

# Cisco Ultra-Reliable Wireless Backhaul FM TUBE

---

Installation and Configuration Manual

(Formerly Fluidmesh)  
Edition 1.0 (For FM-TUBE antennas)

Copyright © Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: [www.cisco.com/go/trademarks](http://www.cisco.com/go/trademarks). Third -party trademarks mentioned are the property of their respective owners. The use of the word 'partner' does not imply a partnership relationship between Cisco and any other company. (1110R) © 2018–2020 Cisco Systems, Inc. All rights reserved.

# Table of Contents

1. HAZARDOUS CONDITION WARNINGS .....	4
1.1. Radio-Frequency Transmission Hazard .....	5
2. Reporting Mistakes And Recommending Improvements .....	6
3. Introduction .....	7
3.1. The TUBE Antenna .....	7
4. Installation .....	8
4.1. Environmental Rating .....	8
4.2. General Installation Practices To Follow And Avoid .....	8
4.3. Contents Of The Kit .....	9
4.3.1. FM-TUBE .....	9
4.4. Installing The Antenna .....	9
4.4.1. Installing A TUBE Antenna .....	9
5. Specifications .....	13
5.1. TUBE Antenna Specifications .....	13
6. Notices And Copyright .....	14
7. Fluidmesh End-User License Agreement .....	16
7.1. Preamble .....	16
7.2. Notice .....	16
7.3. Definitions .....	16
7.4. License Grant .....	17
7.5. Uses And Restrictions On Use .....	17
7.6. Open-Source Software .....	18
7.7. Termination .....	18
7.8. Feedback .....	19
7.9. Consent To Use Of Data .....	19
7.10. Warranty Disclaimer .....	20
7.11. Limitation Of Liability .....	20
7.12. Exclusion Of Liability For Emergency Services .....	21
7.13. Export Control .....	21
7.14. General .....	22
8. Contact Us .....	23

## 1. HAZARDOUS CONDITION WARNINGS

Like all other global technology vendors, Fluidmesh is required to comply with all local health and government regulations in the locations in which we operate. This includes meeting radio frequency (RF) exposure limits for our products.

Our equipment is tested in accordance with regulatory requirements as a condition to our ability to market and sell in any given jurisdiction. As an equipment manufacturer, Fluidmesh defers to expert national and international health organizations responsible for guidance on the safety of RF signals, specifically the US Food and Drug Administration (FDA), Health Canada, the World Health Organization (WHO), and other national and global health agencies.

In May 2019, the FDA stated that there is "no link between adverse health effects and exposure at or under the current RF energy exposure limit", and that the current FCC RF exposure limits are sufficient to insure the safety of users.

If any Fluidmesh hardware unit breaks down or malfunctions, emits smoke or an unusual smell, if water or other foreign matter enters the unit enclosure, or if the unit is dropped onto a hard surface or damaged in any way, power off the unit immediately and contact an authorized Fluidmesh Networks dealer for assistance.

If you are adjusting and/or controlling a Fluidmesh device using control software such as the RACER™ interface or the device's local Configurator interface, do not make configuration changes unless you know with certainty that your changes will not negatively impact people or animals in the vicinity of the device and its antennas.

## 1.1. Radio-frequency transmission hazard



### WARNING

The system shown in this manual is designed to be installed and operated in a way that avoids contact with the antennas by human beings. The legislation quoted in this section is designed to reduce overall exposure of human beings to RF radiation.

This section gives minimum separation distances between antennas and humans. It is strongly recommended that the system be installed in a location where these minimum separation distances can be maintained at all times.

**United States:** This system has been evaluated for RF exposure for humans, in accordance with FCC regulation CFR 47 Part 2.1091. To maintain compliance, the minimum separation distance from the antenna to general bystanders is 20cm/7.9in. (all FM Ponte kit and x200 radio transceivers), or 21cm/8.3 in. (all FM1300 Otto and x500 radio transceivers).

**Canada:** This system has been evaluated for RF exposure for humans, in accordance with ISED regulation RSS-102. To maintain compliance, the minimum separation distance from the antenna to general bystanders is 20cm/7.9in. for all Fluidmesh radio transceivers.

