

Walfish Ikegami model

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Why Hata Urban and Suburban are similar ?

Mathematical Formulation [\[edit\]](#)

Hata Model for Suburban Areas is formulated as,

$$L_{SU} = L_U - 2\left(\log_{10} \frac{f}{28}\right)^2 - 5.4$$

Where,

L_{SU} = Path loss in suburban areas. Unit: decibel (dB)

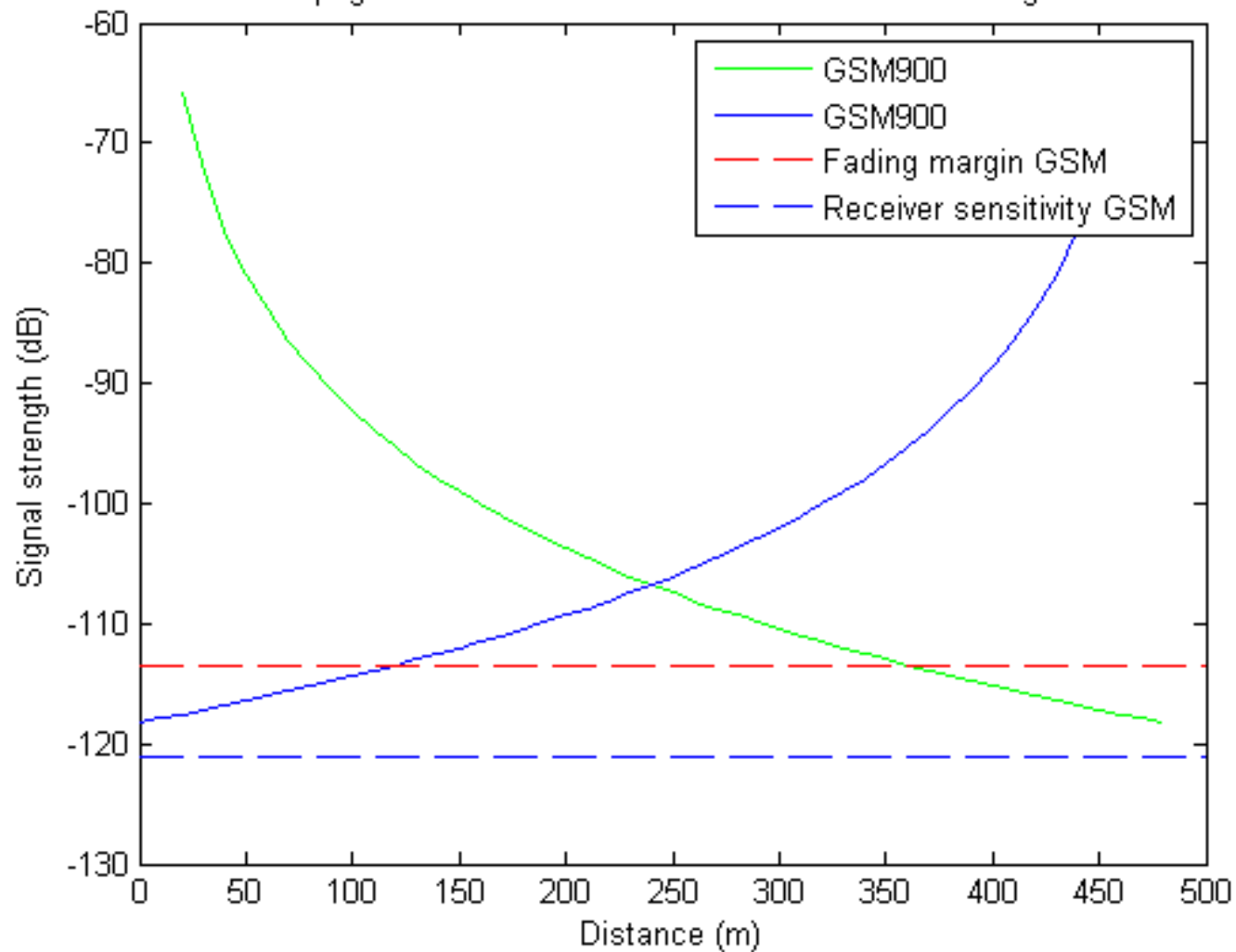
L_U = Average Path loss in urban areas for small sized city. Unit: decibel (dB)

f = Frequency of Transmission. Unit: megahertz (MHz).

