**Mengacu Pada Buku Fundamentals Of Massive MIMO CH.6**

**Untuk Dense Urban Mobile Access**

|  |  |
| --- | --- |
| Carrier Freq (f) | 1.9 GHz |
| Spectral Bandwidth (B) | 20 MHz |
| Terminal mobility (v) | 142 km/h |
| Coherence Bandwidth (Bc) | 210 kHz |
| Daya transmit (Pul) | 1 Watt |
| Noise Figure | 9 dB |
| Temperature (T) | 300K |
| Gain transmitter | 0dBi |
| Gain terminal | 6dBi |

**Perhitungan Jumlah Pilot**

Asumsi jumlah pilot = 20% dari coherence interval, maka jumlah pilot :

**Perhitungan SNR uplink**

Dimana:

**Simulasi Matlab**

Terminal mentransmikan pilot signal

dimana adalah unitary matriks

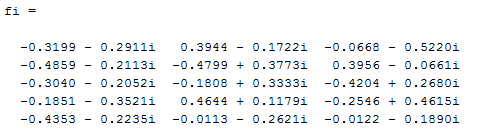
Parameter :

SNR = 128dB

M = 10

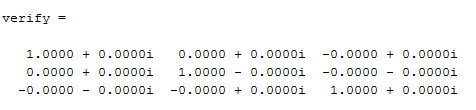
K = 3

Maka adalah :

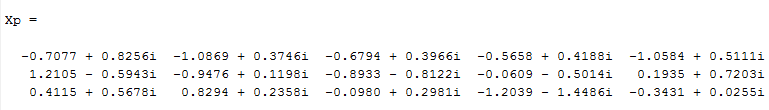


Pembuktian unitary matrix



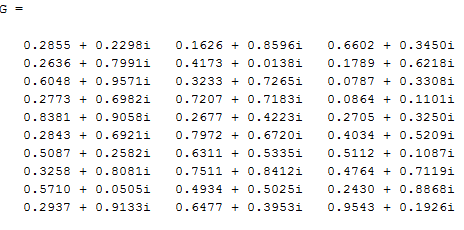


Pilot yang ditransmisikan (**Xp)** berukuran



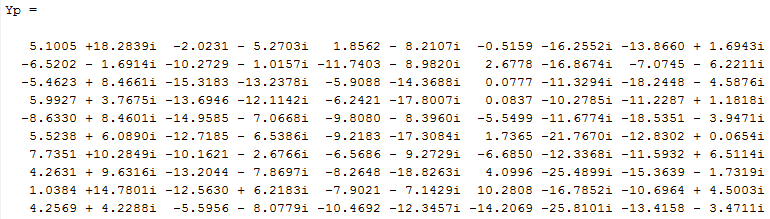
Pembangkitan kanal **G** berukuran



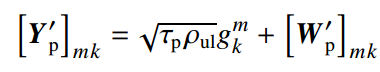


Sinyal yang diterima di BTS berukuran



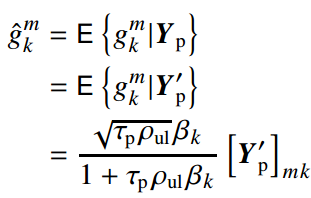


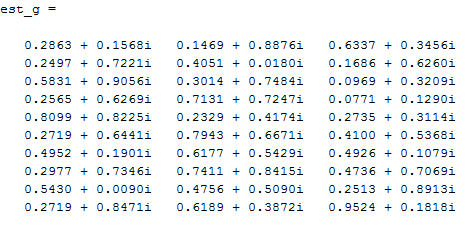
Despreading of the received pilot signal





MMSE Estimator :





Mean Square Error :

