

Bharti Airtel Ltd.
India & South Asia
Airtel Center, Plot No. 16,
Udyog Vihar, Phase-IV,
Gurgaon - 122 015

www.airtel.in
Call: +91 124 4222222
Fax: +91 124 4248063



Ref No: RP/FY 15-16/087/065
Dated 21st September 2015

To,
Advisor (F&EA),
Telecom Regulatory Authority of India,
Mahanagar Doorsanchar Bhawan,
Jawahar Lal Nehru Marg, Old Minto Road,
New Delhi - 110002

Kind Attention: Smt. Vinod Kotwal

Subject - Airtel response on the Consultation Paper on Compensation to the Consumers in the Event of Dropped Calls.

Reference: TRAI Consultation paper no. 4/2015 dated 4th September 2015

Dear Madam

This is with reference to your above mentioned consultation paper. In this regard, please find enclosed our response for your kind consideration.

Thanking you
Yours sincerely
For Bharti Airtel Limited

A handwritten signature in blue ink, appearing to read 'R. Gandhi', is written over a horizontal line.

Ravi P. Gandhi
Chief Regulatory Officer

Enclosed: As mentioned above

**Airtel's Response to TRAI's Consultation Paper on
"Compensation to the Consumers in the Event of Dropped Calls"**

We, at Airtel, consistently strive to provide high user experience to our customers through seamless and high quality network. In fact, we take great pride in the quality of our network and services across the country. We are widely known as the brand with the best network coverage. It, therefore, pains us every time when our customer faces a problem, especially with respect to quality of service. Therefore, any discussion on the Quality of Service / Call Drops is of utmost importance to us. As an operator, we have shown our willingness and determination in resolving this issue and hence we are constantly monitoring the situation and are making every effort for continuous improvement.

In this backdrop, our response to the issues raised in the consultation paper is as under:

- Q 1. Do you agree that calling consumers should not be charged for a call that got dropped within five seconds? In addition, if the call gets dropped any time after five seconds, the last pulse of the call (minute/second) which got dropped, should not be charged. Please support your viewpoint with reasons along with the methodologies for implementation.**
- &
- Q 2. Do you agree that calling consumer should also be compensated for call drops by the access service providers? If yes, which of the following methods would be appropriate for compensating the consumers upon call drop:**
- (i) Credit of talk-time in minutes/ seconds**
 - (ii) Credit of talk-time in monetary terms**
 - (iii) Any other method you may like to suggest**
- &
- Q 3. Please support your viewpoint with reasons along with the methodologies for implementation. If the answer to the Q2 is in the affirmative, suggest conditions/limits, if any, which should be imposed upon the provision of crediting talk-time upon call drop and usage thereof.**
- &
- Q 4. Is there any other relevant issue, which should be considered in the present consultation on the issue of call drops?**

Bharti Airtel's Response:

In the last few weeks, there have been discussions at every forum in the industry on the issue of 'call drops'. It is a matter of concern for all the operators and we are continuously working to ensure that the services provided to our customers are free from call drops. However, most of the times we are invariably at the receiving end from both the media and the public at large. Therefore, it is necessary that this issue should be discussed in its entirety, starting from what constitutes a call drop, why it happens, can it be eliminated in entirety, what steps can be taken to reduce it and can tariff intervention help to address the situation.

I. What causes call drop and steps taken to eliminate it?

Call drop is a localized phenomenon in some cells having extremely high traffic or due to poor/no coverage in that area which is generally on account of unavailability of sites to install equipment and antennas. In a mobile network, the capacity of each site and consequently, the network is limited by the availability of spectrum that can be used to carry traffic. Moreover, the customer usage pattern in terms of their location and time of use is not static and is dependent on the time of day, day of the week, mix between 2G and 3G traffic, handovers and thresholds, signaling load due to different technologies/usages as well as different implementation in devices / network equipment. As a result, the gap between “spectrum resources available” and “spectrum resources required” leads to the possibility of few overloaded cells which consequently result in call drops. Additionally, lack of sites at critical locations accentuates the problem further causing coverage holes where a total absence of radio signal leads to customers not being able to make calls or their calls getting dropped when they move into such areas. These overloaded cells are not static and they vary basis the change in the traffic pattern. For example:

- A cricket match in a stadium will result in localized congestion at that point of time.
- Sealing / closing down of sites by municipal/local authorities is another cause of action as it results in not only coverage holes in the locations covered by those cells but also leads to localized congestion in the neighboring cells.
- Non availability of sites in a particular area, e.g. Lutyen’s Delhi or the Government areas in state capitals would lead to the localized congestion as there would be users moving in that area and using the network irrespective of the restriction/non availability of sites to provide the required coverage and capacity.

Such localized network congestion can never be eliminated but it can at best be reduced by **either having more spectrum or more cell sites at those locations**. For these localized areas experiencing call drops more regularly, constant monitoring and identification is being carried out along with regular optimization of network capacity and coverage. Subsequent corrective actions like installation of towers, creation of additional capacity, repeaters, IBS, network optimization etc. are also being undertaken as per the feasibility. However, the laws of physics put a limit to the extent all these measure can help and after a certain threshold of traffic, only solution left is to have additional spectrum.

