Operator Assisted Drive Test (OADT) Report for

June Month 2025 Year

Srikakulam SSA
and Nearby Areas

24.06.2025 to 27.06.2025

1. Overview

The Operator Assisted Drive Test carried out in Srikakulam City and Palasa Railway Station, Narsannapeta, Rajaram, Amdalavalasa from date 24-06-2025 to 27-06-2025 & 9:00 AM to 8:00 PM. The drive test covered drive route of around 452 KMs in 4 days and 6 hotspot locations.

1.1 Telecom Service Providers (TSPs), Technologies and frequency bands captured during Drive Test are as below:

S. No.	Name of TSP	Technology	Frequency Bands (In MHz)
1	Bharti Airtel Ltd.	2G	900/1800
2	Bharti Airtel Ltd.	4G	900/1800/2300
3	Bharti Airtel Ltd.	5G	3500
4	BSNL/MTNL	2G	NA
5	BSNL/MTNL	3G	NA
6	BSNL/MTNL	4G	NA
7	Reliance JIO Infocomm Ltd.	4G	NA
8	Reliance JIO Infocomm Ltd.	5G	NA
9	Vodafone Idea Ltd.	2G	900
10	Vodafone Idea Ltd.	3G	NA
11	Vodafone Idea Ltd.	4G	900/1800/2100/2500

1.2 Quality of Service parameters measured:

(1) Voice Service:

Dynamic	Static (Hotspot Location)
Call setup time	Call setup time
Call setup success rate (CSSR)	Call setup success rate (CSSR)
Dropped Call rate	Dropped Call rate
Call Silence Rate	
Handover Success Rate (HOSR)	
Packet Drop Rate (Uplink & Downlink)	
Mean Opinion Score (MOS)	
Signal Strength	

(2) Data Service:
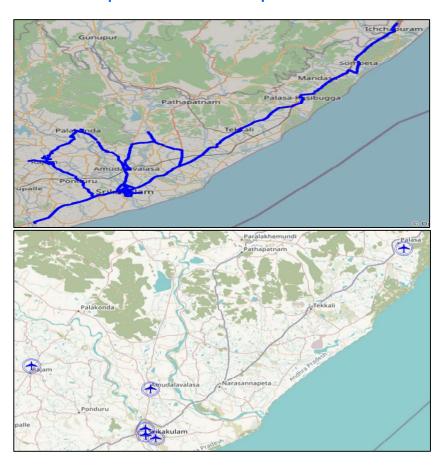
Dynamic	Static (Hotspot Location)
Data speed (DL / UL both)	Data speed (DL/UL both)
Latency	Latency
Jitter	Jitter
	Session Setup Success Rate (DL/UL)
	Packet Drop rate
	Web browsing delay
	Video Streaming performance

Drive Test Methodology adopted during the Drive test is attached as **Annexure-I**.

2. Executive Summary

This report covers the findings of the OADT undertaken in Andhra Pradesh License Service Area (LSA) during the month of June 2025 under the supervision of TRAI Regional Office (RO) Hyderabad. Details of route/ area covered during the OADT is as given below:

2.1 Route Map of Drive test & Hotspot locations:

2.2 Drive Test Area detail:

Date	Duration AM to PM	Drive test route	Distance covered (in Kms)
24-06-2025	09:31am to 07:22pm	Srikakulam Local and Pydibhemavaram	118
25-06-2025	09:41am to 09:00pm	Srikakulam to Ichapuram, Palasa Hot spot	142
26-06-2025	09:23am to 06:55pm	Srikakulam to Palakonda to Rajam to Chilakapalem, GMR hot spot	133
27-06-2025	08:56am to 06:31pm	Hot spots & Drive Amadalavalasa to Srimukhalingam to Tamarapalli	59

Date	Time	Hotspot Location	Latitude / Longitude
25-06-2025	05.30PM	Palasa Railway Station	18.75761/ 84.42121
26-06-2025	03.05PM	GMRIT Collage -Rajam	18.46639 /83.66001
27-06-2025	08.56AM	7 Road Junction	18.29477/83.89341
27-06-2025	10.41AM	Srikakulam RTC Complex	18.30959/83.89268
27-06-2025	12.43PM	Arasavalli Temple	18.28663/83.91368
27-06-2025	03.00PM	Srikakulam Road Railway Station	18.40931/83.90348

2.2 Details of Drive Test Tools used: TEMS INVESTIGATION 22.3.6

Scenario		
Laptop 1	Handset 1	Mobile to Mobile Mos call
	Handset 2	
	Handset 3	Ping & Twamp
	Handset 4	UL FTP Server
Laptop 2	Handset 1	2G-Mobile call to Switch
	Handset 2	4G-Mobile call to Switch
	Handset 3	DL FTP Server

Airtel

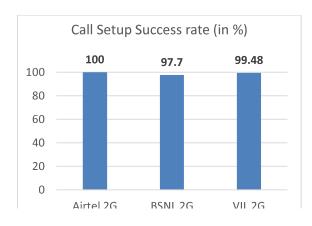| Drive Scenerio		
Laptop-1	Handset-1	Mobile to Moble MOS Call
	Handset-2	
Laptop-2	Handset-1	4G DL & Ping
	Handset-2	2G Mobile Call to Switch
Laptop-3	Handset-1	4G Mobile Call to Switch
	Handset-2	4G UL & Ping

VIL

2.3 Key findings (Voice & Data)

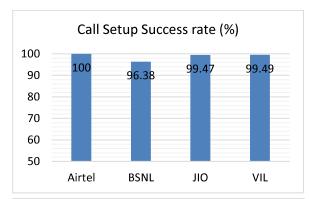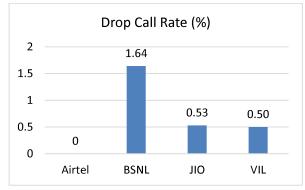### 2.3.1   Voice Service performance in 3G/2G mode only

Call Setup Success rate (in %)

	Airtel 2G	BSNL 2G	VIL 2G
	100	97.7	99.48

Drop Call Rate (in %)

	Airtel 2G	BSNL 2G	VIL 2G
	0	0.18	0.34

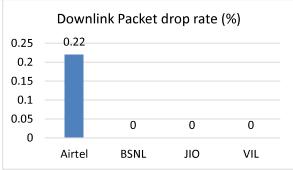| Parameter	Benchmark	AIRTEL	BSNL	VIL
Call Attempts		622	564	581
Call Setup Success Rate (in %)	95	100	97.70	99.48
Drop Call Rate (in %)	<=2	0	0.18	0.34
Call Setup Time-Average (in Seconds)		2.76s	-	2.81s
Handover Success Rate (in %)	95	98.20	98.43	98.57

