Revision: 0.2

Resource ID 100289

D1707-OEM + AP001973 Integration Document

Agile IP Mesh Radio

DTC – Solent
Fusion 2
1100 Parkway
Solent Business Park
Whiteley
Hampshire
PO15 7AB
United Kingdom

+44 (0)1489 566 750

Contents

1. Document History

Revision	Date	Author	Summary of Changes
0.1	07 Feb 2020		First draft
0.2	07 Feb 2020		

2. Introduction

This document outlines the hardware integration for the D1707-OEM + AP001973 IP Mesh baseband transceiver module with dual receive diversity.

This document applies to units with FCC ID:XRF-NETNODEP41W.

Several modules can be used to generate a fluid self-forming, self-healing mesh containing up to sixteen nodes. The module within the mesh exchange data on a single frequency, simplifying frequency management. The entire mesh system occupies just 6 MHz of bandwidth. The modules employ a unique COFDM modulation scheme and therefore offer excellent RF penetration and performance in the presence of multipath.

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 this module ideal for use in mobile surveillance applications, command and control applications or advanced robotics.

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

Equipped with Ethernet and serial control interfaces, the module 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.

3. FCC requirements

This module complies with part 90 of Title 47 of the Code of Federal Regulations. The host manufacturer remains responsible for compliance with any other FCC rule parts that may apply.

This module is sold on a Business to Business basis and customers requiring instruction on how to put the module into test mode to aid with integration testing should contact their Domo representative

Label Information to the End User by the OEM Integrators

If this certified module is installed inside the host device, then the outside of the host must be labeled with “Contains FCC ID:XRF-NETNODEP41W”.

Information for the OEM Integrators

This device is intended for OEM integrators only. Please see the full grant of equipment document for restrictions.

RF Exposure Statement

To satisfy FCC RF exposure requirements, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation.

To ensure compliance, operations at closer than this distance is not recommended

4. Functional Specification

RF Interfaces

Antenna 1	Switched transmit & receive antenna
Antenna 2	Receive only antenna
Output power	1W
Frequency Range	2354.0 to 2379.0 MHz
Bandwidth	6.0 MHz
Mesh capacity	Up to 14.6Mbit/s
Modulation	COFDM 360 carrier modulation
FEC rate	FEC 1/2
Receive diversity	Maximum ratio combining
Receive sensitivity	-98dBm for most robust mode

IP interface

Primary & secondary	
Ethernet electrical	100BaseT Ethernet
IP address allocation	DHCP dynamic IP addressing
Video and audio streaming format	Multicast VLC compatible UDP & RTSP support

Encryption

Type	AES128 or AES256 (both optional)

Power

DC input	12 V nominal. 10.2 – 13.8 V absolute

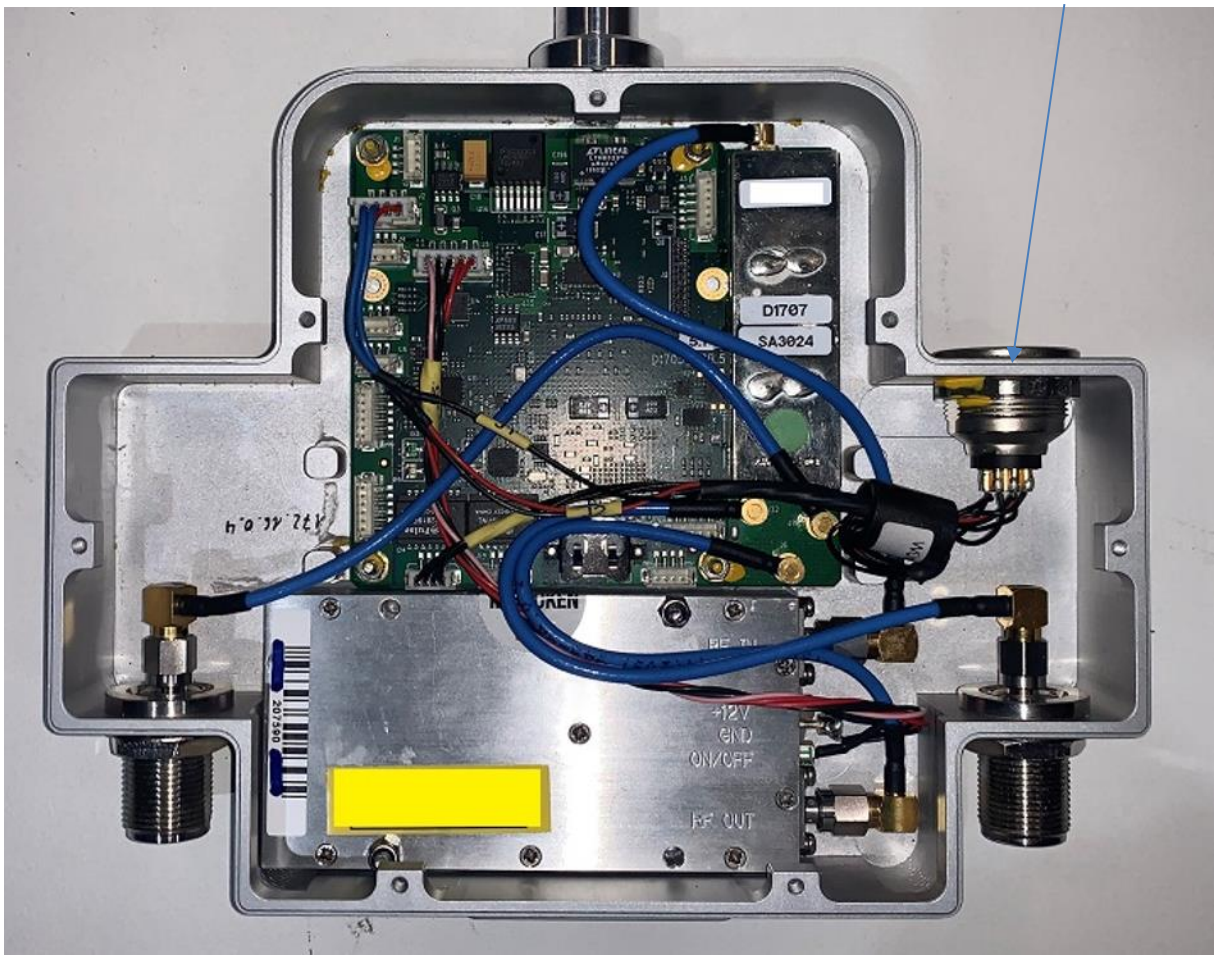
Environment

Temperature rating	-30°C to +50°C

5. Power and Ethernet connection

Power and Ethernet is connected via the 8-way socket

Power and Ethernet socket



Pin	Function
1	+12V
2	GND
3	Ethernet TX+
4	Ethernet TX-
5	Ethernet RX+
6	Ethernet RX-
7	GND
8	Shield

6. Mechanical dimensions

The module is:

- 186 mm wide
- 173 mm tall
- 23 mm deep

7. Antenna

This module is designed to be used with the following external antennas:

- Cobham OA4-2.2V/2046 omni antenna: 4 dBi gain
- DTC ANT2SMA-200250; Omnidirectional 2.0 – 2.5 GHz; 2.0dBi gain