Airtel has spent more than Rs. 68k crores for buying spectrum during last 5 years. While 1/3rd of this has been spent towards extension of licenses, balance 2/3rd has been utilized spent towards buying additional spectrum for meeting the needs of growing traffic. Additionally, Rs. 38k crores has been spent in last 5 years towards network capex including towers. Thus, Airtel has spent more than Rs. 1 lakh crores in the last 5 years, which is geared towards enhancing the customer experience.

During last seven months, we have deployed 3,500 sites in Delhi service area alone. On a Pan India basis, more than 24,000 sites have been installed with an investment of approximately Rs. 5,400 crores. Out of this, more than 20% (more than Rs. 1,100 crores) has spent towards 2G Voice.

Additionally, constant optimization is a key exercise undertaken using tools equipped with state of the art technology such as:

- Self Organizing Networks (SON)-Automated Optimization Tool, which detects neighbor cell anomalies, interfaces automatically with network nodes, corrects power levels, populates and deletes neighbor definitions every 15 minutes.
- Geo-spatial analysis tool, which does microanalysis of throughput, interference and signal levels at 50 mtr. X 50 mtr. grid and recommends clear actions for aligning directions, tilts and putting small cells.

In last 2 months alone i.e. July 2015 & August 2015, cell wise optimization has been done for more than 3600 cells, automatic frequency planning has been done for 38 towns, new feature has been implemented in approx. 1800 cells and fourth cell with twin beam antenna has been deployed in more than 1200 sites.

Thus, we, as service providers, are seriously committed towards tackling this matter constructively and in the process continue to be at the forefront in providing high quality telecom services to our customers.

II. Factors causing continuation of call drops despite the steps taken by operators

One would argue that when all the necessary steps that are required to address the quality of service and to minimize call drops are already being undertaken, why has there been an increase in instances of call drop? In this backdrop, it is essential to mention that the overall calls drops is around the same level as in the past and well within the prescribed limits as prescribed by TRAI but localized call drops has risen at certain locations. There has been an exponential growth of data traffic, which requires operators to deploy additional network capacity by way of augmenting spectrum resources and additional antennas/sites. Our efforts to create the additional capacity for meeting the growing demand have hit the roadblock due to non-availability of sufficient spectrum, sealing/ shutdown of existing sites and inability to acquire new sites in many areas.

A summarized list of factors causing roadblocks in acquiring spectrum, site/towers and optimization is as follows:

- a) Un-availability of enough spectrum- *which is commensurate to the growth of traffic.*
- b) Reduction of spectrum cap- *Airtel was unable to acquire 2nd carrier of 3G spectrum for a critically loaded network of Delhi.*
- c) Arbitrary RoW polices/charges levied by local authorities/municipalities- *on installation of towers and laying of optical fibre cable.*
- d) Misplaced fear of emissions in public- *makes the site acquisition difficult.*
- e) No clear policy for deployment of cell sites on Government Land/ Buildings and in Defense areas- *leading to huge coverage holes.*
- f) Frequency swapping upon expiry of licenses-*very less time provided*

The details in respect of above issues/factors are as follows:-

a) Un-availability of enough spectrum:

In the recent auction of March 2015, there was no spectrum available in 900 and 1800 bands in critical markets like Delhi. This fact compounded with the massive growth in data as well as voice traffic, has rendered operators helpless as the only raw material for enhancement of network coverage/capacity itself is not available in sufficient quantity. With more than 3-4 times of subscribers per site as compared to international markets, the situation in Indian metros gets even worse because the spectrum per operator is 4-5 times lower leading to a network loading of around 15-20 times more than the foreign counterparts.

b) Reduction of spectrum cap:

During spectrum auction in the year 2015, Government reduced the spectrum cap without realizing its ill effects on resource planning of the operators including Airtel. This was done on account of surrender of some spectrum by a couple of service providers. This, single factor, while impacting us in other circles also impacted us critically in Delhi circle where we were left handicapped on account of our forced "inability" to procure the 2nd 3G carrier required by us. The ill effect of the wrong policy is evident from the fact that while we were not allowed to procure the 3G spectrum, we continue to struggle with the problem of call drop and the very same spectrum remained unsold causing huge loss to exchequer also. The exponential growth of 3G users/devices in Delhi has not only led to very high growth of 3G data traffic but has also led to shifting of a large amount of voice traffic from 2G network to 3G network. Our inability to acquire the 2nd carrier of 3G spectrum is the biggest contributor for the deterioration of customer experience in Delhi.

c) Arbitrary RoW polices/ charges levied by local authorities/ municipalities:

The current framework of multiple civic authorities granting the permission for telecom towers installation/ROW is a major impediment in the growth of telecom infrastructure in the country. Further, arbitrary and ad-hoc tower deployment charges in respect of tower deployed even within the private properties has led to several disputes.

In this regard, it is submitted that as per the provisions of the Indian Telegraph Act, 1885;

- Local authority's power in terms of exercising provisions of the Act is limited only to those properties that are vested in or under the control or management of local authorities.
- Permission for deployment of telegraph line/ post (towers/antennas) cannot be denied;
- The local authorities can levy charges for repair and reinstatement only while granting permission to place a telegraph line/ post on the properties that are vested in or under the control or management of local authority and not for the private properties.

