BLIP TESTING PROCEDURE CDMS 19 Oct., 1998
PHONON SENSOR BIAS: BOARD # _____STATUS _____
DATE _____

Phonon Sensor 1 BIAS SECTION:

1. Test connections and set up:

- Measure PS1 Bias at Aux. output of Breakout Box, at PS1 Bias Mon. output connector on front panel and at Mux 1 output on the front panel.
- The output measured will be either a DC level (positive or negative polarity), a sinewave or a sawtooth waveform of 10Hz or 1kHz with variable amplitudes, dependent upon the DAC setting.
- An Auxiliary card must be in slot 21.

2. **Power up settings**:

PS1 DAC OUT:	10V
REF SELECT:	3(-15V)
FILTER:	1(on)
DIVIDE:	1(on)
GND PS1:	1(on)
VARIABLE INPUT:	1(on)

3. **Test preparation settings:**

readfile psbias.macro	
Set DAC = 1V	***PS1DAC(1)***
Select the +15V ref.:	***refPS1(2)***
Unfilter output:	***filterPS1(0)***
Undivide output:	***divPS1(0)***
Unground QI:	***gndPS1(0)***
Unselect variable input:	***varPS1(0)***
Select Mux output:	*Mux1(PS1Bias)*

PS1 DAC OUT:	1V
REF SELECT:	2(+15V)
FILTER:	0(off)
DIVIDE:	0(off)
GND PS1:	0(off)
VARIABLE INPUT:	0(off)

4. **PS1 Bias test:**
Input settings in Step 3 before starting test.

Set PS1 DAC to 0V. ***PS1DAC(0)***
Use a DMM to measure PS1 Bias and adjust R292 and R293 for an output of 0V.

PS1 DAC OUT:	0 to +10V
REF SELECT:	2(+15V)
FILTER:	0(off)
DIVIDE:	0(off)
GND PS1:	0(off)
VARIABLE INPUT:	0(off)

Set PS1 DAC to different values from 0V to +10V and record measurements.

PS1DAC(x) Note: x = 0 to 10

DAC	Box	Front panel	Mux 1
0			
2			
5			
7			
10			

Are the outputs equal to the setting?
_____

Is the output linear? _____

Does front panel readout match breakout box reading? _____

5. **Divider test:**
Input settings in Step 3 before starting test.

PS1 DAC OUT:	1V
REF SELECT:	2(+15V)
FILTER:	0(off)
DIVIDE:	1(on)
GND PS1:	0(off)
VARIABLE INPUT:	0(off)

Set DAC = 1V ***PS1DAC(1)***
Turn divider on: ***divPS1***

Is the output amplitude reduced to 1/20 of the previous measurements?(1V -> 50mV) _____

Turn divider off: ***divPS1(0)***

6. **Reference select test:**
Input settings in Step 3 before starting test.

PS1 DAC OUT:	1V
REF SELECT:	0,1,2,3
FILTER:	0(off)
DIVIDE:	0(off)
GND PS1:	0(off)
VARIABLE INPUT:	0(off)

Select negative DC: ***refPS1(3)***
Select positive DC: ***refPS1(2)***
Select 10 Hz: ***refPS1(1)***
Select 1kHz: ***refPS1(0)***

Record each output: ref 3:_____ ref.2 _____
ref.1 ref.0

Note: 10 Hz output will be a square wave, 1kHz output will be a sawtooth wave.

Does the output change with each selection? _____

7. **Filter test:**
Input settings in Step 3 before starting test.

PS1 DAC OUT:	1V
REF SELECT:	0
FILTER:	1(on)
DIVIDE:	0(off)
GND PS1:	0(off)
VARIABLE INPUT:	0(off)

Select 1kHz: ***refPS1(0)***
Select filtered output: ***filterPS1***

Is the output a sine wave? _____

Set DAC to 10V: *PS1DAC(10)*

Record the amplitude of the output. _____

8. **Variable external input test:**
Input settings in Step 3 before starting test.

PS1 DAC OUT:	0V
REF SELECT:	0
FILTER:	0(off)
DIVIDE:	0(off)
GND PS1:	0(off)
VARIABLE INPUT:	1(on)

Set DAC to 0V: ***PS1DAC(0)***
Select variable input: ***varPS1(1)***
Connect a frequency generator to the **PS1 MAN** input on the front panel and vary the frequency and amplitude of the input signal. Observe the output. Note:1Vp-p input yields 100mVp-p output.

Does the output change in relation to the input? _____

9. **Test Ground PS1**:
Input settings in Step 3 before starting test.

