

Wed

BS Day 01 600nm FO banding experiment ... w/ Refresh optics

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MLML RADIOMETRIC CALIBRATION LOG

EXPERIMENT HI-2019-01 LOCATION Rm. 124
 DATE 10 Jan 2019 OBSERVERS MF, SM
 INSTRUMENT BS S/N 03 CONFIG 006
 COLLECTOR Lu@trk#6
 SOURCE NIST 0L455 S/N 18U CONFIG mm ~ 3.5
 PWR SUPPLY 0L400-C S/N CONFIG
 MULTIMETER S/N SHUNT nope
 LAMP VOLTAGE CURRENT 6.000
 LAMP TIME ON 04:34 WARMUP OFF TOTAL

WHERE NODE::DEV:[DIR]

SETUP SKETCH / REMARKS

took BS+RS+split+deck out of post MoBY265 & moved via red rolling cart to Rm. 124.
 Re-terminate post-M264 LuBot 600nm FO = 20ft + 7in from back of Lu head to FO plate @ splitter house.
 Lu head #? to track #6 @ spltr

Note: Lu window needs cleaned, tomorrow

PROCESSED DATE:

BY:

Time	Filename	Int Time/Bin Fact or Gain	Shunt Current mA	Lamp Voltage	Humidity % R.H.	Temp. °C	Remarks
04:25	-60° TEC = ON			PD A			
	Lamp off			.0002e-10	56	22	
04:57	5:20190110 001:004	5 sec	15.50 V	.7014e-6	57	23	straight-ish FO = spltr to head
5:00	5:8, 9:12, 13:16, 17:20						repeats = no setup change
5:11	21:24, 25:28, 29:32, 33:36			.7006			remove Lu head & replace @ sphere mount
5:24	37:40, 41:44, 45:48, 49:52			.6999			remove Lu head & replace
5:35	53:56, 57:60, 61:64, 65:68			.6991	57	23	remove Lu head & replace
				$\Delta 23 \sim .33\%$			
5:44	Lamp off			.0005e-10			
							68
							68
							136
							x2
							272

8 Mb/s copy hrd dsc to USB stick
 10 M USB stk to hrd dsc

2 (21-Feb-05 MF)

BS & RS
 Day 02

Thurs

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MLML RADIOMETRIC CALIBRATION LOG

EXPERIMENT HI-2019-01 LOCATION P35, rm. 124
 DATE 11 Jan 2019 OBSERVERS MF & SM
 INSTRUMENT BS03, RS04 S/N CONFIG 006, 003
 COLLECTOR Lu mux position fiber DISTANCE JIGGY
 SOURCE 0L455-18U S/N CONFIG um ~ 3.5
 PWR SUPPLY 0L400-C S/N CONFIG
 MULTIMETER NA S/N SHUNT NA
 LAMP VOLTAGE Δ CURRENT 6.000
 LAMP TIME ON 03:26 WARMUP 20min OFF 04:46 TOTAL

WHERE NODE :: DEV : [DIR]

SETUP SKETCH / REMARKS

Added T-Slot 80/20 rails to keep FO straight = MY idea, see photos.
 Decided NOT to clean Lu window (lasted OK)
 Start w/some-ish position as end last night.
 Added 2x fans @ BS & RS radiator fins.

Note: Art access BS/RS today via rm. 124 router/gateway to 10/100 switch.

PROCESSED DATE:

BY:

exp#

5

6

7

8

9

Time	Filename	Int Time/Bin Fact or Gain	Shunt Current mA	Lamp Voltage V	Humidity % R.H.	Temp. °C	Remarks
03:00	-60°C TEC			PD A			
	Lamp off			.0002e-10			
03:46	sd20190111 001:004	5sec	6.000, 15.50V	.7019e-6	54	22	straight FO on T-Slot rail
3:48	5:8, 9:12, 13:16, 17:20			.7019e-6			repeats (BS ~ 47222, 32799 RS) Max ADU
4:07	21:24, 25:28, 29:32, 33:36		15.51	.7015e-6	54	23	90° bend in FO, off straight FO line
4:18	37:40, 41:44, 45:48, 49:52		15.50	.7006e-6	55	23	back to straight
4:27	53:56, 57:60, 61:64, 65:68		15.50	.7003e-6			90° bend in FO
4:38	69:72, 73:76, 77:80, 81:84		15.50	.6995e-6	55	23	back to straight
4:46	Lamp off			.0005e-10			
NOTE: during FTP off BS pwr sup @ 1.8 to 2.1 A, 13.9 Vdc / 1.8 A @ pwr							
		RS		2.0 2.2	13.6		1.9
		RS xFer = much faster than BS!					

