**1. Second Generation (2G) :**  
2G mobile network is based on GSM(Global System for Mobile Communication). This technology was developed in Finland in 1991. Messages are encrypted in this technology. Digital signals used in this technology use less battery and hence leads to less power consumption. Also provided data services for mobile phones. Advanced version are 2.5G and 2.75G.

**2. Third Generation (3G) :**  
3G mobile network was developed in Japan in 2001 to achieve heights of speed which was lacking in 2G technology. The standards of this technology was set by International Telecommunication Union(ITU). This technology provided users with services like GPS(Global Positioning System), video conferencing and mobile television.

**Difference between 2G and 3G Cellular Network :**

|  |  |
| --- | --- |
| 2G | 3G |
| Network construction and maintenance is cheaper. | Network construction and maintenance is costlier. License fee to be paid for 3G is also higher as compared to 2G. |
| It provides slower download speed and slower access to applications. | Faster access and download speed for applications. |
| 2G is less compatible with the functions of smart phones. Data transmission rate can be of 50, 000 bits per sec. | 3G is widely used for smart phones. Data transmission rate can be more than 4 million bits per sec. |
| It is less secure than 3G. | Highly secure as 3G network permits validation measures. |
| Video calls cannot be made. | Video calls can be made. |
| Downloading and uploading speed is upto 236 kbps. | Downloading speed is upto 21 Mbps and uploading speed is upto 5 Mbps. |

**Trends in Cellular Radio and Personal Communications**

**Introduction**

The concept, called Personal Communication Services (PCS), originated in the United Kingdom when three companies were given spectrum in the 1800 MHz to develop Personal Communication Networks (PCN) throughout Great Britain.PCN was seen by the U.K. as a means of improving its international competitiveness in the wireless field while developing new wireless systems and services for citizens

**What is PCN?**

* PCN refers to a wireless networking concept where any user can make or receive calls, no matter where they are, using a light-weight, personalized communicator.

**What is PCS?**

* PCS refers to new wireless systems that incorporate more network features and are more personalized than existing cellular radio systems, but which do not embody all of the concepts of an ideal PCN.
* An international standards body, IEEE 802.11, is developed standards for wireless access between computers inside buildings.
* The European Telecommunications Standard Institute (ETSI) is also developing the 20 Mbps HIPERLAN standards for indoor wireless networks.
* Before the end of the 20th century products will allow users to link their phone with their computer within an office environment, as well as in a public setting, such as an airport or train station.
* A total of 230 MHz in frequency bands 1885 MHz to 2025 MHz and 2110 MHz to 2200 MHz has been targeted\ by the ITU's 1992 World Administrative Radio Conference (WARC).