




Corrigendum: Architectures for wrist-worn energy harvesting (2018 *Smart Mater. Struct.* 27 044001)

R Rantz¹ , M A Halim¹ , T Xue¹ , Q Zhang², L Gu², K Yang² and S Roundy¹

¹ University of Utah, 1495 E 100 S (1550 MEK), Salt Lake City, UT 84112, United States of America

² Analog Devices, Inc., 804 Woburn St, Wilmington, MA 01887, United States of America

Received 15 March 2020

Accepted for publication 30 April 2020

Published 16 June 2020



CrossMark

This document concerns a statement made in error about optimal rotational architectures that appears in the original publication (addressed here along with heretofore unpublished supporting data) and also serves to correct some other minor errors in the original publication.

1. Optimal rotational device sector angle

The statement ‘in all cases, sprung and unsprung, rotational and linear, the optimal design variables for geometry converged on the same point: the seismic mass consuming $1/2$ of the total device volume’ appears in a discussion of optimization results; in the case of rotational architectures, this statement is, strictly speaking, untrue. The exact values found by the optimization algorithm for pseudo-walking excitation are provided in table 1.

If the optimal geometry for rotational architectures demanded that the seismic mass consumed half of the total device volume, then the optimal sector angle found by the optimization algorithm should be 180° ; table 1 shows that the actual optimal sector angles are either slightly (sprung) or substantially (unsprung) greater than 180° . The differences in power output between the device designs using the sector angle values given in table 1 and devices with a sector angle of 180° are practically negligible, however, which is why this detail was omitted in the publication.

Table 1. Unsprung and sprung rotational architecture optimal sector angles for three device thicknesses.

Device thickness	Sector angle, unsprung rotor	Sector angle, sprung rotor
2 mm	3.44 rad ($\approx 197^\circ$)	3.21 rad ($\approx 184^\circ$)
3 mm	($\approx 194^\circ$)	3.22 rad ($\approx 184^\circ$)
4 mm	3.34 rad ($\approx 191^\circ$)	3.21 rad ($\approx 184^\circ$)

2. Minor Corrigenda

The phrase ‘as possible’ should not appear in the first paragraph of the introduction.

The right-hand side of (4) should read $-ma$, where a represents the linear acceleration of the housing in the direction of the single degree of freedom.

The equation $P_{avg} = \frac{1}{T} \int_0^T b_e \dot{\phi}^2 dt$ is used to compute the average power output of the rotational device, not $P_{avg} = \frac{1}{T} \int_0^T b_e \dot{\theta}^2 dt$.

ORCID iDs

R Rantz  <https://orcid.org/0000-0002-5805-4170>

M A Halim  <https://orcid.org/0000-0003-3879-9017>

T Xue  <https://orcid.org/0000-0002-3235-7536>