**Europe / Australia / New Zealand:** This system has been evaluated for RF exposure for humans, in accordance with standard EN 62232. To maintain compliance, the minimum separation distance from the antenna to general bystanders is 20cm/7.9in. for all Fluidmesh radio transceivers.

Before activating any device capable of transmitting RF signals, make sure that all persons and animals are protected from possible RF exposure.

Make sure that all RF feeds are securely connected to an appropriate antenna. Never activate any RF-capable device that is not connected to an antenna.

## 2. Reporting mistakes and recommending improvements

You can help improve this manual.

If you find any mistakes, or if you know of a way to improve the procedures that are given, please let us know by E-mailing your suggestions to [documentation@fluidmesh.com](mailto:documentation@fluidmesh.com).

## 3. Introduction

This manual gives field-level installation instructions for installing Fluidmesh antennas. It is intended for use by wireless networking professionals who have been tasked with installing Fluidmesh radio antennas.

To prevent personal injury and equipment damage, and to ensure optimum network performance:

- Install all network hardware where it cannot be physically damaged.
- Shield all network hardware from salt water and chemical spray.
- Keep a safe distance from all RF-radiating devices when such devices are powered on, make sure that all persons and animals are protected from possible RF exposure before activating any device capable of transmitting RF signals, and do not stand in line with powered RF-radiating devices.
- Make sure that all RF feeds are securely connected to an appropriate antenna before activating any device capable of transmitting RF signals.

### 3.1. The TUBE antenna

The TUBE antenna is a unidirectional antenna with high gain, and clear directivity. It is primarily designed for use in tunnels and closed environments, such as the tracksides of underground commuter-train networks, as well as other underground mobility applications such as mines.

The TUBE antenna includes an integral mounting bracket, and is suited for direct mounting to walls.

## 4. Installation

### 4.1. Environmental rating

Fluidmesh TUBE antennas are designed to withstand adverse environmental conditions.

### 4.2. General installation practices to follow and avoid

When installing and adjusting an antenna in any scenario that uses Fluidmesh hardware, install and adjust the antenna according to the following recommendations.



#### NOTE

Not all recommendations listed in this section will apply to all antennas.

- Make sure the antenna and its transceiver unit are properly grounded (earthed) to prevent the antenna and transceiver from accumulating static electricity or producing sparks. If the antenna and/or transceiver are mounted in a flammable environment, stray sparks could ignite the flammable materials, causing an explosion and/or flash fire.
- Wherever practically possible, keep all antenna cabling runs under 10 feet (three metres). Radio signals conducted through antenna cabling before being transmitted from an antenna suffer from a phenomenon called signal attenuation. The signal gradually dissipates along the length of the cable due to electrical resistance before being transmitted from the antenna, reducing signal amplitude.
- Do not bend or kink antenna cabling. Kinks and bends may cause breaks and/or narrow points in the cable's electrical conductor, resulting in degraded signal amplitude.
- Be sure to comply with the minimum and maximum co-location distances specified by Fluidmesh for each antenna type. This helps avoid co-location interference (in which the radio transmissions from two or more antennas partially cancel each other out).
- Note that during test and adjustment of stationary antennas, an antenna placement adjustment of between four and five feet (1.2m to 1.5m) may be needed.
- A signal quality test and adjustment must always be done during an installation to verify signal quality and amplitude. If the test and adjustment procedure is not done, the installation is at risk of under-performing due to poor line-of-sight and other factors.
- If applicable, avoid installing antennas inside audio loudspeaker enclosures. The proximity of a radio antenna to the metal in



speaker bodies causes degraded performance due to radio reflections. In addition, the energy of radio (microwave) transmissions that strike metal is partially or completely dissipated as a flow of electrons, requiring higher transmission power to broadcast a viable signal. Non-metallic loudspeaker enclosures made of polycarbonate or other plastics, enclosures painted with non-metallic paint, and antennas mounted under or behind shrouds are all acceptable.

- Avoid installing antennas on or close to metal surfaces, metal beams and similar. This helps to avoid radio reflections and dissipation.

### 4.3. Contents of the kit

The antenna kit contains the following components:

#### 4.3.1. FM-TUBE

- 1x FM-TUBE antenna.