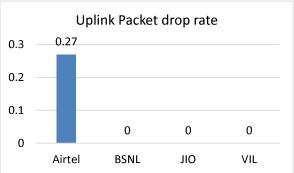## 2.3.2 Number of Cell ids latched during drive test (3G/2G mode)

Technology	AIRTEL	BSNL	VIL
3G	NA	NIL	NIL
2G	453	314	392

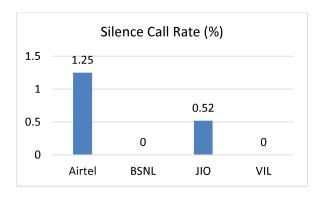## 2.3.3   Voice Service performance in 5G/4G/3G/2G (Auto mode)

Call Setup Success rate (%)
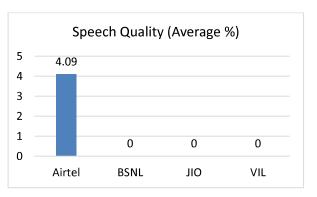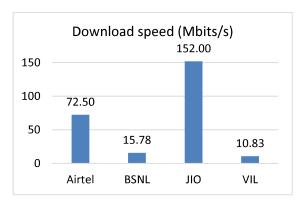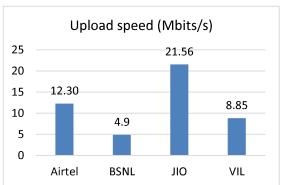

Drop Call Rate (%)

Downlink Packet drop rate (%)

Uplink Packet drop rate

Silence Call Rate (%)

Speech Quality (Average %)

Parameter	AIRTEL	BSNL	RJIL	VIL
Call Attempts	651	581	380	595
Call Setup Success Rate %	100	96.38	99.47	99.49
Drop Call Rate%	0	1.64	0.53	0.5
Call Setup Time-Average (Second)	0.9	10.21	0.87	1.26
Handover Success Rate %	99.95	100	99.36	99.76
Downlink Packet drop rate %	0.22	Non- availability of tools	NA	NA
Uplink Packet drop rate %	0.27		NA	NA
Silence Call Rate %*	1.25		0.52	NA
Speech Quality (Average MOS)	4.09		NA	NA

2.3.4   Number of Cell ids latched during drive test (Auto mode)
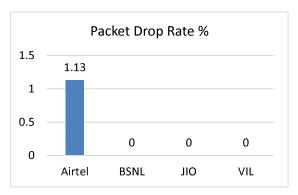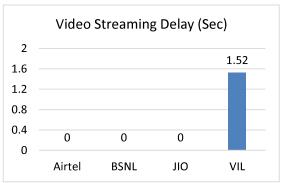
Technology	AIRTEL	BSNL	RJIL	VIL
5G	132	NA	5114	NA
4G	893	75	33594	483
3G	NA	0	NA	NA
2G	453	8	NA	392

2.3.5 Data performance in 5G/4G/3G/2G (Auto mode)

Download speed (Mbits/s)

Airtel	BSNL	JIO	VIL
72.50	15.78	152.00	10.83

Upload speed (Mbits/s)

Airtel	BSNL	JIO	VIL
12.30	4.9	21.56	8.85

Packet Drop Rate %

Airtel	BSNL	JIO	VIL
1.13	0	0	0

Video Streaming Delay (Sec)

Airtel	BSNL	JIO	VIL
0	0	0	1.52

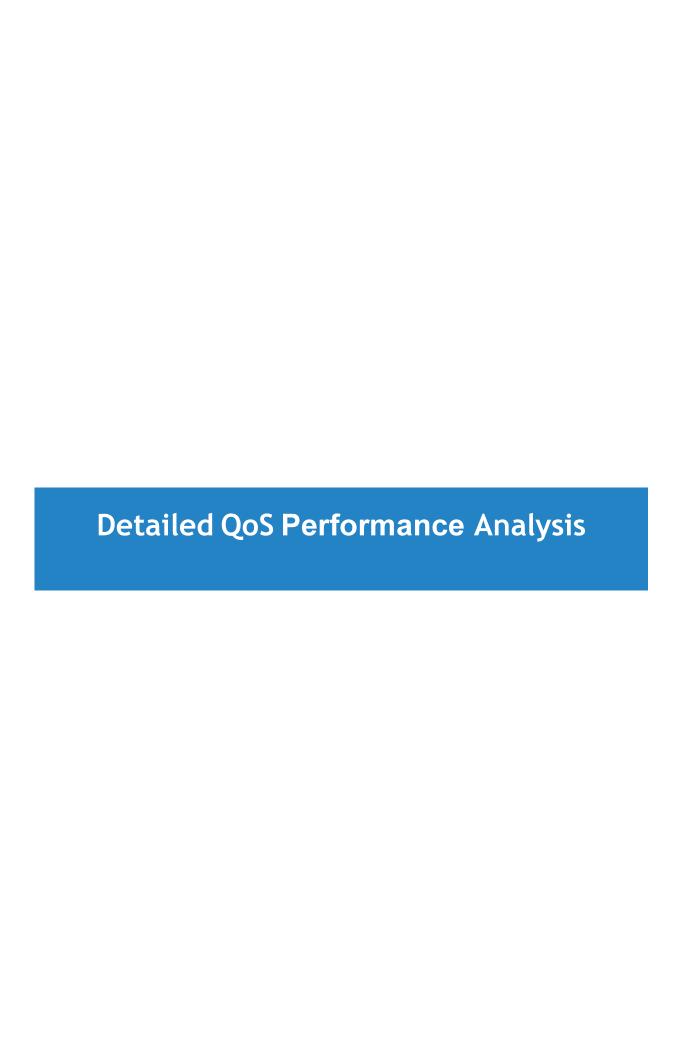| QoS Parameters		AIRTEL	BSNL	RJIL	VIL
Download speed (Mbits/s)	Typical	12.94	--	NA	6.39
	Average	72.5	15.78	152	10.83
	80th Percentile	122.1	22.34	264.80	14.70
Download Session Setup Success Rate %		99.95	--	100	100
Upload speed (Mbits/s)	Typical	1.98	--	NA	4.5
	Average	12.30	4.92	21.56	8.85
	80th Percentile	18.9	8.87	37.52	12.44
Upload Session Setup Success Rate %		100	--	100	100
Latency (in ms)	50th Percentile	44	95.83	18	40.13
Jitter (in ms)	Average	18.3	--	NA	NA
Packet Drop Rate %		1.13	--	NA	NA
Web browsing delay (in sec)		--	--	NA	4.92
Video Streaming performance for video		--	--	NA	1.52

2.3.6 TSP-wise Key Findings:

- Airtel has 100% of samples falling in the excellent signal strength category for 2G/3G And 100% of samples falling in the excellent signal strength category for 5G/4G
- BSNL has 97.70% of samples falling in the excellent signal strength category for 2G/3G And 99.82% of samples falling in the excellent signal strength category for 4G
- JIO has 99.47% of samples falling in the excellent signal strength category for 5G/4G
- VIL has 99.48% of samples falling in the excellent signal strength category for 2G/3G And 99.49% of samples falling in the excellent signal strength category for 5G/4G