However, inaction on part of the Central Government to notify/ clarify the existing provisions of the Act and the non-existence of a Dispute Resolution Authority has led to a situation where the Local Authorities are now charging indiscriminately and arbitrary, States are making their own ad-hoc policies which are neither in line with the Central Government policies nor in compliance with the Indian Telegraph Act 1885.

Such anomalies have led to several disputes and the issues are being contested in courts. The local authorities still continue to seal the towers in an adhoc manner which not only undermines the huge capital investments made by telecom operators but also leads to sudden loss of signals in that area, ultimately causing the overloading of neighboring cells resulting in increase of call drops. In Delhi alone, MCD has sealed more than 200 towers of Airtel. The most recent ceiling of 37 towers in the month of August 2015 has itself led to an increase of 20% in call drops in one single instance. It may be appreciated that the present network has been planned meticulously and deployed carefully over the last 20 years. Such sudden sealing of sites increases the load on the existing sites in the nearby areas causing signal interference, capacity constraints and thus impacting the network coverage and increasing call drops. Further, the installation of new sites and RoW permissions for cable/ fiber laying is a long drawn process, which is further lengthened due to multiple permissions from multiple agencies as well as misplaced fear of emissions.

As an estimate, during the recent past, we have been unable to acquire 3500 sites on a Pan India basis, on account of emission concerns and adhoc/arbitrary tower policy, which has impacted the QoS in key cities including Delhi, Mumbai, Kolkata, Bangalore, Hyderabad, Chandigarh, Jaipur and Patna. Apart from this, shutting down/sealing of sites aggravates the situation further. For Airtel alone, an estimated 2300 sites have been shut down for various reasons as mentioned above.

d) Misplaced fear of emissions in public:

In the recent past, there has been growing concern in respect of ill effects of emissions from telecom towers on health of people. Due to this, (i) the existing towers in residential areas, or near schools and hospitals are not being renewed post the expiry of the lease duration, (ii) the RWAs/ Schools/ hospitals are asking operators to remove the towers. Some states have also made tower policies that restrict installation of towers in residential areas, schools and hospitals. Therefore, continuation of operations as well as further installation of towers in these areas is becoming more and more difficult.

It is worthwhile to mention that every BTS has a limited range to serve the customers and it is infeasible to have adequate mobile signal coverage for the customers living in residential areas, without actually reaching out to them by installation of mobile towers at technically feasible distances. One would wonder if “Not in my backyard” and “Ubiquitous coverage” go hand in hand. We, as operators, are doing our part in educating the public at large that the fears on account of emissions are misplaced. The emission of non-ionizing electromagnetic waves from towers does not have any ill effects on human health.

If the mobile operators have to provide ubiquitous and seamless network coverage without call drops to every user, then they would have to take their network closer to the customers. This is only possible if such hurdles are not created in the installation of antennas/towers.

e) No clear policy for deployment of cell sites on Government Land/ Buildings and in Defense areas:

There are areas in and around every state capital/ important cities wherein only Government land/ buildings or residences are located. Further, many areas in important cities are under the control of Defence. Network coverage in these locations require deployment of antennas in these areas. It is therefore essential that there should be an enabling policy allowing operators to deploy antennas on Government buildings/land/residences and in Defense establishments to plug cover gaps and control repetitive incidences of call drops and poor signal quality.

f) Frequency swapping upon expiry of licenses:

There is another event in the recent past contributing significantly to the quality of service issues. The changeover of frequencies in Delhi, Mumbai and Kolkata consequent upon the expiry of licenses in Nov, 2014 not only required re-optimization of network but also change of all repeaters and IBS.

Subsequent to the expiry of licenses held by Airtel in Delhi & Kolkata and Vodafone in Delhi, Mumbai & Kolkata, the quantum of spectrum holdings, frequency spots held and the spectrum mix has changed. The network which existed prior to the expiry of the licenses was set up with due planning and was well established over a period of 20 years. A transition of the existing network to new frequencies required due planning and sufficient time for execution. For a seamless transformation without any impact on QoS, it is essential that :

- An alternate network on 1800 MHz band needs to be deployed;
- Subsequent reduction in the quantum of spectrum in 900 MHz band from the presently held wherever applicable;
- Switchover to new frequency spots in 900 MHz band in due coordination
- Changing the repeaters/IBS deployed over the period of last 20 years.

The importance of sufficient time for changeover had been acknowledged both by DoT and TRAI. DoT in its reference back dated 10th October, 2011 on TRAI's May 2010 recommendations has expressed the following view:

"Looking at the technical and implementation issues, it is observed that 6 months period may not be sufficient to migrate the network from 900MHz to 1800MHz band on extension of licence(s)."

TRAI in its letter dated 17th Oct, 2014 to DoT has also expressed its concern on the issue of seamless migration:

“.... Both of them will be required to do rigorous planning and work in tandem. The above change over will be a huge challenge as all these changes are to be carried out on a live network catering to millions of subscribers and any lapse may result in service interruption and serious deterioration in quality of service.

