b10505005_hw1_readme.pdf

Description

Use the file to plot figures of

- path loss only radio propagation, Two-ray-ground model
- path loss and shadowing (without fading), log-normal shadowing to model

Requirement

Python 3.8.10

Main Function

```
def received_power_two_ray( d ):
    return Pt*Gr*Gt*(h_device*h_base) **2/ (d ** 4)

Pr = received_power_two_ray( distance )
Pr_db = 10 * np.log10(Pr)
SINR = Pr / ( I + N )
SINR_db = 10 * np.log10(SINR)

def apply_shadowing(Pr, sigma, size):
    shadowing = np.random.normal(0, sigma, size)
        Pr_shadowed = Pr * 10**(shadowing / 10)
        return Pr_shadowed

Pr_shadowed = apply_shadowing(Pr, sigma, len(distance))
Pr_shadowed_db = 10 * np.log10(Pr_shadowed)
SINR2 = Pr_shadowed/ (I + N)
```

Compile

```
  python main.py
```

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