

# BOOKING SHEET FOR BOYA RANGE BARCODE STAFF CALIBRATION

Pressure:  
1010.8 hPa  
Temp: 21°C.

1) LEVEL BUBBLE CHECKED? (Circle one) YES / NO

ADJUSTED? YES / NO

2) STAFF BUBBLE CHECKED? (Circle one) YES / NO

ADJUSTED? YES / NO

3) COLLIMATION TEST OF DIGITAL LEVEL

See Boya Range plan for location of collimation test spikes 1-4

Use the adjusted instrument collimation constant derived from collimation test done below.

## 4) RANGE OBSERVATION DETAILS

See Boya Range plan for location of Pillar MV 83 and Pins 1-21

Set digital level to record most precise readings with multiple observations, means and standard deviations if possible. Shade instrument.

Book field information in these tables to complete documentation for calibration.

Observe a BS on Pin 1, IS on Pins 2-20 and a FS on Pin 21 for 1 complete set for a 4 m staff.

Observe a BS on Pin 1, IS on Pins 2-14 and a FS on Pin 15 for 1 complete set for a 3 m staff.

If instrument can't mean multiple observations, do at least 3 complete sets for redundancy.

DATE & TIME	17/1/2023	17/1/2023.	
INSTRUMENT DETAILS			
MAKE/MODEL	LEICA LS15	LEICA LS15	
SERIAL #	702272	702272	
STAFF DETAILS			
MAKE/MODEL	LEICA GPL3 INVAR	LEICA GPL3 INVAR	
SERIAL#	79918	79918	
MATERIAL	FIBREGLASS / WOOD / INVAR	FIBREGLASS / WOOD / INVAR	FIBREGLASS / WOOD / INVAR
LENGTH OF STAFF	3 m / 4 m / 5 m / .....	3 m / 4 m / 5 m / .....	3 m / 4 m / 5 m / .....
COEFFICIENT OF EXPANSION OF STAFF (If known)			
COLLIMATION TEST			
COLLIMATION DIFFERENCE	-8.7" OLD: 0" NEW: -8.7"		
ACCEPT/STORE?	RET: 1.66452 YES / NO	YES / NO	YES / NO
RANGE OBSERVATION DETAILS			
# OBSERVATIONS FOR MEAN (Min. of 5 observations)	10	10	
NUMBER OF SETS	1	1	
START TIME & TEMPERATURE	9.11 AM. 21.3°C. 22.2°C. 21.6°C. 21.8°C.	9.40 AM. 22.8°C. 23.0°C. 24.4°C.	23.4 (Ave). Start
END TIME & TEMPERATURE	9.33 AM. 22.7°C. 24.2°C. 24.2°C.	10.02 AM. 24.2°C.	24.2 (Ave). Start

pin # 1-15.

pin # 7-21.

I certify that the above observations were made by me at the Boya barcode staff calibration range.

SURVEYOR..... V. UNG  
(Name & Signature)

DATE..... 17/1/2023. TUESDAY.

## BOOKING SHEET FOR BOYA RANGE BARCODE STAFF CALIBRATION

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See Boya Range plan for location of collimation test spikes 1-4  
Use the adjusted instrument collimation constant derived from collimation test done below.

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See Boya Range plan for location of Pillar MV 83 and Pins 1-21

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Book field information in these tables to complete documentation for calibration.

Observe a BS on Pin 1, IS on Pins 2-20 and a FS on Pin 21 for 1 complete set for a 4 m staff.  
Observe a BS on Pin 1, IS on Pins 2-14 and a FS on Pin 15 for 1 complete set for a 3 m staff.

If instrument can't mean multiple observations, do at least 3 complete sets for redundancy.