PS1 DAC OUT:	1V
REF SELECT:	0
FILTER:	0(off)
DIVIDE:	0(off)
GND PS1:	1(on)
VARIABLE INPUT:	0(off)

Turn on ground PS1: ***gndPS1***

Does output go to Zero? _____

Phonon Sensor 2 BIAS SECTION:

1. Test connections and set up:
- Measure PS2 Bias at Aux. output of Breakout Box, at PS2 Bias Mon. output connector on front panel and at Mux 2 on the front panel.
- The output measured will be either a DC level (positive or negative polarity), a sinewave or a sawtooth waveform of 10Hz or 1kHz with variable amplitudes, dependent upon the DAC setting.
- An Auxiliary card must be in slot 21.

2. **Power up settings**:

PS2 DAC OUT:	10V
REF SELECT:	3(-15V)
FILTER:	1(on)
DIVIDE:	1(on)
GND PS2:	1(on)
VARIABLE INPUT:	1(on)

3. **Test preparation settings:**

readfile psbias.macro

Set DAC = 1V	***PS2DAC(1)***
Select the +15V ref.:	***refPS2(2)***
Unfilter output:	***filterPS2(0)***
Undivide output:	***divPS2(0)***
Unground QI:	***gndPS2(0)***
Unselect variable input:	***varPS2(0)***
Select Mux 2 output:	*Mux2(PS2Bias)*

PS2 DAC OUT:	1V
REF SELECT:	2(+15V)
FILTER:	0(off)
DIVIDE:	0(off)
GND PS2:	0(off)
VARIABLE INPUT:	0(off)

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4. **PS2 Bias test:**
Input settings in Step 3 before starting test.

PS2 DAC OUT:	0 to +10V
REF SELECT:	2(+15V)
FILTER:	0(off)
DIVIDE:	0(off)
GND PS2:	0(off)
VARIABLE INPUT:	0(off)

Set PS2 DAC to 0V. ***PS2DAC(0)***
Use a DMM to measure PS1 Bias and adjust R297 and R298 for an output of 0V.

Set PS2 DAC to different values from 0V to +10V and record measurements.
PS2DAC(x) Note: x = 0 to 10

DAC	Box	Front panel	Mux 2
0			
2			
5			
7			
10			

Are the outputs equal to the setting?
_____

Is the output linear? _____

Does front panel readout match breakout box reading? _____

5. **Divider test:**
Input settings in Step 3 before starting test.

PS2 DAC OUT:	1V
REF SELECT:	2(+15V)
FILTER:	0(off)
DIVIDE:	1(on)
GND PS2:	0(off)
VARIABLE INPUT:	0(off)

Set DAC = 1V ***PS2DAC(1)***
Turn divider on: ***divPS2***

Is the output amplitude reduced to 1/20 of the previous measurements?(1V -> 50mV) _____

Turn divider off: ***divPS2(0)***

6. **Reference select test:**
Input settings in Step 3 before starting test.

PS2 DAC OUT:	1V
REF SELECT:	0,1,2,3
FILTER:	0(off)
DIVIDE:	0(off)
GND PS2:	0(off)
VARIABLE INPUT:	0(off)

Select negative DC: ***refPS2(3)***:
Select positive DC: ***refPS2(2)***:
Select 10 Hz: ***refPS2(1)***:
Select 1kHz: ***refPS2(0)***:

Record each output: ref 3:_____ ref.2 _____
ref.1 _____ ref.0 _____

Note: 10 Hz output will be a square wave, 1kHz output will be a sawtooth wave.

Does the output change with each selection? _____

7. **`Filter test:`**
Input settings in Step 3 before starting test.

PS2 DAC OUT:	1V
REF SELECT:	0
FILTER:	1(on)
DIVIDE:	0(off)
GND PS2:	0(off)
VARIABLE INPUT:	0(off)

Select 1kHz: ***refPS2(0)***
Select filtered output: ***filterPS2***

`Is the output a sine wave?` _____

Set DAC to 10V: *PS2DAC(10)*

`Record the amplitude of the output.` _____

8. **Variable external input test:**
Input settings in Step 3 before starting test.

PS2 DAC OUT:	0V
REF SELECT:	0
FILTER:	0(off)
DIVIDE:	0(off)
GND PS2:	0(off)
VARIABLE INPUT:	1(on)

Set DAC to 0V: ***PS2DAC(0)***
Select variable input: ***varPS2(1)***
Connect a frequency generator to the **PS2 MAN** input on the front and vary the frequency and amplitude of the signal. Observe the output. Note:1Vp-p input yields 100mVp-p output.

`Does the output change in relation to the input?` _____

9. **Test Ground PS2**:
Input settings in Step 3 before starting test.

PS2 DAC OUT:	1V
REF SELECT:	0
FILTER:	0(off)
DIVIDE:	0(off)
GND PS2:	1(on)
VARIABLE INPUT:	0(off)

Turn on ground PS2: ***gndPS2***

`Does output go to Zero?` _____