SkydioLink Gen 3 Dual Band Module Integrator Requirements

Version 1.1 (2025/1/6)

History

Version 1.0 (2024/11/20) Initial Draft for FCC PAG Review

Version 1.1 (2025/1/6) Amended Pages 4, 6, 7 per FCC feedback (Single Module, LMA conditions and Installation details)

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Overview

This document provides integration, installation and usage instructions for the SkydioLink Gen 3 Dual Band module.

Module Integration Responsibility

This module is only available for integration by Skydio into host products. This module is not sold to any 3rd parties. Skydio maintains control of host integration and verification of compliance with the guidelines, limitations and conditions contained in this document. This applies to every current and future host system using this module.

Module Integration Requirements

Pinout & power requirements

All module power and control signals are passed from the end device to the module over the J3000 connector as indicated on the module schematic.

Module Mechanical Integration

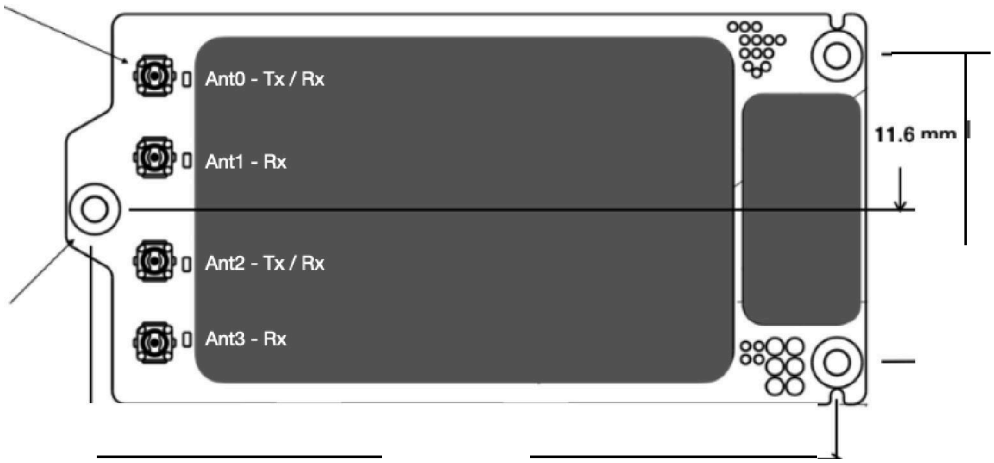
The SkydioLink Gen 3 Dual Band module snaps into place using the two board to board connectors (Hirose FX12B-60P-0.4SV) on the lower side of the module.

When installing the module, use ESD protection.

In the host device, the board to board connector manufacturer part number must match the module side specification: **Mating board to board type:** FX12B-60S-0.

Antenna Connectors

The radio module uses four I-PEX u.FL connectors (20279-001E-03) 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 20278-112R series connector. Antenna types and gains must follow the FCC / IC regulatory filings submitted by Skydio.

Antenna Type and Gain

The FCC modular certification allows use of the following antenna types with maximum and minimum gain as follows:

	Antenna type	2.4GHz band Peak Gain (dBi)	5.2GHz band Peak Gain (dBi)	5.3GHz band Peak Gain (dBi)	5.5GHz band Peak Gain (dBi)	5.8GHz band Peak Gain (dBi)
Low Gain Antenna	Dipole	Ant. 0: 1.91 Ant. 2: 1.9	Ant. 0: 1.35 Ant. 2: 1.33	Ant. 0: 1.9 Ant. 2: 2.1	Ant. 0: 1.33 Ant. 2: 1.37	Ant. 0: 1.4 Ant. 2: 1.35
High Gain Antenna	Dipole	Ant. 0: 4.57 Ant. 2: 4.62	Ant. 0: 7.47 Ant. 2: 5.84	Ant. 0: 7.76 Ant. 2: 6.46	Ant. 0: 6.84 Ant. 2: 5.42	Ant. 0: 7.33 Ant. 2: 6.03

Skydio engineering is responsible to perform additional Part 15 intentional radiation evaluation for any new antenna(s) to be used in host products with different type or with higher or lower gain in any subband than indicated in the above table.

Skydio engineering reviews all ECO's and product kits to ensure all antennas integrated and sold by Skydio have been evaluated to FCC Part 15 requirements.

Host Installation Limitations

(1) Internal and externally mounted antennas will be integrated such that 20 cm is maintained between the antenna and end users.

(2) The transmitter module will not be co-located with other transmitters or antennas.

