Name Removed

Wireless and Mobile Networking

Homework 11

**P17.2**

h = 850

theta = 35

R = 6371 km

c = 299792 km/s

delay = d/c = (1/c)\*[sqrt((R+h)^2 – R^2\*cos^2(theta)) – R\*sin(theta)]

= 1/299792 \* [sqrt((6371+850)^2 – 6371^2 \* cos^2(35)) – 6371 \* sin(35)]

= 3.3356e-6 \* [sqrt(52142841 – 40589641 \* 0.67101) – 3654.2555

= 3.3356e-6 \* [4990.6699 – 3654.2555]

delay = 0.004485

**P17.4**

r = 1000 km

R = 6371

g = 9.81e-3

v = R\*sqrt(g/r)

= 6371\*sqrt(0.00981/1000)

= 19.9546 km/s

**P17.7**

Data transferred = n

Number-way diversity (d) = 2

Total Percentage (p) = 10% time \* 50% traffic + 5% time \* 50% traffic

= 10\*.5 + 5\*.5

p = 7.5

Information Content (IC) = n/((p\*n/100)\*d + ((100-p)\*n/100))

= n/((7.5\*n/100)\*2 + ((100-7.5)\*n/100))

= n/(0.15n + 0.925n)

= n/1.075n

= 1/1.075

IC = 0.93024