



## Combining cellular uplink with MIMO microwave mesh for increased video picture quality in challenging transmission environments



- Mobile IP based live video transmission in HD
- Aggregates multiple cellular uplink and IP MIMO Microwave Mesh technology connections simultaneously
- Uses TVU's proprietary Inverse StatMux technology to tackle extreme bandwidth fluctuations while delivering excellent picture quality

### Introducing IP based cellular and MIMO microwave mesh broadcast

Transmitting live HD video wirelessly in environments such as crowded urban settings and around large sports arenas can be challenging. Traditional satellite and microwave have their limitations, such as with buildings and line-of-sight. Even cellular uplink transmission can be affected by network load and available signal strength.

TVUPack with integrated MIMO Microwave Mesh overcomes these types of challenging broadcast environments while providing the ability to transmit live video on the go. With the ability to aggregate both cellular and microwave connections, TVUPack with MIMO Microwave Mesh combines proven, award-winning IP based 3G/4G/LTE cellular broadcast with specially designed MIMO IP radio transmission technology. The result is an increased ability to deliver HD quality live video transmission in challenging wireless environments.

### What is MIMO Microwave Mesh?

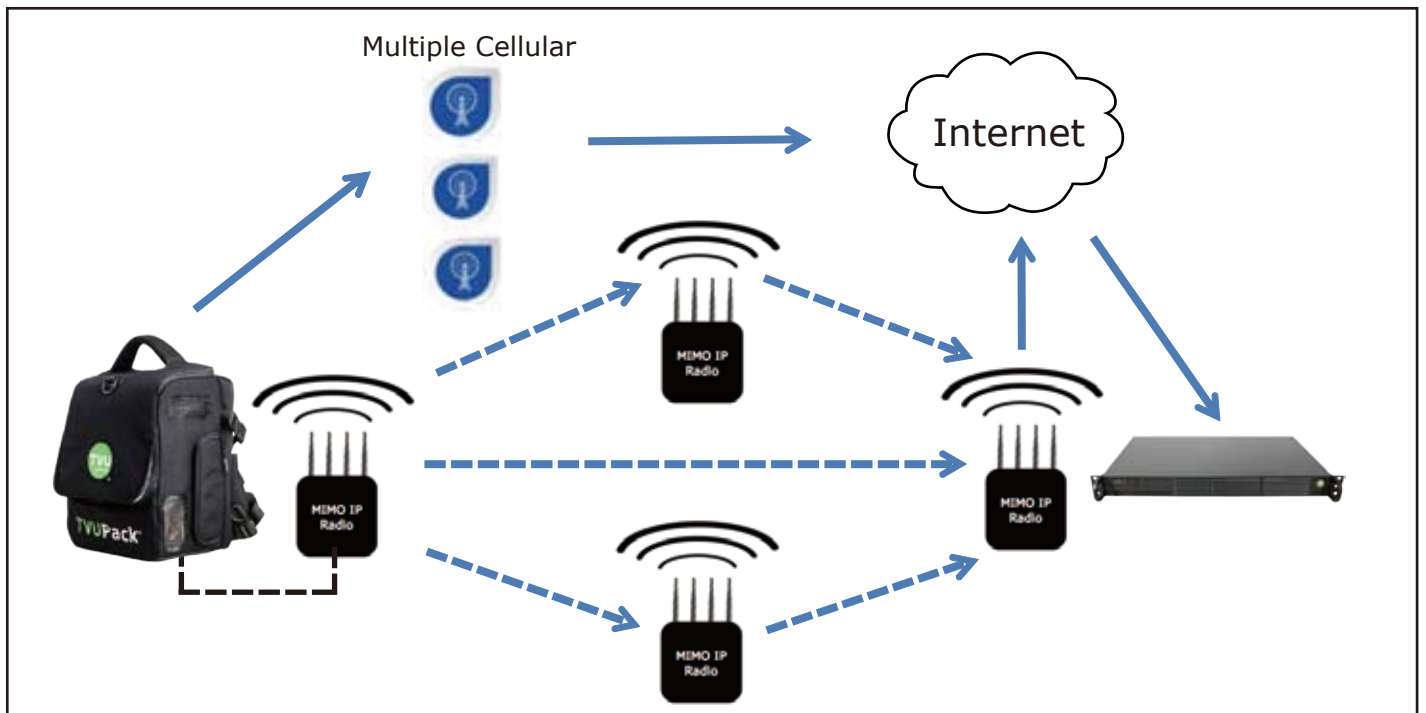
Multiple-In Multiple-Out antenna technology (MIMO) allows for a packet to be transmitted by more than one antenna into the channel. Additionally, when the packet comes out of the channel, it is received on multiple antennas. When multiple MIMO radios are positioned in strategic locations around the area from which the live video will be transmitted, an intricate microwave mesh network is created that allows for the transmission signal to travel farther and carry more information with increased reliability.