.....Moreover, the Authority is seriously concerned that this delay on the part of WPC in assigning spectrum in the 1800 MHz band may lead to a partial breakdown of services offered by these two operators especially in Delhi, the national capital. This will inconvenience consumers greatly. Both these operators have around 20 million subscribers in Delhi which constitute round 45% of the total subscriber base of Delhi LSA. It is apprehended that in December 2014, there will be a serious deterioration in the quality of service to these subscribers because of call drops, network congestions etc.

.....The Authority suggests that the DOT should immediately call a meeting of both TSPs and arrive at a feasible solution so that consumers' inconvenience can be avoided.”

However, despite the criticality of the issues involved in changeover, the first step in the process i.e. set up of an alternate network on 1800 MHz band could not be started before the allocation of spectrum in 1800 MHz band and the delay of spectrum allocation by more than 7 months (finally allocated in the month of Oct, 2014), left just about one month for the installation of more than 1000 sites and swapping of frequencies.

The synchronization, optimization and adjustment of network to a new set of frequencies in a short span of time was a herculean task. No international experiences of transition of such magnitude are available. Despite the delay in allocation of alternate spectrum, we have done our level best to swap the frequencies. This event had certainly led to degradation in quality of service in the deployed network to some extent.

III. Next Steps - in resolving the issue of call drops:

It is worthwhile to mention that we as an operator have been taking all possible steps to address the issue of call drops. These steps include investments in spectrum and network to the tune of Rs. 1 Lakh crores in last 5 years, installation of more than 24,000 sites in last 1 year, 1000 small cells in last few months, deploying state of art tools for optimization such as SON-Automated optimization tool & Geo-spatial analysis tool etc.

But, we need to address each of the reasons contributing towards call drops as indicated in the previous section. We, therefore, believe that resolution of the following issues will definitely go a long way in addressing the problem of call drops permanently and will help in realizing the vision of seamless and ubiquitous coverage across the country:

a) Uniform policy around towers and Right of way:

The Indian Telegraph Act, 1885, enacted with the main objective to provide powers to the Government and to any person licensed thereunder to place telegraph lines under or over property belonging whether to the private persons or public bodies.

The Act defines “telegraph line” and “post” as under:

"telegraph line" means a wire or wires used for the purpose of a telegraph, with any casing, coating, tube or pipe enclosing the same, and any appliances and apparatus connected therewith for the purpose of fixing or insulating the same;

(5) "post" means a post, pole, standard, stay, strut or other above ground contrivance for carrying, suspending or supporting a telegraph line;

Section 10 of the Act empowers the “Telegraph Authority” to place and maintain “telegraph lines” and “posts” in or upon any immovable property in the following terms:

10. Power for telegraph authority to place and maintain telegraph lines and posts to place and maintain telegraph lines and posts – *The telegraph authority may, from time to time, place and maintain a telegraph line under, over, along, or across, and posts in or upon any immovable property:*

Provided that –

- a. the telegraph authority shall not exercise the powers conferred by this section except for the purposes of a telegraph established or maintained by the [Central Government], or to be so established or maintained;*
- b. the [Central Government] shall not acquire any right other than that of user only in the property under, over, along, across in or upon which the telegraph authority places any telegraph line or post; and*
- c. except as hereinafter provided, the telegraph authority shall not exercise those powers in respect of any property vested in or under the control or management of any local authority, without the permission of that authority; and*
- d. in the exercise of the powers conferred by this section, the telegraph authority shall do as little damage as possible, and, when it has exercised those powers in respect of any property other than that referred to in clause (c), shall pay full compensation to all persons interested for any damage sustained by them by reason of the exercise of those powers.*

Section 11 of the Act empowers a Telegraph Authority to enter on property in order to repair or remove telegraph line/s or post/s whereupon it might have been placed, in the following terms:

11. Power to enter on property in order to repair or remove telegraph lines or posts – *The telegraph authority may, at any time, for the purpose of examining, repairing, altering or removing any telegraph line or post, enter on the property under, over, along, across, in or upon which the line or post has been placed.*

It is thus evident that a Telegraph Authority has been vested with very wide powers by Parliament to enter upon any immovable property to place, maintain, repair, alter and/or remove any telegraph line or post in or upon any immovable property. The only restriction imposed is the requirement of obtaining permission of the local authority concerned, wherever the telegraph line or post is to be placed or maintained on a property, which is vested in or is under the control or management of any local authority.

Section 19-B of the said Act lays down that the Central Government may, by notification in the Official Gazette, confer upon any licensee under section 4, in respect of the extent of his license and subject to any conditions and restrictions which the Central Government may think fit to impose, all or any of the powers which the telegraph authority possesses with regard to a telegraph established or maintained by the government or to be so established or maintained.

In exercise of the powers under Section 19-B, the Central government has issued notifications dated 24.05.1999 and 04.02.2002, whereby the private basic and cellular telephone service operators have been conferred the powers to seek way - leave from any person including any public authority, public corporation, autonomous body, State Government or Central Government in the respective licensed service area, inter-alia, to place and maintain telephone lines under, along or across and posts in or upon property vested in or under the control or management of concerned owner.

