

WELCOME TO FAST SCAN AMATEUR TV

Fast Scan Amateur Television has been around in Ham Radio for over 70 years. Articles about Hams experimenting with motor driven scanning disks appeared in QST as early as 1925. Most modern Fast Scan Amateur Television, or ATV, uses a transmission format fully compatible with video equipment designed for the individual consumer market, (NTSC). The video is amplitude modulated, mostly one side band; the audio is frequency modulated. This means that a Fast Scan ATV picture displays full motion, has a simultaneous sound channel, is usually in color, and has excellent detail just like commercial television. Amateur television offers a major advantage over broadcast TV though, in that we can communicate interactively or two ways. Amateur television Hams have been communicating in round table nets for years, long before business and industry discovered the benefits of interactive video, or, "teleconferencing".

Because ATV signals occupy several Megahertz of bandwidth, the FCC does not permit Fast Scan TV on bands below 70cm. (A single ATV signal is wider than any of the amateur bands below UHF!)

Most ATV activity is found between 420 - 450 MHz. ATV is also found in the 900 MHz, 1200MHz, and 2.4 GHz bands. There are also ATV repeaters and linked systems that operate entirely in the microwave bands. These frequencies generally limit FSTV activity to line-of-sight with extended coverage possible when ducting conditions exist or repeaters are used.

Any licensed Amateur Radio operator can operate ATV.

In keeping with the ham tradition for both public service and inventiveness in communications, ATV'ers have been using their live action video systems in many exciting applications. During the Christmas season, amateurs have taken their systems into hospitals to permit children to see and talk with Santa Claus over live TV. Amateurs have transmitted ATV from Civil Air Patrol planes, hot air balloons, and rockets. ATV has been used in radio-controlled airplanes and robots to provide feedback to the operator. FSTV is a big part of the ARISS project that links students in classrooms with astronauts in orbit. Formerly called SAREX, Space Amateur Radio Experiment and now called ARISS, Amateur Radio on the International Space Station.

Receiving

Receiving ATV in the Wabash Valley area may be as simple as connecting a vertically polarized 430 MHz antenna to your cable ready VCR or television. Simply tune your cable ready television or VCR to cable channels; **57** – 421.25mhz, **58** – 427.25mhz, **59** – 433.25mhz, **60** – 439.25mhz or ch **61**, 445.25mhz, and connect a vertically polarized antenna in place of your cable connection.

A commercial home UHF antenna with pre amp will suffice nicely for ATV reception in the Terre Haute area. At an antenna height of 50 feet one should be able to receive pictures from 15 to 20 miles.

Transmitting

Minimum equipment for 420 /450.00 MHz is considered a 1 watt transmitter and either an amplifier or as much antenna as is affordable. If an amplifier is used it should be class A or class AB. A Class C amplifier is not acceptable. Most ATV transmitters for 430 are commercial units. Some kits are available, and a few are home brewed. CATV modulators are available for around \$150 that take a camera/audio input and generate a few milliwatts. This can be followed with the amplifier.

This is also not the place to skimp on coax. At 430 MHz and above with low power levels, cable loss can be quite high, especially for long cable runs. Good low-loss coax such as Belden® 8214, 9913, or 9914 are recommended. Many of the techniques that apply to QRP also apply to ATV.

If you have a question about ATV, or if you would like some help in setting up a station, transmit or receive, voice your request at any time. The WVARA members are always willing to help. If you would like help to check your location for transmit/receive ability, please ask. You can use programs on Google Earth that can plot your intended path. Join us and "SEE" what you've been missing!