



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

January 15, 2008

RE: Complex Systems Pte Ltd.

FCC ID: TK4-WLU108AG-MC

I have a few comments on this Application. Depending on your responses, kindly understand there may be additional comments. There are several reference measurement procedures used by FCC. Please refer to <http://www.fcc.gov/oet/ea/eameasurements.html>

- 1.) There appears to be an RF connector on this device. This also is confirmed by the Internal Photos, and the Manual (item #3, page 73). Please be sure to address this issue. You are also reminded that all External Photos must show all ports and connectors to the device. Please supply an expanded set of photos showing all connections to this device. Are there provisions for connection of external antennas or coaxial cables to this product? Will the end user have access to this connector?
- 2.) There is an FCC logo on this device, implying that a DofC equipment authorization should apply to the Part 15B Unintentional Radiator portion of this product. The EMC Test Reports (see section 1.2) also confirm this assumption. You are reminded that only countries with valid MRAs with USA are able to use the Part 15B DofC procedure. Please review and address this issue.
- 3.) The Label is missing the 15.19(a)(3) statements. Assuming the FCC logo and DofC labeling statements are invalid, then there should easily be sufficient room for this language.
- 4.) The Operational Description contains a document titled "iWavePort WLU108AG-MC". This is not a proper operational description. What is requested is a description as to how this device creates, modulates, and amplifies RF energy. In addition, the supplied document describes a device with much different RF power than what was tested. Please see the "Transmission Levels" section on page 2.
- 5.) Is ad-hoc mode possible within the 5250-5350 MHz band? I cannot find this addressed anywhere within the Manual.
- 6.) The Test Reports do not provide any information about RF power over data rates. What is required is a chart of all data rates and conducted RF power. This is necessary to comply with "SAR Measurement Procedures for 802.11a/b/g Transmitters" published by FCC. The "worst case" or highest RF power/data rate combinations must also be used for all spurious emissions (including band edge) testing.
- 7.) The RF power measurements within the DTS report do not conform to FCC measurement procedures as described in KDB Publication No. 558074.
- 8.) The plots which begin on pages 191 and continue through page 230 of the DTS report have a multitude of problems. (1.) There is no vertical graticule displayed. It is impossible to estimate the frequency of any specific point in the trace, or the frequency associated with any marker. (2) The RBW/VBW settings and the associated sweep times are not available. There are references to average plots which use a 1MHz RBW/1MHz VBW. This is obviously incorrect. All plots must be properly labeled and annotated. (3.) It appears that the device may not have been properly "peaked" in both antenna position and turntable rotation before performing band edge test. As an example, your 731 form claims a peak RF Pout of ~63mW. Assuming a 0dBi antenna, I would expect to see a displayed field strength of somewhere between 100-110dBuV. Your plots show peak plots with considerably less that expected field strength. (4.) The plot on page 218 is obviously distorted by excess sweep speed. In all band edge measurements using a 10Hz sweep. The key is to remember that slower speeds are better for proving compliance. (5) Some plots are not making the proper measurements. As an example,

- when measuring the restricted band from 2483.5-2500 MHz, you must measure the highest frequency within the band, not simply the single band edge point at 2483.5MHz.
- 9.) I see no specific test results in the DTS report related to the 100KHz/20dBc antenna conducted requirements of FCC per 15.247(c) and described in KDB Publication No. 558074. Please provide these required measurements.
 - 10.) Several of the spurious emissions associated with the 5.8GHz DTS portion of the report were within less than 1dB to the limits. Please re-measure using the highest RF power/data rate combination found. Be sure to rotate across three orthogonal planes as required by ANSI C63.4.
 - 11.) It does not appear that the UNII report follows FCC Public Notice DA 02-2138, August 30, 2002 for measurement of RF power. Until such time as FCC officially recognizes "channel power" measurements used by spectrum analyzer instrument manufacturers, the techniques described in DA 02-2138 must be followed. Deviations are allowed, such as those utilizing high performance RF power meters, but only upon submission to the FCC under the PBA procedure. Please be sure to incorporate all relevant test channels as described within "SAR Measurement Procedures for 802.11a/b/g Transmitters".
 - 12.) Please provide a more exacting description of how the UNII peak excursion power test was performed. Be sure to describe the data rates used for "worst case" results. Use DA 02-2138 as a guide.
 - 13.) FYI: Please note that until measurement issues within the 15.247 and 15.407 test reports are finished (especially RF Pout) we cannot easily move forward to the SAR review. Please resolve these findings as quickly as possible.
 - 14.) Please indicate where in the Manual I can find cautions with regard to outdoor usage within the 5150-5250 MHz band, See 15.407(e).
 - 15.) How is compliance assured with 15.407(c)?
 - 16.) The DFS report indicates that only one nominal channel bandwidth is implemented. This is not correct according to both Form 731 and the UNII Test Report. Additional testing appears to be warranted.
 - 17.) The DFS report is also missing 30 minute non-occupancy data.
 - 18.) See Rule 15.215. It is not clear if the 20dB requirement has been met with "Super A" emissions operating at either 5260 or 5240 MHz at the band edge of 5250 MHz, or at 5350 MHz when operating at 5320 MHz. Please provide additional clarification.



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President

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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.