



UVES Exposure Time Calculator

Optical Echelle Spectroscopy Mode Version P116

[Description](#)

[FAQ](#)

Red Arm, CD3

Observing conditions:

- **Input flux distribution:**
 - Source type: **Blackbody**
 - Temperature: **6500 K**
 - Object Magnitude: **V = 17** (Vega)
- **Spatial Distribution: Point Source**
- **Sky Conditions:**
 - show sky model configuration details**
 - Moon FLI: **0.5**
 - Moon-target separation: **45** degrees
 - Airmass: **1.5**
 - Seeing: **1** arcsec
 - T category to use in phase 1: **70%**
 - PWV: **30** mm
 - Probability > **95%** of realising the PWV \leq 30 mm

Detector: MIT

Spectral Format Red, CD#3

| Order | wav of central column (nm) | y of central column (pix) | y of central column (arcsec) | FSR range (nm) | FSR 1 Min (nm) | FSR 1 Max (nm) | start wav (nm) | end wav (nm) | TS range (nm) |
|-------|----------------------------|---------------------------|------------------------------|----------------|----------------|----------------|----------------|--------------|---------------|
| 90 | 678.54 | 1966 | 358 | 7.53 | 674.12 | 681.65 | 672.32 | 683.49 | 11.16 |
| 91 | 671.08 | 1813 | 330 | 7.37 | 666.75 | 674.12 | 664.94 | 675.98 | 11.04 |
| 92 | 663.79 | 1663 | 303 | 7.21 | 659.55 | 666.76 | 657.71 | 668.63 | 10.93 |
| 93 | 656.65 | 1517 | 276 | 7.05 | 652.49 | 659.55 | 650.64 | 661.45 | 10.81 |
| 94 | 649.67 | 1374 | 250 | 6.90 | 645.59 | 652.49 | 643.71 | 654.41 | 10.70 |
| 95 | 642.83 | 1233 | 224 | 6.76 | 638.83 | 645.59 | 636.94 | 647.53 | 10.59 |
| 96 | 636.14 | 1096 | 200 | 6.62 | 632.21 | 638.83 | 630.30 | 640.79 | 10.48 |
| 97 | 629.58 | 962 | 175 | 6.48 | 625.73 | 632.21 | 623.81 | 634.18 | 10.38 |
| 98 | 623.16 | 830 | 151 | 6.35 | 619.37 | 625.73 | 617.44 | 627.72 | 10.28 |
| 99 | 616.87 | 701 | 128 | 6.22 | 613.15 | 619.37 | 611.20 | 621.38 | 10.18 |
| 100 | 610.70 | 575 | 105 | 6.10 | 607.05 | 613.15 | 605.09 | 615.17 | 10.08 |
| 101 | 604.66 | 451 | 82 | 5.98 | 601.07 | 607.05 | 599.10 | 609.08 | 9.98 |

| | | | | | | | | | |
|------------|--------|-----|----|------|--------|--------|--------|--------|------|
| 102 | 598.73 | 330 | 60 | 5.86 | 595.20 | 601.07 | 593.22 | 603.11 | 9.89 |
| 103 | 592.92 | 211 | 38 | 5.75 | 589.45 | 595.20 | 587.46 | 597.26 | 9.79 |
| 104 | 587.22 | 95 | 17 | 5.64 | 583.81 | 589.45 | 581.82 | 591.52 | 9.70 |

- **Image Quality:** **1.082** arcsec at the central wavelength $\lambda_c = \mathbf{580}$ nm (**to be used for OB constraint set**)
 show details of the IQ calculations at $\lambda_c = \mathbf{580}$ nm

- **Instrument setup:**

- Pre slit filter: **comp/filt/nofilter.dat**
- Image slicer: **None**
- FLAMES **fiber feed** used
- Fiber diameter: **1** arcsec
- Fiber entrance loss: **61.6 %**
- Observation Mode:**STANDARD** Template.
- Dichroic selection: **None**
- Arm cross disperser combination: **Red, CD#3**
- Below slit filter: **ins/uves/filt/flt_red_BS4-SHP700.dat**
- Exposure time: **3000 s**
- Medium pixel scale in Y (spatial) direction: **0.182** arcsec/pix
- Spatial (Y) bin size: **1** unbinned pixel/bin
- Spectral (X) bin size: **1** unbinned pixel/bin
- The sky signal is integrated over : **5** unbinned spatial pixels (5 spatial bins)
- Effective sky aperture: **0.785398** arcsec²