Voice-
- Airtel has 100% call setup success rate and 0% drop call rate have been observed in 3G/2G network mode
- BSNL has 97.7% call setup success rate and 0.18% drop call rate have been observed in 3G/2G network mode
- VIL has 99.48% call setup success rate and 0.34% drop call rate have been observed in 3G/2G network mode

- Airtel has 100% call setup success rate and 0% drop call rate have been observed for auto-selection mode (5G/4G/3G/2G)
- BSNL has 96.38% call setup success rate and 1.64% drop call rate have been observed for auto-selection mode (5G/4G/3G/2G)
- JIO has 99.47% call setup success rate and 0.53% drop call rate have been observed for auto-selection mode (5G/4G/3G/2G)
- Airtel has 100% call setup success rate and 0% drop call rate have been observed for auto-selection mode (5G/4G/3G/2G)
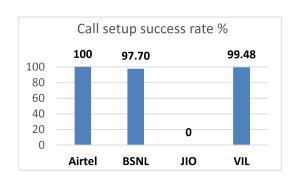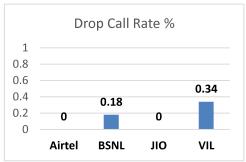
Data-
- Airtel has 72.50 Mbps average download speed & 12.30 Mbps average upload speed across measured routes
- BSNL has 15.78 Mbps average download speed & 4.90 Mbps average upload speed across measured routes
- JIO has 152.00 Mbps average download speed & 21.56 Mbps average upload speed across measured routes
- VIL has 10.83 Mbps average download speed & 8.85 Mbps average upload speed across measured routes

- Airtel has 154.00 Mbps average download & 42.19 Mbps average upload speed Overall Hotspot Location
- BSNL has 14.90 Mbps average download & 7.68 Mbps average upload speed Overall Hotspot Location
- JIO has 164.37 Mbps average download & 78.69 Mbps average upload speed Overall Hotspot Location
- VIL has 67.73 Mbps average download & 7.74 Mbps average upload speed Overall Hotspot Location

Detailed QoS Performance Analysis

3 QoS Performance Analysis – Dynamic

3.1 Voice Service Performance (3G/2G Lock mode) - Dynamic

Call setup success rate %

Drop Call Rate %

Parameters	Airtel	BSNL	RJIL	VIL
Total Distance covered (in Kms)	452		NA	452
No. of Call Attempts	622	564	NA	581
No. of Call Established	622		NA	578
Call setup success rate (CSSR) %	100	97.70	NA	99.48
No. of Drop Call	0		NA	2
Drop Call Rate %	0	0.18	NA	0.34
Call Setup Time Average (Sec.)	2.76		NA	2.81
No. of Handover Attempts	1890		NA	1139
No. of Handover success	1863		NA	1123
HOSR %	98.57	98.43	NA	98.57
Total no of RLT Occurrence	137425		NA	
No of RLT > 48	0		NA	

3.1.1 Number of Cell ids latched during drive test (3G/2G - Lock mode)

Number of unique Cell ids covered in Voice test				
Technology	AIRTEL	BSNL	RJIL	VIL
3G	NA	NIL	NA	NA
2G	453	NA	NA	392

BSNL Note: No signal observed between Palakonda to Rajam (distance of approx. 16Km) as there are no serving 3G/2G sites

3.1.2 Signal Strength Map: (3G/2G - Lock mode)

Airtel-2G/3G

BSNL-2G/3G

VIL-2G/3G

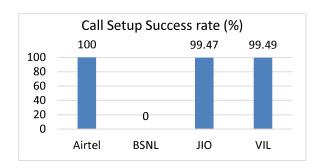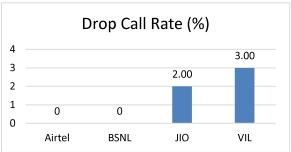| Signal Strength Map (for each TSP)	Map Legend: 2G- Pink (Rx Level ≥ -85 dBm), Red (Rx Level <-85 dBm) 3G- Sky blue (RSCP Level ≥ -90 dBm) Dark Blue (RSCP Level < -90 dBm)

3.1.3 Signal Strength distribution: (3G/2G - Lock mode)

Rx Level - 2G								
Overall Rx Level	**No of Sample**				**Sample %**			
	Airtel	**BSNL**	**RJIL**	**VIL**	**Airtel**	**BSNL**	**RJIL**	**VIL**
[Max, ≥-65]	3130081		NA	1021381	20.87		NA	21
[-65, ≥-75)	3668923		NA	1010507	24.47		NA	20
[-75, ≥-85)	3500178		NA	2063280	23.34		NA	42
[-85, ≥Min)	4696996		NA	834787	31.32		NA	17
Total	14996178		NA	4929955	100		NA	100

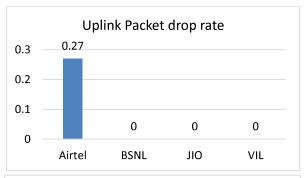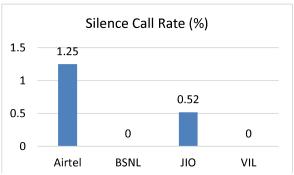| Rx Level - 3G								
Overall RSCP	**No of Sample**				**Sample %**			
	Airtel	**BSNL**	**RJIL**	**VIL**	**Airtel**	**BSNL**	**RJIL**	**VIL**
[Max, ≥-70]	NA		NA	NA			NA	NA
[-70, ≥-80)	NA		NA	NA			NA	NA
[-80, ≥-90)	NA		NA	NA			NA	NA
[-90, ≥Min)	NA		NA	NA			NA	NA
Total	NA		NA	NA			NA	NA

3.2 Voice Service Performance in 5G/4G/3G/2G (Auto mode) - Dynamic

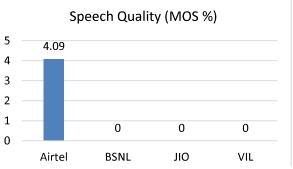### Call Setup Success rate (%)

	Airtel	BSNL	JIO	VIL
	100	0	99.47	99.49

Drop Call Rate (%)

	Airtel	BSNL	JIO	VIL
	0	0	2.00	3.00

Downlink Packet drop rate (%)

	Airtel	BSNL	JIO	VIL
	0.22	0	0	0

Uplink Packet drop rate

	Airtel	BSNL	JIO	VIL
	0.27	0	0	0

Silence Call Rate (%)

	Airtel	BSNL	JIO	VIL
	1.25	0	0.52	0

Speech Quality (MOS %)