after maby-shutdown BS @ 1.2 A, RS @ 1.3 A

BS&RS | Fri | Day 03 | loops in FO

MLML RADIOMETRIC CALIBRATION LOG				SETUP SKETCH / REMARKS	
EXPERIMENT HI-2019-01		LOCATION p35, rm, 124			
DATE 12 Jan 2019		OBSERVERS MF			
INSTRUMENT BS03, RS04 S/N		CONFIG 006, 003			
COLLECTOR Lu (M264 LNBot)		DISTANCE JIGED			
SOURCE 0L455-180 S/N		CONFIG mm ~ 3.5			
PWR SUPPLY 0L400-C S/N		CONFIG			
MULTIMETER NA S/N		SHUNT NA			
LAMP VOLTAGE		CURRENT 6.000			
LAMP TIME ON 04:03		WARMUP 20min OFF 05:39 TOTAL 96min			
WHERE NODE :: DEV : [DIR]					

Time	Filename	Int Time/Bin Fact or Gain	Shunt Current mA	Lamp Voltage PD V A	Humidity % RH	Temp. °C	Remarks
03:54	-60°C TEC ON						
401	lamp db			.0002e-10	56	22	
423	sd20190112 001:004	5sec	6.000 A 15.51 V	.7039e-6	56	22	straight FO
425	5:8, 9:12, 13:16, 17:20			.7038e-6			repeats 468/471, 322/325
445	21:24, 25:28, 29:32, 33:36		15.51	.7030e-6			1x loop @ ~19 in dia 466, 323
503	37:40, 41:44, 45:48, 49:52		15.51	.7016e-6	56	22	2x loops @ ~18 in dia 465, 321
518	53:56, 57:60, 61:64, 65:68		15.51	.7007e-6			1x loop @ ~19 in dia 467, 322
531	69:72, 73:76, 77:80, 81:84		15.51	.7000e-6	57	23	straight 470, 326
539	lamp db			.0004e-10			

Mon
BS&RS Day 04

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MLML RADIOMETRIC CALIBRATION LOG				SETUP SKETCH / REMARKS	
EXPERIMENT	HI-2019-01		LOCATION	P35, Rm. 124	
DATE	15 Jan 2018		OBSERVERS	MF, SM	
INSTRUMENT	BS03, RS04	S/N	CONFIG		
COLLECTOR	Lu @ trk #6		DISTANCE	Jigged	
SOURCE	0L455-18U	S/N	CONFIG	~3.5 mA	
PWR SUPPLY	0L400-C	S/N	CONFIG		
MULTIMETER		S/N	SHUNT		
LAMP VOLTAGE		CURRENT	6.000		
LAMP TIME	ON 01:56	WARMUP	20 min	OFF	03:55
WHERE NODE :: DEV : [DIR]			TOTAL		
				PROCESSED DATE:	
				BY:	

coil FO onto 14 in dia plastic FO spool

Note: if comm crash w/ cam cooler on then asg - interactive err cooler status or cooler on = Error 20075 "getting cooler range" - see putty log #03

Note: RS stalled twice during scans may not have full scan sets? can look @ putty log...

exp#	Time	Filename	Int Time/Bin Fact or Gain	Shunt Current mA	Lamp Voltage	Humidity % RH	Temp. °C	Remarks
A	01:44	-60°C TEC			PD A			
	01:55	Lamp off			.0001e-10	54	22	BS comm crash, restart
15	02:18	sd 20190115 001:004 5 sec		15.52	.7028e-6	55	22	straight FO
	220	5:8, 9:12, 13:16, 17:20		.50	7027			repeats 469/321 471/324
16	236	21:24, 25:28, 29:32, 33:36		.51	7012			4x coils @ 14 in dia 461/318 413/321
17	252	37:40, 41:44, 45:48, 49:52		.50	7009			straight FO 468/323 473/326
B	310	53:56, 57:60, 61:64, 65:68		.52	6996	56	22	1x coil @ 14 in near specs 464/319 323
19	324	69:72, 73:76, 77:80, 81:84		.51	6987			+1 coil near head ~16 in dia 465/321
20	334	85:88, 89:92, 93:96, 97:100		.52	6985	56	23	back to 1x 14 in coil near specs 464/321 468/324
21	347	101:104, 105:108, 109:112, 113:116		.52	6979			straight FO 470/322 327
	56	Lamp off			.0005e-10			

→ Last set had 0 Kb .fits on BSG: maybe disc full? Yes - "1rm-r" ole files

Note: trk/port #9 had loose lenses in collimator @ FO block!
The locking lens-holder ring was tight, but ring against lens was loose...