Host systems that do not meet the above conditions undergo additional FCC Part 15 RF Exposure and intentional radiation testing per applicable FCC rule parts to ensure host-level compliance. Separate FCC permissive change and or new authorization filings are obtained per FCC requirements.

Single Modular Transmitter

The module will be integrated in Host systems that utilize integrated antennas. In this case, the module meets FCC 15.212(a)(1)(i) through (vii) requirements as a *Single Modular Transmitter.*

Limited Single-Modular Transmitter

The module will also be integrated in Host systems that utilize antennas that are externally connectorized using N-Type connector. In this case, the module is considered a *Limited Modular Transmitter (LMA)* since the module itself does not ensure compliance with 15.212(a)(1)(iv). The following additional steps are performed for the end-system to meet FCC Part 15.203 antenna requirements.

Skydio installers are responsible for installation of host products that include externally connectorized antennas with N-Type connectors.
The following steps are taken to ensure that only authorized antennas provided by Skydio will be used with the host product.

For host products that use an N-type connector

The Skydio installer will:

(1) Perform a site evaluation to determine an acceptable location of the host device that meets operational requirements.

(2) Install/connect a certified antenna sold by Skydio. The current list of certified antennas is included below. This list will be updated with new antenna models after they are authorized.

(3) Determine if the host device and its externally connected antennas can be installed in a location that is *inaccessible* to the end user/operator.

Inaccessible locations include:
- Above ground on a utility pole or antenna tower
- On a rooftop, in a locked utility room or other location where access is restricted.

(4) For installations that are *accessible* to end users, the Skydio installer will permanently affix the antenna by applying Loctite type 270 High Strength Thread Locker to the threads of the N-Type connectors on the host device.

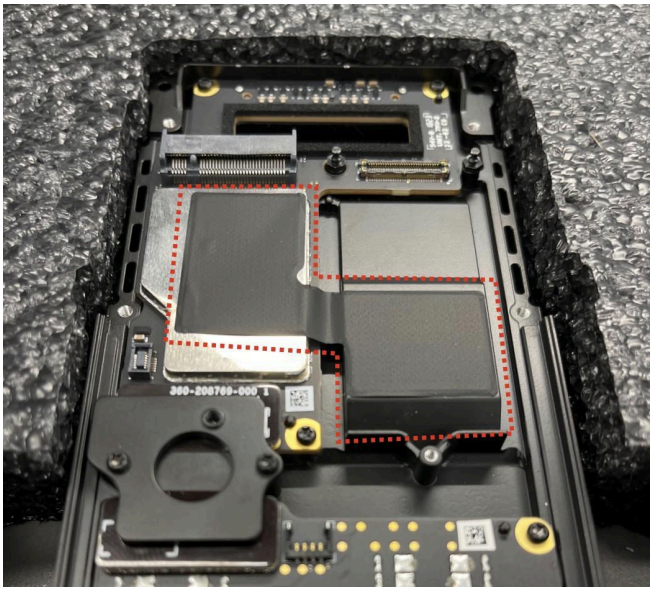
Certified Antennas for use with this module using N-type connector:

- Poynting Omni 705 Omnidirectional Wi-Fi Antenna, POYNTING Antennas (Pty) Ltd (Antenna provided and installed by Skydio Only)

Thermal Management

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

An example of this is shown below, using a graphite strap to move heat from the module.



Software Control

Power & frequency settings are not exposed to the end-user and are fixed at the factory to ensure the module is configured to the allowed channels and target transmit powers required for FCC Part 15 compliance. No controls or user interface is available to end-users to change or disable software features required for Part 15 compliance. Software is strictly controlled by Skydio. No third parties are enabled nor able to modify or replace the software for the radio.

Compliance Information

The following regulatory information will be included in the host devices' user documentation:

FCC

Any changes or modifications to this equipment not expressly approved by Skydio 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 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.

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.

This module is only FCC authorized for the rule parts Part 15.247 and 15.407 listed on the grant. The OEM integrator is responsible for additional system-level EMI/EMC and product safety testing and certification that applies in the U.S. and other countries to the host system containing the Module. This includes, but is not limited to, FCC Part 15 Class B Digital Emissions, ISED Interference-Causing Equipment Standards, and others. These system-level EMC tests are done with the Module installed and included in the scope of the submission

Canada (ISED)

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 Heath Canada's website 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.

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.

Labelling

Skydio engineering will ensure the following labels appear on the certified module and all host systems:

Module Label:

FCCID: 2ATQRSMODBV3 ISED: 25280-SMODBV3

Host Label Visible to End-Users:

Contains FCCID: 2ATQRSMODBV3 and ISED: 25280-SMODBV3