



High-Capacity Coverage Solution for 5G Stadium

About us:

Broadradio is a specialist designer and manufacturer of high performance antennas. Broadradio continues to provide innovative BSA solutions to telecommunication operators to help them with network challenges



INTRODUCTION

By the growing number of smart phone users, the demand for year-on-year increases in voice and data capacity in communication systems is a problem faced by every operators worldwide and it will not disappear with the advent of new technologies and spectrum. The extraordinary growth in wireless data traffic such as video conferencing, media streaming and mobile-TV continually increase the demand for capacity.

Especially for stadium, square and other places which are crowded with smart phone users, the demands for capacity in voice and data are extraordinary. To request more capacity, the service providers are exploring several ways to expand the network capacity.



STADIUM ANTENNA SOLUTION

Since stadiums typically host large scale events such as sports and concerts, a stadium network must cover all areas where spectators congregate. The size of a stadium varies from as low as 12,000 seats to as high as 150,000 seats. Besides the spectator seats, it may also have conference rooms, shopping areas, food and beverage shops and TV commentators areas that need wireless connectivity.

Designing a wireless solution for stadium is special and challenging task in terms of its capacity demand. It is because the wireless traffic patterns vary depending on the events hosted inside the stadium. With the advent of smart phones and social media mobile applications, users consume a lot of data in real time video and photos uploading during an event.

Proper dimensioning and sectorization are needed to meet such high capacity demand. The selection of antennas and mounting are also critical to ensure proper signal coverage, reduce interference between sectors, better SNIR and hence higher throughput.

KEY FEATURE

1. Rectangular coverage pattern
2. Steep cut-off outside the coverage region in both principal planes

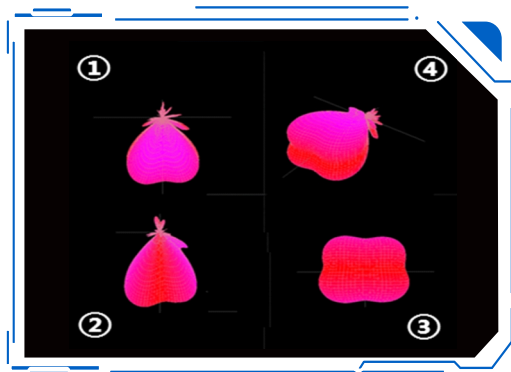


Figure 1-Pattern

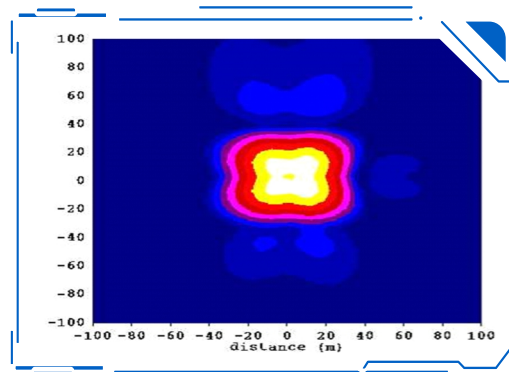
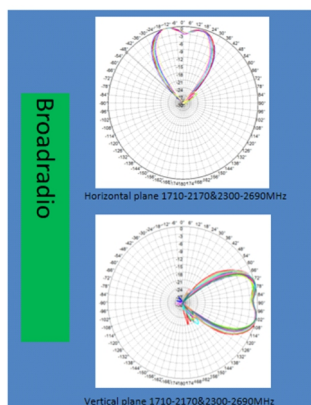


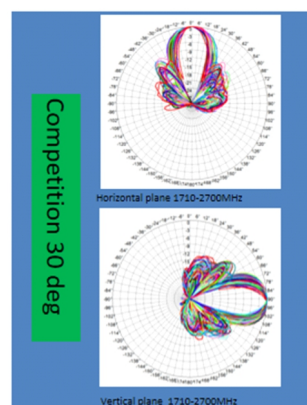
Figure 2-Coverage area illustration

Broadradio stadium antenna has stable antenna pattern across the whole band from 790-3800MHz. Also it has fast power decrease outside the coverage with symmetrical pattern both in the horizontal and vertical plane. The coverage area is nearly a square with sharp cutoff.

