

## D17XX IP Mesh Transceiver Card

January 2016 Data Sheet

COFDM– Video, Audio, Telemetry and IP Products

The most important thing we build is trust



### Introduction

The D17XX is a single card IP Mesh transceiver with dual receive diversity.

Several D17XX transceivers can be used to generate a fluid self forming, self healing mesh containing up to sixteen nodes. The D17XX transceivers within the mesh exchange data on a single frequency, simplifying frequency management. The entire mesh system occupies just 2.5MHz of bandwidth (3.0, 3.5, 5.0 and 6.0MHz also available). The D17XX transceivers employ a unique COFDM modulation scheme and therefore offer excellent RF penetration and performance in the presence of multipath.

The D17XX transceivers can provide up to 8.8Mb/s of IP data (data rate depends on mode, number of nodes and range between nodes). This available bit-rate can be used to exchange IP data traffic between nodes.

The highly flexible mesh topology means that data can be exchanged between nodes in a point-to-point or multi-point fashion; range can be extended by using nodes as repeaters. The self-forming, self-healing mesh architecture makes the D17XX transceiver ideal for use in mobile surveillance applications, command and control applications, or advanced robotics.

The D17XX can be connected to third party composite or PTZ cameras using the AVI option. Two PTZ control channels are available to control PTZ cameras. Alternatively third party IP cameras can also be directly connected to the D17XX.

Security of the entire mesh network can be ensured by the use of the optional AES128 or AES256 encryption.

Control of the deployed mesh is achieved using the inbuilt web browser or comprehensive Mission Commander PC application.

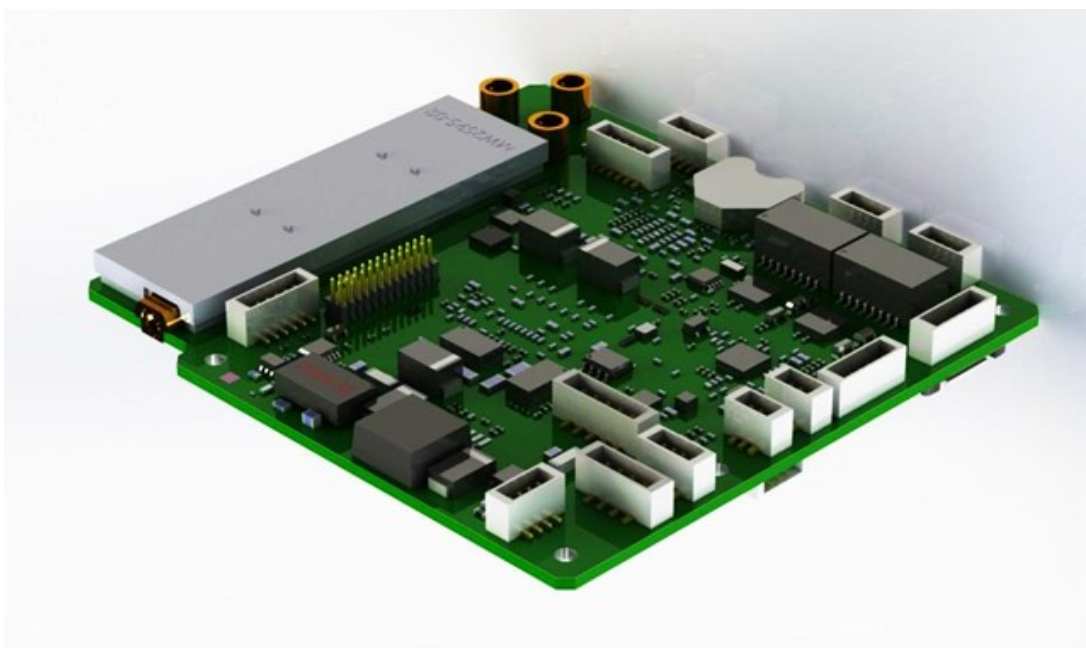
Equipped with Ethernet and serial control interfaces, the D17XX is easy to integrate into a larger system.

The key design criteria for this solution were low power consumption, small size, and ease of integration.

## Features

- Single card solution, includes 2 receivers, 100mW power amplifier and T/R switching.
- Low power, typically 4W when meshed to another node at 100mW. [Power consumption is dependent on data rate, channel BW and number of nodes.]
- 2.5MHz / 3MHz / 3.5MHz / 5MHz and 6MHz operating bandwidth modes
- Two-way diversity Maximum Ratio Combining for fade and multipath elimination
- Internal AES 128 / 256bit encryption (optional)
- Twin IP interfaces
- Multiple Serial interfaces
- SMP RF connectors for reduced size and ease of connection
- Optional Encoder offering very low delay video operation for real time applications
- Interfaces for optional external amplifier up to 2W
- Talk-back Audio
- Micro SD card for 32GB storage via flexible circuit connector
- FCC approval for the D17XX as an OEM Module.

