NONIN

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May 16, 2008

American TCB
6731 Whittier Ave.
McLean, VA 22101

Subject: Technical Description of Satisfaction of the Exemption Clauses of FCC Part 15C

To Whom It May Concern,

Nonin Medical, Inc has performed measurements and calculations to demonstrate satisfaction of KDB 447498, with respect to the source-based time-averaged output power defined in §§ 2.1091(d)(2) and 2.1093(d)(5) of the rules.

The Nonin Medical, Inc model SABER time-averaged output power is $\leq 60/f_{(GHz)}$ mW. The maximum power allowable to satisfy this requirement is 60/2.4835 = 24mW.

The Nonin Medical, Inc model SABER peak output power is documented as 24.5mW for Bluetooth Class 1 operation. Class 1 operation utilizes the RF power amplifier, MF2400PS-AL0937 (U103 of 9560BT schematic, 200-1384_D). Oscilloscope voltage measurements of the RF power amplifier enable line (BPA_EN1 in schematic) shows a worst-case maximum RF power amplifier "on" time of 850µs, during a worst-case total on-off transition cycle time of 2.52ms.

These times yield a calculated duty cycle of 850µs/2.52ms = 33.7%. An overly-conservative estimate of additional data overhead from the IEEE 11073 Communication Standard is a factor of 2 (two), making the theoretical worst-case duty cycle for any data format equal to 67.5%.

Multiplying the peak output power by the theoretical worst-case duty cycle yields the theoretical worst-case average power calculated at (24.5mW) * (0.67460317) = 16.5mW. This average power satisfies the SAR exemption of KDB 447498, with respect §§ 2.1091(d)(2) and 2.1093(d)(5) of Part 15C rules.

Sincerely,

Harold Rudnick

Harold Rudnick, NCE
Sr. Quality Engineer
Nonin Medical, Inc