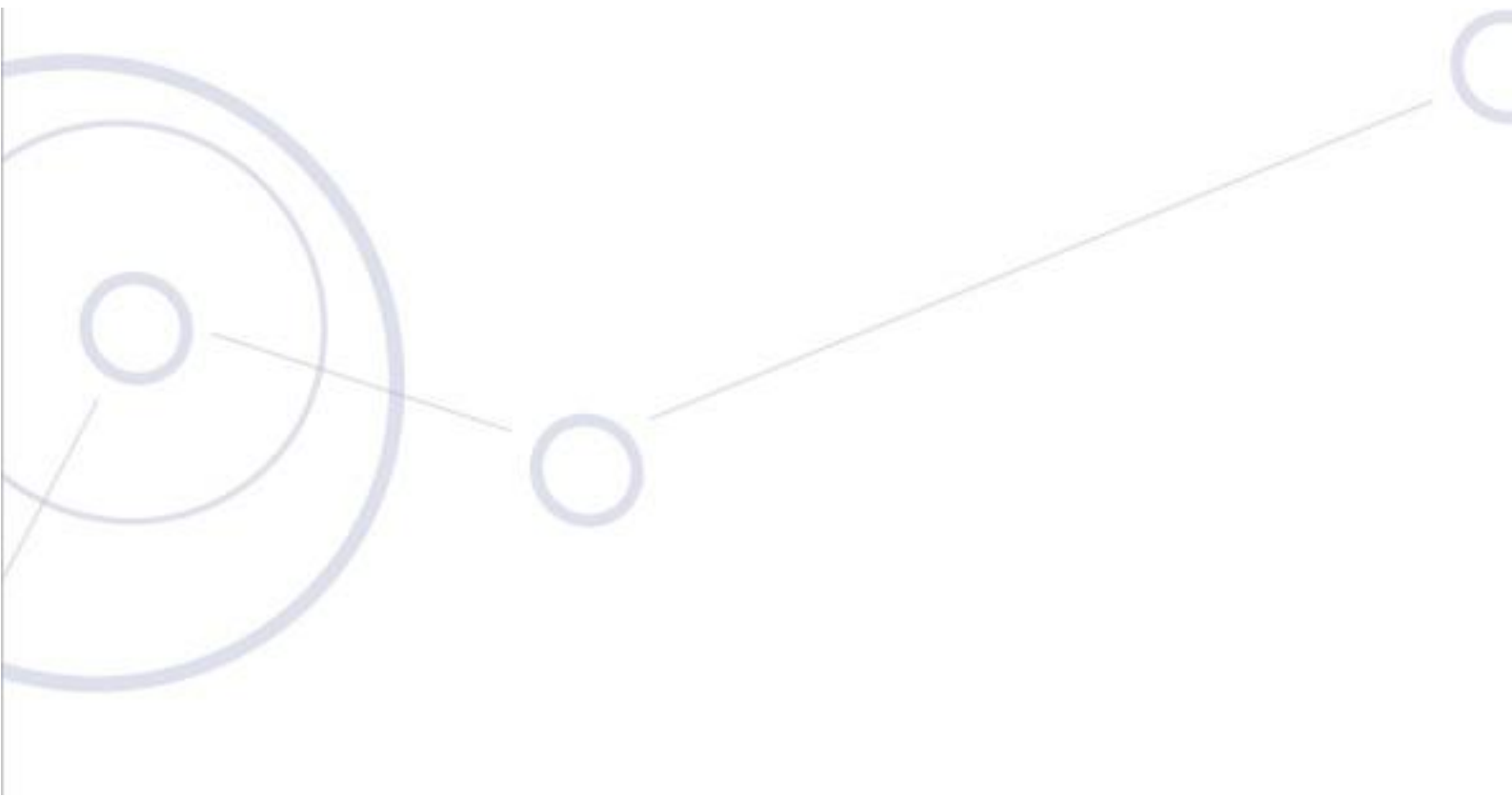


RADWIN

AP0127730, AP0134760

RF Module Operating in the 4.9-5.8 GHz bands

REFERENCE GUIDE



Regulatory Compliance

FCC/IC - Compliance

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 and IC RSS standards. 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 or more 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.

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



Warning

It is the responsibility of the installer to ensure that when using the outdoor antenna kits, only those antennas certified with the product are used. The use of any antenna other than those certified with the product is expressly forbidden by FCC 47 CFR Part 15.204 and IC RSS standards.



