

User Manual 303310v03

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1 Introduction

The Trimble Comm Board Hurricane is an 802.11a/b/g/n/ac Wi-Fi and Bluetooth module that acts as an AP for use with a long-range wireless scanner. The core chipset is a Qualcomm QCA9378-7 and a Qualcomm CSR8811.

1.1 Structure of this document

The structure of this document is as follows:

- Section 2 describes the devices key features
- Section 3 describes the antenna requirements
- Section 0 describes the connector interface
- Section 5 details the board configuration to use
- Section 6 provides FCC, IC and ETSI compliance information
- Section 7 details the document change log

2 Key features

This section describes the key features of the Trimble Comm board Hurricane device.

Key Features	
Manufacturer	Trimble Navigation Limited
Chipset	Qualcomm-Atheros QCA9378-7, Qualcomm CSR8811
Host Interface	USB 2.0
Operating Voltage	5 V
Supported Radios	2.4 GHz and 5 GHz WLAN, Bluetooth
Features	Supports Spatial Multiplexing, LDPC, MRC, and STBC, Transmit Beam Forming
Dimensions	95 mm x 45 mm x 4 mm

Table 1 - Device features

3 Antenna

This section describes the antenna requirements for both WLAN and Bluetooth for the Trimble Comm Board Hurricane device. There are two approved antenna, described in Table 2 and Table 3.

Antenna 1 Requirements	
Type	Pulse/Larsen W5029RPG
Connector	2 x u.FL Antenna connector
Antenna Gain	2.4 GHz – 3.3 dBi 5 GHz – 6 dBi
Antenna Diversity	2 x 2 : 2 for both 2.4 GHz and 5 GHz

Table 2 - Antenna 1 requirements



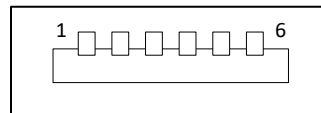
Antenna 2 Requirements	
Type	Data-Alliance ADD35RA
Connector	2 x u.FL Antenna connector
Antenna Gain	2.4 GHz – 3 dBi 5 GHz – 5 dBi
Antenna Diversity	2 x 2 : 2 for both 2.4 GHz and 5 GHz

Table 3 - Antenna 2 requirements

4 Connector Interface

The connector interface for the Trimble Comm Board Hurricane is a female 6 pin FFC connector (top contact). The host interface is USB 2.0. Figure 1 shows the connector pinout.

6 Pin FFC Connector



Pin	Signal
1	5V
2	GND
3	5V
4	GND
5	USB D+
6	USB D-
SH	GND

Figure 1 - 6 pin FFC Connector pinout

5 Board Configuration

A board configuration file is supplied for each regulatory domain the module is certified for. One for FCC/ISED and one for ETSI. Board configuration files **must not** be altered as they control radio-specific parameters which have been tested against the respective regulatory domains.

The module integrator must ensure the correct configuration file is used by providing a region-locked controller with any product integrating the Trimble Comm Board Hurricane module. This controller must provide a region code to the host system without user intervention and must not allow the user to change the region code. The host system will use this region code to load the correct board configuration file.

Board configuration file	Certified region
fakeboar_fcc_0.0.0.1005.bin	FCC, ISED
fakeboar_etsi_0.0.0.1005.bin	ETSI

6 Compliance Information

6.1 FCC/IC Compliance Statement

This device complies with Part 15 of the FCC Rules and with Industry Canada license-exempt RSS standard(s). 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.

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, et
- (2) l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

6.2 FCC Caution

- (1) Exposure to Radio Frequency Radiation. This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must not be collocated or operating in conjunction with any other antenna or transmitter. End-users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.
- (2) Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.
- (3) This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
- (4) Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

6.3 RF exposure warning

This equipment complies with Canada radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Cet équipement est conforme Canada limites d'exposition aux radiations dans un environnement non contrôlé. Cet équipement doit être installé et utilisé à distance minimum de 20cm entre le radiateur et votre corps.

6.4 User Information

Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.



This radio transmitter Trimble Comm Board Hurricane module has been approved by FCC to operate with the Pulse/Larsen W5029RPG antenna, or the Data-Alliance ADD35RA antenna, with the maximum permissible gain of 3.3 dBi in the 2.4 GHz band, and 6 dBi in the 5 GHz bands. Use of an antenna having a gain greater than the maximum gain specified, are strictly prohibited for use with this device and will void the user's authority to operate the equipment.

The module integrator may only include this module in a product designed for outdoor use if they prevent operation on channels 36 to 48 when operating within the Canadian regulatory domain. Allowing use of these channels outdoors within Canada will void the authority to operate the equipment.

The module integrator may only include this module in a product if they prevent operation on channels 120, 124 and 128 on 20 MHz and 118 and 126 on 40 MHz when operating within the Canadian regulatory domain. Allowing use of these channels within Canada will void the authority to operate the equipment.

The host product incorporating this radio module shall be labelled as follows to be in compliance with FCC/IC regulations:

- "Contains FCC ID: YK5-73350046"/ "Contains IC ID: 9288A-73350046"
- "This device may not cause harmful interference and must accept any interference received, including interference that may cause undesired operation" - This statement can be in the user manual of the final product in case it is impracticable to place it on the label.

6.5 ETSI Adaptivity Declarations of Conformance

The Trimble Comm Board Hurricane is an LBE device with the following declarations:

- Operates as a Supervising Device that does not make use of note 1 or note 2 of Table 7 EN 301 893 clause 4.2.7.3.2.4.
 - The maximum Channel Occupancy Time (COT) is within 6 ms for Priority class 2.
 - The maximum Channel Occupancy Time (COT) is within 6 ms for Priority class 1.
- Operates as both an Initiating Device and a Responding Device.
- Implements all 4 Priority Classes: 1, 2, 3, and 4
- Conforms to Option 1 of Energy Detection Threshold as described in EN 301 893 clause 4.2.7.3.2.5.
 - Conforms only to IEEE 802.11 2016 clause 17, clause 18, and clause 21.
 - Complies with the Initiating Device Channel Access Mechanism requirements contained in EN 301 893 clause 4.2.7.3.2.6.
 - Complies with the Responding Device Channel Access Mechanism requirements contained in EN 301 893 clause 4.2.7.3.2.7

7 Document Changes

7.1 User Manual 303310v01

- Initial release



7.2 User Manual 303310v02

- Amended sections 6.3 and 6.4 to meet ISED requirements
 - ISED ID
 - Safety distance

7.3 User Manual 303310v03

- Replaced letterhead from Trimble Jena to Trimble Europe
- Amended section 6.3 to include French translation

7.4 User Manual 303310v04

- Added Data-Alliance antenna as approved antenna

7.5 User Manual 303310v05

- Corrected gain for Pulse-Larsen antenna to the maximum rated gain as per datasheet, and updated user information section accordingly

