



tiivi
ENEMMÄN KUIN IKKUNA

NEW TIIVI CONNECT ANTENNA GLASS THE BEST WAY TO ENSURE RECEPTION

Integrated into the window glass, Tiivi Connect Antenna Glass significantly improves mobile phone reception and data transfer indoors. The new product facilitates increasing energy-efficiency, dense urban construction and window renovations of stone houses without the risk of losing mobile phone reception or data links.

Tiivi Connect Antenna Glass serves as a signal bridge and reduces damping caused by the building's outer casing. Wide antenna beams inwards and outwards ensure comprehensive reception in the dwelling and connections to base stations in various directions.

TIIVI CONNECT ANTENNA GLASS

- The discreet Antenna Glass is durable and safe and needs no maintenance.
- A next-generation solution, it facilitates good mobile phone reception and good connections in the 3G, 4G and 5G networks, regardless of the operator.
- Ecological solution: no electricity required.

READILY AVAILABLE

- Available for almost all Tiivi windows and doors
- Does not restrict the use of other glass or blinds options
- Does not require expert assistance to determine directions to the base stations
- Installed cost-effectively as part of a window and door renovation

tiivi Connect 

WIDE ANTENNA BEAM COVERS THE ENTIRE ROOM

Figures 1 and 2 show the floor plan of a room where the right wall holds a window with two panes of low-emissivity glass. The window in the figure on the left has no antenna. In the figure on the right, the window's vertical frame features a Tiivi Connect Antenna Glass. The power of an 800 MHz radio signal coming from the

window is measured throughout the room.

The spectral map shows a strong antenna field (red and yellow) that covers almost the entire room. Furthermore, the signal is up to 100 times stronger (+20 dB) compared to a situation without Antenna Glass.



Figure 3: The surface of the glass features a discreet antenna pattern. The patent-protected solution facilitates the transfer of signals into the dwelling.

Figure 1: Window without Antenna glass.

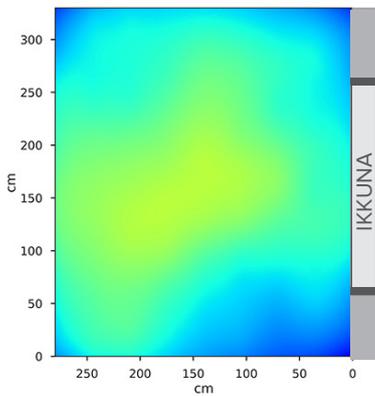
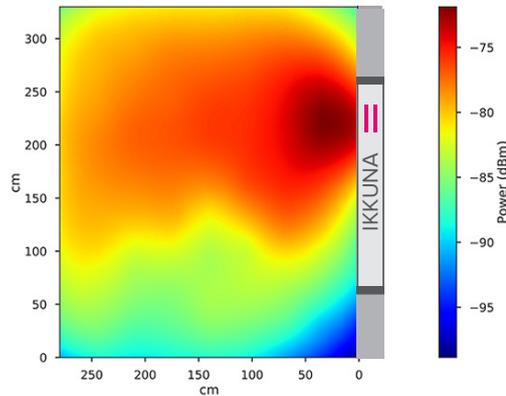


Figure 2: Window with Tiivi Connect Antenna Glass.



STRONGER SIGNAL AT ALL NETWORK FREQUENCIES

Figure 4 illustrates the loss of radio signals caused by a closed window at various frequency ranges. The grey graph represents a window without Antenna Glass and the purple graph a similar window equipped with Tiivi Connect Antenna Glass.

passage of radio signals through the outer casing and significantly increases the strength of the field in the room. The coloured areas represent current and planned frequency ranges of mobile networks. Thanks to Tiivi Connect Antenna Glass, their signal is 15–20 dB stronger, or 30- to 100-fold, compared to a room without Antenna Glass.

The measurement results show that the Antenna Glass materially improves the

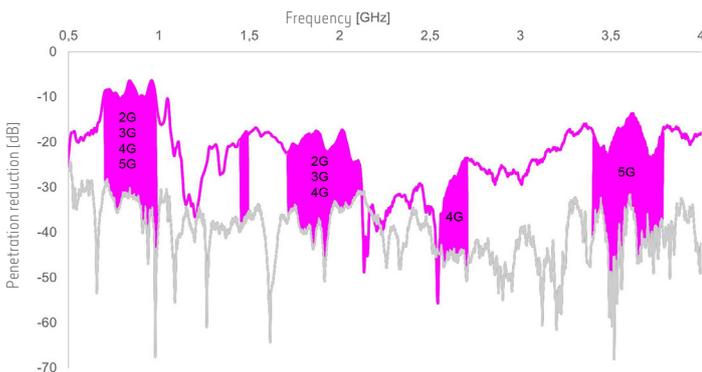


Figure 4

- Window without Antenna
- Window with Tiivi Connect Antenna

TECHNICAL INFORMATION

- Signal strength increase compared to a similar window without Antenna Glass, 15–20 dB (30- to 100-fold) in the frequency range 700–960 MHz, and 10–15 dB (10- to 30-fold) in the frequency range 1.5–3.5 GHz.

- Antenna beam width in the room and towards external base stations 60°–120° in the frequency range 700–960 MHz and 60°–90° in the frequency range 1.5–3.5 GHz.

Supports all technologies used in the frequency range:

- mobile phone and data transfer networks 2G, 3G, 4G and 5G
- IoT as well as IoT networks, such as LoRa, Sigfox, NB-IoT and Z-Wave

STEALTHCASE

The patented Tiivi Connect Antenna Glass was developed in cooperation with StealthCase Oy.