Thus, on a cumulative reading of the aforementioned provisions of the Indian Telegraph Act and the notifications issued thereunder, the local bodies and State Governments, legally speaking, have no right to frame a policy which causes hindrance or impediments in the functioning of the establishment of the network and placement of telegraph lines and posts etc. or charge any rent or administrative fee for granting permission. They can only seek for compensation towards repair of any damage caused due to placement of poles/towers.

The issue was examined in detail by TRAI in its recommendations dated 12th April, 2011 on Telecommunications Infrastructure Policy wherein TRAI after due analysis of the provisions of law under the Indian Telegraph Act 1885 as well as the state provisions, had recommended the following:

“DoT should clarify this position – that the local authority’s power in terms of exercising the provisions of the Indian Telegraph Act, 1885 is limited only to those properties that are vested in or under the control or management of local authority - to all the State Governments for strict compliance by local authorities.”

“Central Government should appoint Joint Secretary in DoT as the dispute resolution authority for dealing with the cases of refusal of permission or imposition of conditions for granting permission by local authority.”

“Local authorities are allowed to impose reasonable conditions regarding the payment of any expenses to which the authority will necessarily be put in consequence of the laying/erection of the telecom infrastructure. Since there are no guidelines available, these charges for restoration as a consequence of infrastructure deployment differ between different authorities and some time in two different areas under the same authority. Non uniformity may lead to non agreement and delay in execution of infrastructure work. It is felt that charges for similar type of work may be more or less similar across similar types of cities, towns or villages. Therefore, it will be

better if the restoration charges are prescribed in advance by type of city and made applicable across the country”

As per the provisions of Indian Telegraph Act, 1885 and various state legislations, the local authority’s power in terms of exercising the provisions of the Indian Telegraph Act, 1885 is limited only to those properties that are vested in or under the control or management of local authority.

However, local authorities/ corporations are treating this as a source of revenue and demanding exorbitant amount in lieu of grant of permission for installation of towers/ ROW. Such demand often leads to disputes and litigations with the local authorities/ corporations resorting to sealing of towers.

It is therefore essential at this juncture that:

- DoT should clarify - that the local authority’s power in terms of exercising the provisions of the Indian Telegraph Act, 1885 is limited only to those properties that are vested in or under the control or management of local authority.
- Permission for deployment of telegraph line/ post cannot be denied;
- The local authorities to levy charges for repair and reinstatement only while granting permission to place a telegraph line/ post on the properties that are vested in or under the control or management of local authority and not for the private properties
- Telecom be declared as an essential infrastructure & single window clearance for new sites (in line with power distribution companies Electricity Act, 2003: Section 67, Part VIII and water companies The Water (Prevention and Control of Pollution) Act, 1974) Further, all essential services sector like Power, Railways have been provided immunity and there are legal sanctions against damage to the properties of these utilities. It is high time that such legal cover is provided to the telecom infrastructure as well. Any damage to the telecom property should be treated as a criminal offence. Just like Railways and Power, the Telecom sector also provides 24* 7 services to its customer. Hence the assets like BTS, BSC and switch / other telecom assets should get the legal cover and protection. This would immensely help in ensuring continued services to the customers.
- The Government should formulate a National Telecom Infrastructure Policy (NTIP), in exercise of powers under Section 7 of the Indian Telegraph Act, 1885 to lay down clear guidelines to be followed by various states and local authorities for grant of approvals and certification for telecom towers and laying of optical fibre cables.

b) Address misplaced concern of the public in respect of emission from towers:

In respect of emission norms, it is submitted that:

- International Commission on Non-Ionizing Radiation Protection (ICNIRP) is a global organization that has issued guidelines in respect of safe limits for EMF exposure. Several countries have accepted these guidelines for prescribing safe limits for emissions from towers.

- In Nov 2008, DoT adopted the ICNIRP standards for EMF exposure. Subsequently, Inter Ministerial Committee (IMC) was setup in Feb, 2011 to review the EMF standard in India. Consequently, DoT adopted 1/10th of the ICNIRP standards as a precautionary measure in Sep, 2012.
- It is therefore evident that the emission norms in India are much stringent as compared to the norms followed by several countries world over.

However, despite following stringent safer norms as compared to several other countries world over, there is lack of public awareness on the issue. On the contrary, there is misplaced fear of emission in the general public which has led to shutdown/no permission for sites in residential areas/schools/hospitals. To aggravate the situation, many States have come up with tower policies, which mandate no installation of sites in residential areas/schools/hospitals.

TRAI along with DoT is therefore, requested to come up with an informative campaign educating the public that their fears on harmful effects of emissions are unfounded and there is no conclusive evidence till date that establishes / confirms the harmful effect of emissions on the health of humans.

c) Permission to deploy sites on Government land/ buildings/ residences and Defense areas:

It is learnt that Ministry of Communications and IT has sent communications to all the State Governments for allowing operators to deploy towers on Government buildings/ land such as offices, schools, hospitals, open areas etc. We, along with the industry, whole-heartedly support this step and seek consistent support and persuasion from DoT so that the communications are converted into an enabling policy decision by the State Governments.

