

4G LTE – The Unknown Change

Today 4G is still in its inception stage in India. 4G is the Long Term Evolution (LTE) for the telecom industry. The craze for 4G data and 4G handset is increasing in the technocrats and the common man of the country. If we think that the numbers before the 'G' are just suggesting the relative data speed between the generations then we should surely go through the below article. We should step in more depth into the world of 4G.

Till 3G we used to purchase device according to whether the same is CDMA based or GSM based and whether supporting for Evdo Rev A or Evdo Rev B or HSPA or UMTS. It should also be noted that the common upgrade path for Evdo or HSPA is LTE. If we think that need has gone of having that info before buying the phone then we are not right. 4G is more technical as compared to 3G and here these different technologies among networks are known as Bands. Each network use different bands for providing the 4G data on their network. There are two groups of LTE: TDD and FDD. FDD spectrum requires pair bands, one of the uplink and one for the downlink, and TDD requires a single band as uplink and downlink are on the same frequency but time separated. As a result, there are different LTE band allocations for TDD and FDD. Currently the LTE bands between 1 & 31 are for paired spectrum, i.e. FDD, and LTE bands between 33 & 44 are for unpaired spectrum, i.e. TDD.

So here the crux point is that we need to know the band on which the network delivers the LTE services. Lower band spectrum between 700-900 MHz provides the best range and penetration, while higher band spectrum between 2100-2600 MHz is great for capacity. There are currently 4 bands deployed in India and 5th one is there to come in the ensuing spectrum auction. Let's discuss about all the bands:

1. **Band 5 (850 MHz):** We can call this band as CDMA band; Reliance Communications has used this band till near date for deployment of its CDMA network. This band provides greatest coverage so you can be assured for indoor as well as rural coverage. This band is being used by Reliance Communications and Reliance Jio. Currently the device ecosystem is very weak for this band. Most 4G smartphones launched in India simply don't support this band. High end smartphones usually support this band but budget smartphone rarely support this band. So if you are Reliance Jio or on Reliance 4G (for all Reliance CDMA upgraded users there), you need to see whether the phone supports Band 5. New 4G phones lately arriving in India are supporting this band.
2. **Band 3 (1800 MHz):** Indian telecoms are already using this band for 2G deployment. This band has the most developed device ecosystem in the world for 4G. Currently Airtel, Idea, Vodafone and Reliance Jio are deploying 4G on this band. You can be assured that every 4G device sold in India supports LTE on 1800 MHz band.

3. **Band 40 (2300 MHz):** This is also a popular band in India. Reliance Jio and Airtel currently own spectrum in this band. Currently only Airtel is deploying 4g on this band. Reliance Jio holds pan India 2300 MHz band spectrum but is yet to start operations. Just like band 3, even this band is supported on almost all 4G devices being sold in India.
4. **Band 41 (2500 MHz):** This band is primarily held by BSNL and MTNL. BSNL has even announced that they are soon going to launch 4G on this band. Device ecosystem for this band isn't as good as 1800/2300 MHz bands.
5. **Band 28 (700 MHz):** This band hasn't been auctioned yet but once it does get auctioned, there's a good chance that this will be used for 4G deployment. But it needs to be mentioned that the auction for this band will be highly costly for the telecom industry hence increased data rates for consumers. Its propagation characteristics make it ideal for use in rural areas and for good in building coverage in dense metro areas.

If someone wants to be a little extra future cautious, then one should buy for a smartphone that supports 850 MHz band and VoLTE (we'll also discuss about VoLTE later). The latest generation Snapdragon processors from Qualcomm have support for almost every LTE band. However, manufactures choose to enable only certain bands that are available in the country in which they are selling the device. Manufacture could also enable new LTE bands through software updates.

Now we should talk about the traditional purpose of a network. We can say that LTE is data intensive technology. It does not support the traditional call purpose of network. The telecom companies use 4G for data services and for calling it falls back to 2G/3G. So in this case you'll get future driven technology for data services but you'll still feel the current low end telephonic conversation.

To enable voice calling in 4G, there is something invented as VoLTE. It's like VoIP only but it's using LTE technology for voice deployment. Reliance Jio does not have 2G/3G in its bag so it's deploying VoLTE for calling purpose. Through VoLTE we can experience HD voice calling and faster call connectivity and get rich future driven experience. But there is one more game here. The smartphone should also support for VoLTE calling. Reliance Jio is also providing an app for VoLTE calling on those phones which do not support VoLTE but it's better to be future ready and buy a phone which supports VoLTE.

So choose appropriate network according to your location and requirement and the smartphone according to your network specifications.

Have a Great Journey in the 4G world!! ;-)