss	<1%	Quarterly	0.32%
8	**Network latency (for wired broadband access)**			
	User reference point at POP/ISP Gateway node to IGSP/NIXI	<120 ms	Quarterly	34
	User reference point at ISP Gateway node to International nearest NAP port abroad (terrestrial)	<350 ms	Quarterly	199
	User reference point at ISP Gateway node to International nearest NAP port abroad (satellite)	<800 ms	Quarterly	NA

- **NA- Not Applicable**

12. 3 DAYS LIVE MEASUREMENT FOR BROADBAND SERVICE PROVIDERS:

3 days live data J&K circle for Broadband Services				
S/N	**Parameters**	**Benchmark**	**Audit Period**	**BSNL**
1	**Response time to the customer for assistance % age of calls answered by operator (Voice to Voice)**			
	Within 60 sec	>60%	Live	100.00%
	Within 90 sec	>80%	Live	100.00%
2	**Bandwidth Utilization/ Throughput**			
2.1	POP to ISP Gateway Node [Intra-network] Link(s)	< 80%	Live	44.28%
2.2	ISP Gateway Node to IGSP / NIXI Node upstream Link(s) for International connectivity	< 80%	Live	NA
2.3	Broadband Connection Speed (download) - from ISP Node to User	> 80%	Live	88.50%
3	**Packet loss**			
	% of Packet loss	<1%	Live	0.01%
4	**Network latency (for wired broadband access)**			
4.1	User reference point at POP/ISP Gateway node to IGSP/NIXI	<120 ms	Live	32
4.2	User reference point at ISP Gateway node to International nearest NAP port abroad (terrestrial)	<350 ms	Live	29
4.3	User reference point at ISP Gateway node to International nearest NAP port abroad (satellite)	<800 ms	Live	NA

NA: Not Applicable

KEY FINDINGS: BROADBAND SERVICES

Service Provisioning / Activation Time: The audit with respect to this parameter revealed that the performance of BSNL was well within the benchmark.

Fault Repair/Restoration Time: With regards to this parameter also the performance of the service provider was within TRAI norms.

Billing Performance: For this parameter also the performance of the service provider was found well within the compliance benchmarks.

Response Time to Customer for assistance by operator (Voice to Voice): For percentage of calls getting connected to call center and answered, BSNL could not meet the benchmarks for this parameter as they could connect only **75.47%** of calls against the benchmarks >80% within 90 seconds respectively.

Bandwidth Utilization/ Throughput: The performance of service provider with respect of the parameters was found satisfactory i.e. within benchmark during quarterly audit as well as 3 days live measurement.

Service Availability/Uptime: The service provider was found meeting the benchmark for this parameter.

Packet Loss and Network Latency: For this parameter also the performance of the service provider was found well within the compliance benchmarks.

CUSTOMER CARE / HELPLINE ASSESSMENT

LIVE CALLING TO CALL CENTRE FOR BROADBAND SERVICES		
Parameter	**Circle Name**	**BSNL**
Total No. of calls Attempted	*J&K*	100
Total number of calls answered by the operator within 60 seconds	*J&K*	96.00%
% age calls answered by the operator in 60 seconds	*J&K*	100
Total number of calls answered by the operator within 90 seconds	*J&K*	96
% age calls answered by the operator within 90 seconds	*J&K*	96.00%

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, BSNL could connect 96% of calls to the operator within 90 Seconds.

Annex-1

List of Exchanges covered for QoS audit in J&K circle.

S No	Circle	Name of Wireline Provider	SSA Covered	SDCA Covered	Type of Exchange	Name of Exchange
1	J&K	BSNL	Jammu	Jammu	Urban	BSNL KACHI CHOWNI
2	J&K	BSNL	Jammu	Samba	Rural	BSNL BIRPUR
3	J&K	BSNL	Jammu	Samba	Rural	BSNL JAKH
4	J&K	BSNL	Jammu	Kathua	Urban	BSNL MAIN EXCHANGE KATHUA
5	J&K	BSNL	Jammu	Kathua	Rural	BSNL DYALA CHAK
6	J&K	BSNL	Jammu	Kathua	Rural	BSNL KOOTA
7	J&K	BSNL	Udhampur	Udhampur	Urban	BSNL MAIN EXCHANGE UDHAMPUR
8	J&K	BSNL	Udhampur	Udhampur	Rural	BSNL BATTABALIA
9	J&K	BSNL	Udhampur	Udhampur	Rural	BSNL TIKRI
10	J&K	BSNL	Udhampur	Udhampur	Rural	BSNL JIB
11	J&K	BSNL	Rajauri	Rajouri	Urban	BSNL MAIN EXCHANGE RAJAURI
12	J&K	BSNL	Rajauri	Rajouri	Rural	BSNL RMANJAK
13	J&K	BSNL	Rajauri	Rajouri	Rural	BSNL BIMBERGALI
14	J&K	BSNL	Rajauri	Rajouri	Rural	BSNL DOONGI
15	J&K	BSNL	Srinagar	Srinagar	Urban	BSNL MAIN EXCHANGE SRINAGAR
16	J&K	BSNL	Srinagar	Budgam	Rural	BSNL KHANDA
17	J&K	BSNL	Srinagar	Budgam	Rural	BSNL SOUIBUGH
18	J&K	BSNL	Srinagar	Pulwama	Urban	BSNL MAIN EXCHANGE PULAWAMA
19	J&K	BSNL	Srinagar	Pulwama	Rural	BSNL KAKAPURA