



# **SkydioLink Dual Band Module User Manual**

# Table of Contents

<b>Table of Contents</b>	<b>2</b>
<b>Overview</b>	<b>3</b>
<b>Module Integration</b>	<b>3</b>
<b>Usage Guidelines</b>	<b>6</b>
<b>Mechanical Requirements</b>	<b>6</b>
<b>Compliance Information</b>	<b>7</b>
<b>Appendix A - Connecting Device to Access Point,</b>	<b>8</b>

## Overview

This document provides integration, installation and usage instructions for the SkydioLink Dual Band module.

## Module Integration

### Pinout & power requirements

All module power and control signals are passed from the end device to the module over J9800, following the below pinout:

Pin Number	Purpose
1, 3, 5, 7	Power in for RF front end modules
2, 4, 6, 8	Power In for Switcher & QCA617A
9	Unused GPIO
10	Power Supply for QCA6174A
21	Unused GPIO
25	Unused GPIO
27	SDIO Data (0) from Host to WiFi
29	SDIO Data (1) from Host to WiFi
31	SDIO Command from Host to WiFi
32	SDIO Data (2) from Host to WiFi
33	WiFi enable signal from Host
34	SDIO Data (3) from Host to WiFi
35	test point
36	SDIO Clock from Host to WiFi
11 - 20, 23, 23, 26, 28, 30, 37 - 40	Ground

## Boot Sequence

When first turning on the module, the below power on sequence must be used to ensure that the module will operate correctly:

Symbol	Parameter	Min	Max	Units
t <sub>a1</sub>	No requirement if VDD_IO_3V3 connect to PP3V3_WIFI	-	-	us
t <sub>a2</sub>	90% of 'PP3V3_WIFI' to 10% of 'PP1V8_WIFI'	1	-	us
t <sub>a3</sub>	90% of 'PP1V8_WIFI' to WLAN_EN input active (high)	10	-	us
t <sub>a4</sub>	WLAN_EN valid to '32KHz Clock' input	0	-	us
t <sub>a5</sub>	Chip internal timing - WLAN_EN valid to VDD11AO_PM_OUT established	-	50	us
t <sub>a6</sub>	Chip internal timing - WLAN_EN to DVDD_1V1	-	3.5	ms
t <sub>a7</sub>	Chip internal timing - WLAN_EN to AVDD_1V1	-	4	ms
t <sub>a8</sub>	Chip internal timing - AVDD_1V1 to XTAL clock stable	1	-	ms
t <sub>a9</sub>	WLAN_EN de-assert ('LOW') to 32KHz_CLK_IN de-assert (Tri-state or Low)	0	-	us
t <sub>a10</sub>	WLAN_EN de-assert to 'PP1V8_WIFI'	10	-	us
t <sub>a11</sub>	10% of 'PP1V8_WIFI' to PP3V3_WIFI that PP3V3_WIFI should be higher than 1.62v	0	-	us
t <sub>a12</sub>	No requirement if VDD_IO_3V3 connect to PP3V3_WIFI	-	-	us

## Module Mechanical Integration

The SkydioLink Dual Band module snaps into place using the two board to board connectors (Hirose DF30FC-40DP-0.4V) on the lower side of the module.

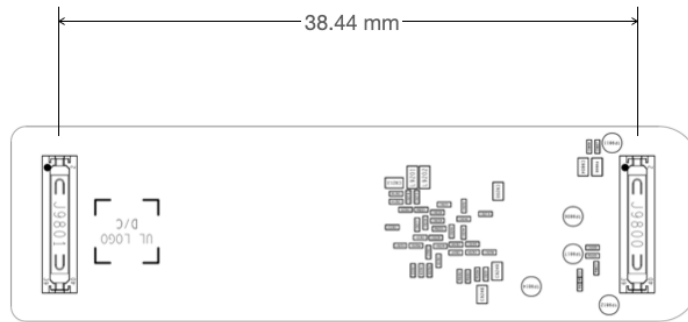


When installing the module, it is important to ensure that the technician using ESD protection

On the end device, the spacing and board to board MPN must match the module side specifications:

**Mating board to board type:** DF30FC-40DS-0.4V

**Mating Board to board spacing:** 38.44mm



## Antenna Connectors

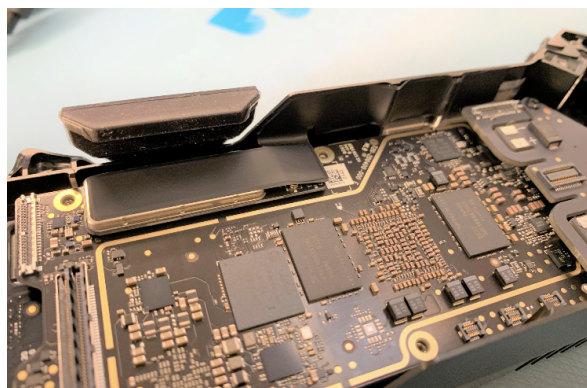
The radio module uses two I-PEX u.FL connectors (20441-001E-01) to connect external antennas to the module. The connectors are snapped in place, and do not require any external pressure or screws.

