



A Revolution in University Sports Broadcasting

Do You Broadcast From Multiple University Venues?

The Challenge

University broadcasters face challenges that even professional sports don't face – broadcasting from multiple venues, often miles apart, on a regular basis. Universities in the United States have multiple sports venues – from football and basketball to swimming and track and field, and others. Transforming these multiple venues into a coherent and connected broadcast zone can be a mission impossible.

Until now, the only way to offer broadcast coverage to multiple university venues was to install receivers at each and every location. The one receiver per venue/zone is a technical and logistics nightmare for university broadcasters. Every receiver adds more complexity and potential pitfalls – with setup, system stability and picture delay and quality.

When camera operators arrive at a university venue to film live video, they first need to perform a complex setup and connect their cameras to the receiver and make sure the receiver is sending signals to the control room, which is usually located at the football stadium.

The Solution

- **One Receiver**
- **Unlimited Antennas**
- **Unlimited Coverage**

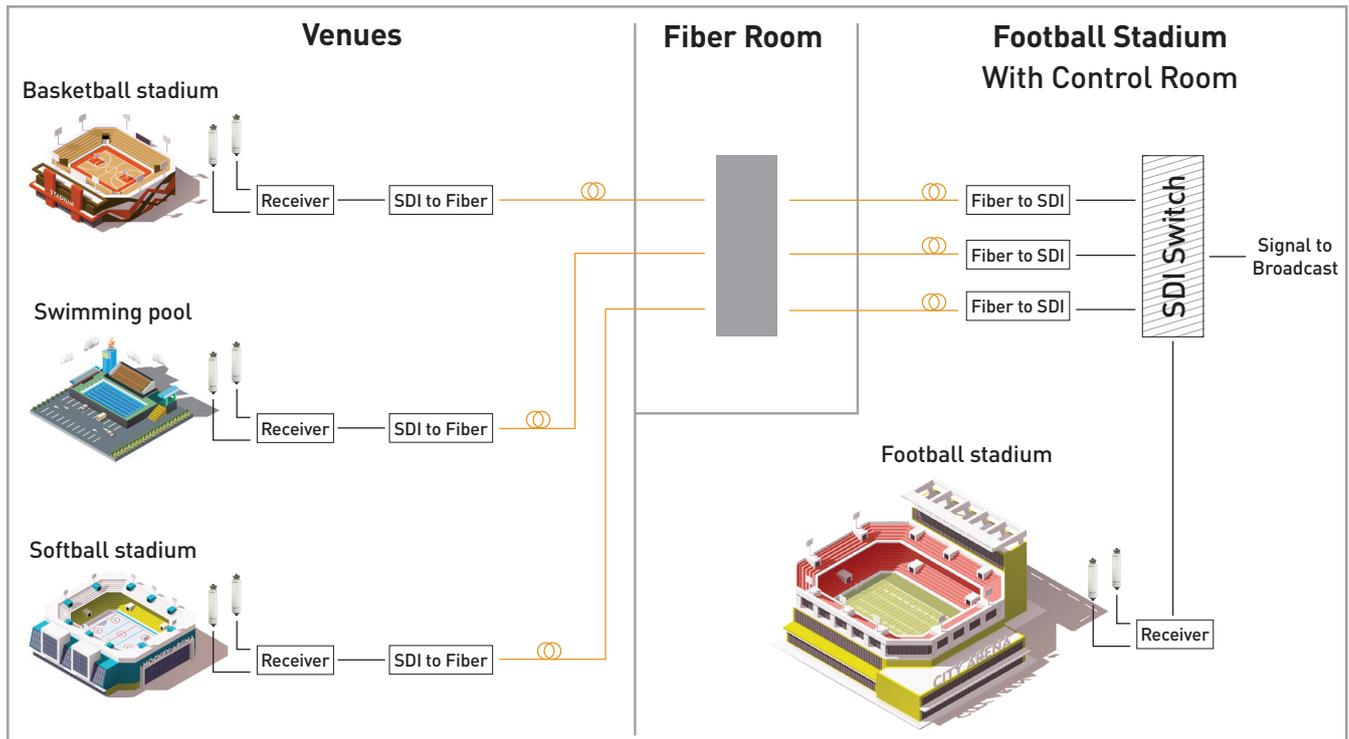
Introducing the Fiber Coverage Extender, a new solution specifically designed for university and sports club campuses where coverage of multiple venues is required.

Imagine a wireless video system that extends your coverage 10 fold without the need for additional expensive receivers. Using just one Receiver and one Transmitter and an unlimited number of Fiber Coverage Extenders, you can cover all sports arenas in your campus - the football field, the baseball field, the basketball court, the swimming pool and any other locations. Every arena transmits video to your main or secondary control room, located even miles from the event location.

The Fiber Coverage Extender preserves all the features that ABonAir is well known for – robust signal, high picture quality, 7 msec delay, RCP (remote control), Integrated Intercom and more.

