

# ObservationReport

all measures in mm

ObservationID

0317

on

2024-03-09 22:17

<b>Object</b>	<b>PK164+31.1</b>
Common Name	Headphone Nebula
Alternate Name (s)	Jones-Emberson 1
Visual Magnitude	13
Distance ► Object	1600
Apparent Size	6,8x6,0"
Object R.A.	07h 57m 51.628s
Object DEC	+53° 25' 16.96"
WikiLink	<a href="https://en.wikipedia.org/wiki/Jones-Emberson_1">https://en.wikipedia.org/wiki/Jones-Emberson_1</a>



20240309\_PK164-31-1\_ASI294\_0317-02WM.jpg

Link ► Picture	<a href="#">PK164+31.1_20240309</a>
Description	Planetary nebula
Constellation	Lynx

## Picture Data

Work Status	Published	Quality	***		
Format	Photo	Picture Center R.A.	07h 57m 55.844s		
Tot./Act. Frames/Pane	20	10	Picture Center DEC	+53° 25' 40.140"	
H / V Panes	1	1	H/V FoV [°]	0,6739	0,4586
Exp. [s] / Frame	180	Above horizon [°]	0		
Total Time / Pane [min]	30,00	30,00	View Direction	N	
<b>Camera Data</b>	<b>ZWO</b>	<b>ASI294MC-Pro</b>	<b>ZWOASI294</b>		
Camera Angle [°]	92,7	Pixel Pitch [µm]	4,63		
Gain or ISO	120	Camera Temp. °C	-10		

## Observation Site

Observation Start	2024-03-09T22:17:46 UTC+/- +1h	Observation End	2024-03-09T23:14:45	
Observation Site	DE Göttingen MBR	Site Elevation /Bortle	182	5
Province	NDS	Site Coordinates	51° 34' N, 9° 56' E	

## Sky & Moon

Sky Index   Total Clouds	5,0	0	%	Moon Rise   Set	06:47:00	17:00:00
Outside Temp. °C	3	Moon Age [d]	28,9			
Moon Phase  % Illum.	4th quarter	0	%	Moon ► Target Dist.	UNKNOWN	

## Optical Configuration

<b>TS1624AS294r</b>	<b>TS1624ASI294rT235</b>				
Lens or Scope	TSO RC 203/1624	Focuser	M90 2.5" Rack Pinion Foc		
Type Of Build	Ritchey-Chretien Reflector	Focuser Position [mm]	19,89	EAF Steps	6363
Brand	TS-Optics	Optical Factor	1		
Additional Optics	-	FoL norm actual [mm]	1624	1602,358	
Filter	Optolong 2" L-eNhanche	<a href="#">DawesLimitLink</a>	1,45 Arcsec		
Diameter [mm]	203	Optical Scale ["/px]	0,588		
Aperture / f-stop	8,00				

## Other Hardware & Software

GuideScope	ZWO 30/120 mini	Mount	iOptron iEQ45 Pro
GuiderHW	ASIAIR	SessionControl	ASIAIR
GuiderSW	ASIAIR	PostProcessingSW	NoiseXTerminator, PS, PixInsight

## More ...

Work Folder [2024\20240309\\_PK164-31-1\\_0317\\_GOE-MBR](#)

Comment

Remarks

### 1. Session Planning

The session was intended to test the collimation of the telescope. SkySafariPro and SkyAtlas of the ASIair was used to plan the test.

## 2. Location and sky

Relatively good, but due to the strong sky glow from the nearby city the object was too faint to give good results. The moon was not visible during the observation.

## 3. Session Results

- a) Relatively poor result, only 10 of the 20 light frames were finally used for image integration resulting in a rather short exposure time of only 30 minutes net. Without the first time tested AI-based NoiseXTerminator plugin from RC-Astro the quality would have been disastrous. Thanks to NoiseXTerminator, it was still possible to generate an acceptable image for the general conditions in the end.
- b) The collimation of the telescope is still not good. Plate solve (PixInsight: Script > Image Analysis > Image Plate Solver Script) resulted in a focal length of 1602mm instead of the nominal focal length of 1624mm and the stars still do not appear as clean dots but as light rings or larger blobs.

## 4. Plate Solving and Camera Rotation Results

ASI AIR SkyAtlas planned rotation:

ASI AIR Plate Solve result after GoTo:

Astrometry.net rotation measurement:

## 5. Post Processing

Image selection, registration, background enhancement and color correction were done in PixInsight (Post Processing using PixInsight (starlust.de)).

### **PixInsight Steps:**

1. Subframe selector: reduced frame count from 20 to 12 (deselected all frames with a FWHM > 9)
2. Blink: deleted frame #0005 (with satellite traces). Used remaining 11 frames for post processing.
3. WBPS Script using:
  1. Bias: MasterBias50\_1.0ms\_T-10C\_20230704-103931.fit
  2. Darks: MasterDark20\_180.0s\_20230703-185118.fit
  3. Flat: \_Astro\Observations\2024\20240309-221746\_PK164+31.1\_GOE-MBR\Flat\MasterFlat\_Stack20\_1.0ms\_Bin1\_gain120\_20240309-172244.fit
  4. One more frame failed during Local Normalization, 10 frames used for final image integration
4. PCC APASS DR10
5. BN: Lower: 0.0, Upper: 0.1, Target Background: 0.0002
6. NoiseXTerminator Denoise: 1.0, Detail 0.27
7. Full final stretch and export to jpg format

### **Photoshop Steps:**

used multiple iterations to get rid of the violet blur that surrounded the central object. No color or hue changes were made; the final image has natural colors.

## 6. Lessons Learned

Targets should be brighter than mag 12 or 13 for better results.

## 7. Main logfile entries

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