On the antenna cable, the mating connector is an I-PEX 20351-1 series (or equivalent) connector. Antenna types and gains must follow the FCC / IC regulatory filings submitted by Skydio.

## Thermal Management

In order to prevent overheating when operating at high power levels, it is important to move heat out of the module. It is recommended to heat sink via the shield can on the top of the module, which has a direct thermal interface to the radio & front end module components that generate the most heat.

An example of this is shown below on the Skydio X2 UAV, using a graphite strap to move heat from the module to the UAV chassis.



## Usage Guidelines

Power & frequency settings are not advised to be exposed to the user, and should be set at the factory to ensure that the module is correctly configured relative to the regulatory filings submitted by Skydio.

### Host Device Requirements

This module should only be used in pre-approved Skydio host devices. Any additional host devices must go through an approval process completed by Skydio.

This module should only be used in pre-approved antennas. Any additional host devices must go through an approval process completed by Skydio.

The host product needs to provide a physical or e-label per FCC KDB 784748. All standalone modules without an integrated display on the module must be labeled with the module's FCC ID. Only modules with a display can use e-labeling (see also KDB Publication 784748 D02). A host product shall use a physical label stating "Contains Transmitter Module FCC ID: 2ATQRSMODBV1," or shall use e-labeling.

When integrating the module into a host device, the separation distance between the user and the host device must be >20cm. If the separation distance is less than 20cm, additional testing must be performed to ensure compliance for RF exposure.

Skydio has approved use of the below host devices with their respective antennas for this radio module:

Skydio Enterprise Controller (C78)	Skydio X2 UAV (R21)	Skydio Dock (G27)	Skydio 2+ (R35)
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### Regional Settings

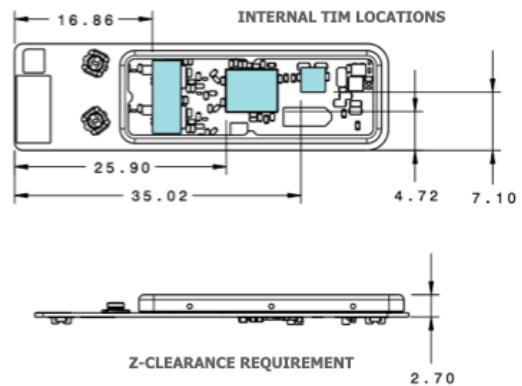
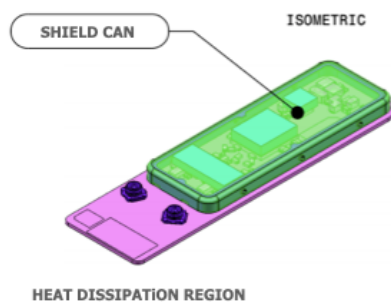
All power levels & frequency bands must follow regional restrictions. Two methods can be used to ensure that these are followed:

1. During a factory installation, set the power tables based on the intended country of sale for the specific end device SKU

2. Use GPS data from the host device to select a specific power table to be referenced. This is recommended for devices that are portable.

Note that the end device ultimately controls power levels, frequency band and other radio settings and it is up to the end device manufacturer to ensure compliance with existing filings for this module.

## Mechanical Requirements



# Compliance Information

## FCC

Any changes or modifications to this equipment not expressly approved by Skydio for compliance will void the user's authorization to operate this equipment.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. The distance between user and products should be no less than 20cm. The end user must follow the specific operating instruction for satisfying RF exposure compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

## IC

The installer of this radio equipment must ensure that the antenna is located or pointed such that it does not emit RF field in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Health Canada's website [www.hc-sc.gc.ca/rpb](http://www.hc-sc.gc.ca/rpb)

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions:

- This device may not cause interference.
- This device must accept any interference, including interference that may cause undesired operation of the device.



L'installateur de cet équipement radio doit s'assurer que l'antenne est située ou pointée de manière à ne pas émettre de champ RF au-delà des limites données par Santé Canada pour la population générale; consultez le Code de sécurité 6, disponible sur le site Web de Santé Canada [www.hc-sc.gc.ca/rpb](http://www.hc-sc.gc.ca/rpb).

L'émetteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

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