To increase the range and effectiveness of MIMO, you simply add antennas to help relay the data from the transmitting location to the receiving location. MIMO is self-forming and self-healing, meaning that it's extremely easy to set up, and capable of responding to changing conditions.

### No line-of-sight required for MIMO mesh network

TVUPack with MIMO Microwave Mesh features a unique internal modem module that contains embedded cellular modems and the MIMO IP microwave radio with dual antennas. TVUPack is able to use the multiple cellular connections and the integrated Microwave Mesh IP radios simultaneously to provide a stable broadband IP connection in a limited area. This helps augment transmission capabilities particularly in congested cellular locations.



The MIMO microwave uses individual IP radios that can be set up either as 2x2 or 4x4. By adding more MIMO IP radios, the microwave mesh networks can be expanded for even longer transmission range and reliability.

## Technical Specifications\*

Video Input Resolution	HD/SD-SDI or HDMI 1080i 59.94/50, 720p 59.94/50, 576i 50, 480i 59.94
Audio Input	Embedded 2 channel
Audio/Video Encoding	Enhanced H.264 encoder(TVU264)
Return Video Feed	Pack feed; SDI input at TX; Requires hotspot
Start-up Time	Less than 20 seconds
Supported Data Connections	Simultaneously aggregates up to 9 data connections including WiFi and Ethernet. System supports cellular 3G/4G/LTE, Wi-Fi, 802.11ac Wi-Fi, 5GHz Wi-Fi, WiMax, IP Microwave and KaBand, KuBand, BGAN Satellite connections.
MIMO IP Radios	Two transmitting antennas Up to four receiving antennas
MIMO IP Radios Transmission Range	Up to 2 miles/3219 meters
Glass-to-Glass Latency	As low as sub-one second
Video Recording	7 hours of continuous recording
External Interface Connectors	SDI, HDMI, Ethernet, IFB
Power Source	Dual hot swappable Gold Mount Anton Bauer batteries or optional V Mount batteries External Power Adapter: 100V to 240V AC
Battery Run Time	Can run up to four hours in two battery configuration
Transmitter Controls	One button start On-pack monitoring and management Remote monitoring and management using mobile smart device or laptop
Sony XMPilot Metadata Integration	Supports Sony XMPilot Metadata for supported Sony camcorders
Encoder Hardware Dimensions	2 1/4" (D) x 7.25" (W) x 8.5" (H) / 5.5 cm (D) x 18.4 cm (W) x 21.5 cm (H)
Backpack Dimensions	7 3/4" (D) x 11" (W) x 13.5" (H)/ 19.6 cm (D) x 27.9 cm (W) x 34.2 cm (H)
Weight	13.5 lb/6.12 kg without batteries
Operating Temperatures	0°C to 40°C (32°F to 104°F)

\*"SONY", "XDCAM", and "XMPilot" are trademarks of Sony  
Specifications and features are subject to change.

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