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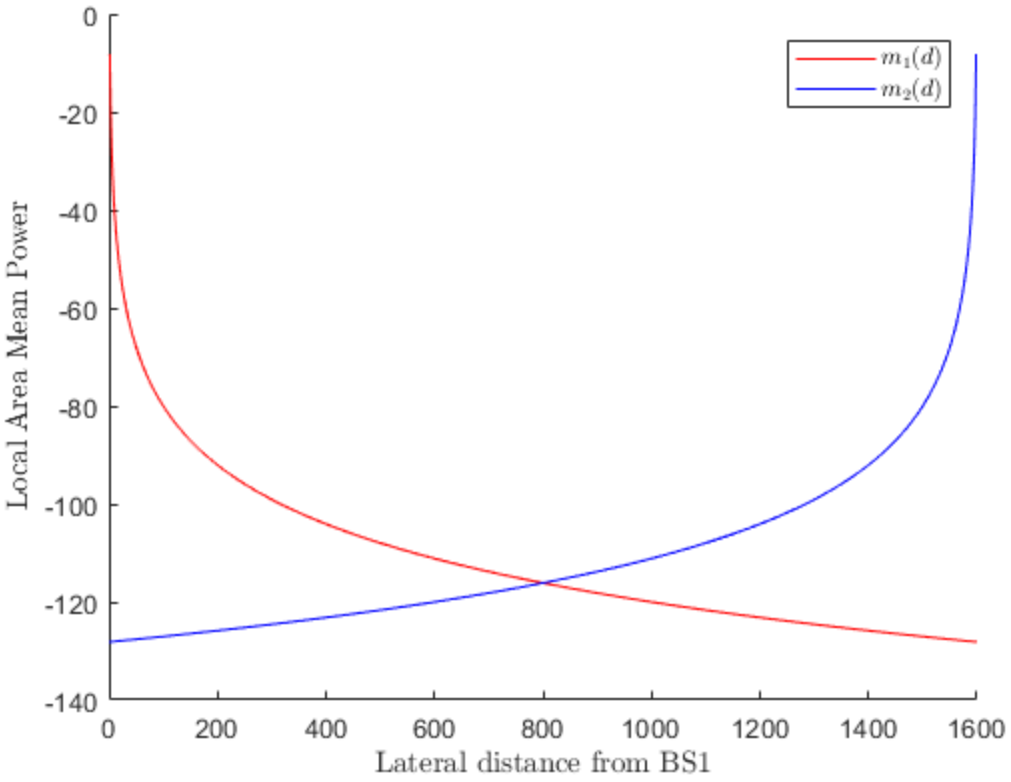
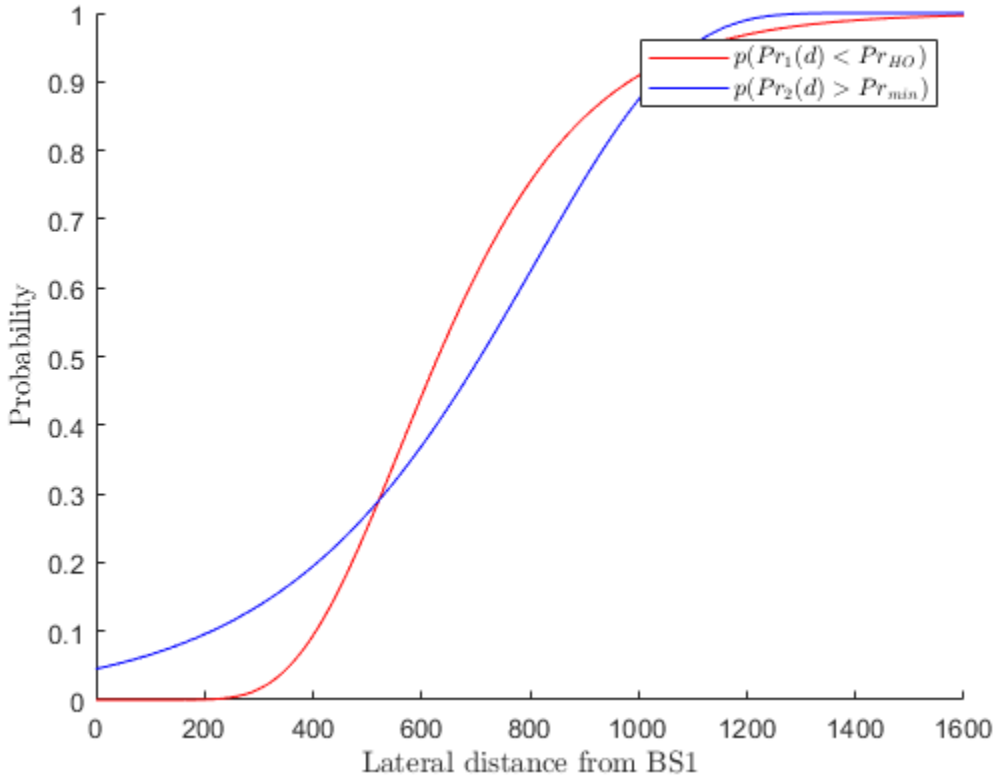
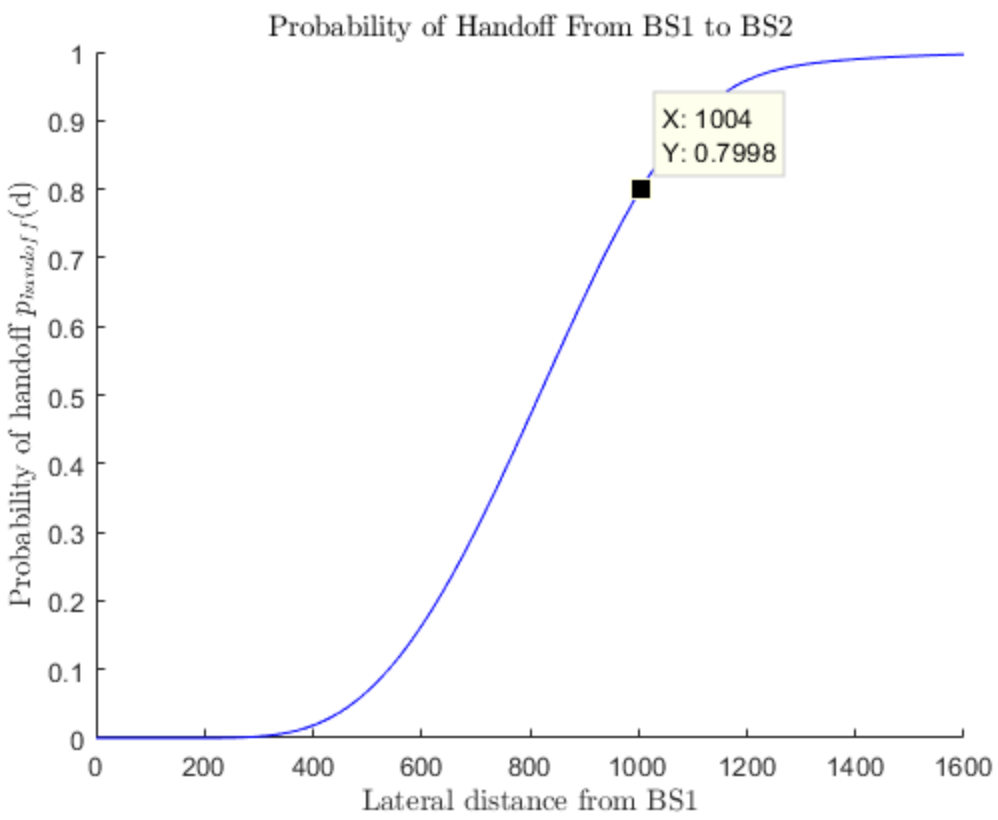
ECEN 310 Assignment 3, Question 3

```
clear all;
clc;
clf;

set(0,'defaultTextInterpreter','latex');

n = 4;
sigma_dB = 6;
sigma_dBm = sigma_dB;
P0_dBm = 0;
do = 1;
Pr_min_dBm = -118;
Pr_HO_dbm = -112;
D = 1600;


d_one = linspace(0,D,1000);


mu_one = P0_dBm - 10*n*log10(d_one/do);
p_one = qfunc((mu_one - Pr_HO_dbm)/sigma_dBm);


mu_two = P0_dBm - 10*n*log10((D-d_one)/do);
p_two = 1- qfunc((mu_two - Pr_min_dBm)/sigma_dBm);

figure(1)
hold on
plot(d_one, mu_one,'r')
plot(d_one, mu_two,'b')
xlabel('Lateral distance from BS1')
ylabel('Local Area Mean Power')
l1 = legend('$m_1(d)$','$m_2(d)$');
l1.Interpreter = 'latex';
hold off

figure(2)
hold on
plot(d_one, p_one,'r')
plot(d_one, p_two,'b')
xlabel('Lateral distance from BS1')
ylabel('Probability')
l1 = legend('$p(Pr_1(d) < Pr_{HO})$','$p(Pr_2(d) > Pr_{min})$');
l1.Interpreter = 'latex';


hold off
```

```
p_handoff = p_one.*p_two; %assumes P1 P2 independent

figure(3)
hold on
plot(d_one, p_handoff,'b')
xlabel('Lateral distance from BS1')
ylabel('Probability of handoff $p_{handoff}$(d)')
title('Probability of Handoff From BS1 to BS2')


hold off
```


$m_1(d)$
$m_2(d)$
Local Area Mean Power
0
-20
-40
-60
-80
-100
-120
-140
0
200
400
600
800
1000
1200
1400
1600
Lateral distance from BS1


$p(Pr_1(d) < Pr_{HO})$
$p(Pr_2(d) > Pr_{min})$
Probability
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
200
400
600
800
1000
1200
1400
1600
Lateral distance from BS1



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