



Connectivity without barriers

DataBoost™

Powered by Pilkington **DataBoost™**

NSG
GROUP

Pilkington **DataBoost™** is a Fully Passive Technology Designed to Improve Signal Transmission

An increasingly common issue nowadays in modern private, public, and office buildings is the weakening of wireless telecommunication signals, such as radio and mobile frequencies e.g. 4G & 5G. This is primarily due to the continuous improvement of thermal insulation in buildings, including windows and Insulating Glass Units (IGUs) that feature ultra-thin metal layers deposited on the glass surface, which not only reflect heat but also wireless signals. This effect is especially prevalent in regions with harsher climates, due to greater thermal insulation of buildings, often resulting in a phenomenon similar to the Faraday Cage effect.

To address this challenge we've developed Pilkington **DataBoost™**, a fully passive technology, powering our IGUs to significantly enhance wireless signal transmission, including 4G & 5G, while maintaining the core performance of standard Insulating Glass Unit.

Any of our Insulating Glass Units can be upgraded with Pilkington **DataBoost™** technology, which uses an innovative laser-etching process to create a specially designed pattern on the glass coating. This improves the transmission of wireless signals through the unit.

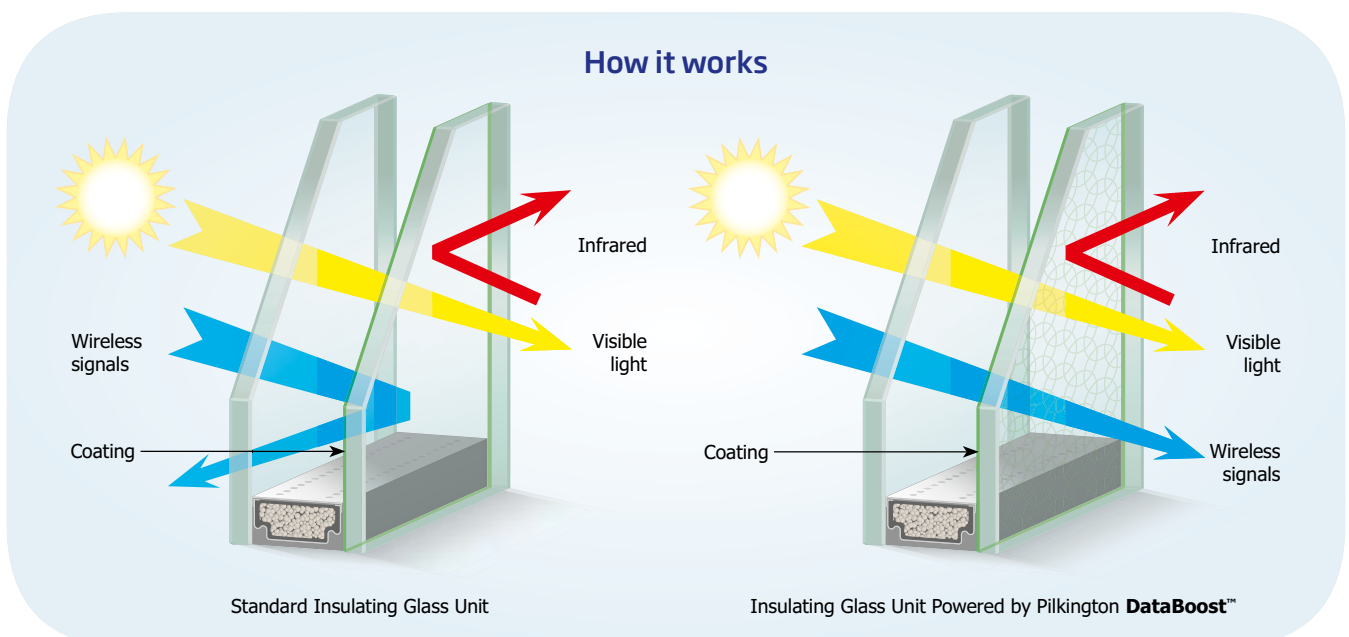
Furthermore, improved signal strength allows connected devices like smartphones and tablets to operate longer. When the signal is weak, devices continuously search for a stronger connection even when idle. This process, known as "scanning", consumes additional energy. Better signal strength inside buildings helps to extend battery life by reducing power consumption.