PATTERN COMPARISON



Stable pattern with sidelobe < -20dB

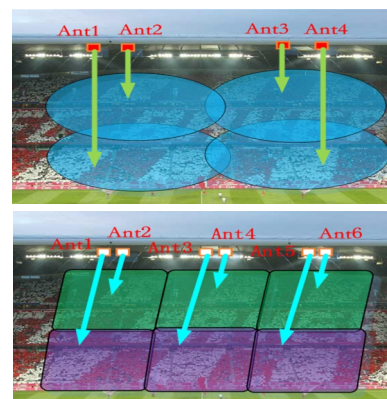


Not stable pattern with high sidelobe around -8dB

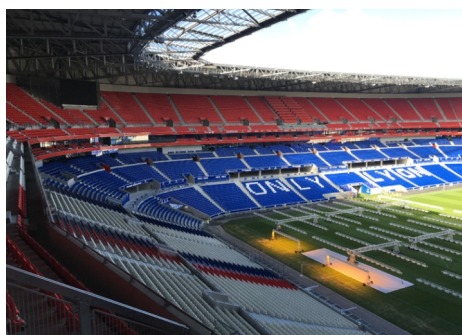
COVERAGE AREA COMPARISON

1. Competitors stadium antenna coverage area is nearly circle, and network coverage will cause overlap and blind area. The high side lobe level will lead to serious interferences between nearby cells.

2. Broadradio stadium antenna coverage area is square or rectangle with sharp cutoff, and the network coverage area has very clear boarder with no blind area. The low side lobe will reduce the interferences between nearby cells.



APPLICATIONS FOR STADIUM ANTENNAS



Using Stadium antenna coverage in Lyon



Using Stadium antenna coverage in Lyon

STADIUM ANTENNA GLVVPX0505F

- ① Rectangular coverage pattern
- ② Interference is reduced dramatically
- ③ Improve frequency reuse to optimize capacity
- ④ Support 5G bands

XXXX Pol

Frequency: 790-960/1710-2690/3300-3800/3300-3800MHz

HBW: 50°/50°/50°/50°

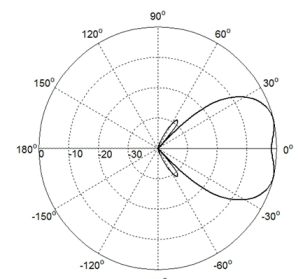
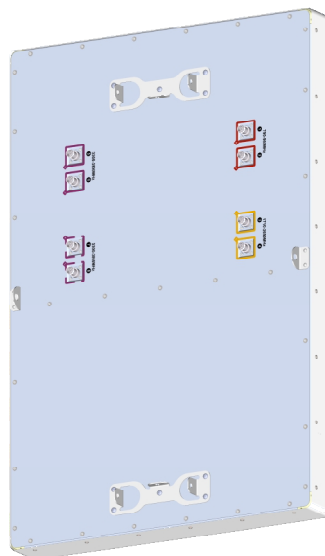
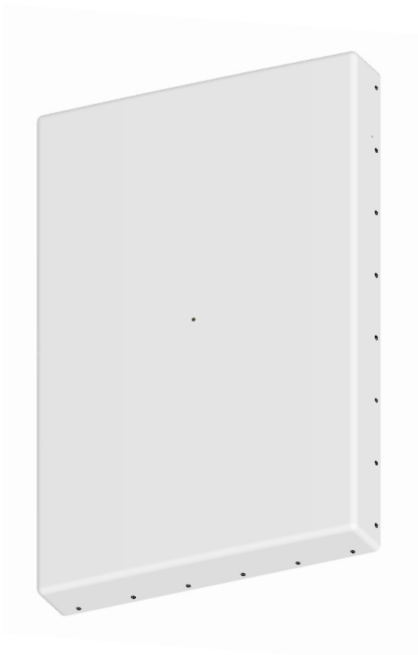
VBW: 50°/50°/50°/50°

Gain: 10.5/10/9.5/9.5dBi

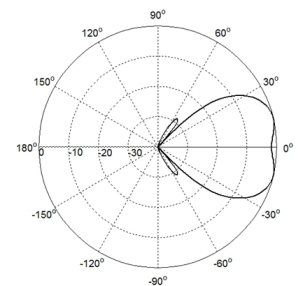
Downtilt: 0° FET

Dimension: 1342 x 876 x 125mm

Connector: 8 x 7/16 DIN Female



Azimuth



Elevation