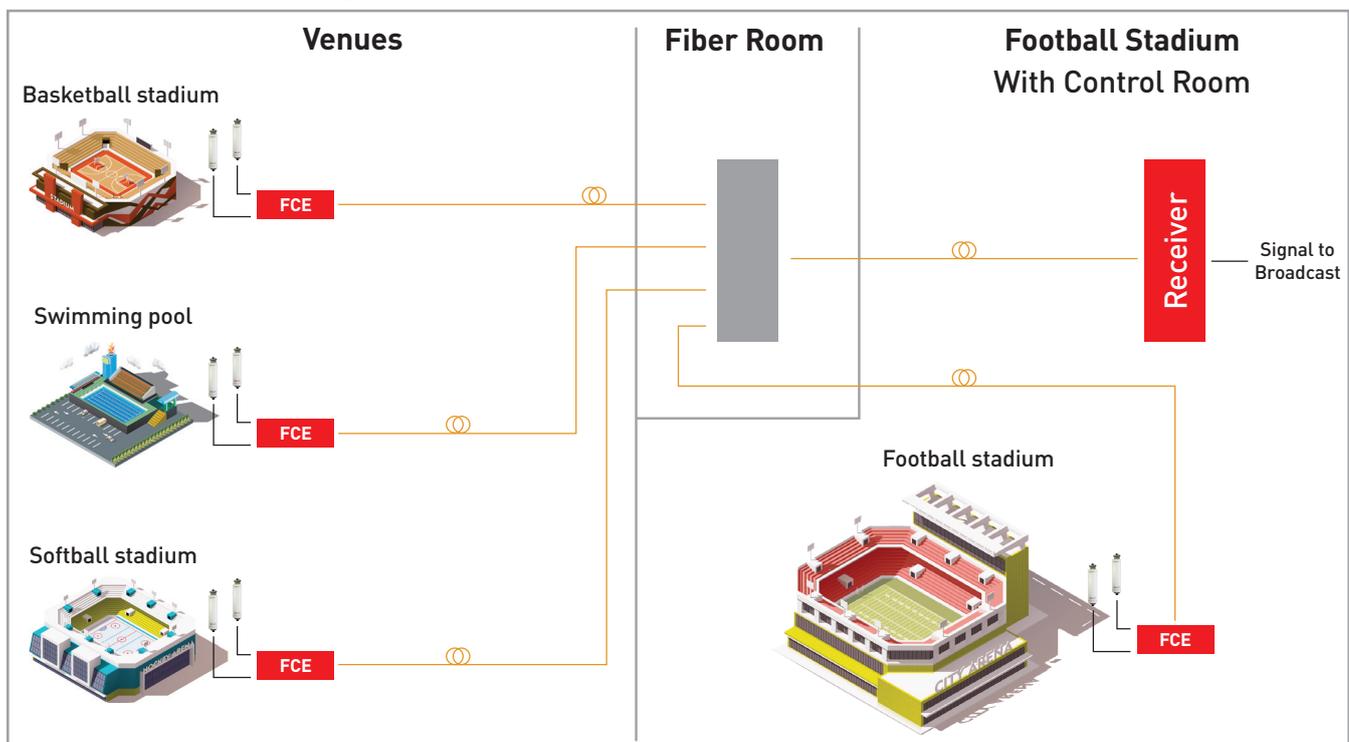
For years, universities have looked for a way to extend coverage without adding more expensive hardware and creating a logistics nightmare. One Receiver per site is an expensive and complex option and is now obsolete thanks to the disruptive Fiber Coverage Extender by ABonAir.

The traditional block diagram:



The BOM (Bill of Materials) for such a setup includes:
 1 Transmitter, 4 Receivers, 4 SDI to Fiber Converters, 4 Fiber to SDI converters, switcher, etc.

The ABonAir Fiber Coverage Extender solution:



The BOM for this setup includes:
 1 Transmitter, 1 Receiver, 4 Fiber Coverage Extenders. The total savings on equipment, installation, system design and maintenance are huge.

Multiple Venue Broadcast – Old Method vs Fiber Coverage Extender

	Old Method with 3 Venues	Fiber Coverage Extender with 3 Venues
Transmitter	1	1
Receiver	4	1
SDI to Fiber converter	4	0
Fiber to SDI converter	4	0
SDI Video Switcher	1	0
CCU/RCP functionality	Not supported	Integrated
Video Delay	5-7 Frames	7 msec (Less than 0.5 frame)
Intercom	Not supported	Integrated
Roaming from Venue to Venue	Technician required for settings	Automatic

Automatic Setup

The Fiber Coverage Extender features automatic setup. No manual setup is required. When a camera team arrives at a university venue with Fiber Coverage Extenders, they "plug and broadcast" within minutes. All of ABonAir's wireless broadcast solutions are designed to work automatically.

