04/04/2008

Reply to Comment from ATCB for PHX-PCE25100 application for “sourced-based time average power” clarification.

From the SAR test report section 3.0 Description of Device Under Test (DUT), the following paragraph states:

FCC ID: PHX-PCE25100 is capable of operating in the 2496-2690MHz band. The conducted power is 1.12 watts pulsed average for the internal antenna and 1.41 watts pulsed averaged for the external antenna. The maximum conducted output power is 1.32 watts and 1.67 watts respectively as defined by the upper limit of the production line final test station.

This paragraph in essence restates the power calibration limits that are in place at the manufacturing site for this product. The use of the word average is not accurate in that the power calibration procedure used in the factory produces results that correlate to the peak power values reported within the test report for this application. The maximum power available to the internal antenna is approximately 1 dB lower than the maximum power available to the external antenna port. This is shown as 1.12 watts for a nominal value and 1.32 watts when the manufacturing tolerance is taken into account.

The conducted power values presented within the SAR report reflect the peak power of the transmitter during a transmission burst. The time averaged power would also take into account the maximum transmitter duty cycle. The PCEx25100 transmitter is capable of transmitting on two time slots within a frame with a maximum transmitter duty cycle of 10.53%. The maximum transmitter duty cycle is hard coded during the manufacturing process and is **not** configurable by the end user or the system operator. A calculation of the maximum “source-based time average power” is shown below.

External antenna port:
Peak TX power = 1.67 watts = 32.23 dBm
Maximum TX duty cycle = 10.53 %
Maximum time average TX power = (Peak TX power) * (Maximum TX duty cycle)
= 1.67 * 0.1053
= 0.1759 watts = 22.45 dBm

or

= Peak TX power (dBm) + 10*log(Maximum TX duty cycle)
= 32.23 – 10*log(.1053) = 32.23 – 9.78
= 22.45 dBm