

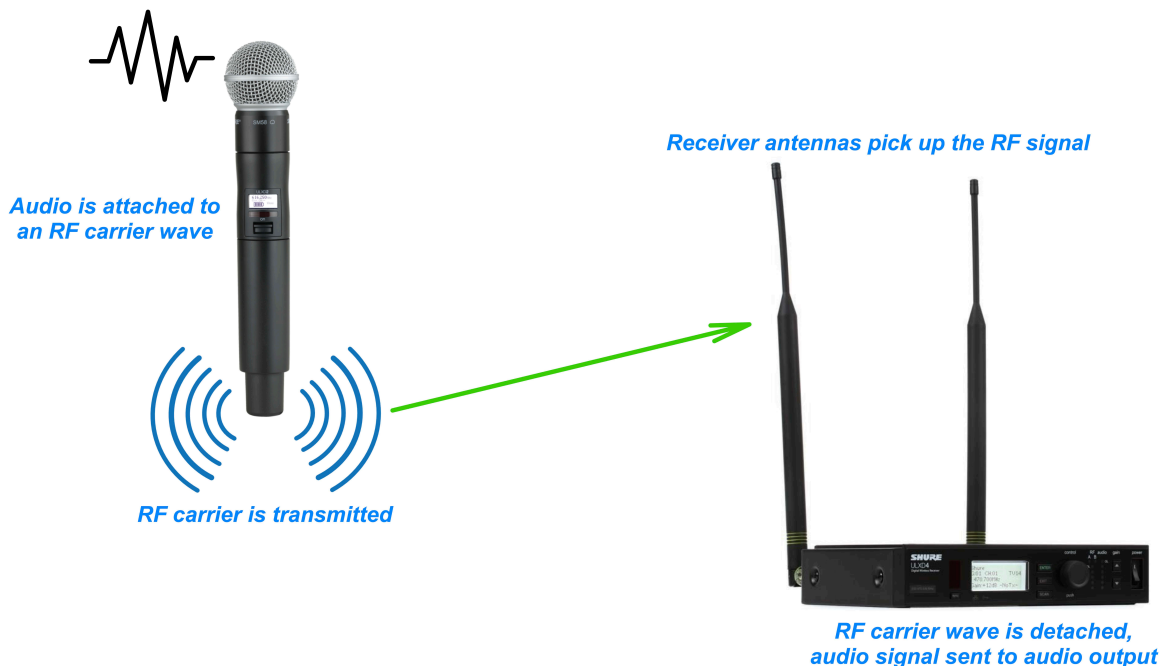
RF Basics 01 - How do RF systems work?

- *How RF gets audio signal from A to B?*

All radio frequency (RF) systems have a transmitter (TX) and receiver (RX). Transmitters and receivers can take many forms including handheld, beltpack, rack mount or desktop.

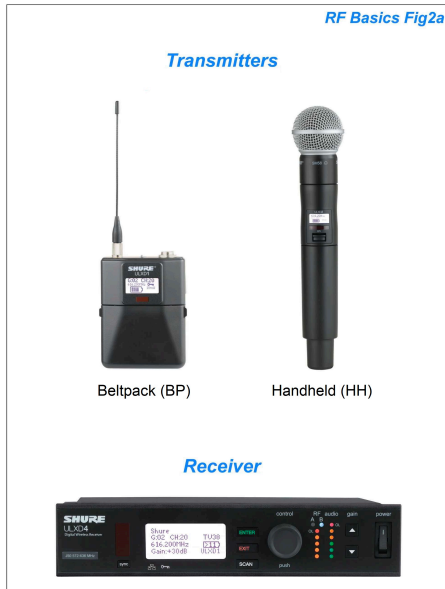
Regardless of how they look, all audio RF systems take in an audio signal, attach it to an RF carrier wave at the transmitter, transmit the signal to the receiver where the RF carrier wave is detached from the audio allowing the audio to be sent to the audio output and into the audio system.

Audio captured by microphone element



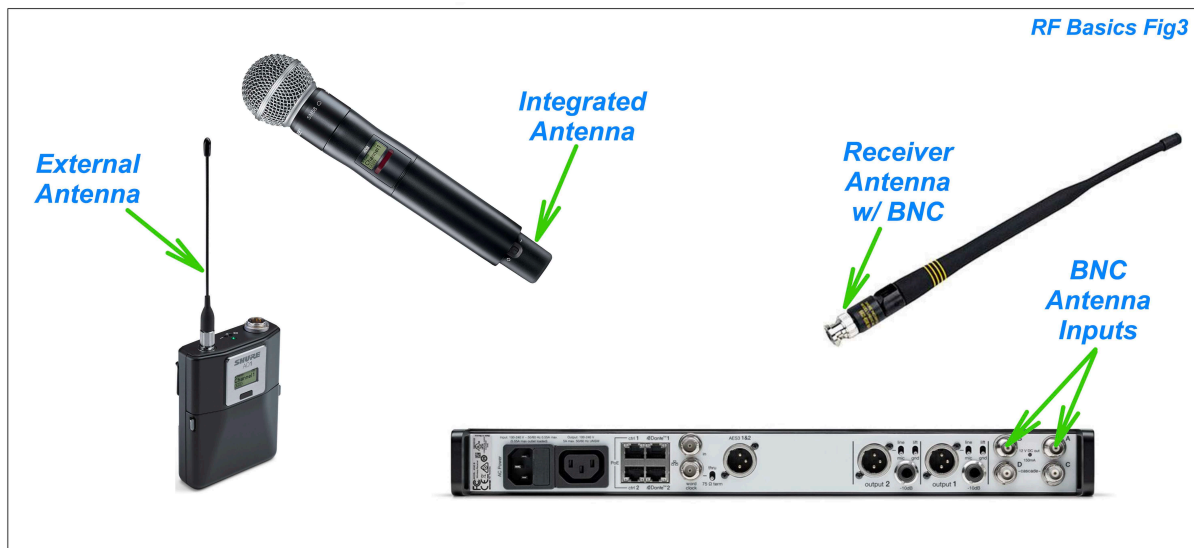
● Form Factor

With RF microphones, the microphone (or beltpack the microphone connects to) is the transmitter and the receiver is, typically, a stationary unit with an audio output (Fig2a). With in-ear monitors (IEM), the transmitter is, typically, a stationary unit with an audio input and the beltpack the headphones connect to is the receiver (Fig2b). The notable exceptions to this rule are RF systems used in film and broadcast where, to save space and weight both the RX and TX units may be the size of a beltpack (Fig2c).



● Antennas

All RF systems require an antenna. Depending on the size of the device these may be obvious or hidden. On handheld microphones the antenna is normally integrated into the handle. On beltpacks, whether a microphone TX or IEM RX, the antenna is normally a small piece of wire protruding from the device. On the normally stationary parts of the system, the antennas connect to the back or the front with BNC connectors (Fig3). BNC connectors are keyed so that the ring uses the pins to locate the connection, requiring a 90 degree turn to lock them in place.



Continue with RF Basics 02 - System Components