Topic presentation 2017

Topics (20 min presentation + 10 min questions/open issues)

- 19Sep2017 - 1330h: Internet of Things and Cognitive Radio
- 19Sep2017 - 1400h: 5G security and heterogeinity : Haroon
  - Break 1430-1445h
- 19Sep2017 - 1445h: Device to device communication challenges and opportunity : Magnus
- 19Sep2017 - 1515h: Location variability in satellite communication : Hani

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- 26Sep2017 - 1330h: 5G network slicing : Georgios
- 26Sep2017 - 1400h: Wireless Machine-to-Machine Communications in Industrial Environments - Stephen Kimogol
- 26Sep2017 - 1445h Modelling wireless propagation : Maxime
- 26Sep2017 - ?? Mobile broadband performance measurements : Cise
- *other presentations? - please add*

$f \to 2 f_0$

$$P_r = P_t \cdot g_t \cdot g_r \cdot \left(\frac{\lambda}{4\pi r}\right)^2 \cdot \text{Loss obstacles}$$

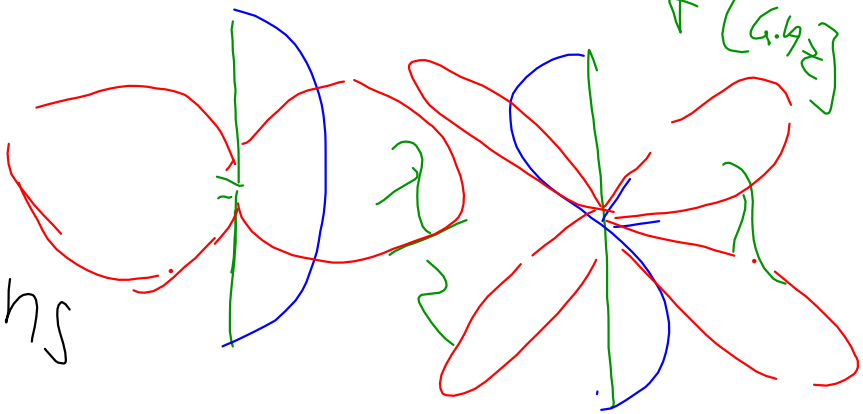
$\sim \left(\frac{D}{\lambda}\right)^2 \cdot \left(\frac{D}{\lambda}\right)^2$

free space loss

$+ P_{fade}$ $P_r' \sim \frac{1}{\lambda^2} = 4 P_R'$

$f = \frac{c}{\lambda} \rightsquigarrow \lambda = \frac{c}{f} = \frac{30\ cm}{f\ [GHz]}$

Receiver P_{sens}



$$P_r = P_t \cdot G_t \cdot G_R \left(\frac{\lambda}{4\pi r}\right)^2 + \text{other loss}$$

14-20dB

0 - 33 dBm

-40dB

$\Rightarrow$ log/dB

0-3 dB - (80-120/140) dB

max: -84 dBm

$P_T = 20\ W \quad 2E4\ mW \approx 43\ dBm$

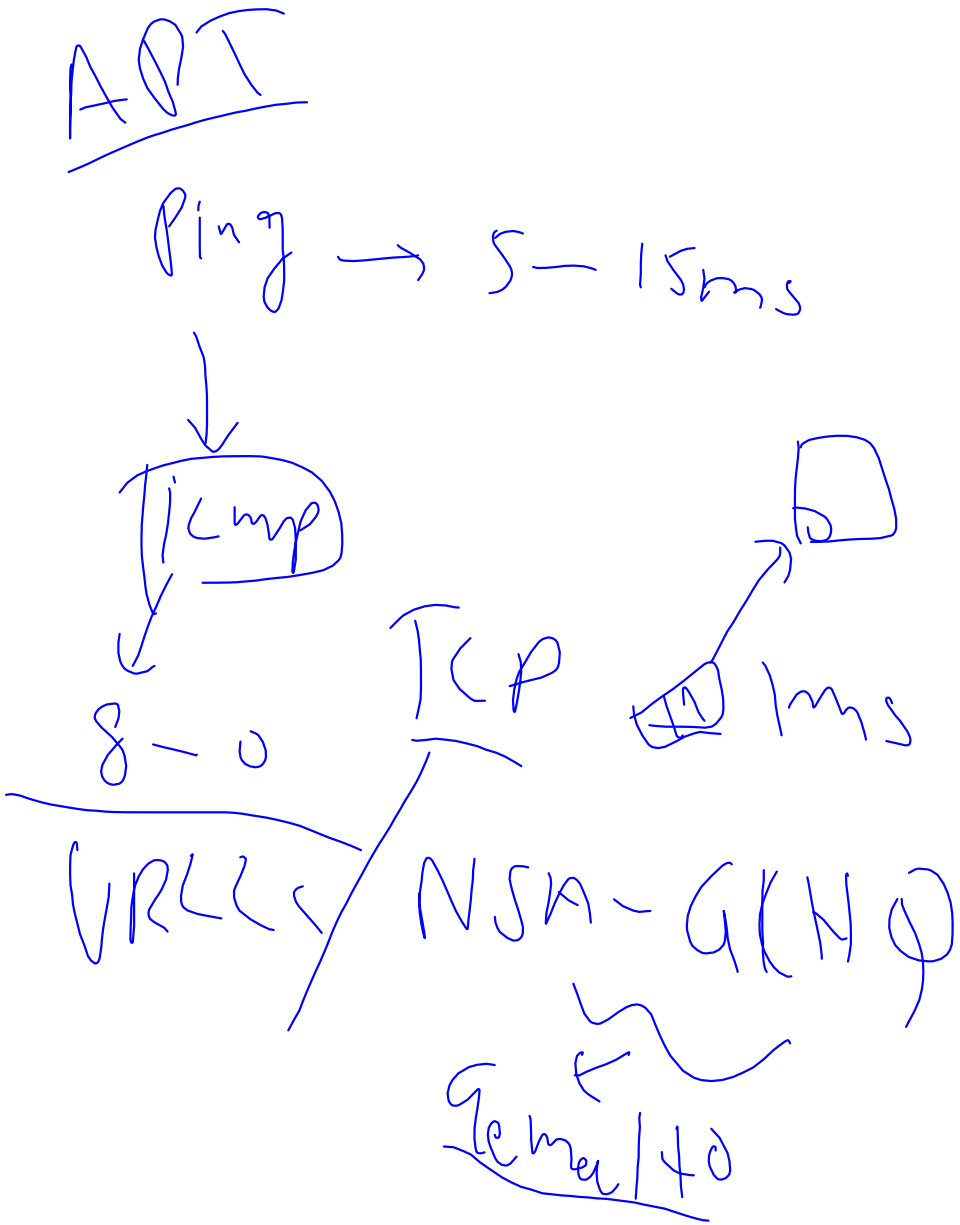
ation $L = 92,4 + 20\log(d[\text{km}]) + 20\log(f[/\text{GHz}])$

$32.4 + 20\log(r[km]) + 20\log(f[MHz])$

$20 \cdot E3 = 60$

$V_{ph} = \frac{c}{\sqrt{\varepsilon_r \mu_r}}$

Wall


API
Ping → 5 – 15ms
ICMP
8 – 0
TCP
1ms
VRLLs
NSA – GKNQ
Telnet 40