### 4.4. Installing the antenna



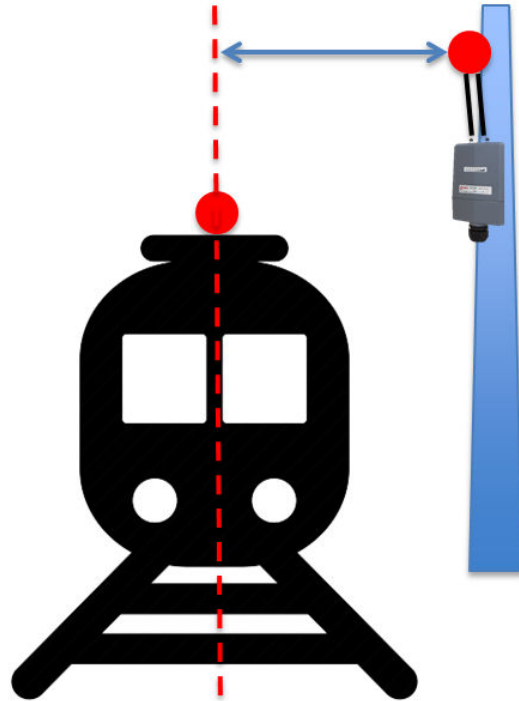
#### **IMPORTANT**

When connecting an antenna to a radio unit, only use shielded co-axial antenna cables of type LMR 240 or better.

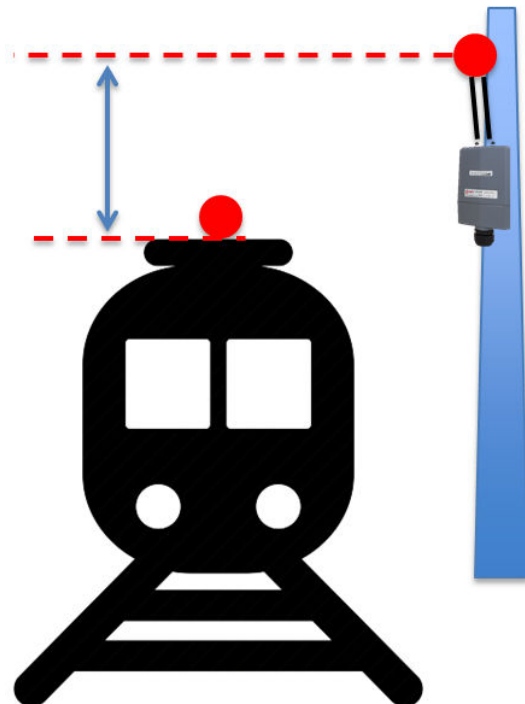
#### 4.4.1. Installing a TUBE antenna

To install a TUBE antenna, do the following steps:

1. Determine the best installation position of the antenna according to the following rules:
  - The TUBE antenna must be installed as closely to the center line of the train tracks as possible. If the antenna must be installed in a laterally offset position from the center line of the train tracks, the maximum permitted offset is 50 ft. (15m) (below).

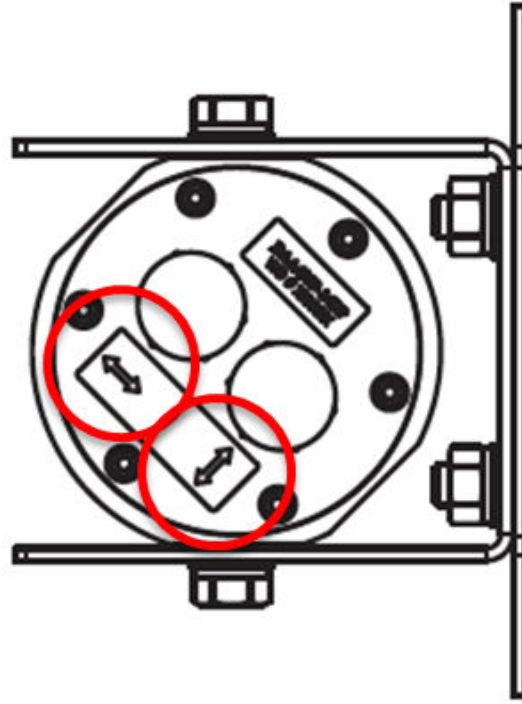


- The TUBE antenna must be installed a minimum of 6 ft. (1.83m) above the mounting point of the train antennas (below).

