

For Immediate Release

Information note to the Press (Press Release No. 45 /2018)

Telecom Regulatory Authority of India

TRAI Releases Report on Independent Drive Tests (IDTs) conducted on Highways and Rail-Routes

New Delhi, 17th April 2018: TRAI conducted Independent Drive Tests (IDTs) through its appointed agency on four highways and six rail routes. IDT were conducted to assess the network quality provided by cellular mobile telephone service providers for voice service only. The Key Performance Indicators (KPIs) were assessed for the networks of all telecom service providers operating in the region. KPIs for voice services were Coverage; Call Setup Success Rate; Drop Call Rate; Block Call Rate, Handover Success Rate; Rx Quality. The details of IDT are given below:-

Highways:-

Highways	Period of Conducting IDT	Summary of Results
Bangalore to Belgaum	31 st Oct to 1 st Nov 2017	Annexure-A
Hyderabad to Bangalore	6 th Dec to 7 th Dec 2017	Annexure-B
Silchar-Shillong-Guwahati	21 st Nov to 22 nd Nov 2017	Annexure-C
Belgaum to Mumbai	2 nd Nov to 3 rd Nov 2017	Annexure-D


Railways:-

Rail route	Period of Conducting IDT	Summary of Results
Delhi to Chandigarh	29 th Dec 2017	Annexure-E
Howrah-Dhanbad-Gaya	21 st Dec 2017	Annexure-F
Dibrugarh- Guwahati	18 th Dec 2017	Annexure-G
Bhubaneswar -Tatanagar	15 th Dec 2017	Annexure-H
Ahmedabad to Mumbai	13 th Dec 2017	Annexure-I
Indore to Bilaspur	5 th Dec to 6 th Dec 2017	Annexure-J



3. The key findings of Drive test are summarized below:
- (i) **Bangalore to Belgaum:** All TSPs have met QoS benchmark of Drop Call Rate of 2% except RCom. QoS benchmark of Rx Quality >95% was not met by RCom, Airtel 3G and RJio.
 - (ii) **Hyderabad to Bangalore:** All TSPs have met QoS benchmark of Drop Call Rate of 2% except Vodafone 2G and Tata (CDMA). QoS benchmark of Rx Quality >95% was not met by Aircel, Tata CDMA and RJio.
 - (iii) **Silchar to Guwahati:** All TSPs have fail to meet met QoS benchmark of Drop Call Rate of 2% and of Rx Quality >95%.
 - (iv) **Belgaum to Mumbai:** Idea, Tata, Vodafone, BSNL 3G and Telenor have fail to meet QoS benchmark of Drop Call Rate of 2%. Airtel 3G, BSNL 3G, Idea 3G, Vodafone 3G, Telenor and RJio have fail to meet Rx Quality >95%.
 - (v) **Delhi to Chandigrah:** Only Aitel 2G and RJio are meeting QoS benchmark of Drop Call Rate of 2%. Only BSNL has met Rx Quality >95%.
 - (vi) **Howrah to Gaya:** RJio is meeting QoS benchmark of Drop Call Rate of 2%. All TSP fail to meet Rx Quality >95%.
 - (vii) **Dibrugrah to Guwahati:** RJio is meeting QoS benchmark of Drop Call Rate of 2%. All TSP fail to meet Rx Quality >95%.
 - (viii) **Bhubansehwar to Tatnagar:** All TSPs have failed to meet Drop Call Rate except RJio. However all TSPs have fail to meet Rx Quality >95%.
 - (ix) **Ahmedabad to Mumbai:** All TSPs have failed to meet Drop Call Rate except Idea and RJio. Only BSNL has met Rx Quality >95%.
 - (x) **Indore to Bilaspur:** All TSPs have failed to meet Drop Call Rate except Airtel, Vodafone and RJio. Only BSNL Airtel 2G, Idea 2G, Tata 2G and Vodafone 2G have met Rx Quality >95%.