Tue
BS&RS Day 05 trk #9 w/ 90° bend & loops in FO

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MLML RADIOMETRIC CALIBRATION LOG				SETUP SKETCH / REMARKS	
EXPERIMENT HI-2019-01		LOCATION P35, Rm. 124		dimmer lamp than @ trk #6! RS4 @ 3 sec → 60 KADU BS3 @ 15 sec → 33 KADU	
DATE 16 Jan 2019		OBSERVERS MF, SM			
INSTRUMENT BS03, RS04 S/N		CONFIG 006, 003			
COLLECTOR Lu@Trk#9		DISTANCE Jiggly			
SOURCE 0L455-18U S/N		CONFIG mm ~ 3			
PWR SUPPLY 0L400-C S/N		CONFIG			
MULTIMETER S/N		SHUNT NOPE			
LAMP VOLTAGE		CURRENT 6.000			
LAMP TIME ON 02:32		WARMUP 20 min OFF 441 TOTAL 129 min			
WHERE NODE :: DEV : [DIR]				PROCESSED DATE: BY:	

exp#	Time	Filename	Int Time/Bin Fact or Gain	Shunt Current mA	Lamp Voltage PD * A	Humidity % RH	Temp. °C	Remarks
	02:13	TEC@-60°C						
A. 22	252	sd20190116 001:004	B@15, R@3s	15.53 V	.3708e-6	53	22	straight FO
	25	5:8, 9:12, 13:16, 17:20			3705			repeats 328/600
23	313	21:24, 25:28, 29:32, 33:36		.53	3698	55	22	90° bend near head = 24 in dia
24	327	37:40, 41:44, 45:48, 49:52		.53	3696			straight
25	346	53:56, 57:60, 61:64, 65:68		.52	3692	56	23	1x 14 in dia loop near spec
B. 26	400	69:72, 73:76, 77:80, 81:84		.53	3689			another 17 in dia loop near head
27	414	85:88, 89:92, 93:96, 97:100		.52	3686	56	23	only 14 in dia loop near spec
28	429	101:104, 105:108, 109:112, 113:116		.52	3684			straight
	441	lamp off			.0005e-10			

Note: Art non BS/RS this AM, BS/RS were left powered-on overnight - ie ON since ~8pm last night...
& leaving pwr on tonight for Art

WED
BS&RS DAY 06

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MLML RADIOMETRIC CALIBRATION LOG				
EXPERIMENT	HI-2019-01		LOCATION	P.35 RM 124
DATE	17 JAN 2019		OBSERVERS	MF, SM
INSTRUMENT	BS03, RS04	S/N	CONFIG	
COLLECTOR	Lu@TRK#9		DISTANCE	Jigged
	mux	position	fiber	
SOURCE	OL455-18 U	S/N	CONFIG	~3.0 mm
PWR SUPPLY	OL400-C	S/N	CONFIG	
MULTIMETER		S/N	SHUNT	
LAMP VOLTAGE		CURRENT		
LAMP TIME	ON 02:47	WARMUP 20	OFF 04:27	TOTAL 100
WHERE	NODE :: DEV : [DIR]			