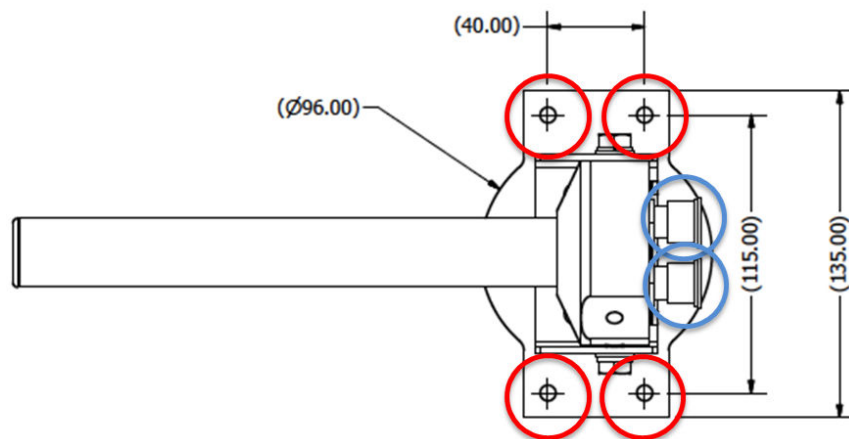


- The co-axial cables that are used to connect the TUBE antenna to the radio must be less than 3 ft. (1m) long.

- The TUBE antenna must be installed in such a way that its horizontal and vertical polarization planes both intersect the line of travel of the train at 45° (below). Refer to the label on the antenna for correct installation.



2. Attach the antenna to an appropriate wall, using the four fixing holes (red highlights, below).



3. Remove the plastic caps from the cable connectors on the underside of the antenna (blue highlights, above).
4. Connect the N-male terminals on the antenna cables (below) to the correct cable connectors on the antenna.



**CAUTION**

When connecting the antenna cables to the antenna, always seal the connections using self-shrinking outdoor-rated tape.

## 5. Specifications

The table below contains the general specifications for the antenna.

### 5.1. TUBE antenna specifications

**Table 1. TUBE specifications**

	Dimensions (in millimetres)	Mass	Working frequency range	Gain	Polarization
FM-TUBE	40 x 40 x 284		4900 MHz to 5900 MHz	14.6 dBi	Dual port, dual orthogonal

## 6. Notices and copyright



### WARNING

Installation of Fluidmesh hardware devices and their supporting infrastructure must be done by suitably qualified personnel only. In some countries, installation by a certified electrician may be required.

Fluidmesh hardware installations must comply with all applicable local legislation.



### WARNING

Never disassemble a Fluidmesh hardware device to any extent that is not described in the relevant device user's manual. Fluidmesh devices contain no user-serviceable parts. Disassembling a Fluidmesh hardware device will invalidate the device warranty, and may compromise the operational integrity of the device.

On some Fluidmesh radio transceiver devices, the lower access cover must be removed to gain access to the hardware *Reset* button. Do not operate a radio transceiver device for extended periods if its lower access cover has been removed.



### WARNING

To avoid danger from non-ionizing radiation and/or electric shock and/or high-intensity laser or LED light sources, be sure to install the unit only in a location with restricted access.



### WARNING

To avoid danger from electric shock, do not expose the unit to water or high humidity if the unit is powered ON, or if any access covers have been removed from the unit enclosure.

Do not place liquid-filled objects on or above the unit.

### NOTICE TO THE USER

Copyright © 2020 Cisco and/or its affiliates. All rights reserved. This manual and the software described herein shall not, in whole or in part, be reproduced, translated or reduced to any machine-readable form without the prior written consent of Cisco Systems.

Cisco and/or its affiliates provides no warranty with regard to this manual, software or other information contained herein, and hereby expressly disclaims any implied warranties of merchantability or fitness for any particular purpose with regard to this manual, the software or such other

information. In no event shall Cisco Systems be held liable for any incidental, consequential or special damages, whether based on tort, contract or otherwise, arising out of or in connection with this manual, the software or other information contained herein, or use thereof.

Cisco Systems reserves the right to make any modification to this manual or the information contained herein at any time, without notice. The software described herein may also be governed by the terms of a separate end-user license agreement.

Fluidmesh is a registered trademark of Cisco Systems. MeshWizard, EasyMesh, FMQuadro, FluidThrottle, VOLO, Fluidity, Virtual Gig, ENDO and MOBI are trademarks of Fluidmesh Networks LLC.