4. 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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Secretary Incharge
TRAI

**Report on Independent Drive Test conducted in
Bangalore to Belgaum from 31st Oct to 1st November 2017**

The drive test on the highway of Bangalore to Belgaum was conducted for a period of 2 days during 31st Oct to 1st November 2017. It covered a route of approximately 500 KMs and data tests conducted on 5 hotspots. Cellular mobile telephone service providers included namely Aircel, Airtel, BSNL, Idea, RCOM, Tata, Vodafone and Jio. Tests included 2G, 3G, 4G and CDMA radio access technologies.

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

Voice Call	2G						
	Aircel	Airtel	BSNL	Idea	RCOM*	Tata	Vodafone
Call Attempt	332	501	488	488	126	428	494
Blocked Call Rate (%)	4.5%	1.0%	0.0%	0.0%	0.0%	0.0%	0.20%
CSSR% (Accessibility)	95.5%	99.0%	100.0%	100.0%	100.0%	100.0%	99.8%
Drop Call Rate (%)	1.3%	0.0%	0.2%	0.2%	4.0%	1.2%	0.6%
Mobility HOSR (%)	97.7%	99.4%	98.1%	98.5%	100.0%	98.2%	99.7%
Rx Quality (%)	98.5%	97.4%	98.3%	98.4%	94.5%	96.1%	98.9%

Voice Call	3G							VoLTE
	Aircel	Airtel	BSNL	Idea	RCOM*	Tata	Vodafone	Jio
Call Attempt	362	495	477	483	123	410	493	489
Blocked Call Rate (%)	3.31%	2.22%	1.05%	0.83%	1.63%	1.95%	0.81%	1.23%
CSSR% (Accessibility)	96.7%	97.8%	99.0%	99.2%	98.4%	98.0%	99.2%	98.8%
Drop Call Rate (%)	1.7%	1.0%	0.6%	0.6%	2.5%	0.75%	1.0%	0.2%
Mobility HOSR (%)	97.6%	99.8%	97.6%	99.3%	97.9%	99.9%	99.9%	99.5%
Rx Quality (%)	96.0%	91.9%	97.8%	96.6%	91.3%	94.8%	97.0%	90.35%

**RCOM has not measured on 2nd day due to unavailability of RCOM network*

**Report on Independent Drive Test conducted in
Hyderabad to Bangalore from 6th Dec to 7th December 2017**

The drive test on the highway of Hyderabad to Bangalore was conducted for a period of 2 days during 6th Dec to 7th December 2017. It covered a route of approximately 580 KMs and data tests conducted on 5 hotspots. Cellular mobile telephone service providers included namely Aircel, Airtel, BSNL, Idea, Telenor, Tata, Tata (CDMA), Vodafone and Jio. Tests included 2G, 3G, 4G and CDMA radio access technologies.

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
	Aircel*	Airtel	BSNL	Idea	Tata	Telenor	Vodafone	Tata
Call Attempt	172	488	480	502	509	320	499	223
Blocked Call Rate (%)	0.6%	0.0%	2.5%	1.4%	9.2%	6.6%	0.6%	16.1%
CSSR% (Accessibility)	99.4%	100.0%	97.5%	98.6%	90.8%	93.4%	99.4%	83.9%
Drop Call Rate (%)	0.6%	0.4%	0.9%	1.0%	1.3%	1.3%	2.0%	12.3%
Mobility HOSR (%)	98.9%	99.1%	97.0%	98.6%	99.0%	98.4%	98.8%	100.0%
Rx Quality (%)	93.9%	97.3%	98.3%	97.1%	96.6%	95.0%	98.4%	86.9%

Voice Call	3G				Volte
	Aircel*	Airtel	BSNL	Idea	Jio
Call Attempt	179	476	467	501	491
Blocked Call Rate (%)	6.1%	1.3%	3.4%	2.6%	0.00%
CSSR% (Accessibility)	93.9%	98.7%	96.6%	97.4%	100.0%
Drop Call Rate (%)	1.8%	1.5%	1.8%	1.8%	0.00%
Mobility HOSR (%)	98.5%	99.9%	98.9%	99.7%	99.8%
Rx Quality (%)	89.1%	87.6%	95.9%	94.8%	83.16%

*Calls did not get initiated at some part of the highway for Aircel 2G, Aircel 3G & Tata CMDA operators due to lack of coverage.