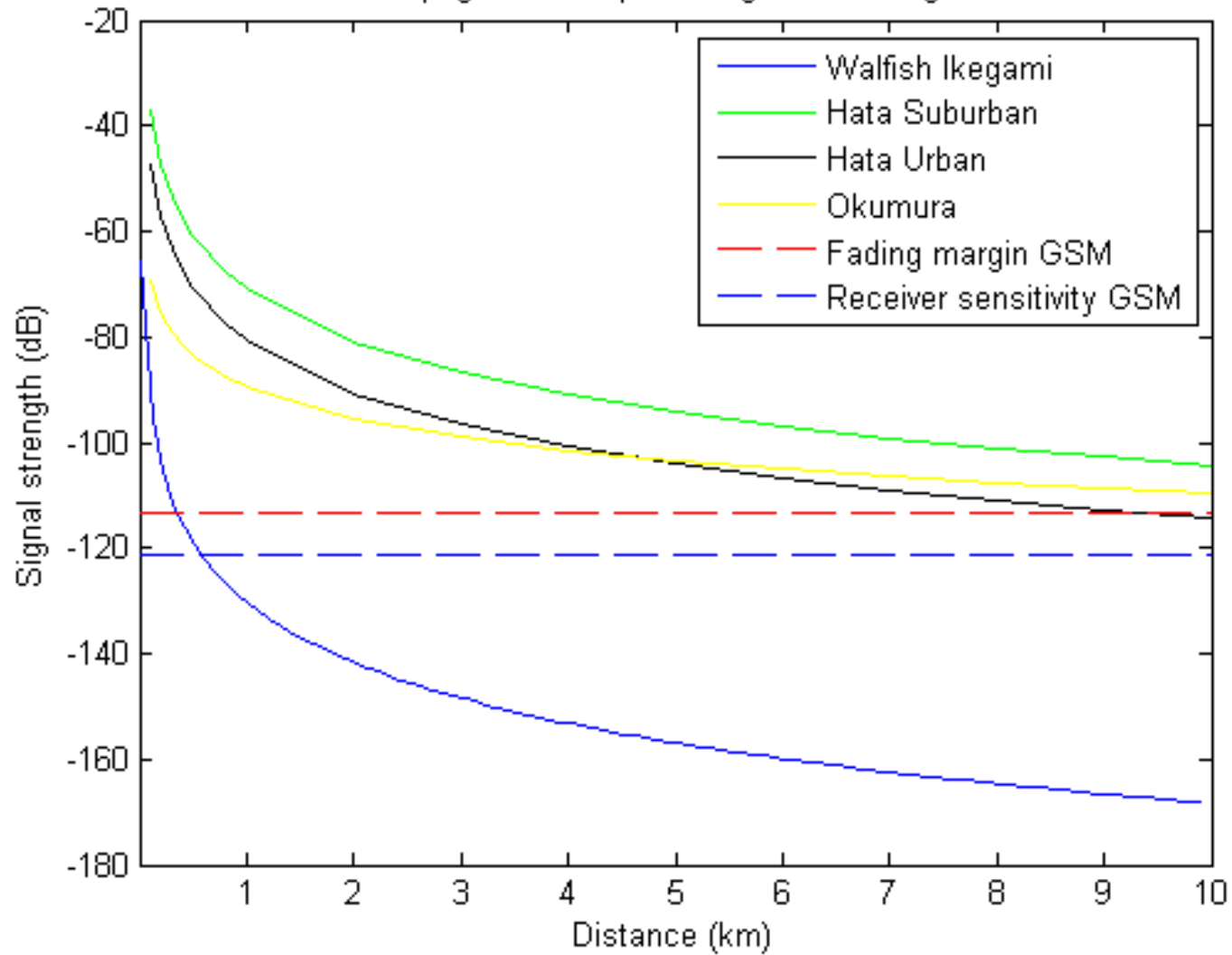
Used parameters for Bergen

- Antenna height – 55m
- Average roof height 35m
- Road average width 20m
- Buildings average height 20m
- Road orientation angle 70 deg
- Mobile receiver height 2m