Microsoft, Windows, Internet Explorer and Microsoft Edge are registered trademarks of the Microsoft Corporation in the United States and/or other countries.

Ethernet is a registered trademark of the Xerox Corporation.

Adobe and Flash Player are registered trademarks of Adobe Systems Incorporated in the United States and/or other countries.

All other brands and product names that appear in this manual may be trademarks or registered trademarks. Such brands and product names are the property of their respective owners.

## 7. Fluidmesh end-user license agreement

### 7.1. Preamble

This License Agreement strictly prohibits you from using the Fluidmesh Firmware on any device other than a Fluidmesh Device. You are also prohibited from removing or modifying any Cisco or Fluidmesh copyright notice, trademark or user interface of the Fluidmesh Firmware or any Fluidmesh Device.

The Fluidmesh Firmware is copyright-protected material under United States and international copyright and other applicable laws. Unauthorized copying, use or modification of any part of this firmware, or violation of the terms of this Agreement, will be prosecuted to the maximum extent allowable under law.

### 7.2. Notice

This is an agreement between you and Fluidmesh, a division of Cisco (hereafter known as 'Fluidmesh').

You must read and agree to the terms of this firmware license agreement (hereafter known as the 'agreement') before any Fluidmesh firmware can be downloaded, installed or used. By clicking the 'Accept' button on any Fluidmesh firmware download webpage, or by downloading, installing or using Fluidmesh firmware and/or by using any Fluidmesh device running Fluidmesh firmware, you are agreeing to be bound by the terms and conditions of this agreement. If you do not agree with the terms and conditions of this agreement, then you should not download, install or use any Fluidmesh firmware, and you agree to forego any implied or stated rights to download, install or use Fluidmesh firmware.

### 7.3. Definitions

For the purpose of this Agreement, the following terms shall have the following meanings:

'Open Source Software' means any software or software component, module or package that contains, or is derived in any manner (in whole or in part) from, any software that is distributed as free software, open source software or similar licensing or distribution models, including, without limitation, software licensed or distributed under any of the following licenses or distribution models, or licenses or distribution models similar to any of the following: (a) GNU's General Public License (GPL) or Lesser/Library GPL (LGPL); (b) the Artistic License (e.g., PERL); (c) the Mozilla Public License; (d) the BSD License; and (e) the Apache License;

'Fluidmesh Device' means a Fluidmesh networking device that you purchase or otherwise rightfully acquire;

'Fluidmesh Firmware' means the firmware in object code form made available by Fluidmesh for Fluidmesh Devices; and



'You' and 'Your' mean the company, entity or individual who owns or otherwise rightfully acquires the Fluidmesh Device into which the Fluidmesh Firmware will be incorporated.

## 7.4. License grant

Fluidmesh grants you a non-exclusive, non-transferable license to use a copy of the Fluidmesh Firmware and accompanying documentation and any updates or upgrades thereto provided by Fluidmesh according to the terms set forth below. You are authorized by this license to use the Fluidmesh Firmware in object code form only, and solely in conjunction with applicable and permitted Fluidmesh-branded products and/or services and in accordance with the applicable documentation. You are granted a limited and non-exclusive license (without the right to sublicense) to use the software solely for the Fluidmesh Devices that you own and control, and solely for use in conjunction with the Fluidmesh Firmware.

## 7.5. Uses and restrictions on use

You may:

(a) download and use Fluidmesh Firmware for use in Fluidmesh Devices, and make copies of the Fluidmesh Firmware as reasonably necessary for such use, provided that you reproduce, unaltered, all proprietary notices that exist on or in the copies.

You may not, and shall not permit others to:

(a) use the Fluidmesh Firmware on any devices or products that are not owned by you or your business organization;

(b) use the Fluidmesh Firmware on any non-Fluidmesh Devices;

(c) copy the Fluidmesh Firmware (except as expressly permitted above), or copy the accompanying documentation;

(d) modify, translate, reverse engineer, decompile, disassemble or otherwise attempt (i) to defeat, avoid, bypass, remove, deactivate, or otherwise circumvent any software protection mechanisms in the Fluidmesh Firmware, including without limitation any such mechanism used to restrict or control the functionality of the Fluidmesh Firmware, or (ii) to derive the source code or the underlying ideas, algorithms, structure or organization from the Fluidmesh Firmware (except that the foregoing limitation does not apply to the extent that such activities may not be prohibited under applicable law); or

(e) distribute, rent, transfer or grant any rights in the Fluidmesh Firmware or modifications thereof or accompanying documentation in any form to any person without the prior written consent of Fluidmesh.

