



American Telecommunications Certification Body Inc.
6731 Whittier Ave, McLean, VA 22101

December 21, 2004

RE: Cirronet

FCC ID: HSW-2450

After a review of the submitted information, I have a few comments on the above referenced Application.

Administrative Issues:

- 1) Please provide the updated confidentiality Letter referenced in your response.
- 2) The labeling mentioned in the modular approval letter does not appear to mention the labeling on the device or remainder of the application. What is the correct FCC ID?
- 3) Item 7 of the modular letter mentions user...This should likely reference integrator instead. Please review.
- 4) Modular approval letter mentions 20 cm only.
- 5) Regarding the MPE exhibit, it appears that most antennas are listed for fixed applications. This is unusual. Typically only high gain directional antennas are listed or large omni-directional high gain antennas are listed as fixed. I.E. 2 dBi dipoles can not usually expected to be fixed locations. Additionally, it is to the manufacturer to list as many mobile (in lieu of fixed) as possible. Please review. Also note that your worst case justification mentions a 12 dBi patch that does not match your list. Also, the list in the report and the manual for mobile/fixed must be consistent. Call to discuss as necessary. Note the manual does not appear consistent with this list.
- 6) Mobile RF exposure calculation should compare result to calculated power density. Please fix.
- 7) RF exposure still mentions 2 cm in the first paragraph for mobile application. Please review per our discussion.
- 8) 7428 MHz in Table 4d does not appear to be denoted properly. Note that while the other data shows a -1 dB high pass filter correction, this plot does not contain this. Was a high pass filter used. If so, then this should be denoted, as well as the 3 to 1 meter correction. Currently the data does not appear to take into consideration the 1 dB correction, but it is uncertain if it should as well.
- 9) My previous references to 2.1033(b)(10) were incorrectly referencing an older version of the rules. What was being requested was information on "the system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals". Please provide information for this.
- 10) The users manual states the device meets with Class A emissions. Please explain precautions taken to ensure that Receiver emissions meet with Appropriate limits (these are equivalent to Class B levels).
- 11) The response to equally on the average references a 17 mS TX time for a remote is 13 mS per channel with a 30 second dwell time. However, information used to calculate average emissions and MPE RF exposure both mention a maximum of 4.86 mS. This information is not consistent. Please review and correct as necessary. Additionally the users manual page 27 suggests a maximum dwell of 17.627 ms. All information appears inconsistent. Note that this may affect previously provided average duty cycle calculations, data and MPE exhibits.
- 12) Users manual specifications page 41 cite 95 US channels which is not consistent with report.
- 13) Section 7.3 of the users manual appears to suggest the normal N connectors are used and not reverse N connectors. Please review/correct as necessary.
- 14) Section 7.3 of users manual mentions a 12 dBi gain omni which is not consistent with the rest of the application (MPE/Report).
- 15) Note the antenna connection types given in the application (MPE/Report) do not match section 7.3 of users manual.

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- 16) It appears several approved antennas may not be listed in section 7.3 of the users manual (6 dBi Omni, 12 dBi patch) or in the front cover RF exposure information.
- 17) Please consider adding additional information to the integrator as provided in the end of this document. While portions of this appear to be covered, guidance on RF exposure statements, statement regarding the end user can not be provided instructions on how to install/remove, and following approved mobile/fixed conditions do not appear to be fully addressed. Note current users manual does not appear to address non-colocation requirements as well.
- 18) Information in the users manual does not appear to explain which power levels are for use with which antennas. This information must be very clear. Additionally, please explain compliance to 15.15 given the various power levels and the integrator adjusts this.
- 19) Given the various power levels, it appears that the power measured on the high channel may be for the default level and not high power level. Please explain. If necessary, please provide low, middle, and high channel measurements at default levels as well.
- 20) The MPE exhibit should adequately reflect the 2 power levels and calculations accurately denote this. Note this typically would require default power level measurements to calculate mobile antennas.
- 21) Given the nature of information in the users manual, if this manual is only provided to integrators and not the public/end-user, it may be suggested to cover this under confidentiality as well.
- 22) Information on dwell time appears to mention all 86 channels are used, however information in the users manual section 5.3 suggests that hop-tables can be adjusted with fewer channels. What is the minimum number of hopping channels ever used? Also, please explain compliance to 15.247(g). Additionally how does this affect duty cycle and MPE calculations previously provided.



Timothy R. Johnson
Examining Engineer

[mailto: tjohnson@AmericanTCB.com](mailto:tjohnson@AmericanTCB.com)

The items indicated above must be submitted before processing can continue on the above referenced application. Failure to provide the requested information may result in application termination. Correspondence should be considered part of the permanent submission and may be viewed from the Internet after a Grant of Equipment Authorization is issued.

Please do not respond to this correspondence using the email reply button. In order for your response to be processed expeditiously, you must submit your documents through the AmericanTCB.com website. Also, please note that partial responses increase processing time and should not be submitted.

Any questions about the content of this correspondence should be directed to the sender.

The manual should provide further information and better detail as to how the OEM must use the module in order to maintain RF exposure compliance and that its approval is limited only to devices that can maintain the 20 cm distance between the antenna and body. In order to make sure that the integrators are given enough information, please add the following information or similar to the users manual:

This device is intended only for OEM integrators under the following conditions:

- 1) The antenna must be installed such that 20 cm is maintained between the antenna and users for mobile antennas installations as defined in this manual, or the antenna is installed such that ___ cm is maintained between the antenna and users for fixed antennas installations as defined in this manual, and
- 2) The transmitter module may not be co-located with any other transmitter or antenna.
- 3) The Module is approved using the FCC 'unlicensed modular transmitter approval' method. Therefore the module has only been approved with certain types of antennas not exceeding certain antenna gains. This device must only be used with the list of antennas approved for use.

As long as the 3 conditions above are met, further transmitter testing will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.).

IMPORTANT NOTE: In the event that these conditions can not be met (for example certain laptop configurations, co-location with another transmitter, or use with a different type of antenna not previously approved), then the FCC authorization is no longer considered valid and the FCC ID can not 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.

End Product Labeling – Mobile Antenna Use

This transmitter module is authorized only for use in devices where the antenna may be installed such that 20 cm may be maintained between the antenna and users (for example access points, routers, wireless ASDL modems, and similar equipment). The final end product must be labeled in a visible area with the following: "Contains TX FCC ID: **INSERT FCC ID HERE**".

End Product Labeling – Fixed Antenna Use

This transmitter module is authorized only for use in devices where the antenna may be installed such that ___ cm may be maintained between the antenna and users (for example access points, routers, wireless ASDL modems, and similar equipment). The final end product must be labeled in a visible area with the following: "Contains TX FCC ID: **INSERT FCC ID HERE**".

RF Exposure Statements That Must be Included in the End Users Manual – Mobile Antenna Use

The users manual for end users must include the following information in a prominent location "IMPORTANT NOTE: To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter."

RF Exposure Statements That Must be Included in the End Users Manual – Fixed Antenna Use

The users manual for end users must include the following information in a prominent location "IMPORTANT NOTE: To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter."

Additional Information That Must be Provided to OEM Integrators

The end user should NOT be provided any instructions on how to remove or install the device.