

## Business case for: Use of outdoor Poynting antennas for Fixed **W**ireless **A**ccess (FWA)

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# LTE Fixed Wireless Access



## ➤ Context

- This document forms part of a collection that builds the value proposition for telecom operators and attempts to illustrate the importance of antennas for wireless operators and for end-users, consumers or subscribers.

## ➤ Audience

- This document is for external use and is intended as a high level overview, explanation and introduction to the more detailed document titled:
- *"Emergence of powerful business models for fixed wireless data using external/outdoor antennas"* by Dr Andre Fourie (Chairman Poynting Group) The document can be found at:  
[Business case for outdoor fixed wireless antennas](#)  
Watch our video summary of this business case at:  
[Fixed wireless business case for operators](#)
- The intended audience includes high level managers, business and technical and can be used by technical experts as an introduction to the more detailed document.
- Our website can be found at: [www.poynting.tech](http://www.poynting.tech)

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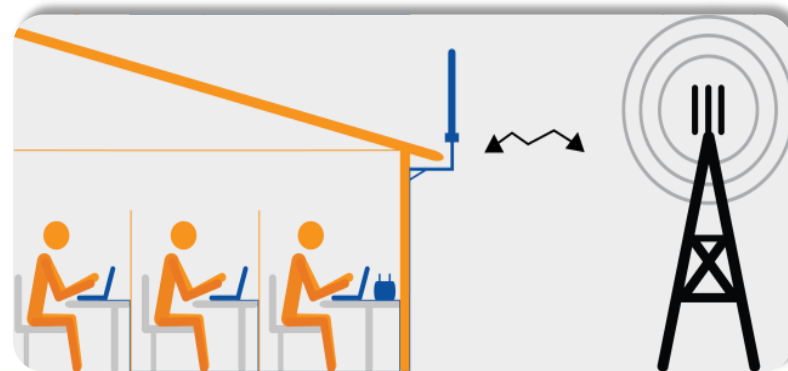


## ➤ What is a fixed outdoor antenna?

- Permanently and rigidly mounted outdoor antenna installation where the signal remains constant and reliable
- The antenna is installed by a certified installer (much like a dish or an outdoor TV antenna)
- The antenna is physically bigger than the typical “bunny-ear” antennas enclosed within or included with most routers.
- The antenna has more “gain” where the most signal is concentrated where it is needed most

- Watch our video on:

[Why do you need a fixed outdoor antenna?](#)



## What are the benefits of using a fixed outdoor antenna?

Rigidly mounted fixed outdoor antennas improve the signal to noise ratio.

- In other words it gives you a strong signal which means your data connectivity happens at a much faster speed than when the signal is weak.
- The quicker a base station (BTS) can complete the data connectivity with one connection the quicker it can move on to the next subscriber.
  - The more transactions / data transfers can be handled by the same tower, the better the BTS is utilized
- A very good connection between the BTS and CPE (Customer Premises Equipment) speeds up data transfer.
  - a strong signal is achieved thanks to a Poynting outdoor antenna
  - the base station and CPE could complete their connection or data transfer much quicker and move on to the next
  - A good connection you save cost (time).
- A bad connection required repeated negotiations of data transfer between the BTS and CPE.
  - You waste time and allocated capacity to the same, repeating, requests for data transfer.
  - Each BTS has capacity and speed limits. .



## ➤ What are the benefits of using a fixed outdoor antenna?

Outdoor antennas improve signal quality of a connection between the operator's base station and the customer CPE device by 3-5 times, therefore:

### ➤ For operators:

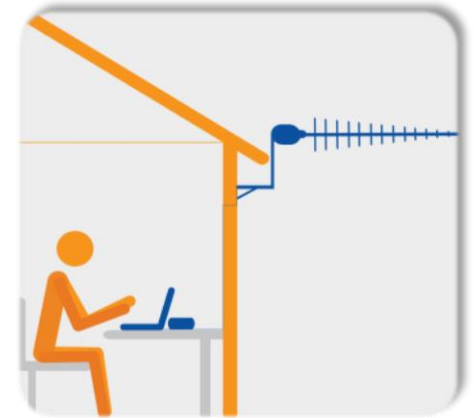
- **Increased revenues** - Faster experience by the end-user drives demand for more data consumption pushing operator data revenues up
- **Capex savings** – Faster connections improve network capacity for no extra spend, reducing investment improving the financial bottom line

### ➤ For consumers:

- **Faster and more reliable connection** for the end-user means improved user experience and customer satisfaction strengthening the operator's branding, value proposition and competitive edge.



