



August 22, 2014

Lively Inc.  
682 Schofield Road  
San Francisco, Ca, 94129

Model: Lively Watch

FCC ID: R6N-0004 IC ID: 11045A-0004

Washington Laboratories, Ltd. performed a SAR Evaluation on the Lively Watch radio device. This product is a wrist worn portable transmitter using Bluetooth LE Technology, operating between 2402MHz and 2480MHz. It is designed to be worn by the user with a separation distance  $\leq$  5mm and therefore SAR must be considered.

The EUT was tested under FCC Part 15.247 as a DTS device. The device has 2 modes of operation a normal 6.82dBm (conducted) data mode and a distress 16.6dBm (conducted) mode. The antenna gain is stated as 3.93dBi. Documentation of the measurement technique used and test data measured can be found in Washington Laboratory Report 13665-01.

Referring to the FCC Document, 447498 D01 General RF Exposure Guidance v05r02, Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies, section 4.3.1 allows for the exclusion of SAR Testing if the device meets the following requirements:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR}$$

Where:

- $f(\text{GHz})$  is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- When the minimum *test separation distance* is  $< 5$  mm, a distance of 5 mm is used

For this device extremity SAR exclusion is being evaluated.

## 1.1 Normal Operation

For Normal Operation (6.82dBm) mode calculation is based on peak continuous power. The conducted power is 6.82dBm (4.8mW) plus an antenna gain of 3.93dBi for an EIRP of 12mW.

Using the SAR exclusion calculation:

$$(12\text{mW} \div 5) * \sqrt{2.402} = 3.72 \leq 7.5$$

$$(12\text{mW} \div 5) * \sqrt{2.440} = 3.75 \leq 7.5$$

$$(12\text{mW} \div 5) * \sqrt{2.480} = 3.78 \leq 7.5$$

The Extremity SAR exclusion applies to the Normal Operation Mode of this device.

## 1.2 Emergency Mode

Description of Emergency Mode Operation:

If the wearer has an emergency and depresses the alarm button it transmits at a maximum transmit power of 16.60 dBm.

The alarm is transmitted for 7 minute period, sending 1 transmission sequence every 2 seconds. The alarm transmission sequence is a 0.480 msec (480  $\mu$ sec) transmission, which is sent once on each of the systems three frequency channels. The three 0.480msec transmissions are spaced 1.2 msec apart (measured not between but from the start to start). The 2 second interval is measured from the start of one transmission sequence to the start of the next transmission sequence. Hence, in each 2 second period during the 7 minute alarm period the transmitter is active  $3 * 0.48 \text{ msec} = 1.44 \text{ msec}$ .

For Emergency Operation (16.6dBm) mode calculation is based on using a duty factor as per section 6.3. "Low transmission duty factor devices" of FCC Document, 447498 D01 General RF Exposure Guidance v05r02 .

The conducted power is 16.6dBm (45.7mW) plus an antenna gain of 3.93dBi for an EIRP of 113mW.

The on time is 1.44ms per 2 seconds for a worse case duty factor of 0.072%. This duty cycle give a corrected power of 0.08mw.

Using the SAR exclusion calculation:

$$(0.08\text{mW} \div 5) * \sqrt{2.402} = 0.03 \leq 7.5$$

$$(0.08\text{mW} \div 5) * \sqrt{2.440} = 0.03 \leq 7.5$$

$$(0.08\text{mW} \div 5) * \sqrt{2.480} = 0.03 \leq 7.5$$

The Extremity SAR exclusion applies to the Normal Operation Mode of this device.

Therefore, the EUT does not require SAR Testing.

Testing was performed on an Open Area Test Site (OATS) of Washington Laboratories, Ltd, 7560 Lindbergh Drive, Gaithersburg, MD 20879. Site description and site attenuation data have been placed on file with the FCC's Sampling and Measurements Branch at the FCC laboratory in Columbia, MD. Washington Laboratories, Ltd. has been accepted by the FCC and approved by ACLASS under Certificate AT-1448 as an independent FCC test laboratory.

These tests are accredited and meet the requirements of ISO/IEC 17025 as verified by the ANSI-ASQ National Accreditation Board/ACCLASS. Refer to certificate and scope of accreditation AT-1448.

Should you have any questions, please do not hesitate to contact us.

Sincerely,



James Ritter  
EMC Compliance Engineer



Steven Dovell  
Compliance Engineer