	Airtel	BSNL	JIO	VIL
	4.09	0	0	0

Parameters	Airtel	BSNL	RJIL	VIL
Total Distance covered (in Kms)	452	Not done due to non- availability of tools	452	452
No. of Call Attempts	651		380	595
No. of Call Established	651		378	592
Call setup success rate (CSSR) %	100		99.47	99.49
No. of Drop Call	0		2	3
Drop Call Rate %	0		0.53	0.5
Call Setup Time Average (Sec.)	0.9		0.87	1.26
No. of Handover Attempts	2114		2823	1286
No. of Handover success	2113		2805	1283
HOSR %	99.95		99.36	99.76
Packet Drop Rate (Downlink)	0.22		NA	
Packet Drop Rate (Uplink)	0.27		NA	
Number of silence call for > 2 sec.	32		4	
Silence Call Rate %	1.25		0.52	
Number of MOS samples	7642		380	
Average MOS score	4.09		NA	

3.2.1 Number of Cell ids latched during drive test 5G/4G/3G/2G - Auto mode)

Number of unique cell ids covered in Voice test				
Technology	**Service Provider**			
	AIRTEL	**BSNL/MTNL**	**RJIL**	**VIL**
3G	NA		NA	NA
2G	453		NA	392
4G	893		33594	483
5G	132		5114	NA

Table-6

3.2.2 Signal Strength Map: (5G/4G/3G/2G - Auto mode)

Signal Strength Map	Map Legend- 2G- **Pink** (Rx Level ≥ -85 dBm), **Red** (Rx Level <-85 dBm) 3G- **Sky blue** (RSCP Level ≥ -90 dBm) **Dark Blue** (RSCP Level < -90 dBm)
	Map Legend- 4G- **Light Green** (RSRP Level ≥ -110 dBm), **Dark Green**(RSRP Level <-110 dBm) 5G- **Light Yellow** (RSRP Level ≥ -110 dBm), **Dark Yellow** (RSRP Level <-110 dBm)

Technology	Parameter	Range	Colour
2G	Rx Level	≥ -85 dBm	
		<-85 dBm	
3G	RSCP	≥ -90 dBm	
		< -90 dBm	
4G	RSRP	≥ -110 dBm	
		< -110 dBm	
5G	RSRP	≥ -110 dBm	
		< -110 dBm	

BSNL

Airtel

JIO

VIL

3.2.3 Signal Strength distribution: (5G/4G/3G/2G - Auto mode)

Rx Level - 2G								
Overall Rx Level	**No of Sample**				**Sample %**			
	Airtel	**BSNL**	**RJIL**	**VIL**	**Airtel**	**BSNL**	**RJIL**	**VIL**
[Max, ≥-65]	3130081		NA	1021381	20.87		NA	21
[-65, ≥-75)	3668923		NA	1010507	24.47		NA	20
[-75, ≥-85)	3500178		NA	2063280	23.34		NA	42
[-85, ≥Min)	4696996		NA	834787	31.32		NA	17
Total	**14996178**		**NA**	**4929955**	100		**NA**	**100**

Rx Level -3G								
Overall RSCP	**No of Sample**				**Sample %**			
	Airtel	**BSNL**	**RJIL**	**VIL**	**Airtel**	**BSNL**	**RJIL**	**VIL**
[Max, ≥-70]	NA		NA	NA	NA		NA	NA
[-70, ≥-80)	NA		NA	NA	NA		NA	NA
[-80, ≥-90)	NA		NA	NA	NA		NA	NA
[-90, ≥Min)	NA		NA	NA	NA		NA	NA
Total	NA		NA	NA	NA		NA	NA

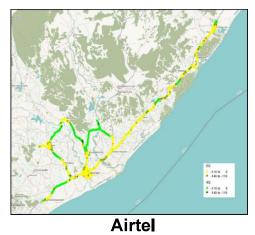| Rx Level -4G								
Overall RSRP	**No of Sample**				**Sample %**			
	Airtel	**BSNL**	**RJIL**	**VIL**	**Airtel**	**BSNL**	**RJIL**	**VIL**
[Max, ≥-80]	8037266		12959	4055823	40.30		38.55	22
[-80, ≥-95]	8793495		12271	8469076	44.09		36.50	45
[-95, ≥-110]	2871672		7403	4591857	14.40		22.02	24
[-110, ≥Min]	242543		986	1636066	1.22		2.93	9
Total	**19944976**		**33619**	**18752822**	100		100	100

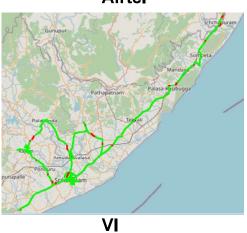| Rx Level -5G								
Overall RSRP	**No of Sample**				**Sample %**			
	Airtel	**BSNL**	**RJIL**	**VIL**	**Airtel**	**BSNL**	**RJIL**	**VIL**
[Max, ≥-80]	1709924		7471	NA	16.61		29.14	NA
[-80, ≥-95]	3044950		9537	NA	29.58		37.20	NA
[-95, ≥-110]	4945069		7715	NA	48.03		30.10	NA
[-110, ≥Min]	595723		912	NA	5.79		3.56	NA
Total	**10295666**		**25635**	NA	**100**		100	NA

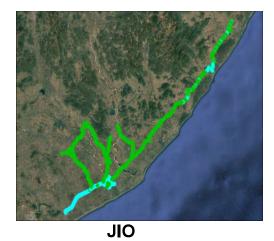## 3.3 Data Service performance in 5G/4G/3G/2G (Auto mode) - Dynamic

QoS Parameters		AIRTEL	BSNL	RJIL	VIL
Download speed (Mbits/s)	Average	72.5	15.78	152.30	10.83
	80th Percentile	122.1	22.34	264.80	14.70
	20th Percentile	12.94	2.70	39.81	6.39
Upload speed (Mbits/s)	Average	12.30	4.92	20.64	8.85
	80th Percentile	18.9	8.87	37.52	12.44
	20th Percentile	1.98	0.2	3.77	4.5
Latency (ms)	Average	55	95.83	27	32.41
	50th Percentile	44		18	40.13
Jitter (ms)	Average	34.98 (Twamp), 18.3 (Ping Server)		NA	

3.4 Time Spent (Technology-wise)

Time Spent Map (for each TSP)	Map Legend: 2G – Red 3G – Yellow 4G – Green 5G - Blue

Airtel

JIO

VI

4   QoS Performance Analysis – Static

4.1 Hot spot Locations

Hotspot Name	Latitude & Longitude	Date of Measurement	Time of Measurement
Palasa Railway Station	18.75761/ 84.42121	25-06-2025	05.30 PM
GMRIT Collage -Rajam	18.46639 /83.66001	26-06-2025	03.05 PM
7 Road Junction	18.29477/83.89341	27-06-2025	08.56 AM
Srikakulam RTC Complex	18.30959/83.89268	27-06-2025	10.41 AM
Arasavalli Temple	18.28663/83.91368	27-06-2025	12.43 PM
Srikakulam Rd Railway Station	18.40931/83.90348	27-06-2025	03.00 PM

