

# ESOFORM PDF<sub>TEX</sub> MACROS

## USERS' MANUAL FOR PHASE 1 PROPOSALS

European Southern Observatory

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### ESO DEADLINE FOR PROPOSAL SUBMISSION

The ESO deadline for Period 81 proposal submission is:

**28 September 2007, 12:00 CEST**

This Users' Manual and the whole ESOFORM Package is maintained by the Visiting Astronomers Department (VISAS), while the background software is provided by the User Support System (USS) Department.



# 1 INTRODUCTION

The ESOFORM package has been designed to enable a fully electronic preparation and submission of applications for observing time at the European Southern Observatory, for all telescopes located at the La Silla Paranal observatory.

**Getting help.** Should you need assistance from ESO to prepare your proposal, please send emails to the address [esoform@eso.org](mailto:esoform@eso.org) for questions relative to the ESOFORM package as well as for more general questions about instrument performance, Observatory policy, etc.

## 1.1 How to Obtain the New ESOFORM Proposal Package

The ESOFORM Proposal Package may be obtained over the web via the URL:

<http://www.eso.org/observing/proposals/esoform.html>.

## 1.2 Description of the Content of the ESOFORM Proposal Package

The ESOFORM package consists of:

- three L<sup>A</sup>T<sub>E</sub>X class files (`esoform.cls`, `esoformshort.cls`, and `esoformlarge.cls`) that, together with the style files `common2e.sty` and `config.sty`, define all the macros required to generate the application form for Normal, Short and Large Programmes, respectively;
- three template proposals (`template.tex` for Normal Programme applications, `templateshort.tex` for Short Programme applications, and `templatelarge.tex` for Large Programme applications), which the users may edit directly in order to create a new proposal;
- this Users' Manual (`usersmanual.tex`), which contains all the information required to fill the templates, as well as instructions on the electronic submission of proposals (via the Web-based WASP interface);
- a short README file.

## 1.3 General Features

The present manual describes the use of the ESOFORM templates, which are composed of macros that are defined in the ESOFORM class and style files. The macros allow the computer controlled typesetting of applications for observing time at ESO. If you are already familiar with T<sub>E</sub>X or L<sup>A</sup>T<sub>E</sub>X, you will probably have no difficulty using the macros provided. You should follow the instructions given below and keep in mind that all your input must conform to the standard L<sup>A</sup>T<sub>E</sub>X rules.

The ESOFORM package has been prepared with the following version of pdfL<sup>A</sup>T<sub>E</sub>X: pdfT<sub>E</sub>X, Version 3.141592 (Web2C 7.5.5). If you encounter any serious pdfT<sub>E</sub>X or pdfL<sup>A</sup>T<sub>E</sub>X problem, please send an email to the address [esoform@eso.org](mailto:esoform@eso.org), describing the problem and indicating which version of pdfL<sup>A</sup>T<sub>E</sub>X you are using. For ease of use, we have adopted (and already included in the class files `esoform.cls`, `esoformshort.cls`, and `esoformlarge.cls`) a number of L<sup>A</sup>T<sub>E</sub>X definitions of commonly used astronomical symbols (see list in Table 1).

For every observing period, the layout of the instruments will be updated according to the anticipated availability of instruments at the La Silla Paranal Observatory. *Please note that **only** proposals prepared using the **latest** version of ESOFORM will be valid and accepted by ESO.*

# 2 NEW FEATURES FOR PERIODS 80 AND 81

The main new features or changes introduced in the ESOFORM package in the last two periods are summarised below.

- With the introduction of a new type of proposals for Period 80, the Short Programme proposals, a new template (`templateshort.tex`) has been added, and the corresponding modifications have been made to the relevant class and style files.
- Proposals that contain input outside the ESOFORM macros are now rejected by the proposal reception system.