- **Detector parameters:**

- Mode: **fast**, gain:**low**, binning:**1x1**
- Gain (conversion factor): **1.41 e-/ADU**
- Readout noise: **3.71 e-**, dark current: **0.6 e-/h**
- Saturation limit: **92400 e-**

Show detailed S/N formula

Detected Counts

| Order | FSR Min Wavelength | | | | | Wavelength of central column | | | | | | | | FSR Max Wavelength | | | | |
|------------|--------------------|----------|----------|-----------|------|------------------------------|---------------|----------|----------|----------|-----------|------|---------------------|--------------------|----------|----------|-----------|------|
| | Eff. (%) | Obj (e-) | Sky (e-) | Imax (e-) | S/N* | lambda (nm) | bin size (nm) | Eff. (%) | Obj (e-) | Sky (e-) | Imax (e-) | S/N* | Texp(s) for S/N*=50 | Eff. (%) | Obj (e-) | Sky (e-) | Imax (e-) | S/N* |
| 90 | 1.2 | 81.8 | 9.9 | 23 | 6.4 | 678.54 | 0.0027 | 2.4 | 141 | 17.5 | 40 | 9.3 | 6.2e+04 | 1.2 | 60.4 | 7.63 | 17 | 5.1 |
| 91 | 1.2 | 83.3 | 9.7 | 24 | 6.5 | 671.08 | 0.0027 | 2.4 | 143 | 17.4 | 40 | 9.4 | 6.1e+04 | 1.2 | 61.9 | 7.71 | 18 | 5.2 |
| 92 | 1.3 | 86.6 | 9.91 | 24 | 6.7 | 663.79 | 0.0027 | 2.5 | 149 | 17.8 | 42 | 9.7 | 5.8e+04 | 1.3 | 64.6 | 7.88 | 18 | 5.4 |
| 93 | 1.3 | 89 | 10.1 | 25 | 6.8 | 656.65 | 0.0026 | 2.6 | 154 | 18 | 43 | 9.9 | 5.6e+04 | 1.3 | 66.9 | 7.99 | 19 | 5.5 |
| 94 | 1.3 | 90.8 | 10.1 | 26 | 6.9 | 649.67 | 0.0026 | 2.7 | 157 | 18.1 | 44 | 10 | 5.5e+04 | 1.4 | 68.5 | 8.05 | 19 | 5.6 |
| 95 | 1.4 | 93.3 | 10.3 | 26 | 7.1 | 642.83 | 0.0026 | 2.8 | 162 | 18.3 | 46 | 10 | 5.4e+04 | 1.4 | 70.6 | 8.18 | 20 | 5.8 |
| 96 | 1.4 | 95.3 | 10.5 | 27 | 7.2 | 636.14 | 0.0026 | 2.9 | 165 | 18.6 | 47 | 10 | 5.2e+04 | 1.4 | 72.3 | 8.26 | 20 | 5.9 |
| 97 | 1.5 | 97.3 | 10.9 | 27 | 7.3 | 629.58 | 0.0025 | 2.9 | 169 | 19.1 | 48 | 10 | 5.1e+04 | 1.5 | 74 | 8.45 | 21 | 6 |
| 98 | 1.5 | 97.8 | 11.1 | 28 | 7.3 | 623.16 | 0.0025 | 3 | 170 | 19.3 | 48 | 11 | 5.1e+04 | 1.5 | 74.6 | 8.52 | 21 | 6 |
| 99 | 1.5 | 97 | 11.1 | 27 | 7.2 | 616.87 | 0.0025 | 3 | 169 | 19.2 | 48 | 10 | 5.1e+04 | 1.5 | 74.2 | 8.44 | 21 | 6 |
| 100 | 1.5 | 95.3 | 10.9 | 27 | 7.2 | 610.70 | 0.0025 | 2.9 | 166 | 19 | 47 | 10 | 5.2e+04 | 1.5 | 73.2 | 8.33 | 21 | 5.9 |
| 101 | 1.5 | 93.6 | 10.8 | 26 | 7.1 | 604.66 | 0.0024 | 2.9 | 163 | 18.7 | 46 | 10 | 5.3e+04 | 1.5 | 72.1 | 8.24 | 20 | 5.9 |
| 102 | 1.4 | 91.4 | 10.6 | 26 | 6.9 | 598.73 | 0.0024 | 2.9 | 160 | 18.3 | 45 | 10 | 5.4e+04 | 1.4 | 70.6 | 8.08 | 20 | 5.8 |
| 103 | 1.4 | 88.6 | 10.4 | 25 | 6.8 | 592.92 | 0.0024 | 2.8 | 155 | 17.9 | 44 | 9.9 | 5.6e+04 | 1.4 | 68.7 | 7.86 | 19 | 5.6 |
| 104 | 1.4 | 85.8 | 10 | 24 | 6.6 | 587.22 | 0.0024 | 2.7 | 150 | 17.4 | 42 | 9.7 | 5.8e+04 | 1.4 | 66.7 | 7.66 | 19 | 5.5 |