Table-1

4.2 Voice Service Performance (5G/ 4G/ 3G/ 2G - Auto mode) – Over all

Parameters	Airtel	BSNL	RJIL	VIL
No. of Call Attempts	651	60	60	595
No. of Call Established	651	60	60	592
Call setup success rate (CSSR) %	100	100	100	99.49
No. of Drop Call	0	0	0	3
Drop Call Rate %	0	0	0%	0.5
Call Setup Time Average (Sec.)	0.9	0.85	1.23	1.26

4.3 Data Service Performance (5G/ 4G/ 3G/ 2G - Auto mode) – Over all

QoS Parameters		AIRTEL	BSNL	RJIL	VIL
Download speed (Mbits/s)	Typical	93.37	NA	NA	44.45
	Average	154.04	14.90	164.37	67.73
	80th Percentile	234.98	20.90	392.89	108.43
Download Session Setup Success Rate %		100	50	100	100
Upload speed (Mbits/s)	Typical	35.65	NA	NA	4.39
	Average	42.19	7.68	78.69	7.74
	80th Percentile	46.22	11.49	103.26	13.28
Upload Session Setup Success Rate %		100	100	100	100
Latency (in ms)	50th Percentile	29	51.59	17	54
Jitter (in ms)	Average	9.85	12.66	NA	NA
Packet Drop Rate %		0	1.2	NA	0
Web browsing delay (in sec)		0	5.41	0.67	0
Video Streaming performance for video		0	1.1	0.47	0

4.4 Voice Service Performance (5G/ 4G/ 3G/ 2G - Auto mode) at each Hotspot location

Name of Hotspot Location	Palasa Railway Station			
Parameters	**Airtel**	**BSNL**	**RJIL**	**VIL**
No of Call Attempts	10	10	10	10
No of Call Established	10	NA	10	10
Call setup success rate (CSSR) %	100	100	100%	100%
No. of Drop Call	0	NA	0	0
Drop Call Rate %	0	0	0%	0
Call Setup Time Average (Sec.)	1.12	0.56	1.32	1.20
Total no of RLT Occurrence	2	NA	NA	NA
No of RLT > 48	0	NA	NA	NA

4.5 Data Service Performance (5G/4G/3G/2G - auto mode) at each Hotspot location:

Name of Hotspot Location		Palasa Railway Station			
QoS Parameters		**AIRTEL**	**BSNL**	**RJIL**	**VIL**
Download speed (Mbits/s)	Typical	129.8	Failed	NA	28.61
	Average	189.6	Failed	121.36	43.94
	80th Percentile	236.3	NA	325.26	75.82
Download Session Setup Success Rate %		100	0	100	100
Upload speed (Mbits/s)	Typical	25.4	NA	NA	4.91
	Average	37.83	9.95	31.62	8.52
	80th Percentile	47.30	NA	39.03	13.62

Upload Session Setup Success Rate %	100	100	100	100%
Latency (in ms)	50th Percentile	26	50.46	15	52.16
Jitter (in ms)	Average	19.49	NA	NA	36.81
Packet Drop Rate %	0	0	NA	0
Web browsing delay (in sec)	0	4.31	0.90	0
Video Streaming performance for video	0	1.06	0.59	0

4.6 Voice Service Performance (5G/ 4G/ 3G/ 2G - Auto mode) at each Hotspot location

Name of Hotspot Location	GMRIT Collage -Rajam			
Parameters	Airtel	BSNL	RJIL	VIL
No of Call Attempts	10	10	10	10
No of Call Established	10	NA	10	10
Call setup success rate (CSSR) %	100%	100	100%	100%
No. of Drop Call	0	NA	0	0
Drop Call Rate %	0	0	0%	0
Call Setup Time Average (Sec.)	1.18	0.61	1.25	1.214
Total no of RLT Occurrence	1	NA	NA	NA
No of RLT > 48	0	NA	NA	NA

4.7 Data Service Performance (5G/4G/3G/2G - auto mode) at each Hotspot location:

Name of Hotspot Location		GMRIT Collage -Rajam			
QoS Parameters		AIRTEL	BSNL	RJIL	VIL
Download speed (Mbits/s)	Typical	104.50	NA	NA	58.13
	Average	120.40	9.11	170.56	70.55
	80th Percentile	196.80	NA	445.77	101.67
Download Session Setup Success Rate %		100	100	100	100
Upload speed (Mbits/s)	Typical	38.80	NA	NA	5.82
	Average	41.80	12.78	85.65	10.99
	80th Percentile	44.60	NA	127.98	9.45
Upload Session Setup Success Rate %		100	100	100	100%
Latency (in ms)	50th Percentile	38	34.75	12	52
Jitter (in ms)	Average	6.11	2.28	NA	NA
Packet Drop Rate %		0	0	NA	0
Web browsing delay (in sec)		0	5.08	0.61	0
Video Streaming performance for video		0	0.93	0.41	0

4.8 Voice Service Performance (5G/ 4G/ 3G/ 2G - Auto mode) at each Hotspot location

Name of Hotspot Location	7 Road Junction			
Parameters	Airtel	BSNL	RJIL	VIL
No of Call Attempts	10	10	10	10
No of Call Established	10	NA	10	10
Call setup success rate (CSSR) %	100%	100	100%	100%
No. of Drop Call	0	NA	0	0
Drop Call Rate %	0	0	0%	0
Call Setup Time Average (Sec.)	0.65	0.58	1.17	1.973
Total no of RLT Occurrence	2	NA	NA	NA
No of RLT > 48	0	NA	NA	NA

4.9 Data Service Performance (5G/4G/3G/2G - auto mode) at each Hotspot location:

Name of Hotspot Location		7 Road Junction			
QoS Parameters		AIRTEL	BSNL	RJIL	VIL
Download speed (Mbits/s)	Typical	123.71	NA	NA	46.42
	Average	197.31	13.59	174.51	61.61
	80th Percentile	303.5	NA	420.01	98.47
Download Session Setup Success Rate %		100	100	100	100%
Upload speed (Mbits/s)	Typical	46.11	NA	NA	2.76
	Average	51.65	8.91	86.98	12.34
	80th Percentile	57.2	NA	103.71	6.83
Upload Session Setup Success Rate %		100	100	100	100%
Latency (in ms)	50th Percentile	28	53.42	21	63
Jitter (in ms)	Average	11.11	7.88	NA	41
Packet Drop Rate %		0	0	NA	0
Web browsing delay (in sec)		0	5.13	0.66	0
Video Streaming performance for video		0	0.84	0.35	0

