

American Telecommunications Certification Body Inc.

6731 Whittier Ave, McLean, VA 22101

May 12, 2003

RE: Vivato, Inc.

FCC ID: QLNVLJ24WFSW

1) The application mentions that the FCC conversations may be considered confidential but was to be determined when the application was originally uploaded. Please confirm if this information is to be considered confidential. Note that if it is considered as confidential, the confidentiality request letter must be updated to include this.

Response: The FCC conversations do not need to be considered confidential.

2) The application discusses that complementary beam forming is a future option and must be discussed further with the FCC before it is found to be acceptable. However in one of the Q/A files, it is mentioned that this feature may be turned on/off at will. Please explain if this feature is currently available, and if so is has there been any further discussion between the FCC and Vivato that can be provided on this topic.

Response: The feature is not currently available in this Vivato product. Neither the software nor the hardware are part of the current unit.

3) From the labeling, it appears that the device is being subjected to a Declaration of Conformity as a PC peripheral device. However, the DoC labeling is missing the required "FOR HOME OR OFFICE USE" as specified by 15.19(b). Please note that although the phrase "Tested to Comply with FCC Standards" is also missing, this phrase is not necessary when the 2 part statements as given in 15.19(a)(3) for a Certification are also on the device.

Response: The label has been modified to comply with 15.19. Please refer to the revised label exhibit uploaded with this response.

4) Since this device is also considered a PC Peripheral authorized using a DoC, then a compliance information sheet should be included in the manual or as a separate sheet. It may be best to include this information on the same page as your FCC statements. The compliance information sheet must contain the following information:

COMPLIANCE INFORMATION (47CFR 2.1077)

If a product is tested and authorized under a Declaration of Conformity, a compliance information statement shall be supplied with the product at the time of marketing or importation, containing the following information:

- (1) Identification of the product, i.e. name and model number.
- (2) A statement similar to that contained in Section 15.19(a)(3) that the product complies with Part 15 of the regulations.
- (3) The identification, by name, address and telephone number, of the responsible party. The responsible party is defined as either the manufacturer, or if the equipment is imported, the importer. The responsible party for a Declaration of Conformity must be located within the United States.

Response: A revised user guide, with the compliance information added, has been uploaded with this response. A Class B DoC Report is available upon request.

5) For data given in section 3.2 of the test report, please confirm that the device was fully rotated to obtain worse case positioning for azimuth each result.

Response: During all the radiated testing, the unit was rotated to obtain the worst case positioning.

6) There appears to be an error in the calculations in Table 3.5-1, 3.7-1, 3.8-1, 3.9-1, 3.10-1, 3.10-2, & 3.10-3. The corrected level does not appear to equal the reading + insertion loss of the filter. Please note that the first few tables did appear to be correctly calculated. Please explain.

Response: The errors have been corrected; please refer to the revised test report uploaded with this response to find the appropriate values.

7) Regarding AC conducted emissions, no data appears to have been taken below 450 kHz. Please confirm that the emissions were scanned from 150 kHz to 30 MHz.

Response: Points below 450 MHz were investigated, but only the highest levels were recorded in the test report.

8) For section 5 of the test report, please provide information regarding the RBW and VBW settings for the various measurements made. For measurements above 1 GHz, only average measurements have been shown. Since there are also peak limitations as specified by 15.35(b) of the rules, please provide information regarding the peak to average ratio of emission > 1 GHz. Additionally, these measurements are required by 15.109 of the rules, not 15.209. Please correct.

Response: The purpose of 15.35(b) would be to see the difference between the peak and the average values for a modulated signal, and the effect of the duty cycle, in such case only the harmonics and the carrier would be affected.

For the receiver noise, the levels of the spurious emissions are not affected by the modulation and/or the effect of the duty cycle. In this case, only an average measurement is sufficient to show compliance with the FCC limits.

9) All of the spurious radiated data (i.e. Section 6.5/6.6/6.7) appears to show maximization at one angle of 40 degrees. However, this data was taken for 3 different zones (1, 6, or 13), each of which should occur at different angles from the antenna. Please explain.

Response: The harmonics are not supposed to radiate at the same angle as the carrier does. As a result, most of the noise was found at 40 degrees.

10) The test procedure in section 7 mentions a 300 kHz VBW, but only 100 kHz VBW was used. Please correct.

Response: The report has been corrected; please refer to the revised test report uploaded with this response.

11) Table 9.29 appears to show failing data, but the data appears to be place into incorrect columns. Please correct as necessary.

Response: The report has been corrected; please refer to the revised test report uploaded with this response.

12) As given in this application, the output power is not simply the power into one of the 16 points, but requires combining all 16 ports in order to obtain the true effective output power. This suggests that the spectral density test should also be considered as a summation. However, given the frequency (and time) dependent nature of this test, a true summation from the output ports would likely not be valid either. We would suggest performing an additional test using the alternative radiated method specified in several of the FCC's public notices. Also, given the nature of the beam take about.

Response:

During the testing, a 0 degree phase combiner (16 to 1 port) was used to perform the PSD testing. WLAN 13 has a 0 degree phase angle. When WLAN 13 is transmitting, and a comparison of the conducted power output resulting from the combiner and the linear sum of the 16 ports that connects to the antenna were made, the measurement results from the combiner and the linear sum of the 16 ports were similar. Furthermore, the result proves that WLAN 13 produces the worst-case power output. The result concludes that worst case PSD would result when WLAN 13 is transmitting.

Performing the testing as a radiated measurement would have shown a lower PSD (if the results were corrected with the antenna gain of the TX and RX antennas, cable losses, amplifier and path loss) because the beam would not be completely formed at 3 meters. This test parameter was discussed by Vivato and the FCC during their meetings. The FCC concluded at the time that all testing would have to be performed at 3 meters.

The other WLAN PSD results shown in the report are only to be viewed as a reference measurement; except WLAN 13, as the other WLANs are out of phase. A radiated measurement would have shown a higher PSD for this testing, nonetheless, WLAN 13 would be the worst case since the antenna gain is higher at the bore sight, i.e. WLAN 13, and it produces the highest power output.

Please advise if there are any questions.

Sincerely,

Rachid Sehb
Rhein Tech Laboratories