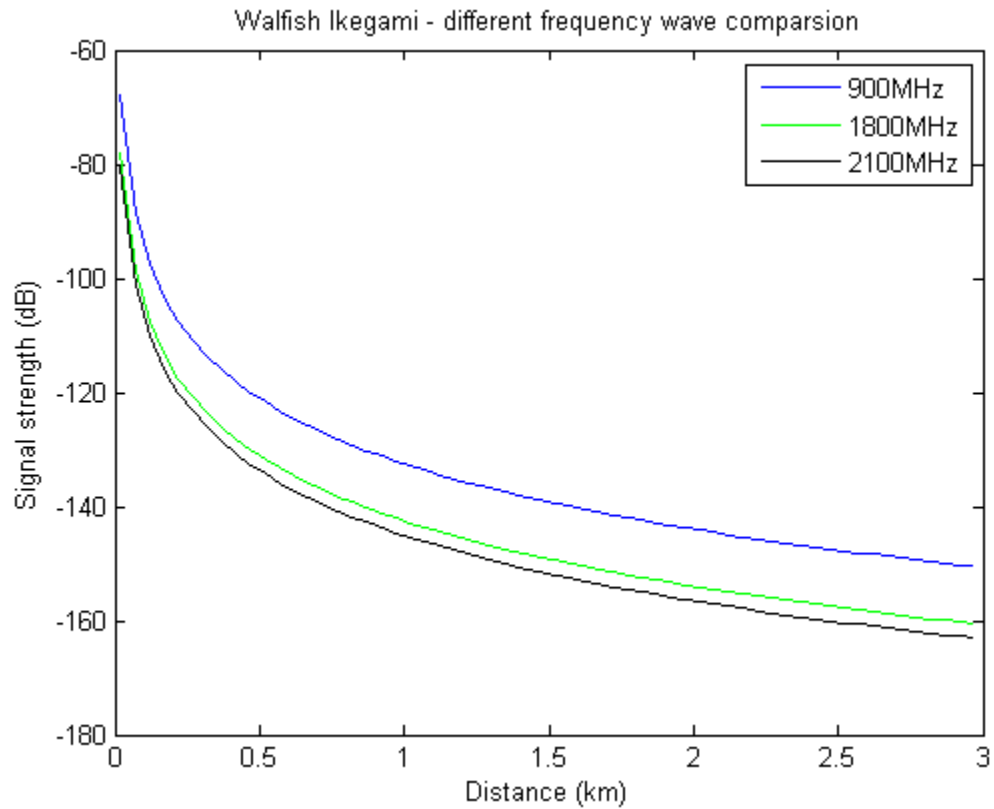
Propagation Prediction - WI Between antennas in Bergen



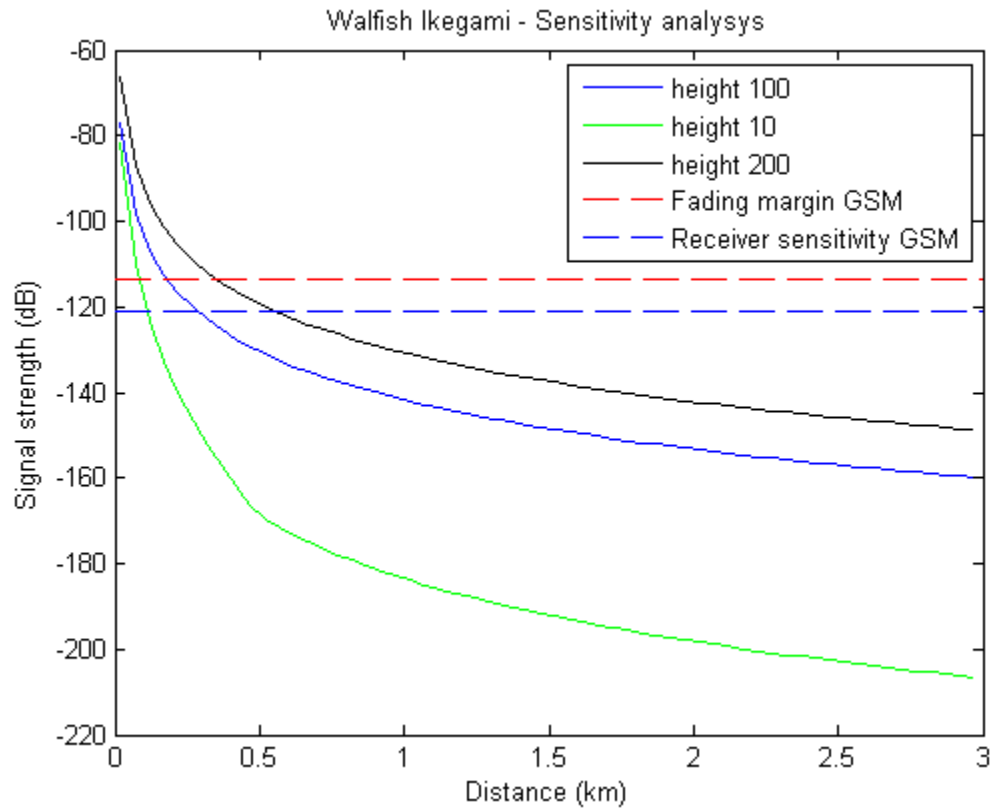
Propagation Comparision general - Bergen