4.10 Voice Service Performance (5G/ 4G/ 3G/ 2G - Auto mode) at each Hotspot location

Name of Hotspot Location	Srikakulam RTC Complex			
Parameters	Airtel	BSNL	RJIL	VIL
No of Call Attempts	10	10	10	10
No of Call Established	10	NA	10	10
Call setup success rate (CSSR) %	100%	100	100%	100%

No. of Drop Call	0	NA	0	0
Drop Call Rate %	0	0	0%	0
Call Setup Time Average (Sec.)	1.11	1.82	1.21	1.490
Total no of RLT Occurrence	3	NA	NA	NA
No of RLT > 48	0	NA	NA	NA

4.11 Data Service Performance (5G/4G/3G/2G - auto mode) at each Hotspot location:

Name of Hotspot Location		Srikakulam RTC Complex			
QoS Parameters		AIRTEL	BSNL	RJIL	VIL
Download speed (Mbits/s)	Typical	57.98	NA	NA	46.43
	Average	115.5	Failed	167.32	79.95
	80th Percentile	161.3	NA	370.79	124.86
Download Session Setup Success Rate %		100	0	100	100%
Upload speed (Mbits/s)	Typical	17.45	NA	NA	5.35
	Average	21.71	2.78	73.85	12.34
	80th Percentile	17.5	NA	98.46	8.48
Upload Session Setup Success Rate %		100	100	100	100%
Latency (in ms)	50th Percentile	30	87.67	23	59
Jitter (in ms)	Average	22.14	37.81	NA	NA
Packet Drop Rate %		0	4.00	NA	0
Web browsing delay (in sec)		0	7.61	0.65	0
Video Streaming performance for video		0	1.59	0.50	0

4.12 Voice Service Performance (5G/ 4G/ 3G/ 2G - Auto mode) at each Hotspot location

Name of Hotspot Location	Arasavalli Temple			
Parameters	Airtel	BSNL	RJIL	VIL
No of Call Attempts	10	10	10	10
No of Call Established	10	NA	10	10
Call setup success rate (CSSR) %	100%	100	100%	100%
No. of Drop Call	0	NA	0	0
Drop Call Rate %	0	0	0%	0
Call Setup Time Average (Sec.)	1.05	0.67	1.22	1.710
Total no of RLT Occurrence	1	NA	NA	NA
No of RLT > 48	0	NA	NA	NA

4.13 Data Service Performance (5G/4G/3G/2G - auto mode) at each Hotspot location:

Name of Hotspot Location		Arasavalli Temple			
QoS Parameters		AIRTEL	BSNL	RJIL	VIL
Download speed (Mbits/s)	Typical	18.89	NA	NA	56.34
	Average	126.9	Failed	158.32	85.42
	80th Percentile	281.4	NA	302.35	134.57
Download Session Setup Success Rate %		100	100	100	100%
Upload speed (Mbits/s)	Typical	51.5	NA	NA	4.57
	Average	56.5	2.46	86.21	12.34
	80th Percentile	62.7	NA	117.53	7.15
Upload Session Setup Success Rate %		100	100	100	100%
Latency (in ms)	50th Percentile	30	45.19	19	43
Jitter (in ms)	Average	4.57	9.67	NA	NA
Packet Drop Rate %		0	0	NA	0
Web browsing delay (in sec)		0	6.21	0.67	0
Video Streaming performance for video		0	1.05	0.35	0

4.14 Voice Service Performance (5G/ 4G/ 3G/ 2G - Auto mode) at each Hotspot location

Name of Hotspot Location	Srikakulam Rd Railway Station			
Parameters	Airtel	BSNL	RJIL	VIL
No of Call Attempts	10	10	10	10
No of Call Established	10	NA	10	10
Call setup success rate (CSSR) %	100%	100	100%	100%
No. of Drop Call	0	NA	0	0
Drop Call Rate %	0	0	0%	0
Call Setup Time Average (Sec.)	0.86	0.47	1.20	1.719
Total no of RLT Occurrence	2	NA	NA	NA
No of RLT > 48	0	NA	NA	NA

4.15 Data Service Performance (5G/4G/3G/2G - auto mode) at each Hotspot location:

Name of Hotspot Location		Srikakulam Rd Railway Station			
QoS Parameters		AIRTEL	BSNL	RJIL	VIL
Download speed (Mbits/s)	Typical	57.98	NA	NA	32.63
	Average	115.5	21.99	194.14	68.39
	80th Percentile	161.3	NA	493.17	98.52
Download Session Setup Success Rate %		100	100	100	100%
Upload speed (Mbits/s)	Typical	17.45	NA	NA	4.76

	Average	21.71	9.20	107.84	12.34
	80th Percentile	17.5	NA	132.87	10.60
Upload Session Setup Success Rate %		100	100	100	100%
Latency (in ms)	50th Percentile	30	37.78ms	13	43
Jitter (in ms)	Average	22.14	5.66ms	NA	NA
Packet Drop Rate %		0	2	NA	0
Web browsing delay (in sec)		0	4.11	0.50	0
Video Streaming performance for video		0	1.10	0.64	0

4.16 Signal Strength distribution at Static location – Over all

Rx Level -2G								
Overall Rx Level	No of Sample				Sample %			
	Airtel	BSNL	RJIL	VIL	Airtel	BSNL	RJIL	VIL
[Max, ≥-65]	690502		NA	1021381	62.91%		NA	21%
[-65, ≥-75)	298594		NA	1010507	27.20%		NA	20%
[-75, ≥-85)	106000		NA	2063280	9.66%		NA	42%
[-85, ≥Min)	2557		NA	834787	0.23%		NA	17%
Total	1097653		NA	4929955	100%		NA	100%

Rx Level -3G								
Overall RSCP	No of Sample				Sample %			
	Airtel	BSNL	RJIL	VIL	Airtel	BSNL	RJIL	VIL
[Max, ≥-70]	NA		NA	NA	NA		NA	NA
[-70, ≥-80)	NA		NA	NA	NA		NA	NA
[-80, ≥-90)	NA		NA	NA	NA		NA	NA
[-90, ≥Min)	NA		NA	NA	NA		NA	NA
Total	NA		NA	NA	NA		NA	NA

Rx Level -4G								
Overall RSRP	No of Sample				Sample %			
	Airtel	BSNL	RJIL	VIL	Airtel	BSNL	RJIL	VIL
[Max, ≥-80]	904453		82	4055823	56.06%		57.75%	22%
[-80, ≥-95]	708917		60	8469076	43.94%		42.25%	45%
[-95, ≥-110]	0			4591857	0%			24%
[-110, ≥Min]	0			1636066	0%			9%
Total	1613370		142	18752822	100%		100.00%	100%