**Report on Independent Drive Test conducted in
Silchar-Shillong-Guwahati from 21st Nov to 22nd November 2017**

The drive test on the highway of Silchar-Shillong-Guwahati was conducted for a period of 2 days during 21st Nov to 22nd November 2017. It covered a route of approximately 330 KMs and data tests conducted on 5 hotspots. Cellular mobile telephone service providers included namely Aircel, Airtel, BSNL, Idea, Vodafone and Jio. Tests included 2G, 3G, 4G and CDMA radio access technologies.

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

Voice Call	2G				
	Aircel	Airtel	BSNL	Idea	Vodafone
Call Attempt	328	339	250	218	356
Blocked Call Rate (%)	1.5%	1.5%	10.8%	5.5%	1.1%
CSSR% (Accessibility)	98.5%	98.5%	89.2%	94.5%	98.9%
Drop Call Rate (%)	4.3%	4.5%	4.5%	3.4%	2.6%
Mobility HOSR (%)	97.9%	97.6%	88.4%	99.4%	99.2%
Rx Quality (%)	93.67%	91.97%	91.10%	92.87%	95.69%

Voice Call	3G					VoLTE
	Aircel	Airtel	BSNL	Idea	Vodafone	Jio
Call Attempt	328	304	264	279	336	333
Blocked Call Rate (%)	5.5%	3.9%	2.27%	0.72%	1.19%	1.80%
CSSR% (Accessibility)	94.5%	96.1%	97.7%	99.3%	98.8%	98.2%
Drop Call Rate (%)	4.2%	5.8%	6.2%	6.5%	6.9%	5.2%
Mobility HOSR (%)	98.3%	99.6%	91.4%	99.8%	99.4%	99.5%
Rx Quality (%)	93.62%	85.05%	88.35%	90.43%	89.35%	85.74%

**Report on Independent Drive Test conducted in
Belgaum to Mumbai from 2nd Nov to 3rd November 2017**

The drive test on the highway of Belgaum to Mumbai was conducted for a period of 2 days during 2nd Nov to 3rd November 2017. It covered a route of approximately 486 KMs and data tests conducted on 5 hotspots. Cellular mobile telephone service providers included namely Aircel, Airtel, BSNL, Idea, Telenor, Tata, Vodafone and Jio. Tests included 2G, 3G, 4G and CDMA radio access technologies.

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

Voice Call	2G						
	Aircel	Airtel	BSNL	Idea	Tata *	Telenor*	Vodafone
Call Attempt	544	504	519	518	360	328	513
Blocked Call Rate (%)	9.2%	0.4%	1.7%	1.5%	0.8%	1.2%	0.4%
CSSR% (Accessibility)	90.8%	99.6%	98.3%	98.5%	99.2%	98.8%	99.6%
Drop Call Rate (%)	1.2%	1.8%	2.0%	2.4%	3.4%	1.5%	3.9%
Mobility HOSR (%)	98.7%	99.3%	92.5%	97.7%	97.7%	97.8%	98.8%
Rx Quality (%)	95.2%	96.3%	96.5%	95.2%	96.0%	96.3%	97.3%

Voice Call	3G						Volte
	Airtel	BSNL	Idea	Tata*	Telenor*	Vodafone	Jio
Call Attempt	504	488	510	340	320	546	510
Blocked Call Rate (%)	0.8%	2.5%	1.8%	2.4%	0.3%	0.7%	0.4%
CSSR% (Accessibility)	99.2%	97.5%	98.2%	97.6%	99.7%	99.3%	99.6%
Drop Call Rate (%)	1.2%	3.4%	2.6%	3.6%	5.0%	10.3%	0.2%
Mobility HOSR (%)	99.6%	97.6%	99.6%	98.6%	99.4%	99.7%	97.5%
Rx Quality (%)	91.0%	94.4%	86.4%	95.7%	94.2%	94.0%	89.4%

* In Tata & Telenor calls did not initiate at some part of highway due to lack of coverage

**Report on Independent Drive Test conducted in
Delhi to Chandigarh on 29th December 2017**

The drive test on the Rail route of Delhi to Chandigarh was conducted for a period of 1 day during 29th December 2017. It covered a route of approximately 250 KMs and data tests conducted on 5 hotspots. Cellular mobile telephone service providers included namely Aircel, Airtel, BSNL, Idea, Tata, Tata (CDMA), Vodafone and Jio. Tests included 2G, 3G, 4G and CDMA radio access technologies.