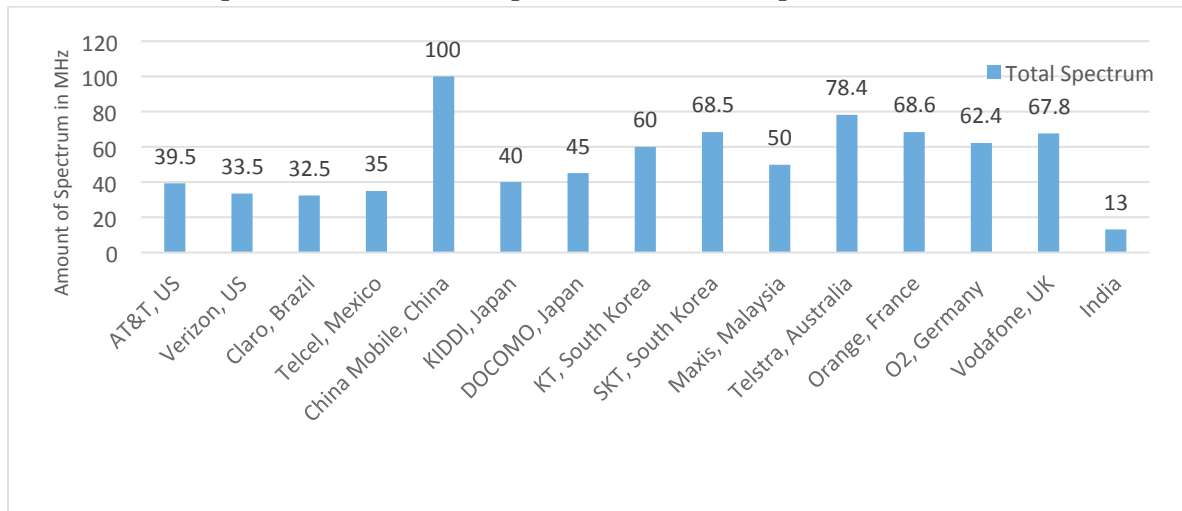
It is also submitted that in key cities a lot of area is under the control of Defense. No permission for installation of sites in these areas results in either no coverage or poor coverage in the Defense areas as well as the adjoining areas. Therefore, it is also requested that the issue be taken up with the Ministry of Defense immediately for grant of permission to deploy more sites in Defense areas.

d) Spectrum availability and reforming the spectrum policy:

While deployment of sites is one of the ways to resolve the issues with respect to coverage and capacity yet deployment of sites beyond a point leads to a situation wherein inter-site distances become too small and additional spectrum is needed to meet the capacity requirement in those localized areas. In recent times, there has been tremendous growth in data traffic, which requires additional spectrum for enhancing the capacity in the localized areas as densification alone cannot provide the remedy.

When compared to international operators, spectrum allocated per operator per service area in India is abysmally low. This fact has been highlighted at various forums and the following will explain it in greater details:

(i) Average spectrum allocated to an Indian operator in each service area is 1/3rd to 1/7th of the spectrum allocated to operators in different parts of the world.



(ii) Comparison of Subscribers per Base Station and MOUs per BTS as indicated in the table below also complement the argument in respect of low quantum of spectrum allocation.

Operators	Subscribers	Base Stations	Subs/ Base Station	Spectrum	MOU/ Subs
Airtel, India	230M	200K	1,200	22MHz	494
CMCC, China	870M	2,000K	430	100MHz	429
Singtel,	5M	6.3K	700	80MHz	279
Vodafone, UK	21M	45K	450	68MHz	194

Source: GSMA Intelligence

The comparison indicates that in respect of international operators, Airtel India has:

- 2 to 3 times subscribers per base station
- 1.2 to 2.5 times Minutes of Usage per customer

(iii) Quantum of spectrum assigned per subscriber basis is also very low as compared to international comparison

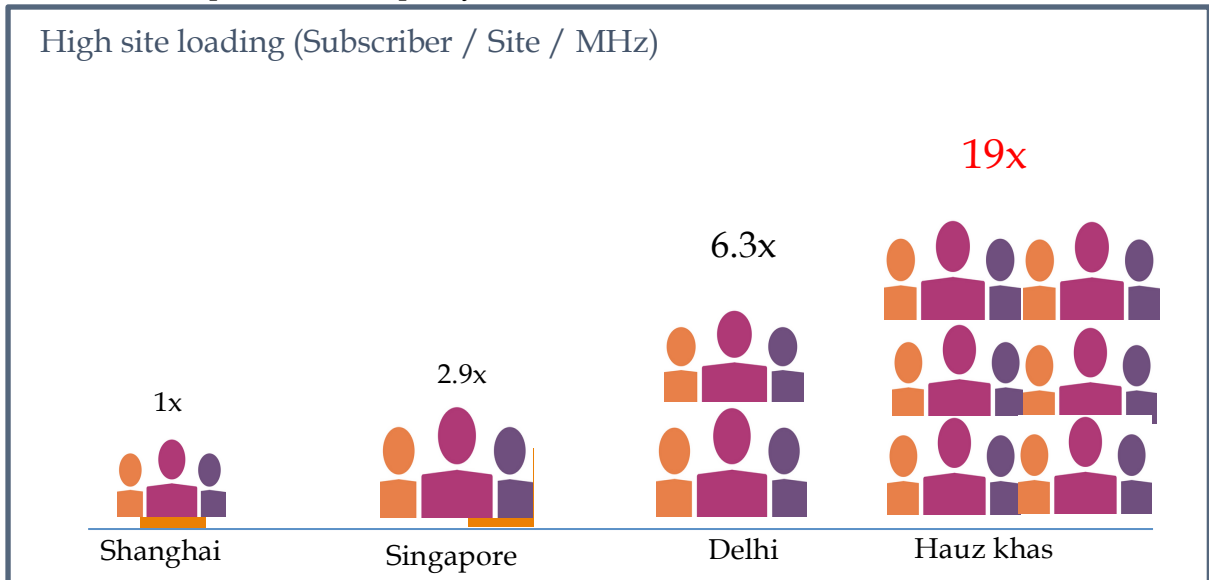
Airtel	Subs	Spectrum	Hz/Sub
Delhi	10.9M	13.0MHz*	1.2
Mumbai	5.2M	20.2MHz*	3.8
Kolkata	4.2M	12.0MHz*	2.9