(f) remove any Cisco or Fluidmesh copyright notice, or Cisco or Fluidmesh branding from the Fluidmesh Firmware or modify any user interface of the Fluidmesh Firmware or Fluidmesh Device.

Fluidmesh Devices must be properly installed and they are sold for installation by a professional installer only. Fluidmesh Devices must be installed by a professional installer of wireless networking products certified by Fluidmesh, and they are not designed for installation by the general public. It is your responsibility to follow local country regulations, including operation within legal frequency channels, output power, and Dynamic Frequency Selection (DFS) requirements. You are responsible for keeping the devices working according to these rules.

(g) The Fluidmesh Firmware contains technological protection or other security features designed to prevent unauthorized use of the Fluidmesh Firmware, including features to protect against use of the Fluidmesh Firmware beyond the scope of the license granted herein, or in a manner prohibited herein. You agree that you shall not, and shall not attempt to, remove, disable, circumvent or otherwise create or implement any workaround to, any such copy protection or security features.

This license is not a sale. Title and copyrights to the Fluidmesh Firmware, and any copy made by you, remain with Fluidmesh and its suppliers. Unauthorized copying of the Fluidmesh Firmware or the accompanying documentation, or failure to comply with the above restrictions, will result in automatic termination of this license and will make other legal remedies available to Fluidmesh.

## 7.6. Open-source software

You hereby acknowledge that the Fluidmesh Firmware may contain Open Source Software. You agree to review any documentation that accompanies the Fluidmesh Firmware or is identified in the documentation for the Fluidmesh Firmware, in order to determine which portions of the Fluidmesh Firmware are Open Source Software and are licensed under an Open Source Software license. To the extent that any such license requires that Fluidmesh provide you with rights to copy, modify, distribute or otherwise use any Open Source Software that are inconsistent with the limited rights granted to you in this Agreement, then such rights in the applicable Open Source Software license shall take precedence over the rights and restrictions granted in this Agreement, but solely with respect to such Open Source Software. You acknowledge that the Open Source Software license is solely between you and the applicable licensor of the Open Source Software. You shall comply with the terms of all applicable Open Source Software licenses, if any. Copyrights to the Open Source Software are held by the copyright holders indicated in the copyright notices in the corresponding source files, or as disclosed at [www.fluidmesh.com](http://www.fluidmesh.com).

## 7.7. Termination

This license will continue until terminated. Unauthorized copying of the Fluidmesh Firmware or failure to comply with the above restrictions will result in automatic termination of this Agreement and will make other legal

remedies available to Fluidmesh. This license will also automatically terminate if you go into liquidation, suffer or make any winding-up petition, make an arrangement with your creditors, or suffer or file any similar action in any jurisdiction in consequence of debt.

Furthermore, Fluidmesh may immediately terminate this Agreement if (i) you fail to cure a breach of this Agreement (other than a breach pursuant to Fluidmesh intellectual property rights) within thirty (30) calendar days after its receipt of written notice regarding such breach, or (ii) you breach any Fluidmesh intellectual property right. Upon termination of this license for any reason, you agree to destroy all copies of the Fluidmesh Firmware. Any use of the Fluidmesh Firmware after termination is unlawful.

## 7.8. Feedback

You may provide suggestions, comments or other feedback ('Feedback') with respect to Fluidmesh Firmware, and Fluidmesh Devices. Feedback, even if designated as confidential by you, shall not impose any confidentiality obligations on Fluidmesh. You agree that Fluidmesh is free to use, disclose, reproduce, license or otherwise distribute and exploit any Feedback provided by you as Fluidmesh sees fit, entirely without obligation or restriction of any kind on account of intellectual property rights, or otherwise.

## 7.9. Consent to use of data

You acknowledge and agree that Fluidmesh may, directly or indirectly through the services of third parties, collect and store information regarding the use and performance of the Fluidmesh Firmware and Fluidmesh Devices, and about equipment through which it otherwise is accessed and used.

