

## BreezeACCESS VL Antenna Co-location Guidelines

### Introduction

This application note provides the necessary guidelines required for antenna installation co-location in order to ensure a base for optimal system performance.

**Note: Please refer to the Alvarion Application Paper on Network and Cellular Planning Guidelines for BreezeACCESS VL for more advanced guidelines.**

The following antennas have been considered.

- AU-5G-SEC-16V-90 – 90 degree, 16 dBi sector antenna, 5.8 GHz.
- AU-5G-SEC-15V-120 - 120 degree, 15 dBi sector antenna, 5.8GHz.

Antennas listed above use vertical polarity. The VL AU Outdoor Unit's (ODU) RF Power was limited to keep the EIRP within the 36 dBm FCC limit.

**Note: The VL AU (Base Station or Stand Alone) is shipped with either 90 or 120 degree sector antenna as a kit.**

### Antenna Configuration

Based on several orientations, the following configuration yields the best results for 3 or 4-sector antenna co-location.

1. Figure 1, shows the orientation for 4 antennas spaced every 90 degrees, between adjacent antennas. All 4 antennas are on the same level horizontally.
2. Figure 2, shows the orientation for 3 antennas spaced every 120 degrees, between adjacent antennas. All 3 antennas are on the same level horizontally.

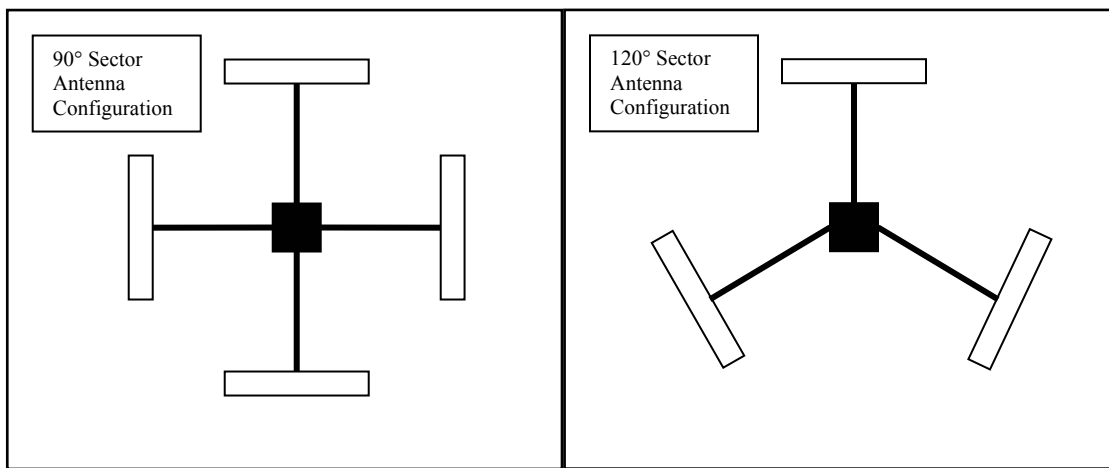
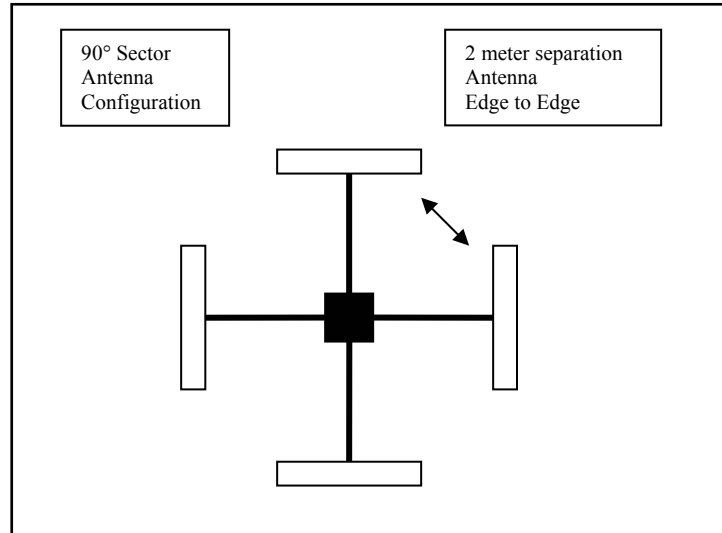


Figure 1

Figure 2

## Sector 90 degree Antenna Installation

Horizontal separation (same level)



**Figure 3**

**Table 1**

Sector 90, 16dBi antenna	Horizontal Separation	Comments (36 dBm EIRP)
Distance Edge to Edge	2 meters 6.6 feet	Measured from edge to edge of each antenna
Spacing (Degrees)	90 Degrees	The spacing has to be exactly 90 degrees, otherwise, it can cause severe system performance degradation between adjacent sectors

## Installation recommendations

- ❑ Avoid operating in more than one sector / carrier in same direction
- ❑ Avoid operating overlapping channels in same Base Station
- ❑ Avoid operating same channel in same Base Station adjacent sector
- ❑ Avoid operating same or adjacent channel in neighboring Base Station sector (Maintain at least 40 MHz between the channels)

## Sector 120 degree Antenna Installation

Horizontal separation (same level)

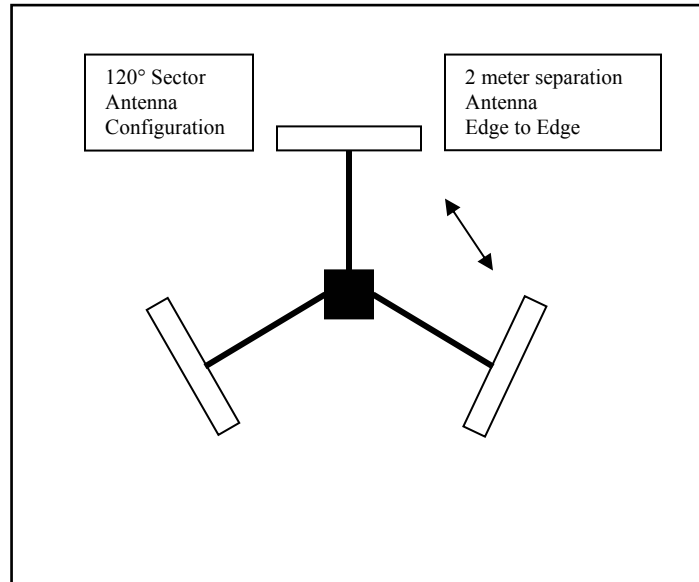


Figure 4

Table 2

Sector 90, 16dBi antenna	Horizontal Separation	Comments (36 dBm EIRP)
Distance Edge to Edge	2 meters 6.6 feet	Measured from edge to edge of each antenna
Spacing (Degrees)	120 Degrees	The spacing has to be exactly 120 degrees, otherwise, it can cause severe system performance degradation between adjacent sectors

### Installation recommendations

- ❑ Avoid operating in more than one sector /carrier in same direction
- ❑ Avoid operating overlapping channels in same Base Station
- ❑ Avoid operating same channel in same Base Station adjacent sector
- ❑ Avoid operating same or adjacent channel in neighboring Base Station sector (Maintain at least 40 MHz between the channels)