



Ciholas AN203

Users Manual

FCC ID: 2ALIR-AN203
IC:26788-AN203
MIC: 217-241422

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Table of Contents

Table of Contents.....	2
Introduction.....	3
Regulatory Information.....	4
United States (FCC) Regulatory Information.....	4
Canada (ISED) Regulatory Information.....	5
Japan (MIC) Regulatory Information.....	6
Usage Instructions.....	7
Overview.....	7
Placement.....	7
Additional Guidance for Use.....	7
Product Specifications.....	8

Introduction

The Ciholas AN203 is an Ethernet device that relies on ultra-wideband (UWB) pulses and time-stamp information to capture real-time location and sensor data. The AN203 can receive UWB pulses from objects of interest and transmit time-sync data in real time. The AN203 is positioned around an area in which tracking and data collection are desired. The AN203 are small and easily movable allowing for quick setup and tear-down before and after use. This makes the Ciholas AN203 an ideal solution for fast and accurate real-time tracking.

While the AN203 can be used in a variety of locations, this equipment must be operated indoors only. Operation outdoors is in violation of 47 U.S.C 301 and could subject the operator to serious legal penalties.

Regulatory Information

United States (FCC) Regulatory Information

FCC ID: 2ALIR-AN203

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, including interference that may cause undesired operation.

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 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.

Changes or modifications not expressly approved by Ciholas, Inc. can void your authority to operate this equipment under Federal Communications Commission rules.

Operation on board an aircraft, ship, or a satellite is prohibited. Devices operating under this section may not be employed for the operation of toys. Except for operation onboard a terrestrial transportation vehicle, the use of a fixed outdoor infrastructure is prohibited. A fixed infrastructure includes antennas mounted on outdoor structures, e.g., antennas mounted on the outside of a building or on a telephone pole.

Applicable rules: FCC 15.250

Canada (ISED) Regulatory Information

IC:26788-AN203

CAN ICES-3 (B)/NMB-3(B)

This device complies with Industry Canada's license-exempt RSSs. Operation is subject to the following two conditions:

- (1) This device may not cause interference; and
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- 1) l'appareil ne doit pas produire de brouillage;
- 2) l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Radiation Exposure Statement:

The device has been found to be compliant to the requirements set forth in CFR 47 Sections 2.1091 and Industry Canada RSS-102 for an uncontrolled environment. The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

Déclaration d'exposition aux radiations:

Le dispositif a été jugé conforme aux exigences énoncées dans les articles 47 CFR 2.1091 et Industrie Canada RSS-102 pour un environnement non contrôlé'. L'antenne(s) utilisée pour ce transmetteur doit être installée pour fournir une distance de séparation d'au moins 20 cm de toutes les personnes et ne doit pas être co-localisés ou fonctionner en conjonction avec une autre antenne ou transmetteur.

Applicable rules: RSS-220

Japan (MIC) Regulatory Information

AN203

MIC: 217-241422

警告: この装置は屋内でのみ操作できます。屋外での運用は総務省電波法の規制に違反し、運用者は重大な法的罰則を受ける可能性があります。

WARNING: This equipment may only be operated indoors. Operation outdoors is in violation of Japan MIC Radio Law regulations and could subject the operator to serious legal penalties.

BT/WIFI Module

MIC: 217-204070

当該機器には電波法に基づく、技術基準適合証明等を受けた特定無線設備を装着している。

This equipment contains specified radio equipment that has been certified to the Technical Regulation Conformity Certification under the Radio Law.

Usage Instructions

Overview

The AN203 receives real-time UWB beacons from tags attached to an object of interest. These beacons are used to calculate the real-time location. The AN203 is capable of receiving real-time data from UWB tags or interfacing with other AN203s placed around the tracking area in order to calculate real-time position and collect sensor data. The AN203 is a standard Ethernet device and is powered via Power over Ethernet (PoE).

Placement

The AN203 devices should be distributed throughout the desired tracking area. To achieve a higher precision of position tracking within an area, a higher density of AN203s can be used.

The AN203 can be mounted indoors via tripods or a mechanical mounting ring for ceiling mounting.

Additional Guidance for Use

Anchors must be powered via standard compliant PoE switch via Ethernet cable. A PC or server must be running CUWB RTLS software.

Once plugged in the AN203 will attempt to gather network parameters using the DHCP protocol. If successful, it will announce its presence to the CUWB network server on the subnet provided by DHCP. If the AN203 fails to connect to the DHCP server, it will fall back on auto-IP parameters and announce its presence using those parameters.

Please contact Ciholas for additional placement guidance based on application and for the CUWB RTLS software.

Product Specifications

Main System Components

Micro-controller: STM32H745XIH6
RF Transceiver 1: Decawave DW1000 Ultra Wideband (UWB) IEEE802.15.4-2011
RF Transceiver 2: Qorvo QM33110W Ultra Wideband (UWB) IEEE802.15.4-2011
Wifi / BLE Module: Espressif ESP32 BLE/WIFI Module
FCC: 2AC7Z-ESP32WROOM32E
IC: 21098-ESPWROOM32E
MIC: 217-204070
I/O: 3 port 10/100Mbps Ethernet Switch
Indicators: 2 Tri-Color LEDs (Red, Green, Blue)
Power: 5-60V DC, supports chainable Powered Ethernet (CPE)
Operating Voltage: 3.3V nom.
Temperature Range: -40 - 85C

Mechanical

Width: 150.8 mm
Depth: 150.8 mm
Height: 162.3 mm
Weight: 414 g