

Wireless Heatmap Design – Material Attenuation Reference

This document provides reference attenuation values (in dB) for common construction materials, to support predictive wireless heatmap design in Wi-Fi networks (2.4 GHz, 5 GHz, and 6 GHz bands). Values are approximate and should be validated with on-site measurements.

| Material | 2.4 GHz (dB) | 5 GHz (dB) | 6 GHz (dB) |
|---------------------|--------------|------------|------------|
| Glass (single) | 2–3 | 3–4 | 4–5 |
| Drywall | 2–4 | 3–5 | 4–6 |
| Wood | 3–5 | 4–6 | 5–7 |
| Furniture | 3–6 | 4–7 | 5–8 |
| Heavy Glass | 4–8 | 6–10 | 8–12 |
| Brick | 8–12 | 10–15 | 12–18 |
| Concrete | 10–15 | 12–18 | 15–22 |
| Reinforced Concrete | 15–25 | 20–30 | 25–35 |
| Metal | 20–40+ | 25–45+ | 30–50+ |
| Water/Human Body | 8–20 | 12–25 | 15–30 |

Note: These values should be used as initial modeling parameters in RF planning tools. Actual attenuation may vary depending on thickness, humidity, and material composition.

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