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

January 16, 2004

RE: FCC ID: HEDWL463EXT_ATCB001048
Attention: Eric Lin

I have a few comments on this Application.

1. Please note that the installation manual states that a 1 meter separation must be maintained. However, the MPE calculations were done for 20cm. Also, as 15.247b4 does not apply to this device (i.e. an antenna gain of 16dBi would have to be used before reduction was necessary), the highest output power of 100mw into the highest antenna gain of 8dBi is still compliant to the 20 cm separation. The rf exposure compliance statement should reflect the minimum separation distance. Consequently, while you may still include the 1 meter separation stated on page 8 of the OEM installation manual, the minimum separation distance should be listed as 20cm. Please make documentation consistent. Since MPE was done to 20cm, please reconcile your minimum separation distance in the manual to state 20cm.
2. Because 15.247b4 does not apply to this device until a 16dBi antenna is used, please explain why MPE for antennae 2 and 3 was not calculated at the highest output power of 100mW.
3. Please note that the manual states operation of this device is for the EU also. Please note that some EU countries include channels 12 through 14. The FCC has interpreted operation of WLAN type devices above 2462MHz as not appropriate for the US market. Please verify that when sold in the US no channel operating on a frequency above 2462MHz can be made operational by the user.
4. Please note that the required reduction for antennae with a gain greater than 6dBi does not apply to this as the highest antenna gain allowed for a 100mw device before power reduction was required would be 16dBi. This means that testing should have been done for all antennae at the 100mw (20dBm) power. Please note that the fundamental emissions field strength of 2412MHz in the radiated emissions table on page 38 of report appears to be approximately 12 to 15 dB lower than would be expected when the measured conducted power is fed to an 8dBi gain antenna. As the band edge is only 0.5db below the limit, this becomes a concern that must be addressed. It appears that the output power of the WLAN may have been adjusted down to make the device compliant. This is also what seems to be occurring in the MPE report as MPE was not calculated for the 8dBi antenna using the 100mw conducted output. However, as a reduction in output power is not required for this device in 15.247, it has not been made clear in the documentation if the power was indeed reduced for band edge compliance. Since a power reduction was not needed in this situation, please explain why the full measured conducted power at 20dBm was not used in this test (i.e. was it for compliance reasons?). If the power was reduced for compliance reasons please provide a complete detailed explanation of what was done and how it was reduced.
5. In reference to item 4, please note that the manual clearly states that for all antennae the power of the device is adjusted to max power (i.e. 100mw for OFDM - see page 7 of the manual and 64 of the report 1). Please note that the conducted power of the device is independent of any antenna as the attenuation, power meter, analyzer or diode detection network acts as the load and the antenna is not connected. Thus, unless the device power was changed for compliance reasons, the conducted power would necessarily be the same for all antennae. However, the test report clearly shows that the power output of the device was not the same for all antennae. This clearly indicates that the power level was not adjusted to max out as the manual states, but was reduced for certain antennae. Please test all antennae using the maximum 100mW output power of the device. Alternately, please explain why and how the output power was reduced for the different antennae. If conducted power was reduced for compliance reasons, please provide full disclosure on how the device power is set at the time of OEM/professional installation for each antenna and please provide a statement in the installation manual to the installer that the power must be reduced for compliance reasons and by how much.

6. Please note that because of the numerous conducted power levels reported, and because no information on which output level was used for PPSD it is not possible to determine if the reported PPSD is the maximum 20dBm level. Please provide an explanation of what power level was used for PPSD measurements.
7. Please explain why the device was not tested with the longest antenna cable as listed in the manual.

Dennis Ward
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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.