* The S/N is per spectral bin. For point sources, **Eff** refers to the total efficiency including the fiber entrance

Warning: Please be aware that without a waiver there is a one-hour execution time limit for Service Mode OBs, and that the times returned here **do not** include instrument overheads, times for sky measurements, etc. Thus, care must be taken to allow for these additional times when constructing compliant OBs.

Detector: EEV

Spectral Format Red, CD#3

| Order | wav of central column (nm) | y of central column (pix) | y of central column (arcsec) | FSR range (nm) | FSR 1 Min (nm) | FSR 1 Max (nm) | start wav (nm) | end wav (nm) | TS range (nm) |
|-------|----------------------------|---------------------------|------------------------------|----------------|----------------|----------------|----------------|--------------|---------------|
| 106 | 576.14 | 2018 | 367 | 5.43 | 572.85 | 578.28 | 570.84 | 580.36 | 9.53 |
| 107 | 570.76 | 1908 | 347 | 5.33 | 567.52 | 572.85 | 565.50 | 574.94 | 9.44 |
| 108 | 565.48 | 1800 | 328 | 5.23 | 562.29 | 567.52 | 560.26 | 569.62 | 9.36 |
| 109 | 560.29 | 1694 | 308 | 5.14 | 557.16 | 562.29 | 555.12 | 564.40 | 9.28 |
| 110 | 555.20 | 1590 | 289 | 5.04 | 552.11 | 557.16 | 550.07 | 559.27 | 9.20 |
| 111 | 550.20 | 1488 | 271 | 4.95 | 547.16 | 552.11 | 545.12 | 554.24 | 9.12 |
| 112 | 545.29 | 1388 | 253 | 4.86 | 542.30 | 547.16 | 540.25 | 549.29 | 9.04 |
| 113 | 540.46 | 1289 | 235 | 4.78 | 537.52 | 542.30 | 535.47 | 544.43 | 8.97 |
| 114 | 535.72 | 1193 | 217 | 4.69 | 532.83 | 537.52 | 530.77 | 539.66 | 8.89 |
| 115 | 531.07 | 1098 | 200 | 4.61 | 528.21 | 532.83 | 526.15 | 534.97 | 8.82 |
| 116 | 526.49 | 1005 | 183 | 4.53 | 523.68 | 528.21 | 521.61 | 530.36 | 8.75 |
| 117 | 521.99 | 913 | 166 | 4.46 | 519.22 | 523.68 | 517.15 | 525.83 | 8.68 |
| 118 | 517.57 | 823 | 150 | 4.38 | 514.84 | 519.22 | 512.77 | 521.38 | 8.61 |
| 119 | 513.22 | 734 | 134 | 4.31 | 510.53 | 514.84 | 508.46 | 517.00 | 8.54 |
| 120 | 508.95 | 648 | 118 | 4.24 | 506.30 | 510.53 | 504.22 | 512.69 | 8.47 |
| 121 | 504.74 | 562 | 102 | 4.17 | 502.13 | 506.30 | 500.05 | 508.46 | 8.41 |
| 122 | 500.60 | 478 | 87 | 4.10 | 498.03 | 502.13 | 495.95 | 504.29 | 8.34 |
| 123 | 496.54 | 396 | 72 | 4.03 | 494.00 | 498.03 | 491.92 | 500.20 | 8.28 |
| 124 | 492.53 | 314 | 57 | 3.97 | 490.03 | 494.00 | 487.95 | 496.17 | 8.22 |
| 125 | 488.59 | 235 | 43 | 3.90 | 486.13 | 490.03 | 484.04 | 492.20 | 8.16 |
| 126 | 484.72 | 156 | 28 | 3.84 | 482.28 | 486.13 | 480.20 | 488.30 | 8.10 |
| 127 | 480.90 | 79 | 14 | 3.78 | 478.50 | 482.28 | 476.41 | 484.45 | 8.04 |
| 128 | 477.14 | 3 | 1 | 3.72 | 474.78 | 478.50 | 472.69 | 480.67 | 7.98 |