Our expert testing has demonstrated that Pilkington **DataBoost™** technology significantly improves wireless signal transmission through Insulating Glass Units:

- Upgrading the Insulating Glass Unit with Pilkington **DataBoost™** technology resulted in a 31 dB improvement in wireless signal transmission compared to the corresponding standard product (double).*
- Upgrading the Insulating Glass Unit with Pilkington **DataBoost™** technology resulted in a 38 dB improvement in wireless signal transmission compared to the corresponding standard product (triple).*

* for the 3500 MHz frequency band respectively with one or two standard Low-E coatings



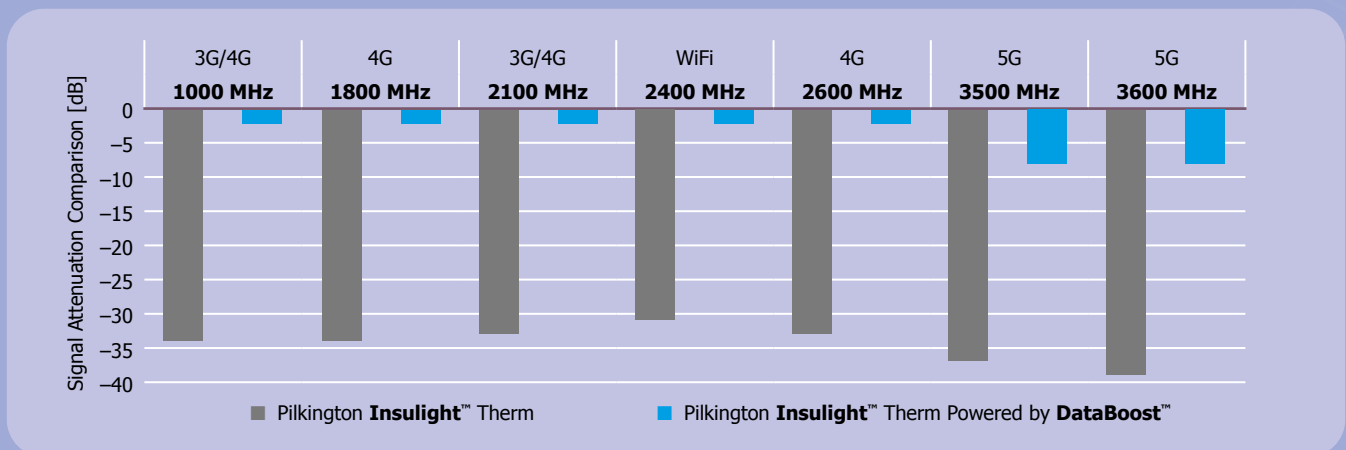
Why upgrade with Pilkington **DataBoost™** technology?

- **No Power Required** – A fully passive, maintenance-free solution with zero energy consumption
- **Stronger Connectivity** – Significantly improved wireless signal transmission, including 4G & 5G
- **Longer Battery Life** – Better signal means less energy spent on “scanning”, helping devices last longer
- **Clean Aesthetics** – An elegant, almost invisible, high-precision laser etched design
- **Built to Last** – Strength and durability meet industry standards
- **Superior Solar & High Thermal Performance** – Light, and Solar Control properties comparable to standard IGUs as well as high thermal performance
- **CE Marked** – Certified quality and compliance

Key performance data determined in accordance with EN 410 and EN 673

Glass name	Product Code	U _g -value	Light (%)			Solar radiant Heat (%)			
	mm	W/m ² K	LT	LR out	LR in	ET	ER	EA	g
Pilkington Insulight™ Therm Powered by DataBoost™	4-16Ar-4	1.2	75	18	17	46	40	14	49
Pilkington Insulight™ Therm Triple Powered by DataBoost™	4-16Ar-4-16Ar-4	0.6	63	24	24	33	47	20	39

