Research into the use of 3200 to 3550 MHz transmitting and receiving equipment, using handheld and portable camera systems, for sports television within various large and small scale venues.

1. Due to recent changes in the 2 GHz band, it has become impossible to continue operations within the 2200 – 2290 MHz spectrum. As a result of this lack of spectrum CP Communications has had to look to other areas of the spectrum in order to meet the growing needs of our clients. To date we have been using short term STA's to experiment with operations within the 3200 – 3550 MHz spectrum. The operations within the 3200 – 3550 MHz Spectrum have showed that we might be able to use this spectrum on a continuing basis. More experimentation needs to be conducted to see if we can expect optimal conditions to be able to completely cover various size venues including indoor below ground operations such as locker rooms and inside outside coverage using minimal number of receive locations, the size and effect of large groups of people on various areas within these venues as to absorption of signals.
2. The New York City area offers us a large amount of various size venues to experiment in covering many of the different venues where our clients require portable handheld camera coverage. This area is located very near our company's equipment distribution locations and our engineering labs.
3. Our experimentation in these varied venues and feedback from our field technicians will also help vendors of the various equipment we us to better modify their gear to meet the different demands the sports entertainment business puts on this gear.

Goals

1. Determine what combinations of Transmit and Receiving system will give the best performance in the field based on use of the 3200 – 3550 MHz Spectrum.
2. Allow us to better understand how to setup and use the equipment within very challenging conditions.
3. Test out various ways to provide the best battery life on the camera systems by looking into better ways to interconnect various system components.
4. Look into use of various systems when used for remote control vehicles and aerial systems.
5. Look into various RF interference issues that may be present at different venues that could impact acceptable equipment operations.
6. Develop operating guides to help create repeatable performance at various venues.

Description of equipment and theory of operation

Each camera system consists of a handheld camera which provides a source of video to the system transmitter. The transmitter takes this signal and processes the signal in to the proper modulation

scheme necessary to modulate the transmitter. This RF signal is than broadcasted via RF to a local receive antenna and receiver. The receiver module than demodulates the RF signal into a copy of the original camera video signal. This process allows the camera to be used anywhere within the venue that has an acceptable RF path between the Transmitter and Receiver.