**Chapter 2: Design**

**Section 1: Design of Wi-Fi class**

Each Wi-Fi channel is an instance of the Wi-Fi class. The BSSID and SSID are two of the private members of the class. Specially, as there may be different APs with same SSID in a region, the BSSID is unique for every AP. Therefore it is also used later to be passed to the Location Activity to search the AP users are interested in.

The signal level is another important private member of the class. The signal level is the RSSI of the Wi-Fi channel. RSSI is the most common indicator used to assess the signal strength of the

**Section 2: Design of LTE class**

Each LTE channel is an instance of the LTE class. As for the identify of each class, Android provided the following options, Mobile Country Code (MCC), Mobile Network Code (MNC),

**Section 3: Usage of Fragment on UI handling**

In android applications, activity class and fragment class are both able to handle UI. Activities are designed to represent a single screen and fragments are designed to be reusable UI layouts that can be plug-and-play by different activities.

**Section 4: Usage of Singleton Pattern on Channel List Activity**

A singleton pattern is a class that only have one instance of itself. In android, a singleton exists across rotation, different activities and fragments. In our application, we have two singleton, LTE list and Wi-Fi list.

In our application, there are two activities updating the channel list class – channel list activity and

**Section 5: Usage of Handler on Repeating Periodic Tasks**

**Section 6: Usage of Google Play Services on Localization**