- **Image Quality:** 1.082 arcsec at the central wavelength $\lambda_c = 580$ nm (**to be used for OB constraint set**)
 - show details of the IQ calculations at $\lambda_c = 580$ nm
- **Instrument setup:**
 - Pre slit filter: **comp/filt/nofilter.dat**
 - Image slicer: **None**
 - FLAMES **fiber feed** used
 - Fiber diameter: **1** arcsec
 - Fiber entrance loss: **61.6 %**
 - Observation Mode:**STANDARD** Template.
 - Dichroic selection: **None**
 - Arm cross disperser combination: **Red, CD#3**
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 - Exposure time: **3000 s**
 - Medium pixel scale in Y (spatial) direction: **0.182** arcsec/pix

- Spatial (Y) bin size: **1** unbinned pixel/bin
- Spectral (X) bin size: **1** unbinned pixel/bin
- The sky signal is integrated over : **5** unbinned spatial pixels (5 spatial bins)
- Effective sky aperture: **0.785398 arcsec²**

• **Detector parameters:**

- Mode: **fast**, gain:**low**, binning:**1x1**
- Gain (conversion factor): **1.47 e-/ADU**
- Readout noise: **4.18 e-**, dark current: **0.4 e-/h**
- Saturation limit: **96337 e-**

Show detailed S/N formula

Detected Counts

| Order | FSR Min Wavelength | | | | | Wavelength of central column | | | | | | | | FSR Max Wavelength | | | | |
|------------|--------------------|----------|----------|-----------|------|------------------------------|---------------|----------|----------|----------|-----------|------|-----------------------|--------------------|----------|----------|-----------|------|
| | Eff. (%) | Obj (e-) | Sky (e-) | Imax (e-) | S/N* | lambda (nm) | bin size (nm) | Eff. (%) | Obj (e-) | Sky (e-) | Imax (e-) | S/N* | Texp(s) for S/N* = 50 | Eff. (%) | Obj (e-) | Sky (e-) | Imax (e-) | S/N* |
| 106 | 1.4 | 86.3 | 10.2 | 24 | 6.3 | 576.14 | 0.0023 | 2.8 | 151 | 17.5 | 43 | 9.4 | 5.8e+04 | 1.4 | 67.1 | 7.73 | 19 | 5.2 |
| 107 | 1.4 | 82.8 | 9.68 | 23 | 6.1 | 570.76 | 0.0023 | 2.7 | 145 | 16.8 | 41 | 9.1 | 6e+04 | 1.4 | 64.6 | 7.42 | 18 | 5.1 |
| 108 | 1.3 | 81.3 | 9.47 | 23 | 6.1 | 565.48 | 0.0023 | 2.7 | 142 | 16.5 | 40 | 9 | 6.1e+04 | 1.3 | 63.5 | 7.36 | 18 | 5 |
| 109 | 1.3 | 79.7 | 9.31 | 22 | 6 | 560.29 | 0.0023 | 2.7 | 140 | 16.2 | 39 | 8.9 | 6.2e+04 | 1.3 | 62.6 | 7.24 | 18 | 5 |
| 110 | 1.3 | 77.8 | 9.15 | 22 | 5.9 | 555.20 | 0.0022 | 2.6 | 137 | 15.9 | 39 | 8.8 | 6.4e+04 | 1.3 | 61.4 | 7.1 | 17 | 4.9 |
| 111 | 1.3 | 75.9 | 8.9 | 21 | 5.8 | 550.20 | 0.0022 | 2.6 | 134 | 15.6 | 38 | 8.7 | 6.5e+04 | 1.3 | 60 | 6.98 | 17 | 4.8 |
| 112 | 1.3 | 74.7 | 8.8 | 21 | 5.7 | 545.29 | 0.0022 | 2.6 | 132 | 15.4 | 37 | 8.6 | 6.6e+04 | 1.3 | 59.3 | 6.95 | 17 | 4.8 |
