

Logitech
Innovation Brief

Dual Wireless Rear Speakers

Logitech® Z-5450 Digital



The world's first THX-certified 5.1 Speaker System with dual wireless rear speakers: The Logitech® Z-5450 Digital System.

Setting up a high-performance surround sound 5.1 speaker system can be a nuisance for one major reason: the rear satellite cables. Cables for the three front speakers (left, center and right), along with the subwoofer, can be easily hidden behind an entertainment center or desk. But the cords connecting the two rear speakers can be a tripping hazard if they run across the floor, or they can be unsightly as they wind around the room on the floorboards.



A few home-theater systems have been introduced with wireless rear speakers, but these typically feature an additional component: a wireless receiver for the back of the room, which connects to each of the two rear speakers with more cable — hardly a clutter-free installation.

Logitech, combining its expertise in wireless technology with its leadership in high-performance multimedia speakers, has delivered an original new surround-sound speaker design that solves the unsightly cord problem without adding any additional components. The Logitech Z-5450 Digital speaker system combines this inventive design with cutting-edge wireless technology, so that the speakers meet the performance promise of their award-winning Logitech Z-series family name.

Clutter-Free Rear Satellite Design, Room Layout Flexibility

One of the fundamental benefits of cordless devices is that they reduce clutter, thus freeing up space. Staying true to this principle, Logitech designed two independent rear speakers that are completely self-contained audio systems: Each features everything needed to operate without any speaker cord or being physically connected to a receiver.



To operate independently, each rear satellite includes:

- An integrated 2.4 GHz digital receiver, which receives wireless transmissions from the Logitech® Digital SoundTouch™ Control Center.
- A digital decoder to convert the 2.4 GHz signal into audio, which then is reproduced by the speaker.
- A built-in power amplifier and power cord, providing 42 watts of RMS power per speaker.

This design innovation provides people with unmatched flexibility in how they lay out their system, whether it's for a PC gaming setup in the office or a home-theater system in the living room. The rear speakers are designed to work in a range of up to 8.5 meters (28 feet). Logitech testing showed that in some circumstances, they can connect at distances as great as 100 meters – a much greater range than would ever be needed for a home environment. With this robust wireless technology comes the freedom to place Logitech's rear satellites virtually anywhere in a room – the only thing needed is a power outlet.



Overcoming the Wireless Performance Challenge

When it comes to 5.1 digital surround sound, performance rules. The potential benefit of wireless rear speakers is insignificant if people experience audio dropouts or the speaker performance suffers in any way. The 315-watt, THX-certified Logitech Z-5450 Digital speaker system achieves a fast and reliable wireless connection by using advanced 2.4 GHz digital wireless technology. This wireless technology results in three characteristics essential to high-performance audio:

- Very low latency
- Minimal interference
- Virtually no lost signals

Low Latency

In the case of wireless speakers, latency represents the delay between when a wireless signal is sent and when the speakers reproduce the sound. Standards-based technologies such as Wi-Fi do not have the low latency necessary to maintain a high-quality, low-latency real-time audio signal. Logitech's wireless speakers deliver a latency of less than 20 milliseconds, or .02 seconds – a duration of time that is imperceptible to the human ear.

Minimal Interference

Logitech's proprietary 2.4 GHz digital wireless technology provides the speaker system the ability to jump between different channels in the wireless band if there is interference. In Logitech's implementation, the Z-5450 speakers are able to intelligently monitor 38 different channels within the 2.4 GHz band, and constantly maintain a list of clean channels. Both the transmitter and the receiver automatically hop to one of the clean channels to maintain a clear connection. This automatic frequency hopping technology ensures that the system is always transmitting on the channels with the least amount of interference.

Virtually No Lost Signals

Regardless of how robust a wireless system is, there is always a chance of interference or of a signal being blocked. Logitech addresses this possibility with intelligent redundant transmissions. When needed, the system can send a redundant audio signal on a new, clearer channel – all within 20 milliseconds. The Logitech Digital SoundTouch™ Control Center (shown at right) transmits the signals to the independent rear satellites. The rear satellites then decode those signals into digital audio and produce the sound.

