

# The Tempest® 2.4GHz Roaming Guide



## How many BaseStations do I need?

**What is a Zone?** A zone is the coverage area of a single BaseStation's antenna.

**How many Zones do you need?** This will depend on a few factors – How large of an area do you need to cover? How many total users do you need? How many of those users need to roam? How many of those roaming users need to be full duplex?

**How many users do you have?**

How many users need to be in the same zone at the same time?

How many users need to speak at the same time?

## Planning your Coverage Area

**How to determine.** The most effective way to determine proper coverage is to plan ahead! Starting with a scale drawing of the entire coverage area, identify the areas that need coverage and mark them.

Depending on how many BaseStations/Remote Transceivers you are planning on using, identify the center of each BaseStation's ideal coverage and mark it on your plan. When you have all of your Remote Transceiver locations on paper, draw a circle centered on each Remote Transceiver with a scale radius of about 450 feet. Starting from one corner of your venue, you should be able to see overlapping coverage of all of these circles. If you have a gap in coverage, you will probably need to adjust the placement of one or more Remote Transceivers.

Remember, this is just to get a point to start from. Depending on the placement and obstructions coverage may be better or worse, and the only way to know for sure is to test it. Once you have your plan on paper, it is time to verify the coverage estimates. Take a single BaseStation, Remote Transceiver, and two BeltStations to one of the estimated antenna locations. Then, walk the estimated coverage area of that antenna to see how reality matches the estimate. Repeat this process for EVERY estimated coverage area, and take notes on your drawing.

If your coverage matches or exceeds the proposed estimate, proceed to placing your Remote Transceivers and verify roaming between zones.

## Placement Strategies for Roaming

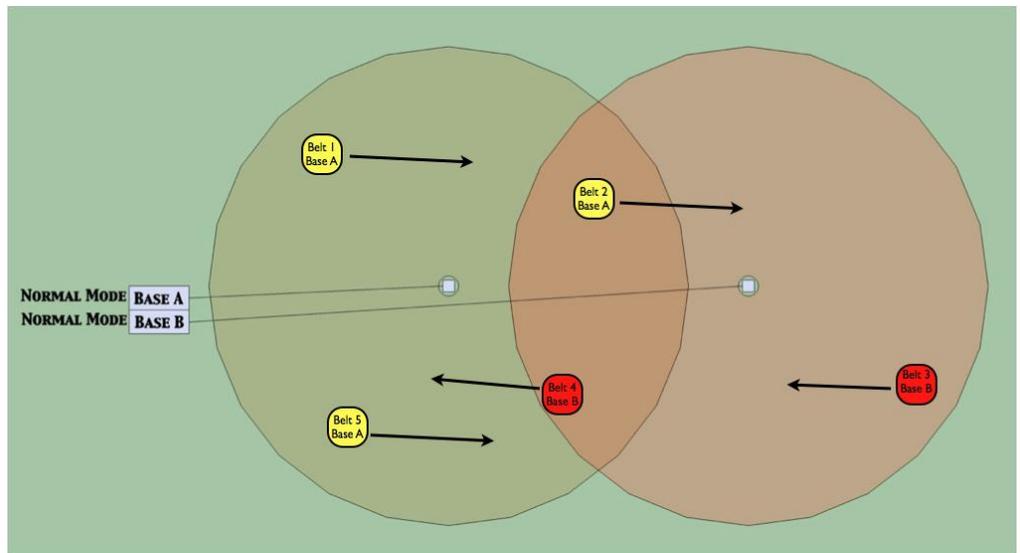
Unlike other multi-antenna systems, Tempest 2.4GHz Seamless Roaming system does not have a maximum amount of acceptable antenna coverage overlap. This is good because it requires little in the way of coordination, but can be tricky because the system may not appear to roam as dynamically as you would think. Here are some ideas to help drive your antenna placement decisions.

1. Keep it simple: If your facility has three large rooms that are the center of your production, and are spaced far apart from each other, base your antenna placement strategy around the areas you need coverage in most often. Then, adjust placement or add a zone or two to fill in the gaps.
2. Not everyone has to roam: Just like in the example above, if the workflow does not call for everyone to move, all of the time, all at once, why build an overly complex system to accomplish this? Focus your efforts on achieving the best possible coverage for each of the primary coverage areas, limit the number of roaming enabled users, and adjust antenna placement to fill in the gaps.