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
	Aircel*	Airtel	BSNL	Idea	Tata *	Vodafone	Tata
Call Attempt	20	118	113	115	106	94	47
Blocked Call Rate (%)	5.0%	0.0%	3.5%	1.7%	20.8%	4.3%	19.1%
CSSR% (Accessibility)	95.0%	100.0%	96.5%	98.3%	79.2%	95.7%	80.9%
Drop Call Rate (%)	10.5%	1.7%	6.4%	2.7%	2.4%	5.6%	21.1%
Mobility HOSR (%)	98.2%	98.6%	91.2%	97.6%	97.3%	94.7%	100.0%
Rx Quality (%)	82.4%	93.9%	96.3%	94.0%	92.5%	89.4%	80.7%

Voice Call	3G						VoLTE
	Aircel*	Airtel	BSNL	Idea	Tata*	Vodafone	Jio
Call Attempt	20	122	121	115	93	100	117
Blocked Call Rate (%)	0.0%	2.5%	3.3%	1.7%	3.2%	3.0%	0.0%
CSSR% (Accessibility)	100.0%	97.5%	96.7%	98.3%	96.8%	97.0%	100.0%
Drop Call Rate (%)	20.0%	2.5%	8.5%	2.7%	5.6%	4.1%	0.0%
Mobility HOSR (%)	91.9%	99.8%	97.7%	99.1%	99.5%	99.6%	100.0%
Rx Quality (%)	82.2%	83.2%	95.0%	90.4%	86.6%	80.4%	71.7%

*Calls did not get initiated at some part of the Railway Route for Aircel 2G, Airtel 3G, Tata 2G, Tata 3G & Tata CDMA operators due to lack of coverage.

Report on Independent Drive Test conducted in Hawrah-Dhanbad-Gaya on 21st December 2017

The drive test on the Rail route of Hawrah-Dhanbad-Gaya was conducted for a period of 1 day during 21st December 2017. It covered a route of approximately 460 KMs and data tests conducted on 5 hotspots. Cellular mobile telephone service providers included namely Aircel, Airtel, BSNL, Idea, Telenor, Tata, Tata (CDMA), Vodafone and Jio. Tests included 2G, 3G, 4G and CDMA radio access technologies.

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
	Aircel	Airtel	BSNL	Idea	Tata	Telenor	Vodafone	Tata
Call Attempt	163	212	187	197	200	175	199	82
Blocked Call Rate (%)	1.2%	2.8%	3.7%	2.5%	3.5%	5.1%	0.0%	46.34%
CSSR% (Accessibility)	98.8%	97.2%	96.3%	97.5%	96.5%	94.9%	100.0%	53.7%
Drop Call Rate (%)	5.6%	7.3%	12.8%	8.9%	4.7%	7.8%	8.5%	38.6%
Mobility HOSR (%)	98.7%	95.3%	87.8%	96.1%	93.8%	96.1%	99.2%	100.0%
Rx Quality (%)	92.5%	88.9%	87.5%	91.0%	88.4%	88.2%	88.7%	76.29%

Voice Call	3G						VoLTE
	Aircel	Airtel	BSNL	Idea	Telenor	Vodafone	Jio VoLTE
Call Attempt	140	216	189	192	160	195	180
Blocked Call Rate (%)	4.3%	5.1%	5.8%	1.6%	1.3%	5.64%	5.56%
CSSR% (Accessibility)	95.7%	94.9%	94.2%	98.4%	98.8%	94.4%	94.4%
Drop Call Rate (%)	7.5%	8.3%	10.1%	5.3%	5.1%	8.70%	1.2%
Mobility HOSR (%)	99.0%	99.5%	90.8%	99.8%	97.4%	99.7%	99.0%
Rx Quality (%)	83.5%	82.3%	87.7%	86.9%	85.1%	81.65%	89.01%

**Report on Independent Drive Test conducted in
Dibrugarh to Guwahati on 18th December 2017**

The drive test on the Rail route of Dibrugarh to Guwahati was conducted for a period of 1 days during 18th December 2017. It covered a route of approximately 580 KMs and data tests conducted on 5 hotspots. Cellular mobile telephone service providers included namely Aircel, Airtel, BSNL, Idea, Vodafone and Jio. Tests included 2G, 3G, 4G and CDMA radio access technologies.