SETUP SKETCH / REMARKS
today = tighten loops... use Ocean Optics shipping case as Form OD ~ 11m/28cm, ID = 7 3/4 m/19.5cm
PROCESSED DATE:
BY:

exp#	Time	Filename	Int Time/Bin Fact or Gain	Shunt Current	Lamp Voltage	Humidity	Temp.	Remarks
	02:35	-60°C TEC = ON		mA V	PD A	% RH	°C	start @ CCD temp 26/26°C
	02:46	Lamp off			.0002e-10	53	22	
29	310	sd 20190117 001:004	15/3 sec	12.53	.3697e-6	54	22	straight FO 330/600 331/601
	313	5:8,9:12,13:16,17:20		.52	3697			repeat
30	331	21:24,25:28,29:32,33:36		.53	3692			1x 11 in dia loop near spec 324/589
31	348	37:40,41:44,45:48,49:52		.53	3687			+ 1x 11 in dia loop near head 322/586 324/588
32	402	53:56,57:60,61:64,65:68		.53	3683	55	23	only 1x 11 in dia loop near spec 324/590
33	416	69:72,73:76,77:80,81:84		.53	3679			straight FO 330/601
	427	Lamp off			Δ 18 ~ 1/2 % .0005e-10			

NOTE: BS+RS ^{PWR} on overnight for Art's work...

THU

BS+RS DAY 07 Tight FO coils!

☒ Need

Stethoscope
to listen for camera beeper

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MLML RADIOMETRIC CALIBRATION LOG				SETUP SKETCH / REMARKS	
EXPERIMENT	HI-2019-01		LOCATION	P35 RM 124	
DATE	18 JAN 2019		OBSERVERS	MF, SM	
INSTRUMENT	BS03, RS04	S/N	CONFIG		
COLLECTOR	Lu@TRK#9		DISTANCE	JIGGED	
SOURCE	OL 455-18U	S/N	CONFIG	~ 3.0 Mm	
PWR SUPPLY	OL 400-C	S/N	CONFIG		
MULTIMETER		S/N	SHUNT		
LAMP VOLTAGE		CURRENT			
LAMP TIME	ON 01:18	WARMUP 20	OFF 03:51	TOTAL	153
WHERE	NODE :: DEV :: [DIR]				
				PROCESSED DATE:	BY:

using black PVC pipe for tight-coil form
w/ 2.5 in OD
ex. BCJ suggested this AM ~ 3 in dia

NOTE: "warm spots" on BS & RS housings
about 14 in from end-cap
ie. end w/ cooling fins

exp#	Time	Filename	Int Time/Bin or Gain	Shunt Current Lamp mA V	Lamp Voltage PD A	Humidity % RH	Temp. °C	Remarks	
		-60°C TEC							
	01:40	sd20190118001:004	15/3 sec	15.54	.3703e-6	55	23	straight	
34	1:42	05:08, 09:12, 13:16, 17:20			3702			repeat	329 / 509 331 / 601
35	2:04	21:24, 25:28, 29:32, 33:36		54	3696	56	23	2x 2.5 in dia loops near specs	231 / 443 232 / 444
36	2:18	37:40, 41:44, 45:48, 49:52		54	3684			add 1x 11 in dia loop near head	232 / 443
37	2:32	53:56, 57:60, 61:64, 65:68		.54	3680	56	23	remove 11 in dia loop near head	231 / 444
38	2:53	69:72, 73:76, 77:80, 81:84		15.54	.3672e-6			add tight 2.5 in dia 90° near head	230 / 442
39...	3:08	85:88		.52	3669	56	22	add 1x 11 in dia loop between tights	441
		BS not cooling! @ set #85, maybe before? BS camera overheat beeper = ON, then OFF...							
		added 2x Fans across hot spots on BS & RS housings							
		also added rail to stabilize FO - was bouncing in Fans breeze... see photos							
		BS camera beeping → stop BS cooler! stop BS data acq.							
39	03:36	89:92, 93:96, 97:100	3sec	12.53	.3671e-6	56	22	w/ 11 in dia loop	(21-Feb-05 MF) / 440
40	3:43	101:104, 105:108, 109:112, 113:116		.53	.3670	55	22	remove 11 in dia loop	/ 443
	3:51	Lamp off			.0005e-10				/ 441

RS only

NOTE: MF messed up day 1: 7 scan sequence today @ 1st straight FO.
ie. only 4x scan sets @ start... had been 5x...