You further agree that Fluidmesh may use such information for any purpose related to any use of the Fluidmesh Firmware and Fluidmesh Devices by you, including, without limitation, improving the performance of the Fluidmesh Firmware or developing updates and verifying your compliance with the terms of this Agreement and enforcing Fluidmesh's rights, including all intellectual property rights in and to the Fluidmesh Firmware.

Fluidmesh shall have the right to collect and analyze data and other information relating to the provision, use and performance of various aspects of the Fluidmesh Firmware and Fluidmesh Devices and related systems and technologies ('Data'), and you give Fluidmesh the right to use and disclose such Data (during and after the term of this Agreement) in accordance with Fluidmesh's Privacy Policy. If you choose to allow diagnostic and usage collection, you agree that Fluidmesh and its subsidiaries and agents may collect, maintain, process and use diagnostic, technical, usage and related information, including but not limited to unique system or hardware identifiers, information about your

device, system and software, that is gathered periodically to provide and improve Fluidmesh's products and services, facilitate the provision of software updates, product support and other services to you (if any) related to Fluidmesh products, and to verify compliance with the terms of this license. Fluidmesh may use this information, as long as it is collected in a form that does not personally identify you, for the purposes described above.

To enable Fluidmesh's partners and third-party developers to improve their software, hardware and services designed for use with Fluidmesh products, Fluidmesh may also provide any such partner or third-party developer with a subset of diagnostic information that is relevant to that partner's or developer's software, hardware and/or services, as long as the diagnostic information is in a form that does not personally identify you.

## 7.10. Warranty disclaimer

Fluidmesh Firmware, including without limitation any open source software, any Fluidmesh Device, and any accompanying documentation are provided 'As is', and Fluidmesh and its suppliers make, and you receive, no warranties or conditions, whether express, implied, statutory or otherwise, or in any communication with you, and Fluidmesh and its suppliers specifically disclaim any implied warranty of merchantability, satisfactory quality, fitness for a particular purpose, or non-infringement and their equivalents.

Fluidmesh does not warrant that the operation of the Fluidmesh Firmware will be uninterrupted or error-free or that the Fluidmesh Firmware will meet your specific requirements. You acknowledge that Fluidmesh has no support or maintenance obligations for the Fluidmesh Firmware.

## 7.11. Limitation of liability

Except to the extent that liability may not by law be limited or excluded, in no event will Fluidmesh or its suppliers be liable for loss of, or corruption to data, lost profits or loss of contracts, cost of procurement of substitute products or other special, incidental, punitive, consequential or indirect damages arising from the supply or use of the Fluidmesh Firmware, howsoever caused and on any theory of liability (including without limitation negligence).

This limitation will apply even if Fluidmesh or an authorized distributor or authorized reseller has been advised of the possibility of such damages, and notwithstanding the failure of essential purpose of any limited remedy. In no event shall Fluidmesh's or its suppliers' or its resellers' liability exceed five hundred United States dollars (US\$ 500). You acknowledge that this provision reflects a reasonable allocation of risk.

## 7.12. Exclusion of liability for emergency services

Fluidmesh does not support, nor are the services intended to support or carry, emergency calls to any emergency services, including but not limited to 911 dialing.

Fluidmesh will not be held responsible for any liability or any losses, and you, on behalf of yourself and all persons using the services through the licensed products, hereby waive any and all such claims or causes of action for losses arising from, or relating to, any party's attempts to contact emergency service providers using the licensed products, including but not limited to calls to public safety answering points.

Fluidmesh will not be held liable for any losses, whether in contract, warranty, tort (including negligence), or any other form of liability, for any claim, damage, or loss, (and you hereby waive any and all such claims or causes of action), arising from or relating to your (i) inability to use the services to contact emergency services, or (ii) failure to make additional arrangements to access emergency services.

The parties expressly acknowledge and agree that Fluidmesh has set its prices and entered into this agreement in reliance upon the limitations of liability and disclaimers of warranties specified herein, which allocate the risk between Fluidmesh and the end user and form a basis of the bargain between the parties.

