F20 Operation Manual

F20 is a high power miniPCI card to be used in outdoor wireless systems. Please follow the following instruction while using this card. This card is meant to be operated (and used) by system integrators who are aware of the regulatory requirements in the area it is being used. The following instructions need to be followed while using the card

1) Before inserting the card in a host PC board, please power down the host PC board first
2) The antenna port (MMCX connector) should be connected to the appropriate load or antenna before powering up the host board. Lack of Antenna (or load) while the F20 is powered up will cause severe damage to the card
3) Please make sure any person handling the card with bare hands follows proper ESD precautions. Improper handling could cause ESD damage.
4) The card should not be tampered or modified in any way. Tampering or modification could cause the card to fail standard tests.

FCC Information
Electronic Emission Notices
This device complies with CFR47 Part 15 of the FCC rules.
Operation is subject to the following two conditions:
· This device may not cause harmful interference.
· This device must accept any interference received, including interference that may cause undesired operation.

FCC Frequency Interference Statement
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to CFR47 Part 15. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential environment, not withstanding use in commercial, business and industrial environment.
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. 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 where 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.

FCC Radiation Exposure Statement
To comply with FCC Radio Frequency exposure requirements in section 1.1307, a minimum separation distance of 1.5 feet is required between the antenna and all occupational persons, and a minimum separation distance of 3.3 feet is required between the antenna and all public persons.

Antenna Installation

WARNING: It is installer's responsibility to ensure that when using the authorized antennas in the United States (or where FCC rules apply); only those antennas certified with the product are used. The use of any antenna other than those certified with the product is expressly forbidden in accordance to FCC rules CFR47 part 15.204. The installer should configure the output power level of antennas, according to country regulations and per antenna type. Professional installation is required of equipment with connectors to ensure compliance with health and safety issues.

Antenna Compliance

The F20 radio module has been tested and certified with the following antennas:
2.4GHz

Type	Model	Gain (dBi)	Power	EIRP	Operation Mode
Grid	HyperGain HG2424G	24	24	48	PTP
Panel	ARC-IA2419B02	19	25	44	PTP
Omni	Hwayaotek OA-2450-12	12	24	36	PTMP

Any antenna of same make and lower gain than those listed above may be used in compliance with certification.

The maximum EIRP limits are listed above with given antennas. In order to use above antennas, transmitter power settings may need to be adjusted in software to meet given EIRP limits.