Fri
BS&RS Day 08 repeat end-o-day 7, make tight 90° bend into tight loop

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MLML RADIOMETRIC CALIBRATION LOG				SETUP SKETCH / REMARKS	
EXPERIMENT	HI-2019-01		LOCATION	P35, Rm. 124	
DATE	19 Jan 2019		OBSERVERS	MF	
INSTRUMENT	BS03 & RS04 S/N		CONFIG	006, 003	
COLLECTOR	Lu was M264 Bot		DISTANCE	Jiggered	
SOURCE	0L455-18U S/N		CONFIG	mm ~ 3.1	
PWR SUPPLY	0L400-C S/N		CONFIG		
MULTIMETER	S/N		SHUNT		
LAMP VOLTAGE	CURRENT				
LAMP TIME	ON 03:00		WARMUP	20 min OFF 05:08 TOTAL	
WHERE NODE :: DEV : [DIR]				PROCESSED DATE: BY:	

repeat end-o-day 7 w/ BS & RS
start w/ 2x tight coils @ spec
+ 1x tight 90° bend @ head
slightly brighter sphere vs day 7
Mark thought i easier to handle tight loop
@ head vs tight 90° bend @ head...

exp#	Time	Filename	Int Time/Bin Fact or Gain	Shunt Current mA	Lamp Voltage PD & A	Humidity % RH	Temp. °C	Remarks	
	02:51	-60°C TEC = ON						were 26°C @ TECs	
	02:59	lamp off			.0002e-10				258 / 503
A 41	320	s/d 20190119 001:004	15, 3 sec	15.54 V	.4267e-6	55	22	straight FO	260 / 504
	323	005:008, 009:012, 13:16			.4267			repeats	
42	339	17:20, 21:24, 25:28, 29:32,		.54	.4265	56	22	add 1x 11 in dia loop near head	258 / 501
43	354	33:36, 37:40, 41:44, 45:48		54	.4261			straight FO	259 / 504
44	423	49:52, 53:56, 57:60, 61:64		.54	.4249	56	23	make tight 90° → tight 360° @ hd	258 / 502
45	441	65:68, 69:72, 73:76, 77:80		54	.4244			add 1x 11 in dia loop near head	245 / 480
B 46	457	81:84, 85:88, 89:92, 93:96		54	.4241e-6	56	23	straight FO	247 / 482
	508	lamp off			.0004e-10				244 / 480
		Q: try quantify losses via tight coils: 2x 360°, 90°, + 270°							246 / 481
									245 / 480
									246 / 481

Tue [Day 9] tip BS+RS+Spitter on-end

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MLML RADIOMETRIC CALIBRATION LOG

EXPERIMENT HI-2019-01 LOCATION P35, tent
DATE 06 Feb 2019 OBSERVERS MF, SM
INSTRUMENT BS03, RS05 S/N CONFIG
COLLECTOR Trk09 Lu mux position fiber DISTANCE Jig@sphere
SOURCE 0L455-18 U S/N CONFIG mm ~ 3.1
PWR SUPPLY 0L400-C S/N CONFIG
MULTIMETER S/N SHUNT
LAMP VOLTAGE CURRENT
LAMP TIME ON 02:11 WARMUP 20min OFF 04:42 TOTAL

SETUP SKETCH / REMARKS

Save 1st test scans to look @ negative net sig on RS'

FO was dis & re-connected @ trk #9
FO still has 2x loops @ specs & 1x @ head = TIGHT LOOPS

Note: tent is not completely dark...
So, @ Horiz, FO has 1x broad 90° bend
@ Vert had extra bend frm up to dn

WHERE NODE :: DEV : [DIR]

PROCESSED DATE:

BY:

Time	Filename	Int Time/Bin Fact or Gain	Shunt Current	Lamp Voltage	Humidity	Temp.	Remarks
02:04	-60°C TEC = ON		PD mA A	PD V A	% RH	°C	
02:14	sd 20190206 001:004	15/3					1st lite scans = during lamp warmup
219	005:008	15/2	~.42e-6	15.54	46	26	test → 29/35 kADU max
234	009:012, 13:16, 17:20, 21:24	15/2 sec	.4240e-6	15.53	44	27	29.2/34.6 kADU max
305	25:28, 29:32, 33:36, 37:40		4242	54	46	26	specs vertical 29.3/34.6
322	41:44, 45:48, 49:52, 53:56		4242	53	48	26	Horiz #2
339	57:60, 61:64, 65:68, 69:72		4247	54	49	25	Vert #2
356	73:76, 77:80, 81:84, 85:88		4256	54	52	25	Horiz #3
414	89:92, 93:96, 97:100, 101:104		4259	54	54	24	Vert #3
430	105:108, 109:112, 113:116, 117:120		4269	54	56	24	Horiz #end
443	TECs off						