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# DWHP83 Module:

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## 1. Product Description

The DWHP83 Module is an OEM module (20x40mm) an uncompressed wireless digital audio transceiver operating in the 5.8GHz bands.

The wireless audio link supports up to 4 stereo audio streams and comes together with additional features such as: data encryption, pairing functionality, bi-directional control data messages, low power audio snooze mode, WLAN detection, Automatic Frequency Allocation.

The DWHP83 chip itself provides the basic functions of Audio Processing and buffering, Data Link Layer and Physical Layer. The module integrates all functionality for a wireless digital audio connection, comprising:

- DWHP83Wireless Audio Processor
  - 5.8 GHz RF Transceiver
  - Embedded Antennas
  - Digital audio interfaces (I<sup>2</sup>S and/or S/PDIF)
  - I<sup>2</sup>C control interface
  - 26 pins header connector for power, digital audio and control interface and GPIOs
  - Built-in 1MB SPI interface Flash
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## 2. Description of operation

### 2.1. Operating Conditions

Symbol	Parameter	Min.	Typ	Max	Unit
VCC	Supply Voltage	-	3.3	-	V
Tamb	Operating Temperature	-10	25	60	°C

Note: Regulated 3.3V power from FFC Interface

### 2.2. RF Information

Parameter	Value	Unit
RF Frequency range	5725 - 5875	MHz

Note: Country/ Region dependent

### 2.3. Receive mode

In receive mode, antenna diversity is supported. The single ended output of the TR switch is connected to the RF LNA input through a matching network. Filtering and amplification is all performed by the radio transceiver. The gain setting is controlled by the BB. The analog IQ outputs are sampled by the BB by its integrated 22Msps dual channel 8bit ADC. This received data is demodulated and fed to the audio processing engine controlling the audio function.

### 2.4. Transmit mode

In transmit mode, the audio engine transforms the audio data into packetized digital IQ signals. These are in turn pulse-shaped before conversion by a 10bits 44Msps DAC to match to the analog IQ inputs of the radio IC. The radio IC has programmable baseband filters to lower the RF spectrum side lobes and to suppress the DAC image and the DAC spurious. The output power is programmable. A power detector (PD\_out) on the radio IC enables close-loop TX power control. The differential RF PA outputs are connected via a balun and low pass filter to a transmit/receive switch with TX diversity option to the antenna outputs.

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### 3. Regulatory Statements for DWHP83

#### **USA-Federal Communications Commission (FCC)**

This equipment 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 has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of 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. If not installed and used in accordance with the instructions, it 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 tuning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the distance between the equipment and the receiver.
- Connect the equipment to outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

#### **Caution: Exposure to Radio Frequency Radiation.**

To comply with FCC RF exposure compliance requirements, for mobile configurations, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons. This device must not be co-located or operating in conjunction with any other antenna or transmitter.

Host product must be labeled with "**Contains FCC ID: BOU-DWHP83**".

#### **Canada – Industry Canada (IC)**

This Device complies with RSS-210 of the IC Rules; Operation is subject to the following two conditions:

- (1). This device may not cause 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'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

#### **Caution - Exposure 部分 :**

The device meets the exemption from the routine evaluation limits in section 2.5 of RSS102 and users can obtain Canadian information on RF exposure and compliance.

Le dispositif répond à l'exemption des limites d'évaluation de routine dans la section 2.5 de RSS102 et les utilisateurs peuvent obtenir des renseignements canadiens sur l'exposition aux RF et le respect.

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This equipment should be installed and operated with a minimum distance of 50 centimeters between the radiator and your body.  
Cet équipement doit être installé et utilisé avec une distance minimale de 50 centimètres entre le radiateur et votre corps.

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**Korea**

Include the following statement either on the label or in the User Guide.

“해당 무선설비는 전파혼신 가능성이 있으므로 인명안전과 관련된 서비스는 할 수 없음”

(Translation: the service related to human safety is not allowed because this device may have the possibility of the radio interference.)

This device has been designed to operate with the antenna listed below, and having a peak gain of **3.2dBi @ 5.8 GHz**. Antennas not of the same type and having a higher gain specified above are strictly prohibited for use with this device. The required antenna impedance is 50 ohms.

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- Model: DWHP83.Brand:SMSC. Antenna Type:Printed
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**IMPORTANT NOTE:**

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and FCC ID cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

**Manual Information to the End User**

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user manual of the end product which integrates this module. The end user manual shall include all required regulatory information/ warning as shown in this manual (for illustration purpose only).

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