

# Airtel 4G Network

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**Abstract-** 4G network is used for the mobile communication and advanced technology of 3G is 4G .It offers ultra-fast broadband internet with higher data transfer speeds 45 MBps(megabits/seconds) services. 4G is the 4th generation of broadband cellular network technology succeeding 3G referred to LTE (Long Term Evolution) .4G system provides the capabilities defined by ITU in IMT Advanced. Potential and current applications include mobile web access, IP Telephony, gaming services, videoconferencing, and 3D television.4G network services of Airtel- 296 cities in India. It is the first telecommunication operator for the next generation mobile technology in most parts of the country.

**Keywords:** LTE (Long Term Evolution), ITU (International Telecommunications Union) IMT (Industrial Model Township),MBps (megabits/seconds).

## I. INTRODUCTION

Airtel 4G with high download speeds,0 buffering while streaming high definition videos. Airtel offers its 4G services at the cost of 3G , some value added services to news subscribers , unlimited airtel to airtel local calls , music and movies streaming, roaming and much more. Airtel has infinity plans for both prepaid and postpaid customers.

## II. AIRTEL OPEN NETWORK

Airtel is an open sharing platform that gives access to tower maps , weak spots , strong signal zones , high speed internet and much more.

## III. TECHNIQUES

The International telecommunication Union – radio communication sector (ITU-R) specified a set of requirements needed for 4G standards named as the International mobile telecommunication (IMT – advanced) . Speed requirement for 4G service at 100 megabits /sec = 12.5 megabytes / sec for high mobility communication and 1 gigabit/sec for low mobility communication. According to the operators , a generation of the network refers to the deployment of a new non-backward compatible technology.3G technology does not fulfill the IMT advance requirements.4G provides as

substantial level of improvement in performance and capabilities with respect to the initial 3rd generation systems. As opposed to earlier generation , 4G system does not support traditional circuit switched telephony service but instead relies on all the internet protocol based communication such as IP telephony. The spread spectrum radio technology used in 3G system is now not in all 4G system , it is replaced by OFDMA multi-carrier transmission and FDE schemes (Frequency domain equalization) making it possible to transfer very high bit rates. The peak bit rate is further improved by smart antenna arrays for multiple-input multiple-output (MIMO) communication

## IV. BACKGROUND OF 4G

The mobile communication refers to a change in addition, the nature of the service and non-backward compatible transmission technology, wider channel frequency bandwidth and higher capacity for transferring the data. New mobile generation have appeared about every 10 years since the first move from 1981 analog to digital (1G-2G) transmission in 1992. This was followed in 2001 , by 3G multi-media support and at-least , 200 kbits/sec peak bit rate in 2011/2012 to be followed by real 4G , which refers to all IP packets. Switched network are giving mobile ultra-broadband access in gigabit speed.

## V. FREQUENCIES FOR 4G

Mobile 4G network uses several frequencies :

700MHz (Band 28 - Telstra / Optus)

850 MHz (Band 5 – Vodafone)

900 MHz (Band 8 – Telstra)

1800MHz (Band 3 Telstra/Optus/Vodafone)

2100 MHz (Band 1 – a small no of Telstra sites/Optus/Vodafone)

2300 MHz (Band 40 – Optus(vivid wireless spectrum))

2600 MHz (Band 7 – Telstra/Optus)

**VI. AIRTEL 4G HOTSPOTDEVICE**



Figure 1

**VII. COMPARISION TO OTHER NETWORKS**

OPERATOR	SPEED SCORE (CELLULAR)	SPEED SCORE (4G)
Airtel	10.34	11.23
Vodafone	8.19	9.13
Jio	7.11	7.11
Idea	6.2	7.02

**VIII. CONCLUSION**

The airtel 4G network is evaluated on the basis of its new advanced additional techniques and network speed is higher when comparing with 3G and other network operators. Highspeed data and HD quality calling experience is upgraded in 4G network.. Airtel uses spectrum bank which includes 2300 Mhz (TD LTE), 1800 Mhz (FD LTE), and 900 Mhz(LTE 900) bands to offer 4G services to customers. Airtel is a far second with 4G download speed of 9.7 mbps, with Vodafone and Idea close in the heelsat speeds of 6.7 mbps and 6.1 mbps.

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