

DBWIFIBLE01 Module

Integration Guide

DYSON CONFIDENTIAL INFORMATION

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1. Purpose

The purpose of this document is to provide information on how to install the DBWIFIBLE01 module into Dyson products.

The DBWIFIBLE01 module is only intended for integration into end host products by authorised Dyson personnel. Incorrect integration or use may infringe compliance rules meaning recertification may be required.

2. Module Overview

The Dyson DBWIFIBLE01 module is a standalone PCBA designed to provide WLAN and BLE connectivity in a number of Dyson products. It supports dual-band 1 × 1 IEEE802.11a/b/g/n WLAN and BLE operation. It is based on a reference design from Qualcomm based on their QCA4020 Dual Band Wi-Fi + Bluetooth Chipset.

From this point forward in the document the DBWIFIBLE01 module will simply be referred to as the 'module'.

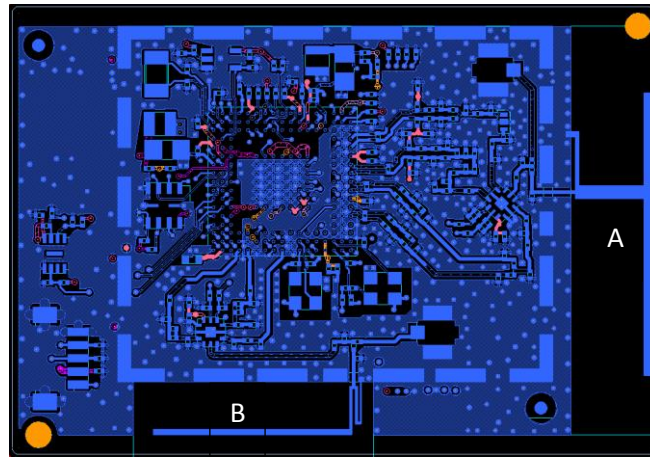
The module incorporates the QCA4020 chipset, external Flash, RF front end and an integrated PCB solution for each of the three frequency bands supported. The design is realised on a single PCB with all RF and clock devices screened by a metal shielding can. The Module requires a 3.3V input power supply.



Figure 1: Photos of Module – Top Cover on: Top Cover Off: Bottom

2.1. Antenna(s)

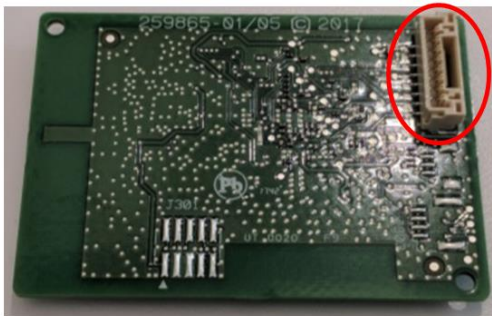
The module has two distinct antennas. Both antennas are printed on the PCB carrier board. The 4 layer PCB substrate is FR4 with a nominal Er of 4.2. The antenna are realised on the top (layer1) and bottom (layer4) of the PCB.



- Antenna **A** is a Dual Band WLAN antenna covering the 2400MHz to 2483.5MHz Band and the 5.170 to 5.835MHz band.
- Antenna **B** is a BLE antenna covering the 2400MHz to 2483.5MHz Band.

3. Integration Into Host Products

Module System Controller Connector

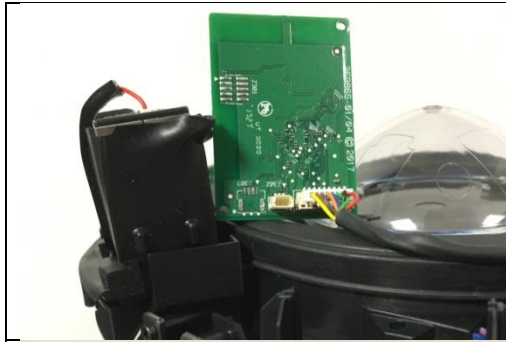


1. Modules are supplied with a connector that is used to connect to the host product system controller interface. The host system controller will be design to operate the module and set the respective RF parameters.

Host Product Connector/Cable to Module



2. The host product must be designed to provide connection two the module.



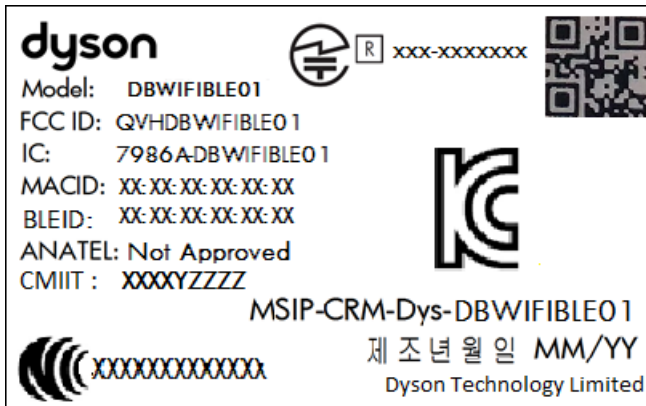
3. The host product system controller cable is inserted in to the module connector.



4. The host product must be designed to securely hold the module in place. In this example a vertical slotted stand is used.

Once the module is securely in place final of the host product can be completed.

4. Module Label



5. Host Product Labelling

A label is to be fitted to the exterior of all products containing the DBWIFIBLE01 module. The label must contain the words "Contains FCC ID: QVHDBWIFIBLE01" (for FCC) and "Contains IC: 7986A-DBWIFIBLE01"

6. Compliance Statements

6.1. FCC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- 1) The device may not cause harmful interference, and
- 2) The device Module must accept any interference received, including interference that may cause undesired operation.

This device complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. The antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm for mobile applications and 10 cm for portable applications from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

Important 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.

This transmitter must not be co-located or operating in conjunction with any other antennas or transmitters.

It is the responsibility of the host device manufacturer to ensure continued compliance with FCC rule part 15B once the module has been installed in the host device.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

The concerned end product must be labelled to say: "Contains FCC ID: DBWIFIBLE01"

6.2. ISED

6.2.1. English

This device complies with Innovation, Science and Economic Development Canada (**ISED**) licence-exempt RSS standard(s). Operation is subject to the following two conditions:

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

Important note: To comply with Industry Canada RF exposure limits, the antenna used for this device must be installed to provide a separation distance of at least 20cm from all persons.

RF exposure is in accordance with RSS-102, section 2.5.2.

The concerned end product must be labelled to say: "Contains IC: 7986A-WIFIAMFA001"

6.2.2. French

Cet équipement est conforme aux normes d'exemption de licence RSS Innovation, Sciences et Développement économique Canada. Son utilisation est soumise aux deux conditions suivantes:

- 1) Le dispositif ne doit pas provoquer d'interférence, et
- 2) Le dispositif doit accepter toute interférence, y compris des interférences susceptibles de provoquer un fonctionnement indésirable de l'équipement.

Remarque importante: Pour respecter les limites d'exposition aux radiofréquences Innovation, Sciences et Développement économique Canada, l'antenne utilisée pour cet appareil doit être installée pour fournir une distance de séparation d'au moins 20 cm de toutes les personnes.

L'exposition aux RF est conforme à la norme RSS-102, section 2.5.2.

Le produit final concerné doit porter une étiquette avec la mention: "Contient IC: 7986A-DBWIFIBLE01"