



*LIGO Laboratory / LIGO Scientific Collaboration*

LIGO- T1000482-v1

*LIGO*

18<sup>th</sup> August 2010

---

**BOSEMs for Transmon suspension tests**

---

Norna A Robertson

Distribution of this document:  
LIGO Scientific Collaboration

This is an internal working note  
of the LIGO Laboratory.

**California Institute of Technology**  
**LIGO Project – MS 18-34**  
**1200 E. California Blvd.**  
**Pasadena, CA 91125**  
Phone (626) 395-2129  
Fax (626) 304-9834  
E-mail: info@ligo.caltech.edu

**Massachusetts Institute of Technology**  
**LIGO Project – NW22-295**  
**185 Albany St**  
**Cambridge, MA 02139**  
Phone (617) 253-4824  
Fax (617) 253-7014  
E-mail: info@ligo.mit.edu

**LIGO Hanford Observatory**  
**P.O. Box 159**  
**Richland WA 99352**  
Phone 509-372-8106  
Fax 509-372-8137

**LIGO Livingston Observatory**  
**P.O. Box 940**  
**Livingston, LA 70754**  
Phone 225-686-3100  
Fax 225-686-7189

<http://www.ligo.caltech.edu/>

## 1 Introduction

The purpose of this document is to capture the serial numbers of the six BOSEMs which the Suspensions group is lending to the AOS group for testing of their Transmon suspension in its “dirty” state. These BOSEMS are all prototype BOSEMS and not for use in final production suspensions. However they are suitable for tests of damping and control. Production BOSEMS will be supplied when needed for assembly in production Transmon suspensions.

## 2 Details of BOSEMS

Six BOSEMS are being supplied as follows, with labelling as shown.

### 2.1 From Janeen Romie at LLO

Noise Prototype OSEM Assembly – D060218-B s/n 067

BOSEM Assembly D060218-B s/n 25

### 2.2 From Brett Shapiro at MIT

Noise Prototype OSEM Assembly – D060218-B s/n 053

Noise Prototype OSEM Assembly – D060218-B s/n 054

Noise Prototype OSEM Assembly – D060218-B s/n 055

Noise Prototype OSEM Assembly – D060218-A s/n 031

### 2.3 Note on differences between these BOSEMS and production BOSEMS

2.3.1 Versions A and B (as above) are noise prototype units. All production BOSEMS are version C.

In general the B prototypes are identical to final production BOSEMS except for the type of LED used. The LEDs in the prototypes have been determined to be noisier than requirements. However the noise performance of the prototype BOSEMS will NOT affect the types of tests which will be carried out on the Transmon suspension.

The one version A prototype included above is an earlier design where the clearance between OSEM body and magnet/flag assembly is a little tight, making alignment more difficult. Other than that, the design is the essentially the same as version B.