| 113 | 1.3 | 73.5 | 8.71 | 21 | 5.6 | 540.46 | 0.0022 | 2.6 | 130 | 15.3 | 37 | 8.5 | 6.7e+04 | 1.3 | 58.5 | 6.87 | 16 | 4.7 |
| 114 | 1.3 | 72.3 | 8.62 | 20 | 5.5 | 535.72 | 0.0022 | 2.6 | 128 | 15.1 | 36 | 8.4 | 6.8e+04 | 1.3 | 57.6 | 6.81 | 16 | 4.7 |
| 115 | 1.3 | 70.7 | 8.47 | 20 | 5.5 | 531.07 | 0.0022 | 2.5 | 125 | 14.8 | 35 | 8.3 | 7e+04 | 1.3 | 56.4 | 6.68 | 16 | 4.6 |
| 116 | 1.2 | 69.2 | 8.35 | 20 | 5.4 | 526.49 | 0.0021 | 2.5 | 122 | 14.6 | 34 | 8.1 | 7.1e+04 | 1.2 | 55.3 | 6.59 | 16 | 4.5 |
| 117 | 1.2 | 67.3 | 8.17 | 19 | 5.2 | 521.99 | 0.0021 | 2.5 | 119 | 14.3 | 34 | 8 | 7.3e+04 | 1.2 | 54 | 6.44 | 15 | 4.4 |
| 118 | 1.2 | 65.4 | 7.98 | 18 | 5.1 | 517.57 | 0.0021 | 2.4 | 116 | 14 | 33 | 7.8 | 7.5e+04 | 1.2 | 52.6 | 6.3 | 15 | 4.3 |
| 119 | 1.2 | 63.6 | 7.78 | 18 | 5 | 513.22 | 0.0021 | 2.4 | 113 | 13.7 | 32 | 7.7 | 7.8e+04 | 1.2 | 51.3 | 6.18 | 14 | 4.2 |
| 120 | 1.2 | 62.2 | 7.59 | 18 | 4.9 | 508.95 | 0.0021 | 2.4 | 110 | 13.4 | 31 | 7.6 | 7.9e+04 | 1.2 | 50.2 | 6.1 | 14 | 4.2 |
| 121 | 1.2 | 61.5 | 7.52 | 17 | 4.9 | 504.74 | 0.0021 | 2.4 | 109 | 13.4 | 31 | 7.5 | 8e+04 | 1.2 | 49.7 | 6.09 | 14 | 4.1 |
| 122 | 1.2 | 60.9 | 7.53 | 17 | 4.9 | 500.60 | 0.002 | 2.4 | 108 | 13.3 | 31 | 7.5 | 8.1e+04 | 1.2 | 49.4 | 6.09 | 14 | 4.1 |
| 123 | 1.2 | 59.7 | 7.45 | 17 | 4.8 | 496.54 | 0.002 | 2.3 | 106 | 13.2 | 30 | 7.4 | 8.2e+04 | 1.2 | 48.7 | 6.03 | 14 | 4.1 |
| 124 | 1.2 | 58.7 | 7.37 | 17 | 4.7 | 492.53 | 0.002 | 2.3 | 105 | 13.1 | 30 | 7.3 | 8.4e+04 | 1.2 | 48 | 6 | 14 | 4 |
| 125 | 1.2 | 57.5 | 7.41 | 16 | 4.6 | 488.59 | 0.002 | 2.3 | 103 | 13.1 | 29 | 7.2 | 8.5e+04 | 1.2 | 47.4 | 5.97 | 13 | 4 |
| 126 | 1.1 | 55.5 | 7.28 | 16 | 4.5 | 484.72 | 0.002 | 2.3 | 99.6 | 12.8 | 28 | 7 | 8.9e+04 | 1.1 | 45.9 | 5.86 | 13 | 3.9 |
| 127 | 1.1 | 53.9 | 7.2 | 15 | 4.4 | 480.90 | 0.002 | 2.2 | 96.1 | 12.6 | 27 | 6.8 | 9.2e+04 | 1.1 | 44.3 | 5.76 | 13 | 3.8 |
| 128 | 1.1 | 51.9 | 6.99 | 15 | 4.3 | 477.14 | 0.002 | 2.2 | 92.4 | 12.2 | 26 | 6.6 | 9.6e+04 | 1.1 | 42.4 | 5.53 | 12 | 3.6 |

* The S/N is per spectral bin. For point sources, **Eff** refers to the total efficiency including the fiber entrance loss and atmospheric transmission.

Warning: Please be aware that without a waiver there is a one-hour execution time limit for Service Mode OBs, and that the times returned here **do not** include instrument overheads, times for sky measurements, etc. Thus, care must be taken to allow for these additional times when constructing compliant OBs.