Note:

Spectrum used for LTE not counted as LTE services have been recently launched with only marginal LTE subscribers as on date.

Global Markets	Subs	Spectrum	Hz/Sub
CMCC, Shanghai	23.7M	117.5MHz	5.0
CUCC, Shanghai	4.7M	60MHz	12.7
CT, Shanghai	6.0M	45MHz	7.5
Singtel, Singapore	5M	80MHz	16.0

(iv)Subscriber/ Site/ MHz: It can be seen that site loading in Hauz Khaz is 3 times the average site loading of Delhi. Delhi's site loading itself is 2 times the site loading in Singapore and 6 times the site loading in Shanghai. Such excess loads require additional spectrum for capacity enhancement.



Spectrum requirements are only going to increase with the proliferation of mobile broadband networks. It is therefore essential that spectrum in sufficient quantum is made available to the industry so that operators are able to cater to the increased demand and at the same time be able to provide superior quality of service.

Further, 3G traffic has witnessed tremendous growth. For instance, in Delhi service area, Voice traffic (i.e. 3G BBH erlangs) has grown by 100% whereas 3G data volume has grown by 200% in last two years. In this era of data growth, present spectrum cap acts as a barrier for the acquisition of additional spectrum. In fact, in the recently concluded auction, Airtel was not able to buy additional 3G spectrum in Delhi and it eventually went unsold. Data networks require bigger contiguous chunks of spectrum and as such the present spectrum cap inhibits serious operators like us from doing so. Anticipated spectrum requirements are several times larger than the total amount of spectrum currently assigned to commercial mobile communications. The spectrum caps, therefore, require a serious review and should be made more liberal.

Further, there is an unfounded worry in some quarters that the operators will hoard spectrum. In reality, with the spectrum being assigned via auctions, the operators are now competing for each MHz of spectrum and the Government is earning a hefty sums out of these spectrum auctions. Therefore, the probability of any operator hoarding spectrum is negligible. No operator can even think of having spectrum more than the required quantum after paying such hefty price. On the contrary, operators will try to optimize and utilize the allocated spectrum to the best possible extent. The spectrum caps should, therefore, be completely removed.

During the last auction, the industry had demanded for the entire 2x20 MHz of spectrum in 2100 MHz band to be made available for auction. However, only 2x5 MHz in 17 service areas was made available. We would against request that additional spectrum in 2100 MHz band, i.e. entire 2x15 MHz, which is a globally harmonized band for 3G and have a very good ecosystem of affordable devices, should be put to auction immediately in the current financial year. This would help the operators in big way to augment the capacity of their existing 3G networks for meeting the increasing demand.

Harmonization of spectrum in 1800 MHz band will unleash at least a total of 2x220 MHz spectrum in 22 service areas thereby implying additional availability of approx. 2x10 MHz spectrum in each service area. Besides making available the additional spectrum, it will also make the existing spectrum contiguous, thereby leading to an efficient use. It is, therefore, essential that the process of harmonization is undertaken at the earliest.

Further, it is submitted that spectrum lying vacant with the Government is of no commercial gains. Spectrum is unlike any other natural resource, which can be conserved for future use. Infact, the period for which spectrum remains unsold is not only results into a direct loss of revenue but also a loss of opportunity to the public to avail a good quality mobile broadband services. It is therefore essential that all available spectrum in the allocated bands i.e. 800 MHz, 900 MHz, 1800 MHz, 2100 MHz & 2300 MHz should also be put up for auction immediately.

We hope that TRAI will concur that the above mentioned measures are not only critical to improve the quality of service to the existing customers but will also act as a catalyst to meet the target of 'Broadband to All' which is utmost essential in fulfilling the Hon'ble Prime Minister's dream of 'Digital India'.

IV. Does the issue of call drop require a tariff intervention?

- a) **Customer requires the uninterrupted service: No amount of free calling minutes can compensate for their requirement.**

As mentioned in the beginning of our response, we, at Airtel, consistently aspire to provide high quality services to our customers/subscribers through our seamless and high quality network, which has made us the most favored and trusted brand in telecommunication services. We believe that the customers require and deserve the best quality network, which is reliable and does not have the problem of call drops.