- Why are fixed outdoor external antennas so much more effective than indoor antennas?
  - The antenna is physically bigger than the typical “bunny-ear” antennas included with most routers and therefore perform better, size matters. (Technically speaking bigger antennas have more “gain”).
  - The antennas can be pointed to the nearest base station (directional antennas) and are less susceptible to interference from other base stations.
  - Outdoor antennas receive reliable signals directly from the base station whereas,
  - Indoor antennas receives indirect reflected signals off multiple objects, walls and obstructions (multipath), reducing signal quality and connection speed



## CAPEX savings perspective for operators:

- The revenue generating capacity of an LTE base station is limited by:
    - The available frequency spectrum between the base station and the router (governed by regulatory licencing environment)
    - The efficient utilisation of the available frequency spectrum
  - This we call "**spectral cost**" (frequency spectrum as a limited resource carries a cost)
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- Comparison - The cost for the operator is the same for the 2 scenarios below:
    - 1 (one) customer connected to a base station at the rate of 1 MB/s for 1 minute
    - 10 (ten) customers connected to a base station at the rate at 10MB/s for 1 minute.
  - In both cases the same resources are consumed at the same cost
  - But in the 2<sup>nd</sup> scenario we have freed up network resources allowing for:
    - More customers with the same resources
    - Or increased data download by the same customers.



# LTE Fixed Wireless Access

## CAPEX savings perspective – An example

### Situation

- ❑ 1 BTS with a max. of 50 user per base station cell
- ❑ Standard indoor routers and antennas
- ❑ Typical subscription of e.g. 35 Euro per month

### Goal: improve utilisation of the Tower to 200 users

1. Build more BTS's
2. Increase effective usage of available capacity

### Poynting optimization solution:

- ❑ With Poynting fixed outdoor antennas connection speed increases 5 times
- ❑ The same base station allowing to serve 5 times more users, say 200
- ❑ LTE access priced at 35 Euro/month

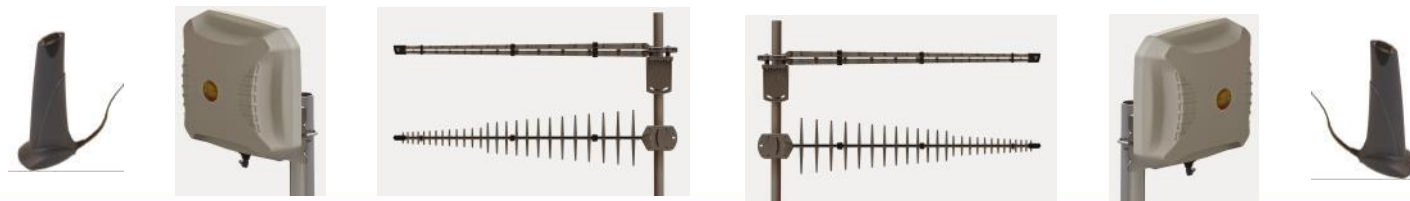
*In both situations the Base Station cell with capacity of 50 GB/month*

### **Option 1:** (estimation)

- To connect 200 users 3 more base stations need to be built @ ca. 40000 Euro cost per base station
- Total CAPEX spend ca. 120,000 Euro

### **Option 2:** (estimation)

- Installation cost of fixed outdoor antenna ca. 280 Euro per user (incl. XPOL-2)
- Total cost of antenna installation 56000 Euro





## ➤ Gross revenue increase perspective

### ➤ Option 1 - Indoor routers and antennas

- 50 users per base station cell
- Wireless offer 35 Euro per month per user
- Annual revenue 21.000 Euro per year
- **63.000 Euro** revenue over three year period

### ➤ Option 2 – Fixed outdoor antenna

- 200 users per base station cell (5 times option 1)
- Wireless offer 35 Euro per month per user (same as option 1)
- Annual revenue 84.000 Euro per year (**4 times option 1**)
- **252.000 Euro** revenue over three years (**2,8 times option 1**)



## Summary and Conclusion

	Investment	Add. Revenue
Option 1 ( +3 BTS)	120 KEuro	63 KEuro
Option 2 ( +200 Poynting Antennas)	56 KEuro	252 KEuro

Fixed outdoor antennas provide a substantial value proposition for operators:

- Better user experience (UX) encouraging greater spend from the consumer
- Reliable connection and higher instantaneous speeds
- Reduced radio planning complexity
- Maintenance, site acquisition, power consumption and other OPEX spend reduced
- Reduce Capex by 53% for the same revenue
  - Additional CAPEX spend (included above) for
    - Fixed outdoor antenna (Poynting)
    - Antenna installation (Installer)



# Poynting Antennas – Contact Data



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