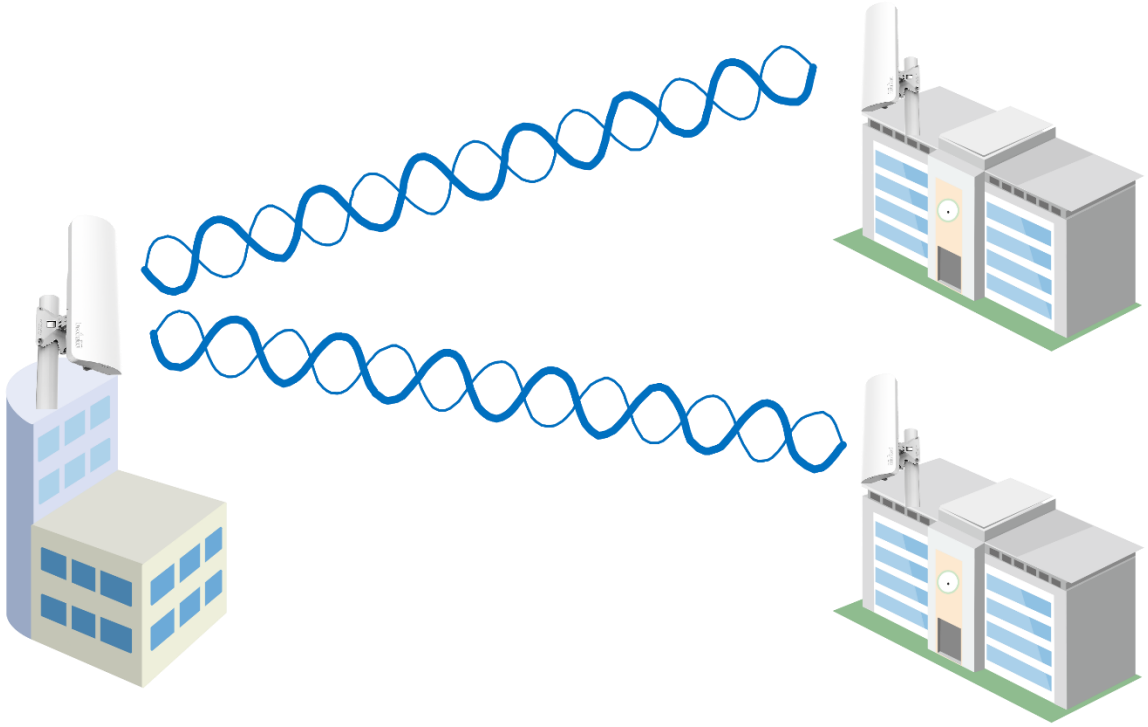
Building Point-to-Point Wireless Networks

TEK5110- Building Mobile and Wireless Networks
Department of Technology Systems
University of Oslo

Maghsoud Morshedi, Josef Noll

Outdoor Wireless Network

- Point-to-Point wireless link
  - Connect two sites together
- Point-to-Multipoint wireless links
  - Connect multiple sites from one access point device



Point-to-Point link Requirements

- Line of sight
- Power supply (DC/Power over Ethernet (PoE))
  - AC power supply or solar power supply
  - Provide power and data to access point with only Ethernet cable (PoE)
- Ethernet or fiber network (backhaul)
  - Connect wireless access point to local network with Ethernet or fiber cable

[1] ASSIA, "Deliver Real Quality of Experience to Wi-Fi Residential Subscribers," [Online]. Available: http://www.assia-inc.com/products/cloudcheck/

P2P Wireless Access Point Selection

- Frequency
  - 2.4 GHz , 5GHz or 60 GHz
- Range
  - Short range 2-4Km or long range 20Km
- Antenna gain
  - 7dBi, 10dBi, 15 dBi, etc.
- Maximum throughput
  - 300Mbps or 866Mbps
- Cost

Configuring P2P Wireless Link

- 5GHz access point
  - Mikrotik RB921GS-5HPacD-15s
- 5GHz CPE
  - Mikrotik RBSXTsq5nd

