



TVIP has become a major contender for COFDM Radio Cameras and Mobile News Gathering downloads at a much lower price than has previously been possible with bespoke single channel per carrier (SCPC) links. As a derivative of WIFI they offer TVIP addressed packet transmissions allowing multiple cameras or video streams per link, with packet acknowledgement and return camera control. The COFDM

modulation spreads the energy of the transmitted packets across the frequency band and this has proved resilient to multipath fading by reconstituting the video from the surviving spectrum. Civil links are controlled by the standard regulatory specification IEEE 802.11a, b, and g, for which a high gain patch, or compressed omni antenna is supplied. For Broadcast applications which share protected frequency bands SSPAs may be added to extend range for video downloads. The equipment has a threshold of 95dBm at 6Mbps, and a 6-10dB margin over this is recommended for mobile or stadium events.

Both Analog and IP cameras may be used. Good quality IP cameras are available from all the major suppliers using 6-8 Mbs JPEG compression for 802.11g. These cameras have an IP 10-100 base T RJ-45 connector which connects directly to the microwave link.



When analogue cameras or multiple IP cameras are deployed a small IP converter/router precedes the link allowing separate subnet IP addresses for each camera

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Voice / data over IP (VOIP) may use an analog device with a VOIP/RS232 generator or for voice alone an IP telephone with IP 10-100 base RJ45 output is recommended .

LINK BUDGET RADIO CAMERA

Frequency	2400MHz	2400 MHz	900MHz	900MHz
Distance to Receiver or repeater	0.5Km(Urban)	5Km(Urban)	0.5Km(Urban)	5Km(urban)
Transmit Power dBm (Omni broadcast mode)	11 dBm/7dBm	45dBm/39dBm	-6dBm/-10dBm	28dBm/22dBm
Transmit omni antenna gain	6dB	6dB	6dB	6dB
Free Space Loss	94dB	114dB	85dB	105dB
Additional loss due to urban clutter at 0,5Km range	18dB	32dB	16dB	30dB
Gain of Receive omni antenna or Receive sector Antenna	6dB / 12dB	6dB/12dB	6dB/12dB	6dB/12dB
Received Signal	-77dBm	-89dBm	-58dBm	-86dBm
Threshold (1*10 exp 6 error rate) for one camera / link dBm at 6Mbps	-95dBm	-95dBm	-95dBm	-95dBm
Margin over threshold	6dB	6dB	6dB	6dB

Note:- 900MHz, 2400MHz, and 5800MHz is suitable for stadium use. Due to high urban clutter loss 900MHz is recommended for person to vehicle or vehicle to Control Centre links in cities unless LOS links can be used.

Microwave Radio	Specification
Wireless standards	Tx power IEEE 802.11a, 11b, 11g 18dBm @ 6Mbps—15dBm @ 54Mbps Tx EIRP IEEE 802.11a, 11b, 11g 35dBm @ 6Mbps—33dBm @ 54Mbps
Interface	10—100 base T RJ-45
DC Power	18Vdc @ 1 amp
Frequency	900MHz/2.4GHz/ 5.8GHz ,Modulation OFDM / PSK— Special frequencies and SSPAs available for Military and Law Enforcement
Routing Protocol	DHCP Client and Server OSPF2, BGP4, RIP1, NAT/DAT
SSPAs	Special High Power SSPAs available on request
Network Quality of Service	Dynamic frequency and bandwidth Management Control
Monitoring / Management	IP accounting, Wireless Monitor, Traffic Monitor, Remote Upgrade
Operating Temp	-35 to +65°C