



COFDM IP Mesh - the any-shape mobile mesh network

COFDM IP Mesh radios are the latest innovations in the expanding range of Cobham solutions with Tactical Communications and Surveillance technology at their core.

Up to 12 of the radios can be combined into a ground-breaking IP mesh network - Cobham's first fluid, self-forming, self-healing mesh. Offering genuine non-line of sight coverage (COFDM), the system is truly mobile and therefore supplies a network with extended range - one which will deliver in environments too tough for other radio solutions to cope with.

Wireless networks no longer need to be static. Unlike other wireless options, the COFDM IP Mesh constantly readjusts itself as nodes move, working out which are in range and finding the best route to send data between them. When one node can no longer operate, the rest of the nodes can still communicate with each other - directly or through one or more intermediate nodes.

The highly flexible mesh topology means that data can be exchanged between moving nodes in a point to point or point-to-multipoint fashion, and range can be extended by using nodes as repeaters.

With a COFDM IP Mesh system, any shape of mesh network can be built:

- **A chain network:** Ideal for range extension, each node is placed at the outer range limit of the node before. These chain together to feed information back. This network can be operated and maintained whilst mobile.
- **A star network:** Good for urban coverage, a central node is situated at a high point to act as a relay and all other nodes feed information back via that one, enabling bi-directional communications.
- **A random network:** Evolves organically to any shape.
- **A combined network:** Any of the above shapes can be linked - if they are operating at different frequencies, they can be combined at the IP layer.

COFDM IP Mesh from Cobham offers true networked integration of video, audio and GPS, with seamless transfer of MPEG4 video even when the mesh is reconfiguring to a different shape.

The robust, self-healing mesh architecture makes the product ideal for use in mobile surveillance applications, command and control, or advanced robotics.

COFDM IP Mesh solutions

COFDM – Video, Audio Telemetry and IP Products
 July 2011 Data Sheet



Technical features

COFDM IP Mesh radios exchange data on a single frequency, simplifying frequency management. The entire mesh occupies just 2.5MHz (3,3.5 and 5MHz also available) of bandwidth. Far narrower than WiFi or WiMax bandwidth, this gives less noise in the channel, better sensitivity and increased spectrum for more users. Utilising proprietary domo narrowband video compression technology, very high quality video can be transmitted over the mesh network.

Custom-designed for the security and military markets, the IP Mesh radios employ the unique Cobham COFDM modulation scheme and therefore have excellent RF penetration and performance in the presence of multipath. An IP data rate of up to 5Mb/s is possible (data rate depends on mode, number of nodes, and range between nodes), and this can be symmetric to match network requirements. Diversity gives protection against fading, and there are built-in guard intervals and error correction.

Security of the entire mesh network can be ensured by the use of the optional AES128 or AES256 encryption. Control of the whole deployed mesh is achieved using a comprehensive web browser application with a built-in user-loaded mapping facility and PTZ controls.

The COFDM IP Mesh solution is available in a Plain, or Robust (IP66) enclosure with 1W for long range. It can also be upgraded with composite video and audio, input and output options. The Mesh solution also comes with a control interface known as "Mission Commander", this GUI allows the users to configure and monitor ongoing operations.

KEY: ●●●●● Mesh 1 ●●●●● Mesh 2 ●●●●● SOLO Link out

<p>IP mesh systems enable the backhaul of multiple audio feeds for monitoring by surveillance teams.</p>	<p>Networked integration of video, audio and GPS, with seamless transfer of MPECA4 video even during network reconfiguration.</p>	<p>Robust, self-healing mesh architecture makes the COFDM IP Mesh ideal for use in mobile tracking applications.</p>



A Mesh network takes data from its nodes and broadcasts, non-line of sight, to a nearby police command point.

Data can be filtered and sent onward to central command centres from a local monitoring point.

COFDM IP Mesh Features:

- Single frequency fluid self-healing mesh, up to 8 nodes
- Immediate joining as additional nodes come within range
- Multiple interconnected meshes can be operated in the same area
- 2.5, 3, 3.5,5MHz bandwidth, giving typically 3.5Mb/s network capacity
IP interface as standard for easy connection of cameras, sensors and data
- GPS and/or RS232 interface and mapping software available
- Web browser control interface "Mission Commander"
- Web browser mapping interface (user loaded)

- RF Silent mode - listen only, transmit only when required
Mesh allows range extension by making chains, or easy bi-directional relays*
- Composite video and audio input options for streaming video
Composite video and audio output options for connection to recorders
- Easy control of cameras for PTZ
- Encryption for security with AES128/256
- IP Mesh capability
- Automatic Adaptive modulation
- NETAV Video and Audio Input Interface
(For composite video and audio out use Net IPH IP Hardware decoder)
- Milestone compatibility with official release for Recording and playback functionality.

For more information please refer to the data sheets:

NETNode IP Mesh Radio (Robust)

NETNode IP Mesh Radio (Plain)

* Starred items in italics will be supported in future releases

Products are available to security users only, in licensed frequency bands. These products are not approved for use by unlicensed users.

Commercial products are available to unlicensed users - contact Cobham Tactical Communications and Surveillance direct for details.

All product specifications are subject to change without notice. Cobham Tactical Communications and Surveillance will not be liable for technical or editorial errors or omissions.

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