Avertissement

Il est de la responsabilité de l'installateur de s'assurer que lorsque vous utilisez les kits d'antennes extérieures, seules les antennes certifiées avec le produit sont utilisés. L'utilisation d'une antenne autre que ceux qui sont certifiées avec le produit est expressément interdite par la réglementation FCC partie 47 CFR 15.204 et IC normes RSS.



Caution

Outdoor units and antennas should be installed ONLY by experienced installation professionals who are familiar with local building and safety codes and, wherever applicable, are licensed by the appropriate government regulatory authorities. Failure to do so may void the product warranty and may expose the end user or the service provider to legal and financial liabilities. Resellers or distributors of this equipment are not liable for injury, damage or violation of regulations associated with the installation of outdoor units or antennas. The installer should configure the output power level of antennas according to country regulations and antenna type.



Prudence

Les unités extérieures et les antennes doivent être installés que par des professionnels expérimentés d'installation qui sont familiers avec les normes locales et les codes de sécurité et, si applicable, sont agréées par les autorités gouvernementales de réglementation compétents. Ne pas le faire peut annuler la garantie du produit et peuvent exposer l'utilisateur final ou le fournisseur de services d'obligations juridiques et financiers. Revendeurs ou distributeurs de ces équipements ne sont pas responsables des blessures, des dommages ou violation des règlements liés à l'installation des unités extérieures ou des antennes. L'installateur doit configurer le niveau de puissance de sortie des antennes conformément aux réglementations nationales et le type d'antenne.



Warning

This equipment should be installed and operated with a minimum distance of 354cm between the radiator and your body.



Avertissement

Cet équipement doit être installé et utilisé à une distance minimale de 354cm entre le radiateur et votre corps.



Warning

The module is granted to operate under FCC certification in the 4.9 GHz, 5.2 / 5.3 / 5.4 / 5.8 GHz bands.



Warning

Devices subject to RSS-247 issue 1 shall not be capable of transmitting in the band 5600-5650 MHz.

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.
- (2) This device must accept any interference received, including interference that may cause undesired operation.

Cet appareil est conforme la norme d'Industrie Canada exempts de licence RSS (s). Son fonctionnement est soumis aux deux conditions suivantes:

1. Cet appareil ne peut pas causer d'interférences, et
2. Cet appareil doit accepter toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement de l'appareil.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme la norme NMB-003 du Canada

Overview

The AP0127730, AP0134760 is an RF module operating in the 4.9 – 5.8 GHz frequency bands. It is a TDD OFDM radio supporting 5 MHz, 10 MHz, 20 MHz and 40 MHz channel bandwidths.

The RF module cannot work as a stand-alone device. It can operate and be controlled only when attached to a digital main board and altogether assembled in an enclosure suitable for outdoor use. The assembly of the RF module attached to the digital main board is hereafter referred to as 'ODU'. The ODU in its various outdoor enclosures is manufactured by RADWIN.

The RF module is certified as a limited modular approval type with the FCC ID: Q3KRW5XMOD and IC: 5100A-RW5XMOD.

Condition of Use

The AP0127730, AP0134760 RF module is a proprietary radio interface and can only be connected to digital boards manufactured by RADWIN. The ODU resides in an outdoor enclosure also manufactured and assembled by RADWIN or its subcontractors. The RF module is not for sale to the general public.

FCC rules and IC Regulation Restrictions

The ODU firmware is factory programmed to operate under the FCC rules and Industry Canada regulation restrictions. The firmware is locked and inaccessible by any third party. As a result of the above the user interface allows both the installer and the user to control the ODU only within the boundaries of the regional restrictions.

Antennas

The AP0127730, AP0134760 RF module is certified with various antenna types covering both Point-to-Point and Point-to-Multipoint systems up to 32 dBi gain.