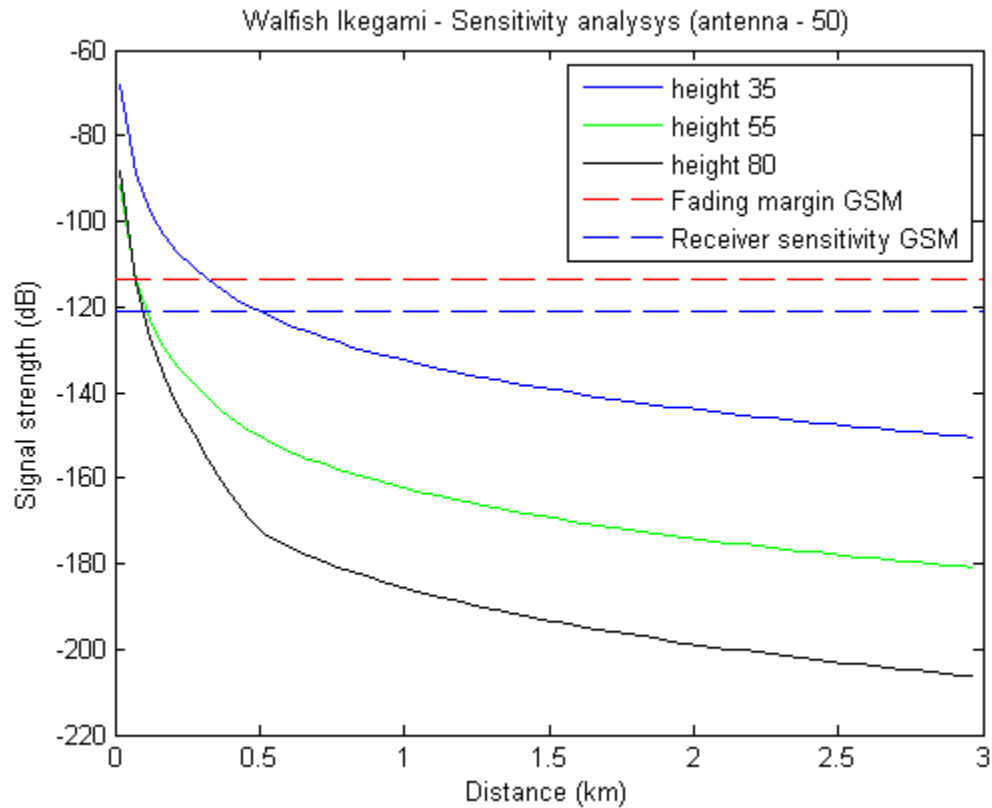
Different frequencies



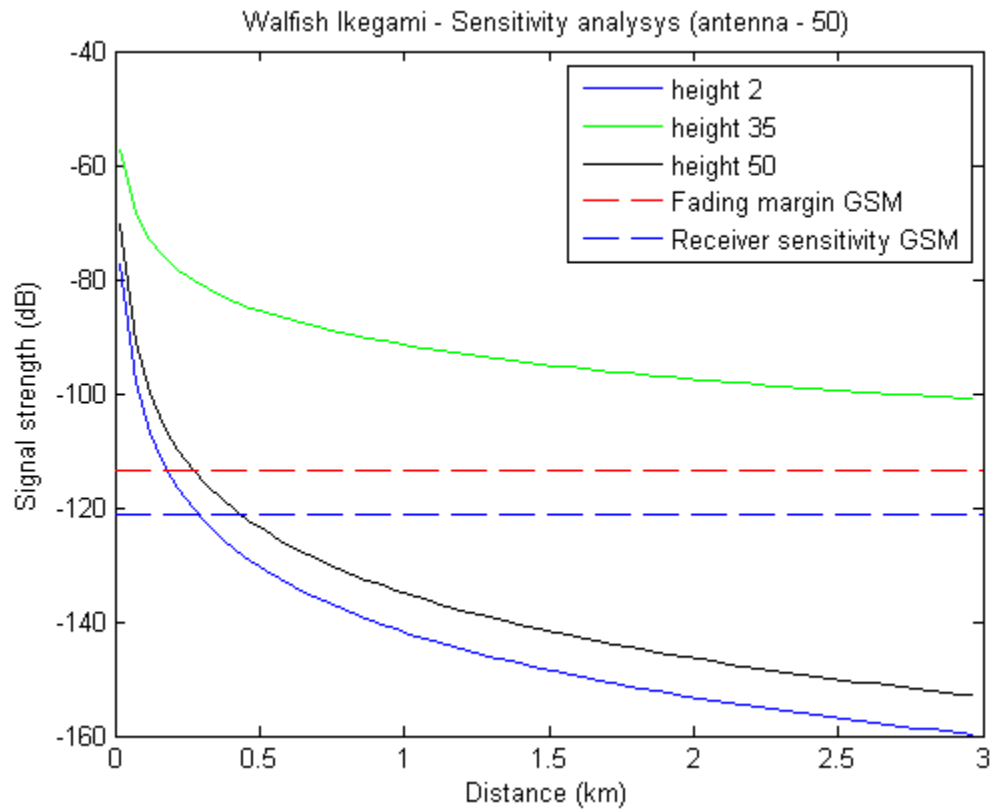
Antenna height



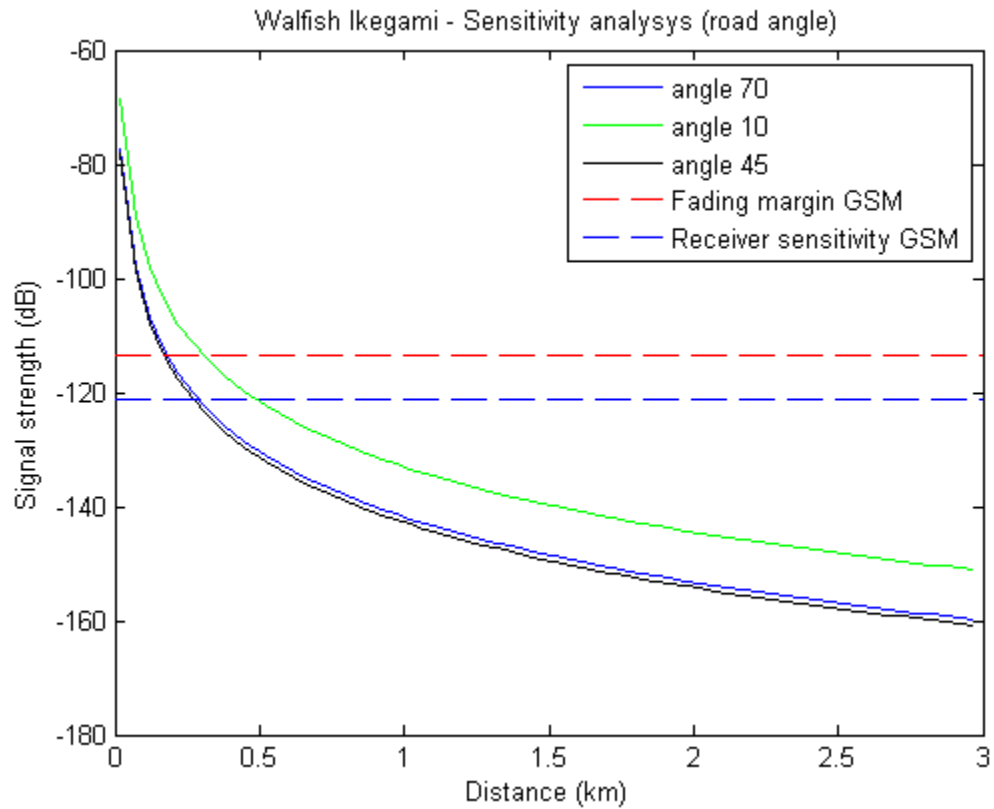
Building average height



Mobile height



Road angle



- Building separation and road width does not have big impact on result unless they are extremely small.