1. Suppose a car is moving through the suburban environment that has a wireless channel with a coherence time of 10ms and the coherence bandwidth of 600Khz. The bitrate of system used is 50kbps. Characterize the channel.  
   a. Is the channel slow or fast fading?  
   b. Is the channel flat or frequency selective fading?

Answer:

1. Bit Rate = 50kbps  
   Bit time Tb = 1/(50 \*103) = 20 µs  
   Since, Tc > Tb, The Channel is Slow Fading
2. BC = 600 KHz  
   Assume Single Bandwidth, So,  
   BS = 50 KHz  
   Now, Bc > 10 \* (BS)  
   Hence, BC >> BS , So flat fading