**CN CASE STUDY REPORT**

**OBJECTIVE :-**

The goal of this case study is for students to explore and understand key networking information available on their own smartphones. By using the Field Test Mode or other diagnostic tools on Android, iPhone, or Samsung devices, students will learn how to gather technical details about their phone’s network settings and performance.

**Device Types :- Android Devices (General)**

**Key Information to Collect:**

○ IMEI Number (International Mobile Equipment Identity) :-  International Mobile Equipment Identity  
It is a 15-digit unique number given to every cell phone, which is used for tracing the stolen handsets and also establishing its authenticity.

○ MAC Address (Media Access Control address) :-  Media Access Control Address  
These are hardware addresses assigned to network interfaces in a device, such as Wi-Fi or Bluetooth; each device has a unique MAC address. This works at the data link layer, helping out in communicating between devices on a local network.

○ IP Address (Internet Protocol address) :-  Internet Protocol Address  
A unique address automatically assigned to a device connected to a network. It can be either IPv4 or IPv6, and it helps route data across networks (such as the internet).

○ Network Operator/Brand (Name of the cellular provider) :- The name of the cellular provider (such as Verizon, Airtel, T-Mobile) that is offering you the mobile network services you are using.

○ Network Type (4G LTE, 5G, etc.) :- Network type refers to the technology used by the cellular network, for example, 4G LTE, 5G, 3G, or older technology like 2G. It determines the speed and quality of the connection.

○ Signal Strength (Measured in dBm) :- It is one measure of the power level of the signal received by your device from the cellular tower and is usually measured in decibels relative to 1 milliwatt (dBm). Generally, values closer to 0 indicate stronger signals: for example, -50 dBm is strong, but -120 dBm is weak.

○ Download/Upload Bandwidth (Physical channel configuration and speed) :- It is the quantity of data your device can download in per second (download speed) or upload in per second upload speed in Mbps (Megabits per second). It depends upon the type of network and physical channel configuration.

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

LAC - Location Area Code  
CID - Cell ID:  
LAC: Indicates a specific area covered by a cellular tower within a network.  
CID: A unique number assigned to each cell tower within the network, thus making it easier to determine the exact location of the mobile device in a specific location area.

**Steps to Access Field Test Mode:-**

**○ For Android Devices:**

■ Open the phone dialer and enter \*#\*#4636#\*#\* to access the testing menu.

■ Navigate to Phone Information and Wi-Fi Information for relevant details.