Certified Antennas

Following is the list of antennas certified for use with the AP0127730, AP0134760 RF module:

Antenna Type	Manufacturer	Model Number	Antenna Max Gain (dBi)
Sector Dual Pole Integrated 120 Deg	RADWIN Ltd.	MT0128930	11
Sector Dual Pole 120 Deg	RADWIN Ltd.	RW-9061-5004	11
Sector Dual Pole Integrated 95 Deg	RADWIN Ltd.	AM0135060	12
Sector Dual Pole 90 Deg	RADWIN Ltd.	RW-9061-5001	14
Sector Dual Pole 60 Deg	RADWIN Ltd.	RW-9061-5002	16.5
Sector Dual Pole Integrated 90 Deg	RADWIN Ltd.	MT0125250	13
Flat Panel Dual Pole Integrated	RADWIN Ltd.	AM0119960	16
Flat Panel Dual Pole Integrated	RADWIN Ltd.	AM0111760	16.5
Flat Panel Dual Pole Integrated	RADWIN Ltd.	MT0070760	24
Flat Panel Dual Pole External	RADWIN Ltd.	RW-9612-5001	23
Flat Panel Dual Pole External	RADWIN Ltd.	RW-9622-5001	29
Dual Pole Dish	RADWIN Ltd.	RW-9721-5158	29
Dual Pole Dish	RADWIN Ltd.	RW-9732-4958*	32
Shark Fin Monopole	RADWIN Ltd.	RW-9401-5002	12.5

* Not applicable for 4.9 GHz band

Maximum Output Power

5725 – 5850 MHz band - FCC/IC

The maximum output power can be set as follows, when operating in the 5.8 GHz band, under FCC 47 CFR Part 15.247 Rule and IC RSS-247 regulations. The power values are for PtP systems and PtMP systems with 0 to 6 dBi total antenna assembly gain. For PtMP systems the total EIRP is limited to 36 dBm. Therefore the output power of these systems, using higher than 6 dBi total antenna assembly gains will be reduced to comply with 36 dBm EIRP.

The highest conducted output power shall be limited to 30 dBm in all channel bandwidths

4940 – 4990 MHz band - FCC/IC

The maximum output power can be set as follows, when operating in the 4.9 GHz band, under FCC 47 CFR Part 90Y Rule and IC RSS-111 regulations. The power values shown below are for systems using 0 to 26 dBi total antenna assembly gain. Systems using 29 dBi gain antenna must reduce output power by 3 dB.

5 MHz: 25.0 dBm
10 MHz: 23.0 dBm
20 MHz: 24.0 dBm

5250 – 5350 MHz band – FCC/IC

The maximum output power can be set as follows, when operating in the 5.2 GHz band, under FCC 47 CFR Part 15.407 New Rules and IC RSS-247 regulations. The total EIRP limit is 30 dBm. The power values are for systems with 0 to 6 dBi total antenna assembly gain. For systems using higher than 6 dBi total assembly gain antennas the output power will be reduced to comply with 30 dBm EIRP.

5 MHz: 18.0 dBm
10 MHz: 20.0 dBm
20 MHz: 23.0 dBm
40 MHz: 24.0 dBm

5470 – 5725 MHz band – FCC/IC

The maximum output power can be set as follows, when operating in the 5.4 GHz band, under FCC 47 CFR Part 15.407 New Rules and IC regulations. The total EIRP limit is 30 dBm. The power values are for systems with 0 to 6 dBi total antenna assembly gain. For systems using higher than 6 dBi total assembly gain antennas the output power will be reduced to comply with 30 dBm EIRP.

5 MHz: 17.0 dBm
10 MHz: 20.0 dBm
20 MHz: 23.0 dBm
40 MHz: 24.0 dBm

5150 – 5250 MHz band – FCC

The maximum output power can be set as follows when transmitting in the 5.1 GHz band, under FCC 47 CFR Part 15.407 New Rules and regulations.

The total EIRP limit for PtP applications is 53 dBm.

The total EIRP limit for PtMP applications is 36 dBm.

The total EIRP limit for PtMP applications when transmitting at elevations above 30° relative to the horizon is 21 dBm.

5 MHz: 24.0 dBm
10 MHz: 27.0 dBm
20 MHz: 28.0 dBm
40 MHz: 23.0 dBm

Channel Bandwidths and Frequency Range

Channel BW [MHz]	Center Freq. Range [MHz]
5	5255 - 5345
10	5260 - 5340
20	5265 - 5335
40	5275 - 5320
5	5475 - 57203
10	5475 - 57203
20	5480 - 57153
40	5500 - 56953
5	5727.5 - 5847.5
10	5730 - 5845
20	5735 - 5840
40	5745 - 5830
5	4942.5 – 4987.5
10	4945 – 4985
20	4950 - 4980
5	5157 - 5245
10	5162 – 5245
20	5165 – 5240
40	5172 - 5230

Radio parameters accessed by end-user

The following parameters can be accessed by user:

1. Output Power
2. Frequency channel
3. Channel bandwidth
4. Antenna gain in external antenna type device