*LIGO Laboratory / LIGO Scientific Collaboration*

LIGO-T1300883-v1 Advanced LIGO 10/21/2013

Nominal ALS Frequencies

Daniel Sigg

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) 395-2129Fax (626) 304-9834E-mail: info@ligo.caltech.edu | **Massachusetts Institute of Technology****LIGO Project – NW22-295****185 Albany St****Cambridge, MA 02139**Phone (617) 253-4824Fax (617) 253-7014E-mail: info@ligo.mit.edu |
| **LIGO Hanford Observatory****P.O. Box 159****Richland WA 99352**Phone 509-372-8106Fax 509-372-8137 | **LIGO Livingston Observatory****P.O. Box 940****Livingston, LA 70754**Phone 225-686-3100Fax 225-686-7189 |

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

The nominal frequency of the PSL/IMC VCO and the fiber AOM driver is 79'200'000 Hz. The AOM drive is provided by an RF source and is fixed. All ALS VCOs (EX/EY, COMM, DIFF) are set to a nominal frequency of 78'920'000 Hz.

| **Nominal ALS frequencies at 532 nm** |
| --- |
| **Location** | **Frequency (Hz)** | **Comment** |
| Fiber | –79'200'000 x 4 | Downshift |
| PSL | –79'200'000 x 4 | downshift, laser relative to ref. cav. |
| EX laser | –78'920'000 + fiber | relative downshift |
| EY laser | +78'920'000 + fiber | relative upshift |
|   |
| COMM VCO | +78'920'000 |   |
| DIFF VCO | +78'920'000 |   |
|   |
| Beat EX/laser | –78'920'000 | fiber - PSL + EX laser |
| Beat EY/laser | +78'920'000 | fiber - PSL + EY laser |
| Beat EY/EX | +157'840'000 | EY laser - EX laser |
|   |
| EX invariant | 0 | fiber - PSL + EX laser + COMM VCO |
| EY invariant | 0 | fiber - PSL + EY laser - COMM VCO |
| DIFF invariant | 0 | EY laser - EX laser - DIFF VCO |