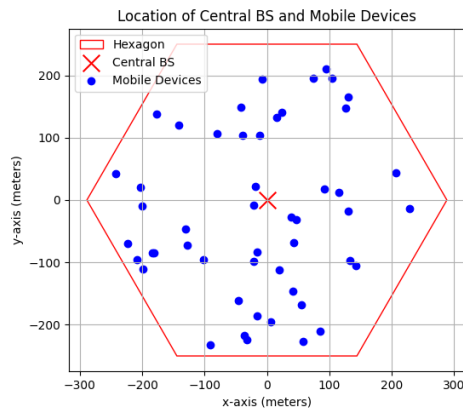
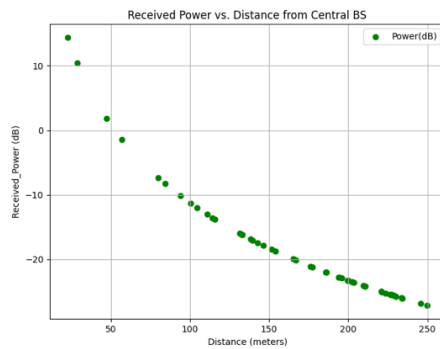


1.1

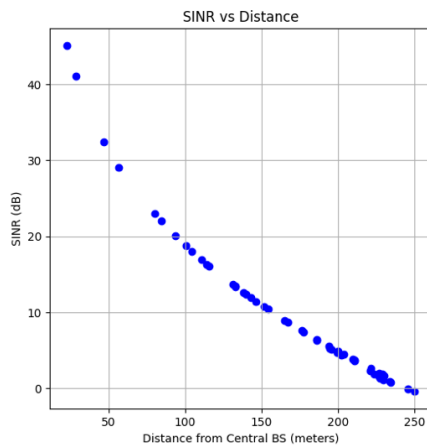


1.2



Get specific mobile device distance to base station ,calculate their by putting distance as parameter into power calculation, and turn into dB

1.3

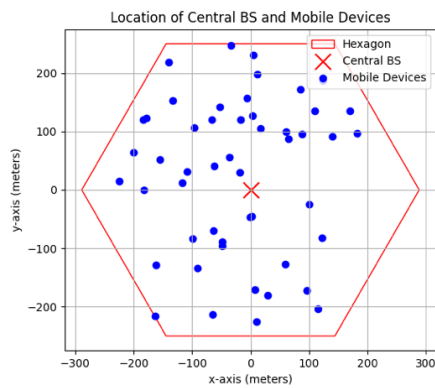


get each base station coordinates (without (0,0)), calculate their distances to specific mobile device and use formula to sum up total interference.

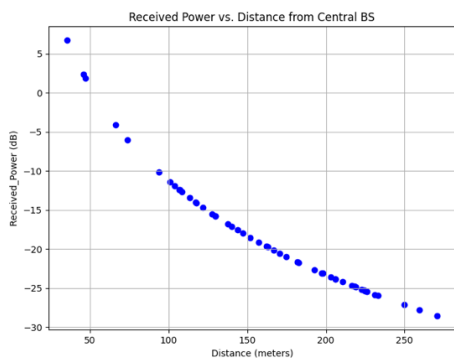
$$\text{received\_power\_two\_ray} = P_t * G_r * G_t * (h_{\text{device}} * h_{\text{base}})^2 / (d^4)$$

$$\text{SINR} = P_r / (\text{interference\_power} + N)$$

2.1

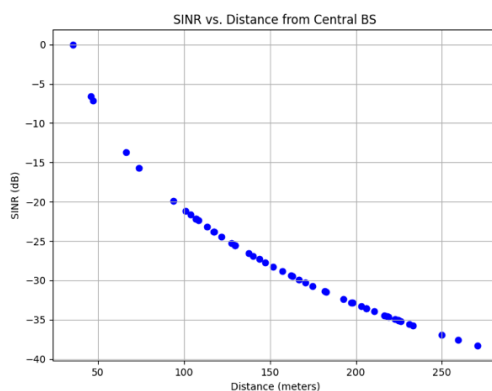


2.2



Get specific mobile device distance to base station ,calculate their by putting distance as parameter into power calculation, and turn into dB

2.3

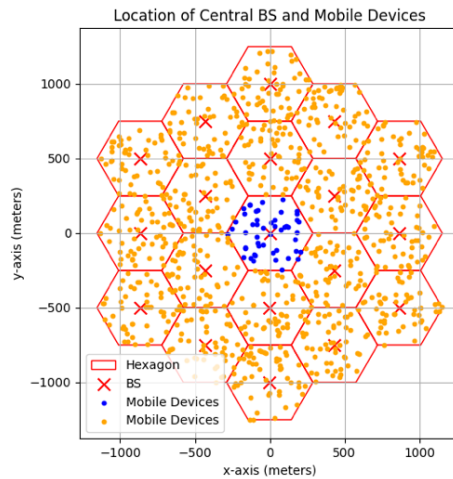


Calculate the sum of the 50 mobile devices power, consider other mobile devices interference by **Sum (all the devices power) - Power (the specific devices power we want to receive)** , then we can get SINR by formula below.

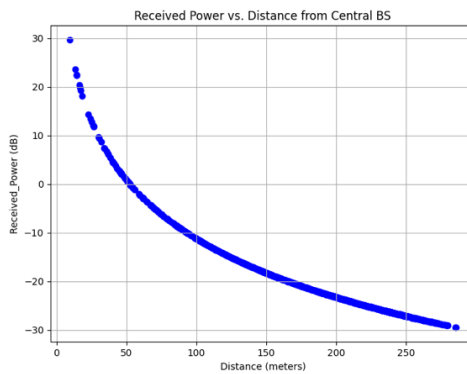
$$\text{received\_power\_two\_ray} = P_t * G_r * G_t * (h_{\text{device}} * h_{\text{base}})^2 / (d^4)$$

$$\text{SINR} = P_r / (\text{interference\_power} + N)$$

3.1



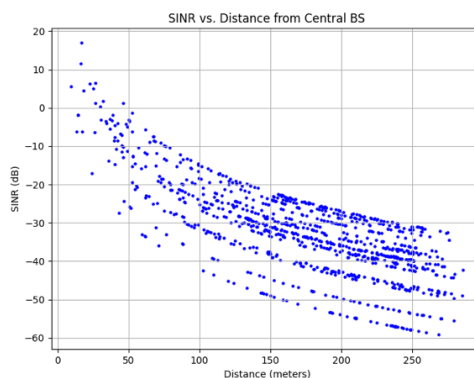
3.2



All the devices are categorized into 19 groups, each group has a corresponding base station and 50 mobile devices, by calculating each distances to their own base station, we can get the received power.

$$\text{received\_power\_two\_ray} = P_t * G_r * G_t * (h_{\text{device}} * h_{\text{base}}) ** 2 / (d ** 4)$$

3.3



Considering interference from other mobile devices, we calculate the distances from all mobile devices to each base station (including outside the cell) .

That is, we get **the sum of power each base station receives**, then calculate the distance from specific mobile device to the base station in its cell and the power it sends to the base station. **Interference = Power (from specific mobile device in the same cell) / Power (sum) - Power (from specific mobile device) + N**