DATE & TIME	17/1/2023.	17/1/2023	17/1/2023.
<b>INSTRUMENT DETAILS</b>			
MAKE/MODEL	LEICA LS15	LEICA LS15.	LEICA LS15
SERIAL #	702272	702272.	702272.
<b>STAFF DETAILS</b>			
MAKE/MODEL	LEICA GPL3 INVAR. LEICA GPL3. INVAR.		
SERIAL#	26296.		
MATERIAL	FIBREGLASS / WOOD / INVAR / .....		
LENGTH OF STAFF	3 m / 4 m / 5 m / .....		
COEFFICIENT OF EXPANSION OF STAFF (If known)			
<b>COLLIMATION TEST</b>			
COLLIMATION DIFFERENCE	/		
ACCEPT/STORE?	YES / <u>NO</u>		
<b>RANGE OBSERVATION DETAILS</b>			
# OBSERVATIONS FOR MEAN (Min. of 5 observations)	10		
NUMBER OF SETS	1		
START TIME & TEMPERATURE	22.5 (Ave) 10.10 AM. 22.8°C. 22.5°C. 22.3°C. 24.4°C. 21.6°C. 23.5 (Ave).		
END TIME & TEMPERATURE	23.3 (Ave) 25.0°C. 22.7°C. 22.5°C. 22.9°C. 25.7°C. 26.4°C. 25.8°C. 11.02 AM. 25.9 (Ave).		

\*Note: pin # 11 may have been driven over. pin # 7-21. 10.37 Am. pin # 1-15.

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V.UNG.  
SURVEYOR.....  
(Name & Signature)

DATE..... 17/1/2023. TUESDAY.



**BOOKING SHEET FOR BOYA RANGE BARCODE STAFF CALIBRATION**

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- 3) COLLIMATION TEST OF DIGITAL LEVEL

See Boya Range plan for location of collimation test spikes 1- 4

Use the adjusted instrument collimation constant derived from collimation test done below.

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See Boya Range plan for location of Pillar MV 83 and Pins 1- 21

Set digital level to record most precise readings with multiple observations, means and standard deviations if possible. Shade instrument.

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Observe a BS on Pin 1, IS on Pins 2-14 and a FS on Pin 15 for 1 complete set for a 3 m staff.

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DATE & TIME	17/1/2023	17/1/2023.	
<b>INSTRUMENT DETAILS</b>			
MAKE/MODEL	LEICA LS 15	LEICA LS 15.	
SERIAL #	702272	702272.	
<b>STAFF DETAILS</b>			
MAKE/MODEL	LEICA	LEICA.	
SERIAL#	213	212.	
MATERIAL	FIBREGLASS / WOOD / INVAR / .....	FIBREGLASS / WOOD / INVAR / .....	FIBREGLASS / WOOD / INVAR / .....
LENGTH OF STAFF	3 m / <u>4 m</u> / 5 m / .....	3 m / <u>4 m</u> / 5 m / .....	3 m / 4 m / 5 m / .....
COEFFICIENT OF EXPANSION OF STAFF (If known)			
<b>COLLIMATION TEST</b>			
COLLIMATION DIFFERENCE	/	/	
ACCEPT/STORE?	YES / <u>NO</u>	YES / <u>NO</u>	YES / NO
<b>RANGE OBSERVATION DETAILS</b>			
# OBSERVATIONS FOR MEAN (Min. of 5 observations)	5	5	
NUMBER OF SETS	1	1	
START TIME & TEMPERATURE 25.7 (Ave).	11.12 AM. ① 26.3°C. ② 25.6°C. ③ 25.2°C.	11.24 AM ④ 26.1°C. ⑤ 26.2°C. ⑥ 26.1°C.	26.4°C (Ave).
END TIME & TEMPERATURE (25.9) (Ave).	⑦ 25.8°C. ⑧ 25.4°C. ⑨ 26.3°C. ⑩ 25.9°C.	⑪ 27.1°C. ⑫ 25.7°C. ⑬ 24.2°C. ⑭ 25.9°C.	25.5°C (Ave).

pin# 1-21. ③ 26.2°C. 11.21 AM. pin# 1-21. ⑧ 26.4°C. 11.34 AM

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(Name & Signature)

DATE..... 17/1/2023. TUESDAY.