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

Voice Call	2G				
	Aircel	Airtel	BSNL	Idea	Vodafone
Call Attempt	336	358	383	254	332
Blocked Call Rate (%)	1.5%	1.4%	2.3%	3.1%	1.2%
CSSR% (Accessibility)	98.5%	98.6%	97.7%	96.9%	98.8%
Drop Call Rate (%)	3.9%	5.7%	5.6%	6.9%	3.7%
Mobility HOSR (%)	97.9%	99.4%	98.0%	100.0%	99.5%
Rx Quality (%)	91.62%	87.77%	86.31%	89.31%	92.73%

Voice Call	3G					VoLTE
	Aircel	Airtel	BSNL	Idea	Vodafone	Jio
Call Attempt	309	327	389	288	314	333
Blocked Call Rate (%)	2.3%	2.1%	1.3%	3.1%	3.2%	2.4%
CSSR% (Accessibility)	97.7%	97.9%	98.7%	96.9%	96.8%	97.6%
Drop Call Rate (%)	4.6%	4.1%	8.1%	5.4%	6.6%	0.6%
Mobility HOSR (%)	99.8%	100.0%	97.5%	100.0%	100.0%	99.3%
Rx Quality (%)	88.95%	82.16%	84.59%	89.59%	89.64%	90.30%

**Report on Independent Drive Test conducted in
Bhubaneswar to Tatanagar on 15th December 2017**

The drive test on the Rail route of Bhubaneswar to Tatanagar was conducted for a period of 1 day during 15th December 2017. It covered a route of approximately 460 KMs and data tests conducted on 5 hotspots. Cellular mobile telephone service providers included namely Aircel, Airtel, BSNL, Idea, Telenor, Tata, Tata (CDMA), Vodafone and Jio. Tests included 2G, 3G, 4G and CDMA radio access technologies.

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
	Aircel	Airtel	BSNL	Idea	Tata	Telenor*	Vodafone	Tata
Call Attempt	173	216	245	214	200	69	273	218
Blocked Call Rate (%)	1.7%	0.0%	3.3%	1.4%	4.0%	8.7%	1.1%	17.9%
CSSR% (Accessibility)	98.3%	100.0%	96.7%	98.6%	96.0%	91.3%	98.9%	82.1%
Drop Call Rate (%)	8.8%	4.6%	7.6%	3.8%	13.5%	6.3%	4.1%	15.1%
Mobility HOSR (%)	97.8%	95.0%	93.0%	98.8%	93.5%	90.4%	99.5%	100.0%
Rx Quality (%)	92.3%	92.6%	89.2%	88.2%	89.0%	87.5%	90.6%	83.3%

Voice Call	3G						VoLTE
	Aircel	Airtel	BSNL	Idea*	Telenor*	Vodafone	Jio
Call Attempt	185	227	229	81	39	192	219
Blocked Call Rate (%)	1.6%	4.4%	4.4%	0.0%	2.6%	2.1%	3.7%
CSSR% (Accessibility)	98.4%	95.6%	95.6%	100.0%	97.4%	97.9%	96.3%
Drop Call Rate (%)	7.1%	6.5%	6.8%	6.2%	2.6%	6.9%	0.9%
Mobility HOSR (%)	99.0%	98.7%	93.1%	100.0%	100.0%	100.0%	98.7%
Rx Quality (%)	90.5%	86.5%	90.9%	89.1%	87.5%	88.6%	83.6%

*Calls did not get initiated at some part of the Railway Route for Idea 3G, Telenor 2G, Telenor 3G & Tata CDMA operators due to lack of coverage.