## 7.13. Export control

You acknowledge that the Fluidmesh Devices, Fluidmesh Firmware, documents, technical data, and any other materials delivered under this Agreement are subject to U.S. export control laws, and may also be subject to export or import regulations in other countries. You agree to comply strictly with these laws and regulations and acknowledge that you have the responsibility to obtain any licenses to export, re-export, or import as may be required after delivery to you. You shall not, directly or indirectly, export, re-export or release the Fluidmesh Devices and Fluidmesh Firmware, to, or make the Fluidmesh Devices and Fluidmesh Firmware accessible from any jurisdiction or country to which export, re-export or release is prohibited by law, rule or regulation. In particular, but without limitation, the Fluidmesh Devices and Fluidmesh Firmware may not be exported or re-exported (a) into any U.S. embargoed countries or (b) to anyone on the U.S. Treasury Department's list of Specially Designated Nationals or the U.S. Department of Commerce Denied Person's List or Entity List.

By using the Fluidmesh Devices and Fluidmesh Firmware, you represent and warrant that you are not located in any such country or on any such list. You acknowledge and agree that you shall strictly comply with all applicable laws, regulations and rules, and complete all required undertakings (including obtaining any necessary export license or other governmental approval), prior to operating the Fluidmesh Devices and

Fluidmesh Firmware, or exporting, re-exporting, releasing or otherwise making the Fluidmesh Devices and Fluidmesh Firmware available outside the U.S. You acknowledge and agree that Fluidmesh has no further responsibility after the initial delivery to you, and you hereby agree to indemnify and hold Fluidmesh harmless from and against all claim, loss, liability or damage suffered or incurred by Fluidmesh resulting from, or related to your failure to comply with all export or import regulations.

## 7.14. General

This Agreement shall not be governed by the 1980 U.N. Convention on Contracts for the International Sale of Goods. Rather, this Agreement shall be governed by the laws of the State of Illinois, including its Uniform Commercial Code, without reference to conflicts of laws principles. You agree to the exclusive jurisdiction and venue of the State and Federal courts in Illinois, United States.

This Agreement is the entire agreement between you and Fluidmesh, and supersedes any other communications or advertising with respect to the Fluidmesh Firmware and accompanying documentation. If any provision of this Agreement is held invalid or unenforceable, such provision shall be revised to the extent necessary to cure the invalidity or unenforceability, and the remainder of the Agreement shall continue in full force and effect.

This Agreement and all documents, notices, evidence, reports, opinions and other documents given or to be given under this Agreement (collectively with this Agreement, 'Documents') are and will be written in the English language only. In the event of any inconsistency between any Document in the English language and any translation of it into another language, the English-language Document shall prevail. If you are acquiring the Fluidmesh Firmware on behalf of any part of the U.S. Government, the following provisions apply: The Fluidmesh Firmware and accompanying documentation are deemed to be 'commercial computer software' and 'commercial computer software documentation' respectively, pursuant to DFAR Section 227.7202 and FAR 12.212(b), as applicable. Any use, modification, reproduction, release, performance, display or disclosure of the Fluidmesh Firmware and/or the accompanying documentation by the U.S. Government or any of its agencies shall be governed solely by the terms of this Agreement and shall be prohibited except to the extent expressly permitted by the terms of this Agreement. Any technical data provided that is not covered by the above provisions is deemed to be 'technical data-commercial items' pursuant to DFAR Section 227.7015(a). Any use, modification, reproduction, release, performance, display or disclosure of such technical data shall be governed by the terms of DFAR Section 227.7015(b).

Fluidmesh is a trademark of Cisco Systems in the United States and worldwide.

## 8. Contact us

**Worldwide Headquarters:**

Fluidmesh Networks LLC

81 Prospect Street

Brooklyn, New York 11201

United States of America

Tel. +1 (617) 209 -6080

Fax. +1 (866) 458-1522

[info@fluidmesh.com](mailto:info@fluidmesh.com)

Technical Support desk: [support@fluidmesh.com](mailto:support@fluidmesh.com)

[www.fluidmesh.com](http://www.fluidmesh.com)

**Regional headquarters for Europe, the Middle East and Africa:**

Tel. +39 02 0061 6189

**Regional headquarters for the United Kingdom:**

Tel. +44 2078 553 132

**Regional headquarters for France:**

Tel. +33 1 82 88 33 6

**Regional headquarters for Australia and New Zealand:**

Tel: +61 401 747 403