

its-wiki.no/wiki/SCOTT:Home

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The banner features the SCOTT logo on the left, which includes a keyhole icon. To the right are five circular icons: a red shield for 'SECURITY', a yellow warning triangle for 'SAFETY', a green hand holding a gear for 'USABILITY', a purple eye with a slash for 'PRIVACY', and a blue handshake for 'TRUSTABILITY'.

**Secure Connected Trustable Things - SCOTT**  
(<http://scott-project.eu>)

**JU ECSEL project - Norwegian contribution**

- Security class level

- "overhead of wireless"

# UNIK 4700 evaluation

- understanding ; scientific
- "tell the story" explain
- analyze & evaluate  
    ↑ based on literature      ↓ own opinion

# Modeling Propagation channel

Maximize 5 Dec  
Sensitivity analysis

Indoor propagation eqn

Free space eqn (C)



- factors
- thickness wall
- material
- doors
- people

Compare with measurements (Lindner)

$P_T \Rightarrow$  range, capacity

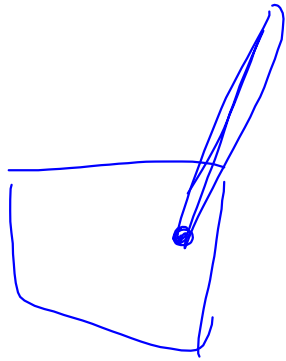
$P_{sens} \Rightarrow$  " "

$$R > P_{sens} + P_{Fading}$$

$$P_T < max P$$

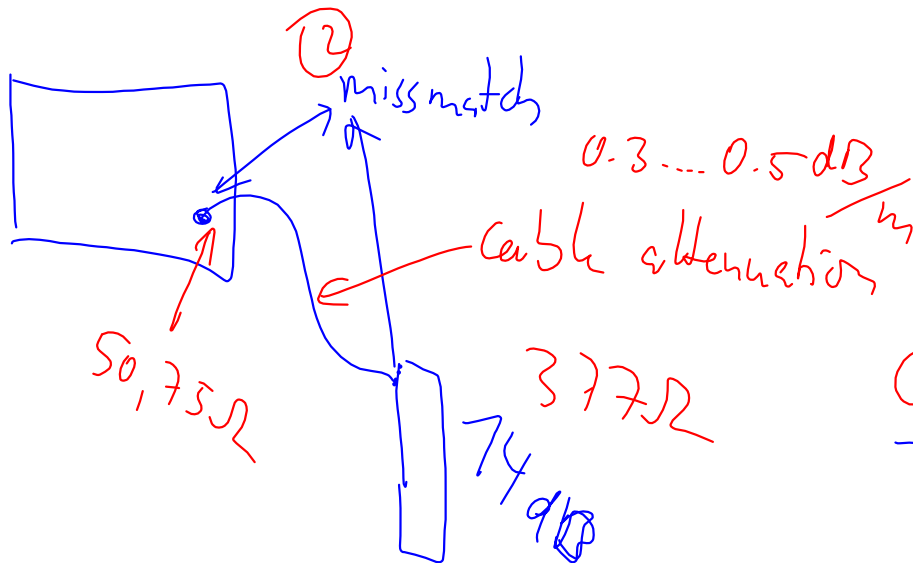
based on Data Sheets

optional: Analysis & impact on range/capacity



reference  
 " 1  
 0 dB

$f = 2; 4 \dots 2; 485 \text{ GHz}$



① -thermal noise  
 ↳ receive

# Wireless communication in M2M

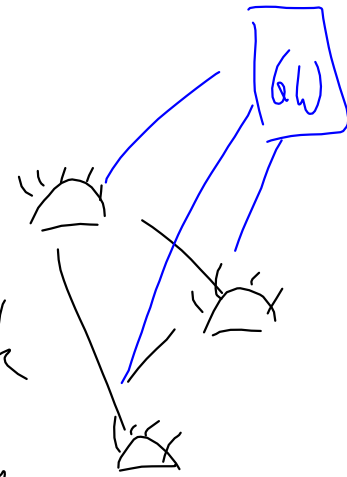
M2M

- Which devices
- challenges:
  - power/energy
  - harsh environment
  - reliability

Wireless ?

