

Velammal College of Engineering and Technology
Department of Information Technology
Assignment 1

Subject code/Title: EC6801/Wireless Communication
Year/Semester: III/V
Given date: 18.07.16

Branch: IT
Total marks: 20
Submission date: 21.07.16

CO1	Explain Wireless channels	K2 - Understand
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Instructions

- Always write your name, roll number, subject code/title, date on the first page of your paper.
- Include page number in all the pages
- Avoid plagiarism
- All references should be properly cited.

1. If $P_t = 20 \text{ W}$, $G_t = 1 \text{ dB}$, $G_r = 2 \text{ dB}$ and $f_c = 900 \text{ MHz}$, find P_r in (a) Watts (b) dBW (c) in dBm at a free space distance of 1 Km. **(Understand)**
2. Assume a receiver is located at 10Km from a 50 W transmitter. The carrier frequency is 6 GHz and free space propagation is assumed, $G_t = 1$ and $G_r = 1$. Find the power and magnitude of the E-field at the receiver antenna. **(Understand)**
3. If 1mW transmitter at 6GHz is fed into the transmitting horn antenna then the line of sight transmission link limits the separation of transmitter and receiver at about 40 km. the transmitting and receiving antenna has effective area of 4.6 cm X 3.5 cm. Calculate free space path loss and received signal power at these distance. **(Understand)**
4. Explain the advantages and disadvantages of two ray ground reflection model in the analysis of path loss. **(Understand)**

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