## Isometric View D17XX

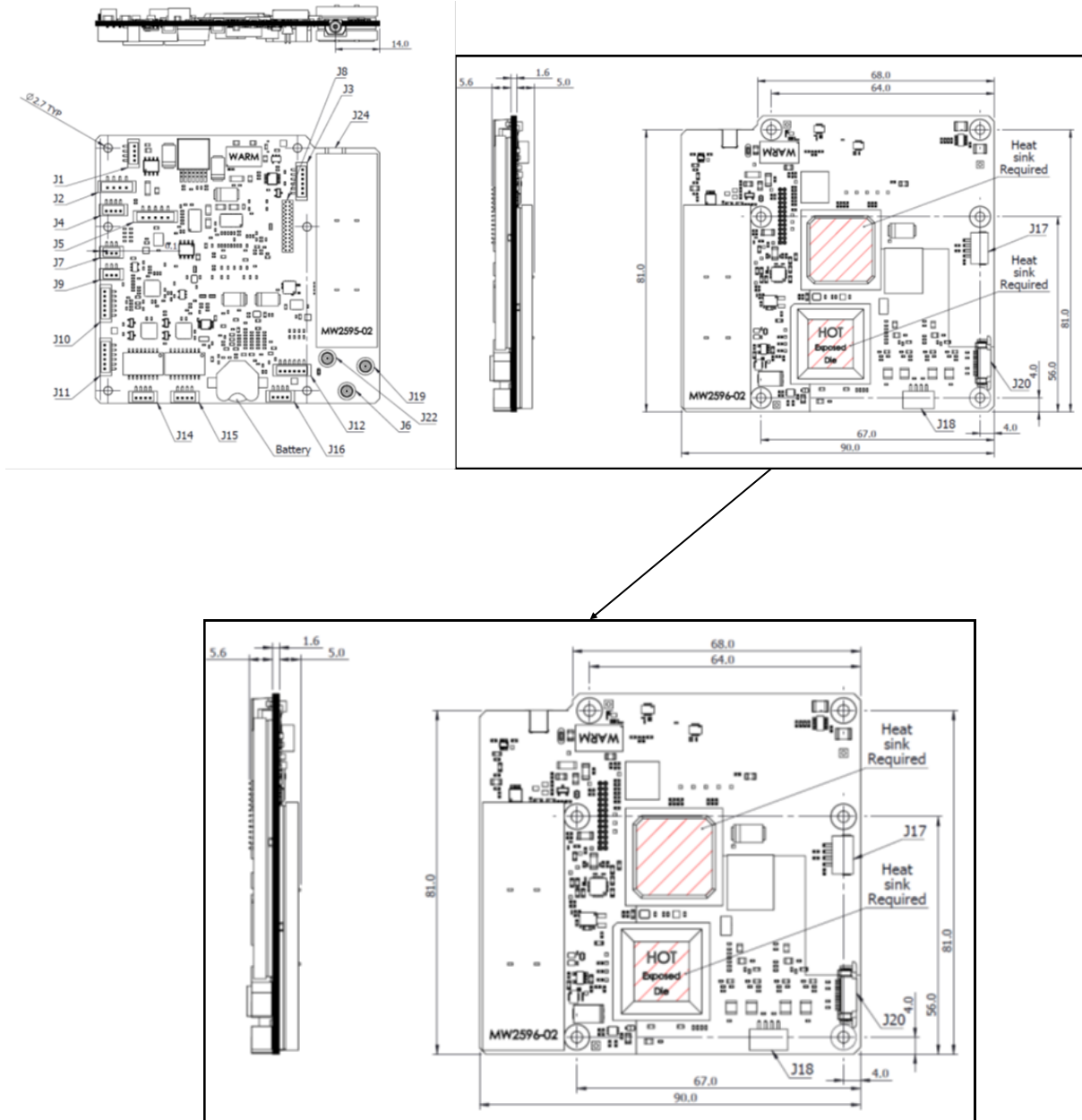


## Specification

<b>Frequency Selection</b>	D1700 D1702 D1703 D1705 D1707 D1710 D1713 D1715	200 – 300 MHz 300 – 470 MHz 450 – 600 MHz 1140 – 1500 MHz 1980 – 2550 MHz 3000 – 3700 MHz 4400 – 5000 MHz 5500 – 6000 MHz
<b>Interfaces</b>	Antenna 1 [Rx] Antenna 2 [Tx/Rx] Transmitter Port External PA input Power Ethernet 1 Ethernet 2 Control and Misc Camera (A/V)	SMP J19 SMP J22 SMP J24 SMP J6 JST J2 JST J14 JST J15 JST J3 (RS485) JST J12 (RS232) Optional Card—D550
<b>RF</b>	Tuning Step Size Output Power Bandwidth Mesh Capacity Modulation Carrier Modulation FEC Rate Receive Diversity Receive Sensitivity	125kHz step +20 to -10dBm, 0.25dB steps (100mW) 2.5, 3.0, 3.5, 5.0, 6.0 MHz Up to 8.8Mb/s COFDM 360 carrier modulation BPSK, QPSK or 16QAM (adaptive) FEC1/2, FEC2/3 (adaptive) Maximum Ratio Combining -98dBm (BW 2.5MHz / BPSK 1/2)
<b>IP Interface</b>	Ethernet electrical IP Address Alloc. Video & Audio streaming format	100BaseT Ethernet DHCP dynamic IP Addressing Multicast VLC compatible UDP & RTSP Support
<b>Open Audio comms channel</b>	Audio Comms channel Compression	Interface Microphone level/headphone G726 32kbit audio
<b>Encryption</b>	Type	AES128 or AES256 (both optional)
<b>GPS</b>	Dedicated GPS I/F	RS232/RS485
<b>Data Interface</b>	RS232/RS485 data	1K2 to 115K2 baud switchable, UDP & TCP routing protocol
<b>Control</b>	Local Control Remote control	Bicolour LED indicates power and mesh status. Mission Commander PC App. Web browser control

<b>Physical</b>	Mass Dimensions	82g 90mm x 85mm
<b>Power</b>	DC Input Power Consumption	8-16V Typically 4W when meshed to a single node at 100mW Tx power. [Power consumption is dependent on data rate, channel BW and number of nodes]
<b>A/V input (Separate Card Option)</b>	Video Input Video Format Video Encoding Quality Video bit-rate Resolution Frame Rate Audio Input Audio Sampling Freq. Audio encoding Audio bit-rate	Composite or SDI (selectable) 525 or 625 (PAL or NTSC) MPEG4 Low/Medium/High (selectable) 2.4Mbit/s to 50kb/s (variable) 704, 576, 480 or 352 Self-selecting 30 to 2F/s Line level or Microphone level 48kHz MPEG audio layer 1 384 to 64kb/s
