LAMPIRAN

Listing Program Perhitungan Path Loss dan Daya Terima

```
clear;
clc;
d1=1000;%jarak awal dalam meter
d2=5000;%jarak akhir dalam meter
d=(d1:1000:d2);
d0=100;%jarak referensi
R0=1;%jarak awal dalam kilometer
R1=5;%jarak akhir dalam kilometer
R=(R0:1:R1);
L=0.157;%lamdha
ht=50;%tinggi antena (m)
f=1.9*10^3;%frekuensi kerja (MHz)
pi=3.14;
Pt=41.8;%daya transmitter
Gt=17;%gain transmitter
Gr=0;%gain receiver
FM=10.3;%fading margin
Lt=3;%cable loss
Lr=3;%body loss
FSL=(-20)*log10 (L./(4*pi*d))%free space loss (LOS)
PL=20*log10 ((4*pi*d0)./L)+(10*4.477)*log10
(d./d0)+6*log10 (f./2000)+(-10.8)*log10
(ht./2)+10.6%pathloss NLOS
Pr1=Pt+Gt-Lt+Gr-Lr-FSL-FM %daya terima LOS
Pr2=Pt+Gt-Lt+Gr-Lr-PL-FM %daya terima NLOS


%Grafik Pathloss terhadap Jarak
figure (1)
plot(d,FSL,'-^r',d,PL,'-^b');
axis([0 6000 0 160])
hold on
grid on
title ('Grafik Pathloss Terhadap Jarak');
xlabel('Jarak BTS ke User (m)');
ylabel('Pathloss (dB)');
figure (2)
plot(d,Pr1,'-^r',d,Pr2,'-^b');
axis([0 6000 -120 -40])
hold on
grid on
title ('Grafik Daya Terima Terhadap Jarak');
xlabel('Jarak BTS ke User (m)');
ylabel('Daya Terima (dBm)');
```

Listing Program Perhitungan SNR

```
k=1.38*10^-23;
T=300;
B=1.25*10^6;
NF=9;
d1=1000;%jarak awal dalam meter
d2=5000;%jarak akhir dalam meter
d=(d1:1000:d2);
d0=100;%jarak referensi
R0=1;%jarak awal dalam kilometer
R1=5;%jarak akhir dalam kilometer
R=(R0:1:R1);
L=0.157;%lamdha
ht=50;%tinggi antena
f=1.9*10^3;%frekuensi kerja
pi=3.14;
Pt=41.8;%daya transmitter
Gt=17;%gain transmitter
Gr=0;%gain receiver
FM=10.3;%fading margin
Lt=3;%cable loss
Lr=3;%body loss
FSL=(-20)*log10 (L./(4*pi*d))%free space loss (LOS)
PL=20*log10 ((4*pi*d0)./L)+(10*4.477)*log10
(d./d0)+6*log10 (f./2000)+(-10.8)*log10
(ht./2)+10.6%pathloss NLOS
Pr1=Pt+Gt-Lt+Gr-Lr-FSL-FM %daya terima LOS
Pr2=Pt+Gt-Lt+Gr-Lr-PL-FM %daya terima NLOS
N=-112.442;
SNR1=Pr1-N
SNR2=Pr2-N
figure (1)
plot(d,SNR1,'-^r',d,SNR2,'-^b', 'LineWidth', 2);
axis([0 6000 0 120])
hold on
grid on
title ('Grafik SNR Terhadap Jarak');
xlabel('Jarak BTS ke User (m)');
ylabel('SNR (dB)');
```

Listing Program Perhitungan Eb/No

```
br=3.1*10^6;%bitrate
k=1.38*10^-23;
T=300;
B=1.25*10^6;
NF=9;
d1=1000;%jarak awal dalam meter
d2=5000;%jarak akhir dalam meter
d=(d1:1000:d2);
d0=100;%jarak referensi
R0=1;%jarak awal dalam kilometer
R1=5;%jarak akhir dalam kilometer
R=(R0:1:R1);
L=0.157;%lamdha
ht=50;%tinggi antena
f=1.9*10^3;%frekuensi kerja
pi=3.14;
Pt=41.8;%daya transmitter
Gt=17;%gain transmitter
Gr=0;%gain receiver
FM=10.3;%fading margin
Lt=3;%cable loss
Lr=3;%body loss
FSL=(-20)*log10 (L./(4*pi*d))%free space loss (LOS)
PL=20*log10 ((4*pi*d0)./L)+(10*4.477)*log10
(d./d0)+6*log10 (f./2000)+(-10.8)*log10
(ht./2)+10.6%pathloss NLOS
Pr1=Pt+Gt-Lt+Gr-Lr-FSL-FM %daya terima LOS
Pr2=Pt+Gt-Lt+Gr-Lr-PL-FM %daya terima NLOS
N=-112.442;
SNR1=Pr1-N
SNR2=Pr2-N
EbNo1=SNR1- 10*log10 (B./br)
EbNo2=SNR2- 10*log10 (B./br)
figure (1)
plot(d,EbNo1,'-^r',d,EbNo2,'-^b','linewidth',2);
axis([0 6000 0 120])
hold on
grid on
title ('Grafik Eb/No Terhadap Jarak');
xlabel('Jarak BTS ke User (m)');
ylabel('Eb/No (dB)');
```

Listing Program Perhitungan BER

```
EbNo1=[82.243; 76.223; 72.701; 70.202; 68.264];
EbNo2=[62.105; 48.627; 40.774; 35.150];
d= (1000:1000:5000);
BER1=[1.822*10^-37; 7.605*10^-35; 2.600*10^-33;
3.202*10^-32; 2.221*10^-31];
BER2=[1.102*10^-28; 8.169*10^-23; 2.257*10^-19;
6.344*10^-17; 5.023*10^-15];
figure (1)
semilogy(d,BER1,'-^r',d,BER2,'-^b', 'LineWidth', 2);
axis ([0 6000 0 0.0000000005]);
hold on
grid on
title ('Grafik BER Terhadap Jarak');
xlabel('Jarak BTS ke User(m)');
ylabel('BER');
```