

For Immediate Release

Information note to the Press (Press Release No. 17/2018)

Telecom Regulatory Authority of India

TRAI Releases Report on Independent Drive Test conducted in Surat City

New Delhi 6th February 2018: Telecom Regulatory Authority of India (TRAI) is regularly monitoring the performance of Telecom Service Providers (TSPs) against the prescribed benchmarks for the various Quality of Service (QoS) parameters laid down by the Authority. TRAI through its agency conducted Independent Drive Tests (IDT) in the city of Surat in Gujarat License Service Area. Drive tests were conducted to assess the network quality provided by cellular mobile telephone service providers for voice and data services.

2. The drive test was conducted for a period of 5 days (19th to 23rd December 2017) covering a drive test route of 690 KMs and data tests conducted on 5 hotspots. IDT included TSPs namely Airtel, BSNL, Idea, Telenor, Tata, Vodafone, and R-Jio. Test included 2G, 3G, 4G and CDMA radio access technologies. The drive test route covered different parts of Surat city and its surrounding regions and included areas from where call drop complaints were received, areas of heavy usage, residential areas away from arterial roads and also office areas.

3. The Key Performance Indicators (KPIs) were assessed for voice services are Network Coverage, Call Setup Success Rate; Drop Call Rate; Block Call Rate, Handover Success Rate and Rx Quality. The KPIs for data services were Download and Upload Throughputs, Web Browsing Delay, Video Streaming Delay and Latency.

4. The summary of the Service Provider's performance on the key parameters based on Independent Drive Test is given here under:-

Voice Call	2G						CDMA
	Airtel	BSNL	Idea	Tata	Telenor	Vodafone	Tata*
Call Attempt	910	928	924	918	884	915	862
Blocked Call Rate (%)	0.4%	2.5%	0.8%	1.2%	0.3%	0.3%	18.1%
CSSR% (Accessibility)	99.6%	97.5%	99.2%	98.8%	99.7%	99.7%	81.9%
Drop Call Rate (%)	1.4%	4.4%	0.2%	3.7%	0.5%	1.0%	4.5%
Mobility HOSR (%)	99.0%	91.9%	98.2%	98.6%	97.2%	95.6%	100.0%
Rx Quality (%)	93.1%	98.5%	98.1%	93.0%	97.6%	95.8%	94.4%

Tata CDMA has less call initiated due to poor coverage

Voice Call	3G					VoLTE
	Airtel	BSNL	Idea	Tata	Vodafone	Jio VoLTE
Call Attempt	909	920	915	827	904	925
Blocked Call Rate (%)	0.9%	1.4%	0.7%	0.6%	0.9%	0.76%
CSSR% (Accessibility)	99.1%	98.6%	99.3%	99.4%	99.1%	99.2%
Drop Call Rate (%)	1.1%	3.5%	0.4%	0.2%	0.4%	0.76%
Mobility HOSR (%)	99.8%	99.7%	99.3%	100.0%	99.6%	99.5%
Rx Quality (%)	86.8%	96.8%	92.6%	91.6%	91.9%	80.66%

Data Services	2G						CDMA
	Airtel	BSNL	Idea	Tata	Telenor	Vodafone	Tata
Download Throughput (Kbps)	77.5	47.9	126.0	94.5	130.7	126.1	860.0
Upload Throughput (kbps)	108.9	69.1	75.4	77.3	141.2	123.9	783.4
Web Browsing Delay (sec)	25.7	30.5	30.8	22.3	32.5	23.4	20.9
Latency (msec)	343	641	260	355	412	209	207

Data Services	3G					4G			
	Airtel	BSNL	Idea	Tata	Vodafone	Airtel	Idea	Jio	Telenor
Download Throughput (Mbps)	2.9	0.9	1.6	3.9	3.1	3.3	6.5	4.5	6.6
Upload Throughput (Mbps)	1.3	0.4	0.9	1.6	1.2	0.9	8.2	2.1	7.2
Web Browsing Delay (sec)	7.1	14.1	11.4	8.1	12.1	9.4	5.0	7.2	6.3
Video Streaming Delay (sec)	1.8	8.2	4.9	2.2	5.7	2.6	0.8	Fail	1.4
Latency (msec)	124	257	165	92	257	173	83	93	82

5. The complete report is available at TRAI website www.analytics.trai.gov.in
In case of any clarification, please contact, Shri. Asit Kadayan, Advisor (QoS) at
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Definitions

Call Attempt: An attempt to achieve a connection to device attached to a telecommunication network.

Block Call $\leq 3\%$: A call that is not connected because there is no free channel in radio access network to serve a call attempt.

CSSR (Call Setup Success Rate) $\geq 95\%$: Ratio of Established Calls to Call Attempts.

Drop Call Rate $\leq 2\%$: An ability to maintain a call once it has been correctly established.

Hand over Success Rate (HOSR) $\geq 95\%$: Ratio between successful handovers to handover requested. (Handover is a process by which a mobile telephone call is transferred from one base station to another as the subscriber passes the boundary of a cell).

Rx Quality $\geq 95\%$: Measure of quality of voice.

Download Throughput: Data transmission rate for downloading a test file from a test server to a test device.

Upload Throughput: Data transmission rate for uploading a test file from a test device to test server.

Web browsing delay (secs): Average time taken to fully load the website tested.

Video Steaming delay (secs): Average time taken to fully download the video tested.

Latency (msecs): Time taken for a packet to reach the receiving endpoint after transmitted from the sending point.