## Demonstrations:

### Example 1

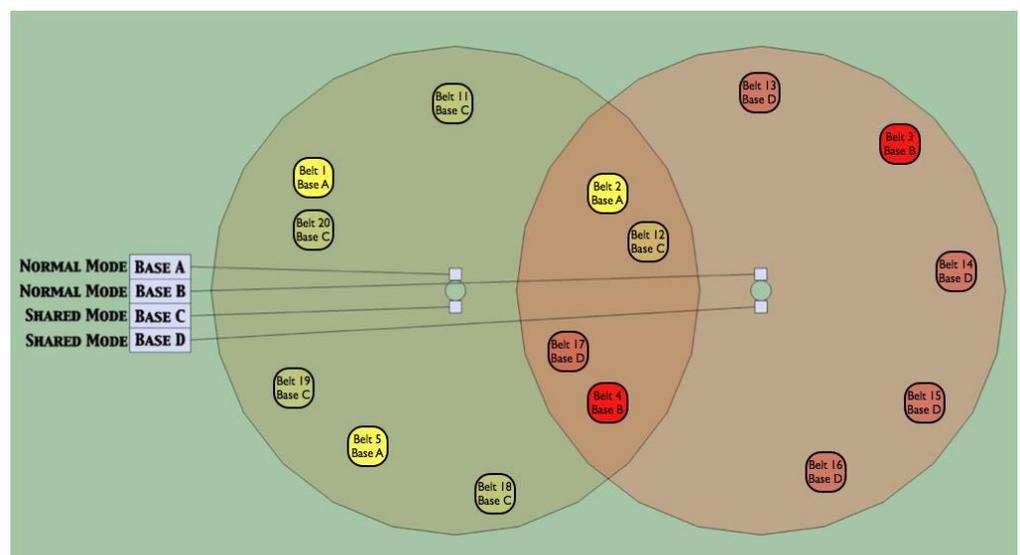
- 2 Zones
- 2 BaseStations
- 5 x Normal Mode BeltStations (Roaming)



**5 Belts in Normal mode:**  
All are able to roam between Base A and Base B

### Example 2

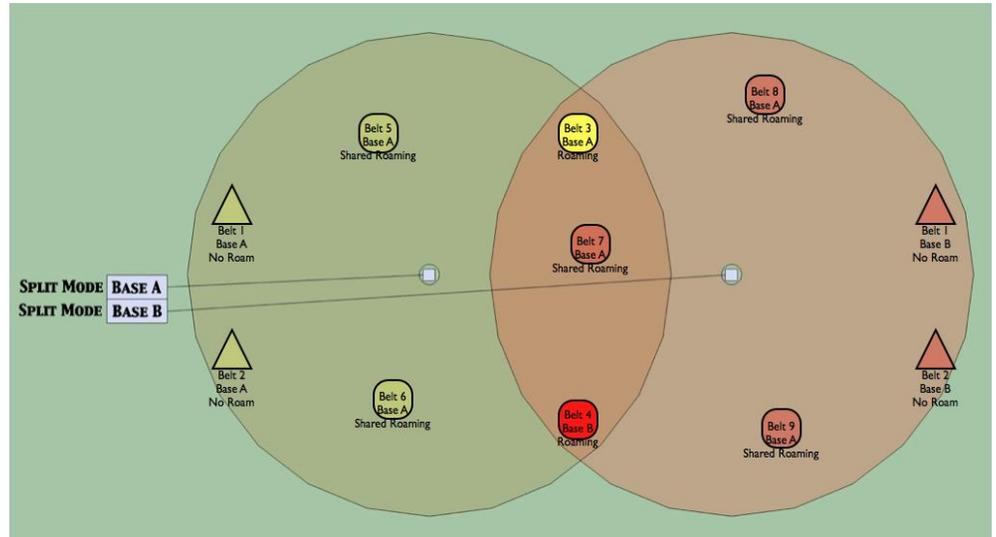
- 2 Zones
- 4 BaseStations
- 5 x Normal Mode BeltStations (Roaming)
- 10 x Shared Mode BeltStations (Roaming)



**5 Belts in Normal Mode:**  
All are able to Roam between Base A and Base B  
**10 Belts in Shared Mode:**  
All are able to roam between Base C and Base D

### Example 3

- 2 Zones
- 2 BaseStations (split mode)
- 4 x Normal Mode BeltStations (2 per base, stationary)
- 2 x Normal Mode BeltStations (Roaming)
- 5 x Shared Mode BeltStations (Roaming, Channel A only)



**2 Normal Mode Belts only on Base A**  
**2 Normal Mode Belts only on Base B**  
**2 Normal Mode Belts Roam between Base A and Base B**  
**5 Shared Mode Belts Roam between Base A and Base B**

This guide has been developed to give users the best information possible to maximize their Tempest 2.4GHz Seamless Roaming systems. We strive to give the end user the most concise information and widest range of practical examples possible to assist in implementing your own system.

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