**Report on Independent Drive Test conducted in
Ahmedabad to Mumbai on 13th December 2017**

The drive test on the Rail route of Ahmedabad to Mumbai was conducted for a period of 1 day during 13th December 2017. It covered a route of approximately 500 KMs and data tests conducted on 5 hotspots. Cellular mobile telephone service providers included namely Aircel, Airtel, BSNL, Idea, Telenor, Tata, Tata (CDMA), Vodafone and Jio. Tests included 2G, 3G, 4G and CDMA radio access technologies.

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
	Aircel*	Airtel	BSNL	Idea	Tata	Telenor	Vodafone	Tata
Call Attempt	79	234	200	231	209	167	224	183
Blocked Call Rate (%)	1.3%	10.3%	5.0%	9.1%	4.3%	14.4%	1.3%	15.3%
CSSR% (Accessibility)	98.7%	89.7%	95.0%	90.9%	95.7%	85.6%	98.7%	84.7%
Drop Call Rate (%)	7.7%	5.7%	7.9%	1.4%	5.0%	3.5%	6.8%	3.2%
Mobility HOSR (%)	96.4%	95.7%	93.4%	94.8%	95.2%	95.4%	94.9%	100.0%
Rx Quality (%)	85.9%	90.3%	96.0%	94.4%	90.5%	93.9%	92.1%	85.8%

Voice Call	3G					Volte
	Airtel	BSNL	Idea	Tata	Vodafone	Jio
Call Attempt	222	204	228	216	215	221
Blocked Call Rate (%)	9.5%	7.4%	7.5%	6.9%	7.9%	0.0%
CSSR% (Accessibility)	90.5%	92.6%	92.5%	93.1%	92.1%	100.0%
Drop Call Rate (%)	4.5%	10.6%	0.9%	11.4%	4.5%	0.0%
Mobility HOSR (%)	98.0%	98.6%	98.6%	98.8%	97.8%	99.4%
Rx Quality (%)	85.0%	90.8%	87.8%	86.0%	78.1%	74.6%

**Calls did not get initiated at some part of the Railway Route for Aircel 2G & Tata CDMA operators due to lack of coverage.*

**Report on Independent Drive Test conducted in
Indore to Bilaspur from 5th Dec to 6th December 2017**

The drive test on the Rail route of Indore to Bilaspur was conducted for a period of 2 day during 5th Dec to 6th December 2017. It covered a route of approximately 1030 KMs and data tests conducted on 5 hotspots. Cellular mobile telephone service providers included namely Airtel, BSNL, Idea, Tata, Tata (CDMA), Vodafone and Jio. Tests included 2G, 3G, 4G and CDMA radio access technologies.

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	Vodafone	Tata*
Call Attempt	718	745	729	796	686	255
Blocked Call Rate (%)	2.6%	3.1%	5.5%	15.1%	0.7%	9.0%
CSSR% (Accessibility)	97.4%	96.9%	94.5%	84.9%	99.3%	91.0%
Drop Call Rate (%)	1.7%	3.6%	2.3%	2.4%	1.2%	4.3%
Mobility HOSR (%)	98.2%	88.4%	98.3%	98.9%	98.4%	100.0%
Rx Quality (%)	95.5%	98.6%	95.7%	95.9%	98.1%	86.7%

Voice Call	3G					VoLTE
	Airtel	BSNL	Idea	Tata	Vodafone	Jio
Call Attempt	746	717	726	706	696	703
Blocked Call Rate (%)	2.5%	4.0%	8.4%	22.7%	2.2%	5.3%
CSSR% (Accessibility)	97.5%	96.0%	91.6%	77.3%	97.8%	94.7%
Drop Call Rate (%)	1.5%	3.5%	3.6%	2.7%	1.6%	1.7%
Mobility HOSR (%)	99.6%	96.3%	99.9%	100.0%	100.0%	99.7%
Rx Quality (%)	93.8%	95.1%	89.7%	93.8%	89.5%	77.0%

*Calls did not get initiated at major part of the railway route for CDMA operators due to lack of coverage.

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 $> 95\%$: Measure of quality of voice