Signal Attenuation Test Results for Selected Insulating Glass Units and Frequencies



Frequency bands and signal attenuation values comparison

Frequency Bands	Signal Attenuation Comparison [dB]						
	3G/4G 1000 MHz	4G 1800 MHz	3G/4G 2100 MHz	WiFi 2400 MHz	4G 2600 MHz	5G 3500 MHz	5G 3600 MHz
Double Glazed Unit							
Pilkington Insulight™ Therm	-34	-34	-33	-31	-33	-37	-39
Pilkington Insulight™ Therm Powered by DataBoost™	-2	-2	-2	-2	-2	-8	-8
Pilkington Insulight™ Protect	-34	-34	-33	-31	-33	-37	-39
Pilkington Insulight™ Protect Powered by DataBoost™	-1	-2	-2	-2	-2	-7	-7
Triple Glazed Unit							
Pilkington Insulight™ Therm Triple	-34	-42	-44	-43	-44	-44	-42
Pilkington Insulight™ Therm Triple Powered by DataBoost™	-2	-4	-7	-9	-10	-4	-4
Pilkington Insulight™ Protect Triple	-33	-43	-46	-43	-44	-40	-40
Pilkington Insulight™ Protect Triple Powered by DataBoost™	-1	-5	-8	-9	-10	-4	-7

Disclaimer 1

Harnessing over 40 years of experience developing and testing automotive antennas, the R&D team at Witten have developed and refined a test method to ensure repeatable and stable data capture for evaluation of the Pilkington **DataBoost™** product. The transmission testing takes place in an Anechoic Chamber, specially designed to create a non-reflective environment to minimise measurement interference. It cannot completely eliminate interference, however, and along with measurement set-up and equipment, the overall system error is 1 dB on each data point.

Disclaimer 2

The Decibel [dB]

The decibel is a dimensionless unit used to express ratios on a logarithmic scale, often for comparing power levels. In practice, the decibel [dB] is defined for power as:

$$\text{dB} = 10 \times \log_{10} (\text{measured} / \text{reference})$$

For example, if the transmitted and received power levels are known, their ratio can be evaluated using this formula.

Since the decibel is logarithmic, interpreting ratios requires care, as it differs from more familiar linear systems. Below are simplified rules of thumb for interpreting changes in decibels:

- **+10 dB** = power increases by a factor of **10**
- **+3 dB** = power increases by a factor of **2**
- **-10 dB** = power decreases by a factor of **1/10**
- **-3 dB** = power decreases by a factor of **1/2**

For example, an attenuation of 30 dB means the power is reduced by:

$$1/10 \times 1/10 \times 1/10 = 1/1000$$

In other words, the power has decreased to **one-thousandth** of the original. When working with decibels, **multiplication** of linear values becomes **addition** in the logarithmic (decibel) domain.

Disclaimer 3

Signal improvement and transmission performance may vary depending on factors such as glass thickness, spacer width, interlayer materials (e.g., PVB film), and overall IGU configuration. The data presented in this brochure refers to Insulating Glass Units with a 4 mm - 16 mm spacer - 4 mm structure with one offline low-emissivity coating and 4 mm - 16 mm spacer - 4 mm - 16 mm spacer - 4 mm with two offline low-emissivity coatings.

This publication provides only a general description of the products. Further, more detailed, information may be obtained from your local supplier of Pilkington products. It is the responsibility of the user to ensure that the use of these products is appropriate for any particular application and that such use complies with all relevant legislation, standards, codes of practice and other requirements. To the fullest extent permitted by applicable laws, Nippon Sheet Glass Co. Ltd. and its subsidiary companies disclaim all liability for any error in or omission from this publication and for all consequences of relying on it. Pilkington and "DataBoost" are trademarks owned by Nippon Sheet Glass Co. Ltd, or a subsidiary thereof.



CE Marking confirms that a product meets the requirements of its relevant harmonised European Norm and can be placed on the market in the EU. The CE Marking Declaration of Performance for each product can be found at www.pilkington.com/ce



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