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Due until 18 May 2007

Exercises of lecture

Mobile Ad Hoc Networks

Summer 2007

Sheet 4

SECTION 1:
Exposed Terminal Problem

1. A student claims to improve MACAW such that after receiving DS, a node could start sending data to any other node instead of waiting for the end of data. That student makes following claims. *(1)* Node-A could send data to any node, other than node-B because node-C is out of range of it. *(2)* The exposed terminal problem is solved. *(3)* To support his above claim, he says that if one cannot send data, then what is the use of DS? You are asked to review the suggestions given by the student, and find out any mistakes he had made while making above claims.

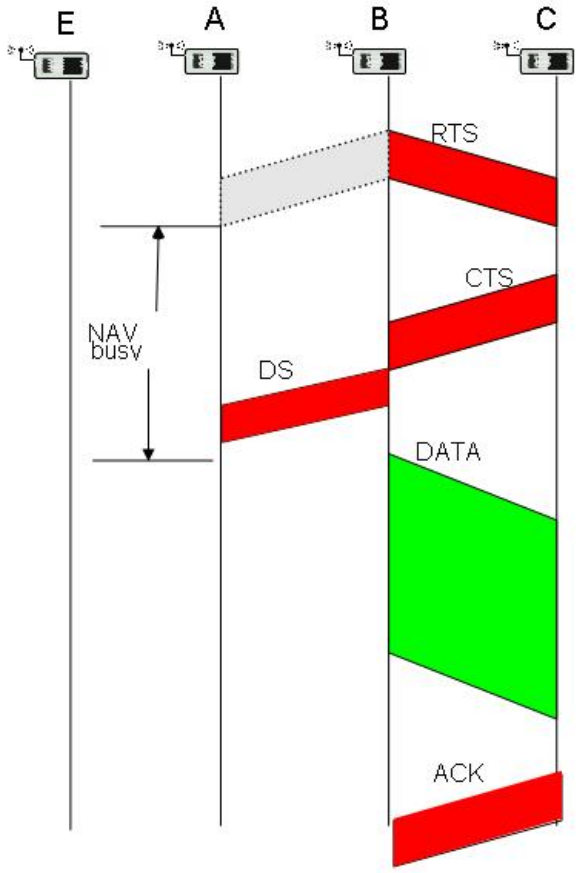

Figure 1:

SECTION 2:
Power Aware MAC: Power Control

1. Based on the PCM protocol, a data tranmission involves sender A and receiver B. Given that the minimum necessary received signal strength of A is 0.3987 W (equivalent to -64 dBm), the maximum transmit power for both nodes is 0.7079 W, and A receives a CTS from B at $P_r = 0.5011W$, compute the minimum transmit power, P_{tmin}, sender A should use for the data transmission to B.

   Explain the method used in *BASIC* or *PCM protocols* to determine P_{tmin}, and its drawback (if any).

2. Does PCM completely solve the problem of *BASIC* protocol? If not, elaborate the problem that you think might still happen in PCM.