

Indian Institute of Information Technology, Allahabad

Electronics and Communication Engineering Department

Course Name: Radar & Satellite Communication

Experiment No. 2

Aim :- To Measure the speed of a Fan.

FAN SPEED

OBJECTIVE: To Measure the speed of a fan.

EQUIPMENT REQUIRED:

Doppler Radar, PC with multimedia, Doppler power supply, fan.

Procedure:

1. Connect the Power Supply adaptor supplied, to the Doppler radar and the LED will glow on the back panel of radar.
2. Point the antenna of radar towards the fan.
3. Connect the output of the radar to the "mic in" of PC. This socket is provided at back of PC and is usually pink in colour and accepts microphone inputs.
4. Select Microphone input from volume control setting of software and turn on the volume of speaker.
5. Measure the rpm of fan as indicated on the radar software control panel.
6. Switch off the fan and count the number of blades and divide the rpm of the fan indicated by software by the number of fins that is say 7.

Result: The fan rpm could be measured by using the Doppler radar.

Observe that the rpm being measured is 10,439 rpm. Further see that the fan has 7 blades and the radar sees all of them so actual speed of fan is $10,439/7 = 1491$ rpm.

Further, the CPU fan has very curved blades, which provide adequate radar signature when looked at axially as compared to a ceiling fan where the results might not be good in spite of its size.



