# **1** Instructions for Experiment 3 :-

Follow the instructions given below to perform the experiments:-

### **1.1 Starting the Experiment :-**

• Step 1:-Click on the button START. A page appears with a dialogue box asking for your name. Enter your name and click OK.

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# **1.2** Performing the experiment 3A:-

• Step 2:-Choose the experiment you want to perform by clicking on the button EXPT 3A or EXPT 3B.



• Step 3:-Place the mobile at different locations from the base station by adjusting the slider. You can also use the buttons + and - to change the position of the mobile.

• Step 4:-Record the values at different positions of the mobile by clicking on the button TAKE READING. Take 20 readings.



- Step 5:-You can observe the plot of power received vs angle on the RHS of the page.
- Step 6:-Now note the points where there is 3 dB fall of received power and calculate the beamwidth by following the example given in procedure section.
- Step 7:-Enter your calculated value of beam-width in the box provided in the RHS of the page.
- Step 8:-Click on the button SUBMIT to verify whether your manually calculated value of beamwidth matches the computed value of beam-width. The exact value of beam-width is returned.



### **1.3** Generating the report :-

- Step 9:-Click on the button REPORT to generate the report of your experiment.
- Step 10:-Click on the button SAVE to save your report

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• Step 11:-A dialogue box appears with the message that your report is successfully generated. Click on the buton OK to save your pdf report.

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• Step 12:-Finally, you can view the pdf report of the experiment you have done.

Fading Channels & Mobile Communications IIT Kharagpur Date: Juni 52011

Exp 3A: Horizontal Beam Pattern Name: XXX



(Signature of Faculty)

• Step 13:-You can redo the entire experiment by clicking on the button RESET.

#### **1.4** Performing the experiment 3B:-

- Step 14:-Follow the Step 2 as in experiment 3A.
- Step 15:-You can choose either random tilt or adjust the tilt value as given in the RHS of the page.



- Step 16:-Drag the mobile and place the mobile at different locations from the base stations by adjusting the slider. You can also use the buttons + and - to change the position of the mobile.
- Step 17:- Record the values at different positions of the mobile by clicking on the button TAKE READING. Take 20 readings.



- Step 18:-Now note the points where there is 3 dB fall of received power and calculate the beam-width by following the example given in procedure section. Observe the angle value at which received power is maximum. This is the tilt angle value.
- Step 19:-Enter your calculated value of beam-width and tilt in the box provided in the RHS of the page.



# **1.5 Generating the report :-**

- Follow Steps 9 to 12 to generate the pdf report of the experiment you have done.

Fading Channels & Mobile Communications IIT Kharagpur Date: Jun. 15, 2011

Exp 3B: Vertical Beam Pattern Name: XXX

Vertical Beam Pattern (Tilt= 5.0deg)		Power Recieved (dBm) vs. Angle (de	
Pr(dBm)	Angle(deg)		
-78.86	0.0	9	
-81.85	-4.42	015	
-90.36	-11.44	315 45	
-88.41	-10.12	1////X< <e>X</e>	
-82.63	-5.27	1/////2 <tsx\\\\\< td=""></tsx\\\\\<>	
-82.96	-5.61	270 -85 -80 90	
-82.31	-4.93		
-82.0	-4.59		
-79.39	-1.02		
-79.2	-0.68	225 135	
-79.02	-0.34		
-79.11	-0.51	180	
-78.94	-0.17		
-78.78	0.17	Beam Pattern	
-78.63	0.51		
-78.49	0.85		
-78.36	1.19		
-78.25	1.53		
-78.14	1.88		
-78.05	2.22		
Entered Value	Actual Value		
BW:9 deg	16.0 deg		
Tilt: -11.44 deg	5.0 deg		

(Signature of the Candidate)

(Signature of Faculty)

- Step 20:-You can redo the entire experiment by clicking on the button RESET.