<b>Store and Forward options</b>	Storage Format  Record Options Files Download  AV Clip Size	Secure Digital (SD) Card interface—optional Continuous or Triggered From web browser interface (Milestone) 30 seconds
<b>Environment</b>	Temperature Range	-10 to +50 °C

## Mechanical Drawings D17XX



Cobham Tactical Communications and Surveillance International  
 Fusion 2,1100 Parkway  
 Whiteley, Hampshire  
 PO15 7AB, UK  
 T: +44 1489 566 750

Cobham Tactical Communications and Surveillance North America  
 2303 Dulles Station, Suite 200  
 Herndon, VA  
 20171, USA

Brazil Sales Office  
 Av. das Nações Unidas  
 12551- 17º andar - Sala 1725  
 04578-903  
 São Paulo

Singapore Sales Office  
 42 Toh Guan Road East  
 Enterprise Hub 01-73  
 608583  
 Singapore

## FCC compliance statements

### 5.4 FCC

#### 5.4.1 FCC Subpart 15A Rule Section 15.21

**CAUTION:** The user of an intentional or unintentional radiator shall be aware that changes or modifications not expressly approved by Cobham could void the user's authority to operate the equipment.

#### 5.4.2 FCC Subpart 15B Rule section 15.105

**NOTE:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

#### 5.4.3 FCC Subpart 15A Rule section 15.19(a)(3)

**NOTE:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules.

"This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and (
- (2) This device must accept any interference received,

(2) Including interference that may cause undesired operation."

#### 5.4.4 RF Exposure Guidance

The unit must be operated at least 20cm away from the body for RF exposure compliance purposes

#### 5.4.5 Module Certification

This module is FCC approved at 100mW, if an additional external amplifier is co located with this approved module, then the above listed FCC approval will be invalidated under the conditions of the approval. Compliance.