We strongly believe that no amount of compensation e.g. free minutes against call drop etc. can substitute for customer's desire to have a high quality service experience. Our experience tells us that no quality conscious customer would like to have free minutes/compensation in lieu of poor quality of service/call drop.

Further, if network quality is poor to make the original call, it would be poor to make the free call as well. Therefore, any amount of free minutes/compensation will not improve the quality of service and it will rather shift operator's focus from improving the Quality

of Service to adjusting the tariffs to recover any loss caused due to provision of free minutes/compensation.

Therefore, the solution to the present problem is to build and maintain a quality network, which renders a ubiquitous coverage/capacity instead of any monetary compensation.

TRAI has contended that despite majority customers being on per-second plans, they get converted to per minutes plans by subscribing to STVs. In this regard, it is submitted that STVs are available both on per-second plan as well as per-minute plan and it is customers' decision to subscribe to any particular STV and he/she is free to opt any STV in case they find it more economical and beneficial. Anyways, Airtel has already converted 100% of its pre-paid subscribers to per second plans. Further, the postpaid subscribers are offered discounted plans and have the choice to opt for the second based plan as well. We are amongst the few operators allowing change of plans in the initial months as well as within the billing cycle and hence, such concern in respect of loss to customers is unfounded.

b) 100% coverage is not possible in a radio network: - *So compensation for what?*

As per the Access Service License, the operators are mandated to rollout network so as to cover 90% on street coverage. It is worthwhile to mention that the criteria of 90% on street coverage has been set up considering the following characteristics of mobile radio networks;

- (i) Radio Propagation;
- (ii) Multiple Access nature of mobile network;
- (iii) Mobility of users;
- (iv) To cover inaccessible areas in a techno-economic way.

Because of these reasons, it is not possible to provide 100% coverage in all areas at all the time. The provision of good network coverage inside the buildings, in cluttered zones, inside high rises, in basements and in lifts may not be feasible and the signal strength in these areas may be poor. In such areas, even if a call is established, the same may drop due to poor signal strength.

Therefore, any proposal to compensate the customer for call drop in the areas where there is no coverage by 'network design' would effectively mean mandating 100% coverage even inside the building and uncovered area which is against the provision of License/NIA.

c) Compensation to customers for Call Drops is majorly Operators' own business decision:

TRAI has cited international instances wherein it has indicated that compensation for call drops is being provided by some operators. In this regard, we would like to mention that other than Columbia, there is no instance wherein such compensation is mandated by any regulatory intervention. There are some instances where some operators in certain geographies are following such measures, but not all operators in those

geographies are compensating for call drops. These individual operators largely adopt such measures due to their own business model/case and because of any regulatory mandate.

The voice continues to be the mainstay revenue generating source for the Indian telecom operators with almost 85% of revenues recorded from this segment alone and hence, it is not possible for any operator to ignore the revenues from this segment. Call drops add to customer's agony, discomfort and raises their dissatisfaction towards the telecom operator. With a choice of around 8-10 operators per circle along with added convenience to retain the number through MNP, customer has a free choice to leave the services of an operator. This is a sufficient reason for each operator to invest and build the best quality network possible and put best efforts to minimize the call drops by continuously investing in network through more sites, more spectrum and continuous optimization of the installed network. **Therefore, we do not believe in any kind of compensation against call drops.**

d) Is the model to compensate the customers for call drops really implementable?

We believe and request TRAI to intervene and help the operators in finding a long term solution to address the problem of call drops. Any short term measures of compensating against call drops will not help customer to fulfill their desire to have a seamless communication services.

Even, remotely, if such compensatory measures are to be implemented, the same would be impractical and would give rise to numerous disputes. Some of such issues are indicated as below:

- (i) It is not possible to identify and communicate the real cause of call drop in real time to customer. There will be large number of disputes related to the understanding of the cause of call drop, i.e. whether it is due to network failure or due to the user action or device problem.
- (ii) Call drop can occur either because of the originating network or the terminating network. It is relevant to ask that how will the compensation be provided if the failure is happening at terminating network? The instant case is not under the control of the originating operator who may be forced to compensate the customer for the inability of the terminating operator to maintain optimum network quality.
- (iii) How to exclude and differentiate the instances of call drop when it happens due to poor in-building coverage, cluttered zones, inside high rises, in basements and in lifts on which operator has no control? More importantly how will the same be communicated to the customer?
- (iv) How to exclude instances of call drop due to poor coverage arising from non-availability of permission for installing antennas in that area such as Defense area/Hospitals/inside private properties on which an operators have no control?
- (v) How to exclude the instances of call drops caused due to movement of customers into areas where no coverage is being provided by an operator due to business decisions?

(vi) Call drops may happen in the areas defining the border between two service areas- due to subscriber moving from its home subscription area to roaming?

To summarize, we believe that the issue of call drop does not require a tariff intervention but requires a concerted and continuous support from the Regulator, Licensor and both Central & State Government for resolution of issues faced by operators in respect of permissions to install antennas/ towers. Further, a progressive spectrum policy allowing liberal spectrum caps and allocation of sufficient spectrum for mobile communication, is required. Once these issues are resolved, we are sure that the issue of call drops will automatically get resolved, which will obviate the very need for any such proposal.