

NewsShark Usage on a Wi-Fi Network

- A DSI RF Systems White Paper

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The NewsShark system was designed with user flexibility in mind. In addition to operating on 3G wireless networks, the NewsShark supports Wi-Fi modem operation.

The obvious advantage of Wi-Fi is the potential for greater throughput (and thus, higher picture quality). Conversely, suitable Wi-Fi connectivity may not be as prevalent as 3G cells, especially in more remote locations.

In operating under Wi-Fi mode, a dedicated Wi-Fi LAN facility under total control of the end user is required (versus a random, open Wi-Fi network, such as one you might find at a coffee shop or restaurant).

In a dedicated, closed system, with a usable bit rate up to 6.0 Mb/sec (3.5 Mb/sec nominal setting), it is possible to obtain broadcast quality, full-size D1 images at 30 fps using the NewsShark. Once IP data is exposed to the “open” Internet for transmission, actual network connectivity, jitter, packet loss, and other typical throughput issues may cause the usable video quality to be substantially less. A dedicated common carrier or microwave Ethernet link would provide more consistent connectivity.

A user-managed Wi-Fi network also allows for necessary NewsShark configuration settings as well as limiting shared network access, ensuring suitable available bandwidth for higher quality images.

For example, it may be desirable to control that Wi-Fi channel used in a particular installation. There are 11 channels available in the 2.4 GHz Wi-Fi band and most of these 20 MHz wide channels overlap. Only channels 1, 6, and 11 do not overlap each other. In areas with existing Wi-Fi systems in use, there may be interference issues depending on existing usage patterns. Being able to force a Wi-Fi access point or router onto one of the known “clear” channels may help with RF access issues. Use of a low cost spectrum analyzer will help in finding a better channel.

In addition, configuration settings of the NewsShark encoder require setting the IP address, net mask and gateway of the unit. In a typical DHCP configured network, the IP address settings can change with each usage and would then have to be sought out and entered into the unit configuration. Only under a user-controlled environment, will the addresses be known and can be made to be static.

It should be noted that though multiple access points could be used to increase coverage area of the system, the current 802.11n standard does not allow for rapid hand-off between access points to allow for a seamless transition between access point locations. The new 802.11r standard (approved in August, 2008) has not been implemented at this time. 802.11r, designed for streaming video and VoIP telecom applications, will provide a relatively seamless access point transition of approximately 50 ms.