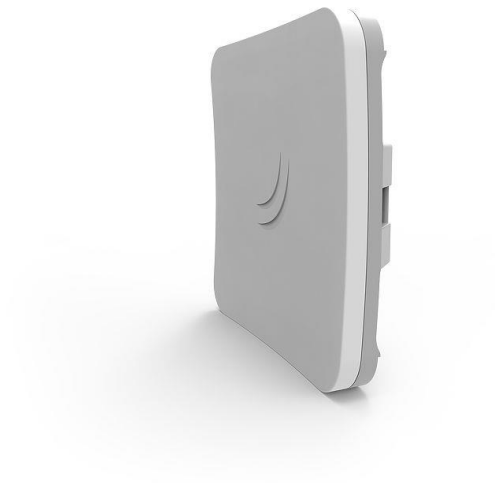
Mikrotik RB921GS Characteristics

Product code	RB921GS-5HPacD-15S
CPU core count	1
CPU nominal frequency	720 MHz
Size of RAM	128 MB
Tested ambient temperature	-40°C to 70°C
Max power consumption	13 W
Wireless 5 GHz standards	802.11a/n/ac
Antenna gain dBi for 5 GHz	15

https://mikrotik.com/product/RB921GS-5HPacD-15S#fndtn-specifications

Mikrotik RBSXTsq5nd Characteristics

Product code	RBSXTsq5nD
CPU core count	1
CPU nominal frequency	600 MHz
Size of RAM	64 MB
Tested ambient temperature	-40°C to 70°C
Max power consumption	6 W
Wireless 5 GHz standards	802.11a/n
Antenna gain dBi for 5 GHz	16

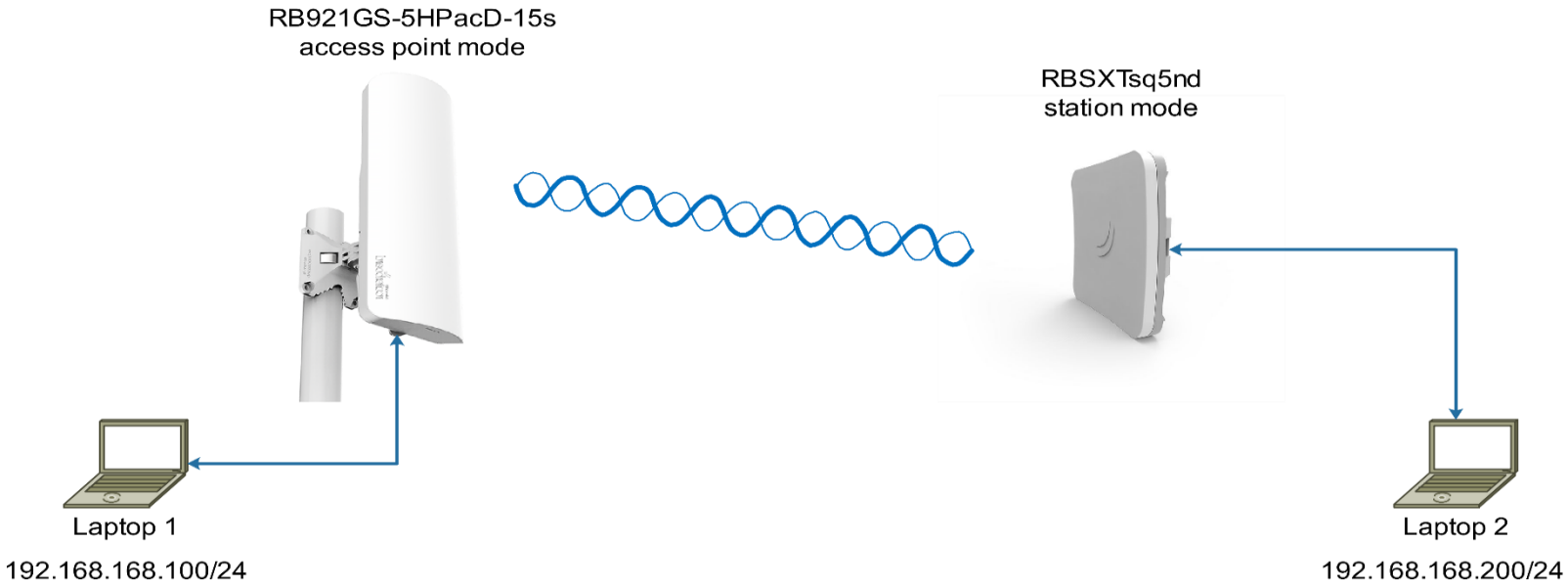


https://mikrotik.com/product/RBSXTsq5nD

P2P Wireless Network Diagram

- Use Mikrotik RB921GS-5HPacD-15s and Mikrotik RBSXTsq5nd to build following point-to-point wireless link in the class.
- Configuration guide:

https://its-wiki.no/images/7/7b/TEK5110_P2PWirelessConfiguration.pdf

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