Rx Level -5G								
Overall RSRP	No of Sample				Sample %			
	Airtel	BSNL	RJIL	VIL	Airtel	BSNL	RJIL	VIL
[Max, ≥-80]	0		4347	NA	0.00%		97.93%	NA
[-80, ≥-95]	39592		92	NA	93.15%		2.07%	NA
[-95, ≥-110]	2911			NA	6.85%			NA
[-110, ≥Min]	0			NA	0.00%			NA
Total	42503		4439	NA	100%		100%	NA

5 Improvement plan for shortcoming observed during Drive Test

Sr. No	Name of TSP	Route / Location	Name of Area & LSA	Lat. & Long.	Observation (No coverage / Poor coverage / Poor Signal Quality/ Call drops / Call Setup failure, and Hand Over failure/ Block/ Down Link Packet Drop/ Up	Improvement Plan (Optimization/Radiatio n of New Site/up-gradation of existing site/upgradatio n of backhaul etc.)	Time Line/ Remarks
1	Airtel	BALLIPUTTUGA	AP	18.96163 & 84.644695	Data speeds improvement	5G Upgradation Planned	17-Aug-25
2	Airtel	DANDULAXMIPURAM	AP	18.404515 & 84.1551333333333	Data speeds improvement	5G Upgradation done	Closed
3	Airtel	SWECHAVATHIAMMAVA RIDEVASTHANAM	AP	19.1204366666667 & 84.689505	Data speeds improvement	5G Upgradation Planned	25-Aug-25
4	Airtel	KOLLIVALASA	AP	18.5067833333333 & 83.8301733333333	Data speeds improvement	5G Upgradation done	Closed
5	Airtel	KORLAM	AP	18.897895 & 84.5516066666667	Data speeds improvement	5G Upgradation done	Closed
6	Airtel	LANKAM	AP	18.49286 & 83.806425	Data speeds improvement	5G Upgradation Planned	17-Aug-25
7	Airtel	PALAKONDA 2	AP	18.607565 & 83.7588633333333	Data speeds improvement	5G Upgradation Planned	15-Sep-25
8	Airtel	N K RAJPURAM	AP	18.6109266666667 & 83.7719283333333	Data speeds improvement	5G Upgradation Planned	15-Sep-25
9	Airtel	PALASA	AP	18.7577966666667 & 84.4207283333333	Data speeds improvement	5G Upgradation Planned	15-Sep-25
10	Airtel	RAJAM	AP	18.85388 & 84.5655733333333	Data speeds improvement	5G Upgradation done	Closed
11	Airtel	SIRIPURAM	AP	18.9197116666667 & 84.48686	Data speeds improvement	5G Upgradation done	Closed
12	Airtel	SILAGAMSINGIVALASA	AP	18.3841866666667 & 83.9267916666667	Data speeds improvement	5G Upgradation done	Closed
13	Airtel	MEHAR NAGAR	AP	18.3057533333333 & 83.900145	Data speeds improvement	5G Upgradation Planned	15-Sep-25
14	Airtel	HUDCO COLONY	AP	18.315233 & 83.890165	Coverag improvement	New site planned	20-Sep-25
15	Airtel	Shipanayudupeta	AP	18.30516 & 83.878068	Coverag improvement	New site planned	18-Aug-25
16	Airtel	BADURLA PETA	AP	18.27351 & 83.903718	Coverag improvement	New site planned	25-Sep-25
17	Airtel	Fazulbegpeta	AP	18.303905 & 83.884313	Coverag improvement	New site planned	20-Oct-25
18	Airtel	Baruva	AP	18.895801 & 84.570707	Coverag improvement	New site planned	20-Oct-25
19	Airtel	VISAKHA COLONY	AP	18.299216 & 83.90004	Signal Quality	Physical Optimization Done	Closed

20	Airtel	BALAGA RURAL	AP	18.319931 & 83.916376	Signal Quality	Physical Optimization Done	Closed
21	Airtel	GOPI NAGAR	AP	18.332938 & 83.893917	Signal Quality	Physical Optimization Done	Closed
22	Airtel	APHB COLONY	AP	18.285662 & 83.899887	Coverag improvement	Physical Optimization Done	Closed
23	Airtel	MUKTHAMPURAM	AP	18.194123 & 83.685196	Signal Quality	Physical Optimization Done	Closed
24	Airtel	TERLANGI	AP	18.582665 & 84.209201	Signal Quality	Physical Optimization Done	Closed
25	Airtel	AYODHYAPURAM	AP	18.607501 & 84.232969	Coverag improvement	Physical Optimization Done	Closed
26	Airtel	PLASA BYPASS	AP	18.722237 & 84.385574	Coverag improvement	Physical Optimization Done	Closed
27	Airtel	HARIPURAM	AP	18.849712 & 84.49496	Signal Quality	Physical Optimization Done	Closed
28	Airtel	AMBUGAM	AP	18.869146 & 84.516645	Coverag improvement	Physical Optimization Done	Closed
29	Airtel	BALA RAMPURAM	AP	19.07336 & 84.659324	Signal Quality	Physical Optimization Done	Closed
30	Airtel	KASPA MASJID NEARBY	AP	19.123303 & 84.703101	Signal Quality	Physical Optimization Done	Closed
31	Airtel	VAMSADARAQUARTERS	AP	18.41767 & 83.90617	Signal Quality	Physical Optimization Done	Closed
32	Airtel	SAILADA	AP	18.426531 & 83.890068	Signal Quality	Physical Optimization Done	Closed
33	Airtel	SUMANTHAPURAM	AP	18.65519 & 83.96546	Coverag improvement	Physical Optimization Done	Closed
34	Airtel	JALUMURU	AP	18.50919 & 84.05269	Signal Quality	Physical Optimization Done	Closed
35	Airtel	NANDIVADA	AP	18.289786 & 83.792353	Coverag improvement	Physical Optimization Done	Closed
36	Airtel	RAPAKA	AP	18.332205 & 83.770848	Signal Quality	Physical Optimization Done	Closed
37	Airtel	POGIRI	AP	18.401832 & 83.706232	Coverag improvement	Physical Optimization Done	Closed
38	Airtel	SARADHI	AP	18.445831 & 83.67727	Signal Quality	Physical Optimization Done	Closed
39	Airtel	SANKILI	AP	18.564425 & 83.74257	Coverag improvement	Physical Optimization Done	Closed
40	Airtel	LAKKUPURAM	AP	18.578922 & 83.794262	Signal Quality	Physical Optimization Done	Closed

