

21CSC302J – Computer Networks

**Case Study Assignment:
Exploring Field Test Mode on
Smartphones**

Exploring Field Test Mode on Smartphones

IMEI Number (International Mobile Equipment Identity)

- The IMEI, or International Mobile Equipment Identity, is a distinctive 15-digit number given to mobile devices.
- This code allows mobile networks to recognize and monitor devices, providing security measures such as blacklisting lost or stolen phones to block their access to the network.



MAC Address (Media Access Control address)

- A MAC Address, or Media Access Control Address, serves as a distinct identifier for a device's network interface card.
- It is essential for communication within local area networks, helping to identify devices on networks such as Wi-Fi or Ethernet, and it also plays a key role in security features like MAC filtering.



IP Address (Internet Protocol address)

- An IP Address, or Internet Protocol Address, functions as a distinct identifier for devices within a network, facilitating the routing of data among them.
- It acts as both a locational reference and a means of communication, permitting devices to establish connections across both local and global networks.



Network Operator/Brand (Name of the cellular provider)

- The Network Operator/Brand refers to the name of the cellular service provider that offers network connectivity for your device.
- This could be companies like Verizon, AT&T, Vodafone, or other carriers, depending on your region.
- The network operator determines the quality and availability of services such as voice calls, SMS, and mobile data (4G, 5G, etc.).



Network Type (4G LTE, 5G, etc.)

- Network Type refers to the kind of mobile network your phone is using, such as 4G LTE or 5G.
- This affects how fast your phone can connect to the internet and how reliable the connection is.
- For example, 4G LTE gives you quicker browsing and streaming speeds compared to older networks like 3G. Meanwhile, 5G offers even faster speeds and a more stable connection, especially useful for things like watching videos or playing online games.



Signal Strength (Measured in dBm)

- Signal Strength, measured in dBm (decibel-milliwatts), indicates how strong the connection is between your phone and the nearest cell tower.

- The dBm scale is negative, with values closer to zero representing a stronger signal. For example, a signal strength of -50 dBm is excellent, while -100 dBm is weak.

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Voice service: In service
Voice network type: LTE
Signal strength -109 dBm 31 asu
```

Download/Upload Bandwidth (Physical channel configuration and speed)

- Download/Upload Bandwidth is the speed at which your phone can download data (like streaming a video) or upload data (like sending a photo).
- It's measured in Mbps (megabits per second) and affects how fast things load on your device.
- The higher the bandwidth, the faster you can browse the web, stream movies, or share files.

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DL bandwidth (kbps): 0
UL bandwidth (kbps): 0
LTE physical channel configuration: {{mConnectionStatus=P
```

Mobile Location Information (LAC - Location Area Code and CID - Cell ID)

- LAC (Location Area Code): This code tells the network which general area or group of cell towers your phone is connected to. It's like the network's way of knowing roughly where you are, so it can route calls and data correctly.
- CID (Cell ID): This is the specific ID of the exact cell tower your phone is using to connect. It helps the network keep track of which tower is providing your signal.

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All mobile measurement info:
LTE
SRV MCC MNC TAC CID PCI EARFCN BW RSRP RSRQ TA
R+N
N
N
N
N
N
N
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