Zigbee, Bluetooth, protocols ?  
Wireless HART, ISO 100

network topology



Goal: 5y life time

7700

28 Nov

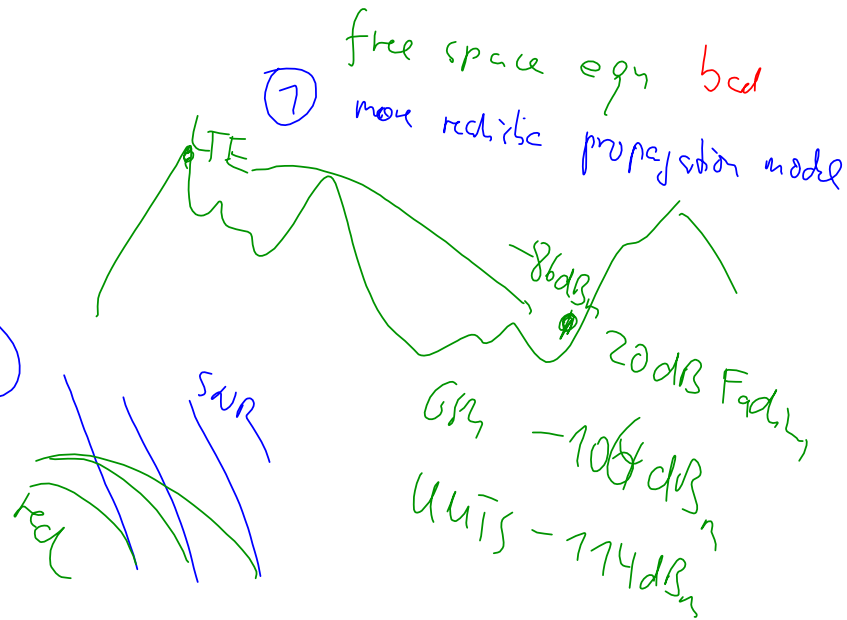
email Maghsoud

- bullet → answers
- literature overview

# Coverage extension at network edges

Analysis:

- Coverage
- Capacity "ke" (2)



Analysis

- increase capacity & range
- interference (other traffic)
- repeater
- micro cell

One cell Sensitivity  
- height antenna

Passive Reflector Svalbard

$g \sim \left(\frac{A_{eff}}{a}\right)^2 \sim 200^2$

$r = 30\text{ cm}$  60dB gain?

$\sim 1\text{ WHz}$  +20

parabol 6m passiv reflector

Abandoned Moskushamn Longyearbyen

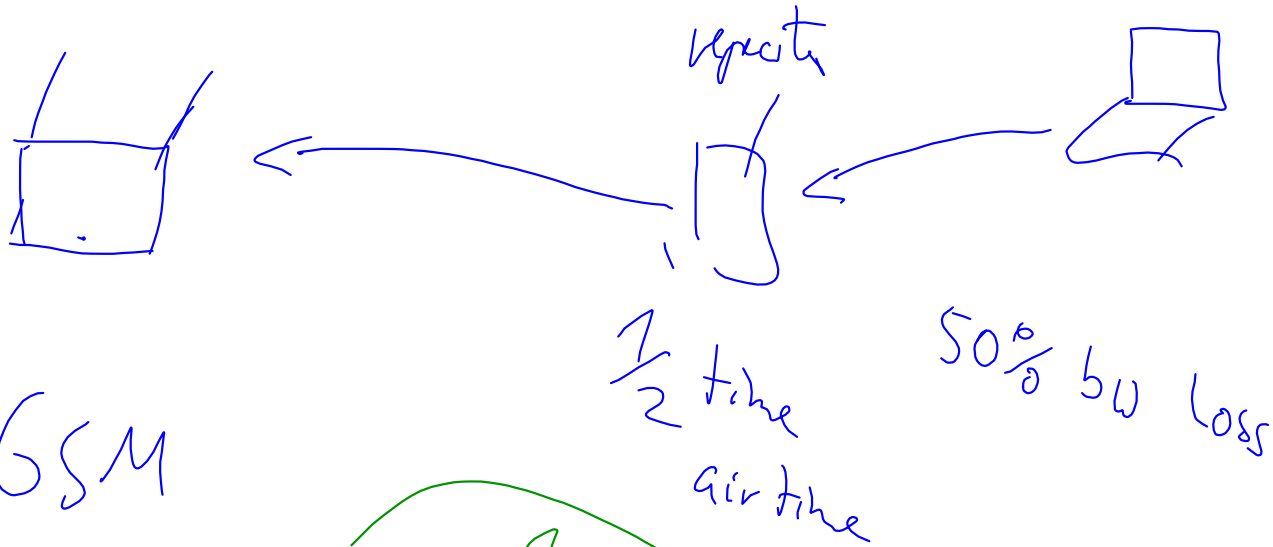
Barentsburg

Nordenskiöld Land nasjonalpark

Svea



# Wireless network repeater



# GSM