Sr.No	Name of TSP	Route / Location	Name of Area & LSA	Lat. & Long.	Observation (No coverage / Poor coverage / Poor Signal Quality/ Call drops / Call Setup failure, and Hand Over failure/ Block/ Down Link Packet Drop/ Up	Improvement Plan (Optimization/Radiatio n of New Site/up- gradation of existing site/upgradation of backhaul etc.)	Time Line/ Remarks
1	VIL	Subadrapuram	AP	18.22878/83.7182	Poor Coverage	New Site Planned in FY25-26	FY25-26
2	VIL	Venkateswara Clg,Chilakapalem	AP	18.2797/83.8199	Poor Coverage	New Site Planned in FY25-26	FY25-26
3	VIL	GMRIT-Rajam back side area	AP	18.47369/83.65774	Poor Coverage	Serving site Height increment planned	Aug'25
4	VIL	China Sirlam	AP	18.5167/83.6954	No Coverage	New Site Planned in FY25-26	FY25-26
5	VIL	Neelapuram	AP	18.5529/83.8118	Poor Coverage	New Site Planned in FY25-26	FY25-26
6	VIL	Srikakulam	AP	18.31147/83.89409	Poor Speeds	Physical Optimization	Closed

								planned	
7	VIL	Gayathri College	AP	18.3337/83.9519		Poor Coverage		New Site Planned in FY25-26	FY25-26
8	VIL	Nimmada	AP	18.4559/84.0965		Poor Coverage		New Site Planned in FY25-26	FY25-26
9	VIL	Tekkali	AP	18.59741/84.22544		Poor Quality		Physical Optimization planned	Closed
10	VIL	Peddatamarapalle	AP	18.64836/84.27731		Poor Coverage		New Site Planned in FY25-26	FY25-26
11	VIL	Banjarupeta	AP	18.6864/84.3297		Poor Coverage		Physical Optimization planned	Closed
12	VIL	Ananthagiri	AP	18.7246/84.3772		Poor Coverage		New Site Planned in FY25-26	FY25-26
13	VIL	Palasapuram	AP	18.9212/84.5944		Poor Coverage		New Site Planned in FY25-26	FY25-26
14	VIL	Kanchali	AP	18.9756/84.5797		Download Drop		Optimization Done	Closed
15	VIL	Ampuram	AP	19.0032/84.6017		Poor Coverage		New Site Planned in FY25-26	FY25-26
16	VIL	Madapam	AP	18.3741/83.9979		Poor Coverage		Serving site Height increment planned	Aug'25

6 Compliance Report for shortcomings observed during Drive Test

Improvement in KPI Parameter	Airtel	BSNL	RJIL	VIL
Call Drop location/ area wise action taken and improvement observed	Zero call drop	NA	NA	New Sites Planned
Down Link Packet Drop (DLPD) for voice &Up Link Packet Drop (ULPD) for voice in 4G & 5G -location/area wise action taken and improvement observed	Within limits	NA	NA	Physical Optimization & Capacity Upgradation
Call Setup failure, and Hand Over failure - location/area wise action taken and improvement observed	4G PCI Massification done	NA	NA	4G PCI Massification done
Poor Rx Quality - location/area wise action taken and improvement observed	Physical optimization done	NA	NA	Physical optimization done
Poor Coverage - location/area wise action taken and improvement observed	Physical Optimization done	NA	NA	New Sites & Physical optimization done
Poor DL Speed (i.e. Speed < 2 Mbps) - location/area wise action taken and improvement observed	Action plan attached	NA	NA	Capacity Upgradation Planned
Others Poor KPIs (e.g. high latency, etc) - location/area wise action taken and improvement observed	NA	NA	NA	NA

Annexure-I
Drive Test Methodology adopted during the Drive test:
(1) Voice Tests:

SI. No.	QoS Parameter	Measurement Criteria and methodology
1	Call setup time	Time taken from call initiate to call alerting/ringing.
2	Call setup success rate	CSSR = (Total Call Established/ Total Call Attempt) *100 Call Setup attempt time: 30 sec. Call duration (City/Highway): 90/180 sec. Wait/ Guard Time: 15sec.
3	Dropped Call rate (DCR)	Call Drop Rate = (Total Call Drop/Total Call Established) *100
4	Call Silence Rate (Muting)	Silence call rate = (count of silence / Total calls established) *100 Continuous RTP gap ≥ 2 sec
5	Handover Success Rate	Handover Success Rate = Count of successful handovers (All Technology Handover combined) / Total count of Handover Attempt (All Technology Handover combined) *100 Handover types which are considered- 2G Inter & Intra cell, 3G Soft & IRAT, 4G Inter & Intra frequency & SRVCC, 5G Inter & Intra frequency & 5G to 4G handovers.
6	Packet Drop Rate (DL & UL) for Packet Switched Network (4G & 5G)	Number of RTP (Real-time Transport Protocol) Packets lost divided by total RTP packet received (against each source SSRC and sequence number) at call originating handset. This KPI will be calculated from MOS call for packet call only (VoNR/VoLTE)
7	Mean Opinion Score (MOS) Performance (in 5G/4G/3G/2G: Auto mode)	Voice quality in mobile networks is measured with algorithms based on ITU-T P.863 (POLQA) Excellent: MOS ≥ 4 and < 5, Good: MOS ≥ 3 and < 4, Fair: MOS ≥ 2 and < 3, Poor : MOS ≥ 1 and < 2

Data Tests:

SI. No.	QoS Parameter	Measurement Criteria and methodology
1	Data speed in Mbits/s (DL/UL both)	Download Speed = Total bytes transferred during download / Total time for transfer Upload Speed = Total bytes transferred during upload / Total time for transfer. Download: File Size: 500 MB for 120 sec, 30 Sec Timeout Upload: File size: 250 MB for 120 sec, 30 Sec Timeout (Multithread 3- TCP Connection at a time for both DL & UL)
2	Latency (in ms)	Latency is the time taken by a packet to reach the receiving end point after being transmitted from the sending point in broadband service. Test with Packet of size of 512 Bytes - 1000 count on TSP's Test server using UDP packets (TWAMP)
3	Jitter (in ms)	Test with Packet of size of 512/256 Bytes - 1000 count on TSP's own Test server using UDP (TWAMP) & RTP packets separately
4	Session Setup Success Rate (in %) (DL/UL)	(Total DL or UL session established (successfully connected to server)/ Total DL or UL session attempt) x100
5	Packet drop rate (in %)	No. of packets lost out of total packet transferred during the testing. • Packet loss rate = (Total packet lost / Total packet sent) x100 Packet delay (RTT) >90 ms considered as packet loss and included in Packet drop rate. • The measurement should include all major types of packets i.e., TCP, UDP and RTP in their representative ratio.The 90th percentile value of the packet drop measurements shall be considered the Packet drop rate.
6	Web browsing delay (in seconds)	Time taken to open the web page successfully is considered as web browsing delay / web page download time. LSA-wise 3 popular websites to be taken
7	Video Streaming performance (in seconds)	TRAI Prescribed Video of 20 Sec with 25 sec Timeout & without caching https://www.youtube.com/watch?v=rH2RjvI0DFs