ABonAir design philosophy is that the cameraman and production team should focus on production and not be RF experts. With this thinking in mind, we have developed algorithms that automatically detect all FCE's connected to a receiver and "understands" their inter-connections and manages them. Hence, there is no manual setup required - even when adding another FCE or removing one during operation.

Seamless Roaming

Cameras can seamlessly roam from one FCE to another without losing even one pixel. No operator or technician activity is necessary to make this happen. Roaming is automatically passed from one FCE to another based on signal strength, distance, and many other parameters.

ABonAir Fiber Coverage Extenders work in any connection configuration – Daisy Chain (where each FCE is connected to the next FCE and only the first or the last in the chain is connected to the Receiver), Star (where all of the FCE's are connected to the Receiver directly) and any other mix of the two. This connection flexibility was designed to support different universities' requirements where the control room and other venues might be placed in various locations' topologies.

The Transmitter connection to the active FCE is done automatically, by the Receiver which stores information about the entire Fiber Coverage Extenders' network.



Fiber Coverage Extender Applications

University Venues

The ABonAir Fiber Coverage Extender was designed and built to solve the multi venue problem in universities and it is tailor made for the multiple sports venue use case.

Large universities face impressive challenges. Most American universities have a large stadium, a basketball arena, tennis courts, track and field, swimming pools and other sports locations. At the same time, this campus is controlled from a single, sometimes also a secondary, control room.

If you need to cover a university campus with 2, 3 or even 8 different venues, some of them a few miles apart, with only 1 or 2 control rooms, all you will need is 1 Transmitter, 1 Receiver and few Fiber Coverage Extenders. In this scenario, every Fiber Coverage Extender is connected in either Star, Daisy Chain or a mixed configuration.

Sports Stadiums

Sports stadiums include many areas that camera teams need to cover – the field, audience, tunnel, locker rooms and the concession area. Fiber Coverage Extenders allow you to cover every area of a sports stadium, even if it is under concrete or a heavy metal structure. When players run from the locker room to the tunnel to the field, one camera can cover it all wirelessly. Coverage will roam from one FCE to another automatically.

Many sports stadiums have a practice area nearby, where warmups take place. Fiber Coverage Extenders allow cameramen to cover the practice area as well, unencumbered by wires.

Race Track Events (Horse, Car Racing & Golf)

Cameras need to cover the race track, winning circle and the stables. In many cases, cameras need to move from one area to another – from the stables to the race track and from the race track to the winning circle – while live coverage is broadcast. Place Fiber Coverage Extenders at each location and cover every area of your sports event – seamlessly and without losing one pixel. Golf courses – 18 or 36 holes – have very large broadcast zones and the FCE solution is the only way for cameras to gain full mobility on the greens.

Multi Location Sports

Universities often have multiple stadiums, fields and arenas. Game day is really “multiple game day” and the same cameraman may find himself moving from one event to another during the broadcast. A wired broadcast solution is not practical for multi-location sports. Fiber Coverage Extenders placed at each location allow complete coverage of every sports event.

How It Works:

1. Receiver is located at your control room
2. FCE's are placed at your areas of coverage – which could be few miles away from the control room
3. Transmitters connect to camera
4. All components perform a quick handshake
5. Every live camera can roam seamlessly between FCE's areas of coverage without losing a pixel.

Maintains All System Features

The Fiber Coverage Extender works transparently with ABonAir solutions. Every technical feature remains at 100% top quality. When you integrate our Fiber Coverage Extender to the AB512 or other ABonAir products you retain:

- 7 msec sub frame delay
- Picture quality – HD and 4K
- Dynamic compression
- CCU/RCP support
- Embedded Intercom – utilizes the same RF channel for communication between camera and producer/director
- Bi-directional radio – Every pixel is acknowledged

NCAA Success Story

A Southwestern Athletic Conference university faced the same challenge that hundreds of American universities face. The large university has an 80,000 seat stadium with a control room, a basketball arena, tennis courts, golf and track and field – all at different locations.

Before every live sports event, the university broadcast team had to install and setup one receiver at every venue. This often involved technical troubleshooting and was time consuming. The hardware costs of one receiver per venue were astronomical.

The NCAA championship winning university purchased an ABonAir wireless broadcast system coupled with 5 Fiber Coverage Extenders. Only one receiver was required, which saved them over \$100,000 in hardware expenditures. Fiber Coverage Extenders were placed at each and every venue.

During the weeks that followed, the cameraman simply took the camera from the control room and went to the relevant sport stadium, either the basketball, the softball or the football arena. No setup or configuration was needed; the cameraman was able to begin shooting immediately and the picture was received in the control room instantly, first for shading and color matching and then for broadcasting.

What Are You Waiting For?

If you broadcast sports at a university, the ABonAir Fiber Coverage Extender can revolutionize your live broadcasts. Contact us and let's schedule a demo.