



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

April 14, 2005

RE: Xirrus, Inc.

FCC ID: SK6XS37008

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

- 1) The operational description provided is strictly for the model with 16 transmitters. To clarify this application, is an operational description available for only the model with 8 transmitters to define this application more clearly?
- 2) The device appears to be able to have 802.11 b/g capability for 4 transmitters, but it appears to be stated in many locations in the application that only 3 802.11b/g will be used at a time. What limits this to 3? Note that the users manual page 98 suggests that 4 can operate at the same time while Page 6 of the report states
Aggregate power is the sum of the output powers from the maximum number of individual transceivers that can operate in the band specified without two trx using overlapping channels. There are only 3 non-overlapping channels available in the band.
It would seem if each device is directional in nature that all four could be used and that 3 non-overlapping channels may not be a correct assumption. Additionally, if device are directional, it would seem that it would be possible to transmit the same channel from 2 different radios. Please comment as this may affect assumptions made to sum power (sum across band vs, sum of worse case channels) and MPE calculations.
- 3) MPE appears to take into consideration 4 802.11 b/g TX's occurring at the same time, even though other information states only 3 will be used at a time. Please review given 2) above.
- 4) Please clearly define the maximum number of Transmitters that can be used each band given information above in 2) and 3). Note it may be helpful to add a column to the MPE to denote maximum number of channels for each sub band as well to keep understanding of worse case selections to a minimum. (i.e., can all 5 channels be used at the same time in the 5725 – 5850 band?). In addition, could a user not only operate on all 5 channels, but use the same channel more than once in different directions. Additionally, how is this controlled? The GUI interface appears to allow any selection of channels for each radio.
- 5) Page 38 of 113 of the test report, please explain how the power is summed assuming all 5 channels in the band are being used (note 2). For instance, why can't all 3 directional antennas be for the highest power channel? $3 \times 1.675 \text{ W} + 2 \times 0.375 \text{ W}$? Additionally, I can not recreate the maximum summed power listed, even trying to follow the note 2. Also, the power assumes 5 channels, while worse case MPE appears to suggest only 4 can be used (3 directional, 1 additional). Please clarify these inconsistencies.
- 6) The interface on page 53 of the users manual suggests that selection of channels may not be mutually exclusive given so many transmitters are enabled on the same channel. If channels are not mutually exclusive, then shouldn't summing of powers should be based on worse case channel per band multiplied by the maximum number of channels in that band that can be utilized. See additional comments above.
- 7) Is there detailed specifications/information on the two 5 GHz external antennas being approved? The FCC desires this information to be included with the application.
- 8) Questions regarding power on page 43 of 113;
 - a) Given information above, what limits the TX to only 4 channels in each band (both 5150-5250)?

- b) Why is the power in the second table for aggregation of power different than power measured in the first table? It appears that a power reduction in the software settings was necessary? Which will be in final production units? Note that data on following pages matches the 2 table but the information on the 731 form appears to match first table.
 - c) How does a) and b) affect MPE information reported?
 - d) It appears that even a single channel for either band is in excess of this limit if the external 12.5 dBi gain antenna is used. However information on page 11 of the report suggests that only the 5725 – 5825 MHz band uses the external antenna. Please explain how this is controlled to meet 15.15.
 - e) In your discussions with Joe D., was there any concern regarding aggregation of spectral density as well. It would appear that this may be over the limits if aggregation was necessary for the 2 lower UNII bands.
- 9) Please explain the reference to antenna gain of 1.45 on page 53 of 113. Should this be 6 dBi?
- 10) Please explain why the data on pages 54 and 55 of 113 appear significantly higher in the plots than the tables.
- 11) To get the true correction factors on page 80 and 81 (which are used on page 83 and 85), different settings should likely have been used. Settings appear to be mixed/matched. Call to discuss.
- 12) Please explain how the ferrites will be implemented on the Ethernet cables. The FCC expects that these should be permanently molded and the cable provided. Alternatively if installed with the system the FCC would generally only allow this to be professional installed and the installers must properly instructed on how to install. The FCC has generally now allowed end users to install these as the burden of compliance must not be given to the user.
- 13) FYI....It is uncertain why Radiated uses a limit of -33 dBm/MHz, when the limit of – 27 dBm/MHz is already and EIRP limit on pages 59 – 61 of the report. It is assumed that this is in error, but given it is more restrictive will not affect the final results negatively. Note that -33 dBm is acceptable for antenna conducted for the assumption of a 6 dBi gain antenna.
- 14) FYI.....The updated users manual mentions a model with only 4 transmitters. Please note that this does not appear to be covered by either application.



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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.