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Client: Vivato, Inc.
Report number: 2002148
FCC Standard: Part 15.247
FCC ID: QLN-DP2310P0001
Model Name: Wireless Packet Switch

APPENDIX E: SUPPORTING CORRESPONDENCE FROM FEDERAL COMMUNICATIONS COMMISSION

Please refer to the following pages.

Please reference the following email messages from the Federal Communications Commission's Raymond LaForge and Joe Dichoso, as they relate to this equipment authorization application.

Email From: Raymond LaForge
Chief, Measurements and Calibration Branch, Laboratory Division
Office of Engineering and Technology, Federal Communications Commission

Our conclusion is that as long as you are transmitting to only one receiver at a time, each individual receiver is at a known, fixed location, and you can define the actual, achieved antenna gain to calculate the EIRP, then the system that you describe is considered point to point and can be authorized. The point to point link should not be obtained through the use of an encoded address similar to tone encoding, but instead should be achieved only by the intended recipient receiving the signal by way of the directional angle of the antenna modified for individual transmissions. Per 15.204 the antenna system must be authorized with the transmitter. You should include a copy of the email in your equipment authorization application.

Email Dated 08/07/2002 From Joe Dichoso, Engineer
Office of Engineering and Technology, Federal Communications Commission:

Hello Marcus, Skip and and Mike,
The following is our decision concerning your proposed system. With regard to RF safety compliance of the system, please contact Tim Harrington.

The system described in the attachments is considered a point-to-point system. Our decision is based on the pertinent characteristics of the system described as follows. The system is a direct sequence 802.11b device applying under 15.247 of the FCC rules. A single transmitter on a single channel communicates to a single receiver. The system is capable of sending packets of data to multiple receivers but does so sequentially. When a packet is transmitted, the system creates a directional beam to a single receiver. When this communication is completed and a new packet is to be sent to another receiver, a new directional beam is formed in the direction of the new receiver. This occurs sequentially each time a packet is transmitted to a different receiver.

The system is compliant with the EIRP limits for point-to-point systems based on the following. The system has a 16 element array with each element having a gain of 17 dBi. The phased antenna array uses beam forming techniques and the total antenna gain is 29 dBi($17 + 10 \log 16$). The output power to each element is 10 dBm. The total output power is the sum of the output power at the input of each element. The total output power is 22dBm($10 + 10 \log 16$). The total EIRP is 51 dBm($29 \text{ dBi} + 22 \text{ dBm}$).

A future design of the proposed system will be capable of using up to three transmitters into the same antenna array but each transmitter that will operate on a different channel. In order for this future system to be considered as a point-to-point system, the

transmitters must not be capable of transmitting the same information. Since the antenna is shared, testing of spurious emissions should take into account the entire system to ensure that additional spurs are not generated in the process of passive combination.

Our decision is based on the entirety of our understanding of the system described above and was determined from the limited information submitted. Please inform us if our understanding is incorrect. Also, please be informed that the final decision on approval of the system will be based on complete information required to be submitted in an application for Certification. Any additional information or changes to the system may require us to re-evaluate the system.