

## **Radio Card is Below the Low Power Threshold**

Attestation from Applicant: The Lamarr Radio Card operates below the low power threshold of 10.7 mW. From TCB Exclusion List 2, the low power exemption is (60/f) mW (f in GHz) and evaluates to 10.7 mW assuming 5.6 GHz is the mid-band frequency, or 10.3 mW assuming the 5.825 GHz maximum frequency.

The peak transmitted power is  $16.04 \text{ dBm} + 2.54 \text{ dBi} = 18.58 \text{ dBm EIRP}$  or 72.1 mW.

The transmission protocol used by the Welch Allyn Lamarr Card limits the maximum Transmit duty cycle to 14% or lower. The Lamarr Card continuously monitors the transmit duty cycle and if the transmit duty cycle exceeds 14% in any 30-second period, the transmitter is shutdown and a system error is reported.

Since the 14% duty cycle is part of the communication protocol and cannot be change through any user intervention, source based averaging is allowed.

Including the duty cycle, the average EIRP over any 6-minute period will be less than or equal to  $0.14 * 72.1 \text{ mW} = 10.1 \text{ mW}$

## **SAR Evaluation in a Single Host Device will Permit Multiple Host Approval**

There are some advantages for Lamar being below the low power threshold: SAR is only required for the highest power channel in each band, and a test in a single host device will permit multiple host approval.

Item 3(b) in "FCC Mobile and Portable RF Exposure Procedures - March 2007.pdf" states,

"Routine SAR evaluation is required for 15.407 devices. TCB Exclusion List thresholds do not apply for devices subject to SAR routine evaluation.

i) If output power < low thresholds in the July02 TCB Exclusion List, for each frequency band test only the channel with maximum average output power"

Item 4(b)(i)(4) in "FCC Mobile and Portable RF Exposure Procedures - March 2007.pdf" states,

"3-host tests are requested for 15.407 devices (routine evaluation) with output power > 50 mW; otherwise test in one host; for 1-host test, if output power < low thresholds in the July02 TCB Exclusion List, for each frequency band test only the channel with maximum averaged output power"

## **Output Power in the SAR Report can be Higher than the Output Power in the FCC Report**

The following inquiry was made to the FCC:

### **Inquiry:**

One unit was tested for SAR and another unit was tested for EMC. They were identical within the variances that can be expected from mass production. Depending on the transmit channel, the output power from the SAR unit was 0.5 to 2 dB higher than the EMC unit. This equates to a variation between units of 11 to 37%, which is much greater than the 5% requirement called out on the SAR checklist. However, the applicant considers the SAR unit to have the worst-case output power, therefore the SAR data should be considered the highest possible. Please confirm that in this case, the 5% agreement does not apply where the output power from the SAR unit is greater than the EMC unit.

### **Response:**

please review KDB pub. 291699, then respond herein if questions remain

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Here is an excerpt from the relevant KDB entry:

" It is the grantee's responsibility to ensure all test samples are operating within tune-up requirements (accepted for the filing) and test results will support compliance for all production units. Although the measured output power may vary with the equipment and setup used, it is the responsibility of grantee and test labs to ensure that the devices selected for testing are in accordance with 2.907."

Welch Allyn provided the following attestation that the SAR and EMC test units are identical as defined by FCC 2.907 and 2.908, were operated within their tune-up requirements, and the test results are worst-case (support compliance for all production units).

Welch Allyn, Inc.  
8500 SW Creekside Place  
Beaverton, OR 97008-7107  
Telephone (503) 530-7500  
Fax (503) 526-4901



November 8, 2007

Federal Communications Commission  
Authorization and Evaluation Division  
7435 Oakland Mills Road  
Columbia, Maryland 21046

Ref: FCC ID: PGUWA11A07

To whom it may concern,

We, the undersigned, hereby certify that the SAR and EMC test units are identical as defined by FCC 2.907 and 2.908. These test units were actual production samples operated within our product tune-up (i.e. calibration) requirements. Tests units were operated in what was considered to be the worst-case configurations. These units are also representative of and identical to our production units and test results support compliance for all production units.

Sincerely,

A handwritten signature in blue ink, appearing to read "Mike Barrett".

Mike Barrett  
Project Manager