Table 1: Astronomical L<sup>A</sup>T<sub>E</sub>X Symbols

<code>\ang</code>	Å	<code>90\deg</code>	90°	
<code>\halpha</code>	H $\alpha$	<code>16\sqdeg</code>	16deg <sup>2</sup>	
<code>\hbeta</code>	H $\beta$	<code>28\arcmin</code>	28'	
<code>\hgamma</code>	H $\gamma$	<code>11\arcsec</code>	11''	
<code>\lya</code>	Ly $\alpha$	<code>5\fd4</code>	5 <sup>d</sup> 4	
<code>\lyb</code>	Ly $\beta$	<code>8\fh2</code>	8 <sup>h</sup> 2	
<code>\mv</code>	$m_V$	<code>2\fm56</code>	2 <sup>m</sup> 56	
<code>\Mv</code>	$M_V$	<code>10\fs08</code>	10 <sup>s</sup> 08	
<code>\ubvr</code>	UBVR	<code>23\fdg12</code>	23°12	
<code>\ub</code>	$U - B$	<code>3\farcm6</code>	3'6	
<code>\bv</code>	$B - V$	<code>0\farcs27</code>	0'27	
<code>\vr</code>	$V - R$	<code>0\fp4</code>	0 <sup>p</sup> 4	
<code>\ur</code>	$U - R$	<code>\onehalf</code>	$\frac{1}{2}$	
<code>\jhk</code>	JHK	<code>\onethird</code>	$\frac{1}{3}$	
<code>\jh</code>	$J - H$	<code>\twothirds</code>	$\frac{2}{3}$	
<code>\hk</code>	$H - K$	<code>\onequarter</code>	$\frac{1}{4}$	
<code>\jk</code>	$J - K$	<code>\threequarters</code>	$\frac{3}{4}$	
<code>\ion{C}{4}</code>	C IV	<code>\slantfrac{{22}}{{7}}</code>	$\frac{22}{7}$	(braces unless one character)
<code>3.6\micron</code>	3.6 $\mu$ m	<code>\squig\$</code>	~	(math mode only)
<code>25\kms</code>	25 km s <sup>-1</sup>	<code>\lesssim\$</code>	≲	(math mode only)
<code>\peryr</code>	yr <sup>-1</sup>	<code>\gtrsim\$</code>	≳	(math mode only)
<code>M\subsun</code>	$M_{\odot}$	<code>\la\$</code>	≲	(math mode only)
<code>\sun</code>	☉	<code>\ga\$</code>	≳	(math mode only)
<code>\earth</code>	⊕	<code>\nodata</code>	...	(tables only)
<code>\sq</code>	□			

- A new macro (`\GTOcontract`) has been created, to be used in GTO proposals to specify the contract or agreement to which the observations requested in the proposal pertain.
- As of Period 80, it is possible to specify more than one alternative run per primary run.
- For APEX, only one run can be specified for each instrument.
- For APEX, the amount of Precipitable Water Vapour and the acceptable Local Sidereal Time interval of the observation must be specified in the target list.
- A new macro (`\HasTimingConstraints`) has been introduced to flag in a generic manner programmes requesting observations to be executed at specific times or specific time intervals.
- For ToO proposals, the list of keywords to be used in the macro `\TOORuns` has been revised.

### 3 HOW TO FILL A NORMAL PROGRAMME TEMPLATE

As mentioned in the Introduction, you should fill in with your favourite editor the template file (`template.tex`). Instructions for Short Programmes (`templateshort.tex`) and Large Programmes (`templatelarge.tex`) are given in Sects. 4 and 5. The easiest way to write a proposal is to modify the file `template.tex` by following the examples therein and the detailed instructions given in the present manual. Input in the template is allowed **only within the arguments of the provided ESOFORM macros**. The presence of text **outside** the macro arguments will lead to **rejection** of the proposal by the automatic proposal reception system (see Sect. 6).

Please note that **it is the responsibility of the applicants to stay within the current box limits** and to eliminate potential overfill/overwrite problems. A careful visual check of the generated pdf file is mandatory.



### 3.1 The Cycle, the Title, the Subcategory Code, the GTO, OPTICON, ToO, RRM, and XMM Flags: BOX 1

The first macros to check in the `template.tex` files are:

- `\Cycle` contains the Period ID for this Call for Proposals, and should NOT be modified by the users;
- `\Title` must contain the title of the application (up to two lines);
- `\SubCategoryCode` must contain only one subcategory code, corresponding to the keyword (see Table 2) best summarizing the aim of your proposal. For example, a study of high-redshift clusters of galaxies will have the code A5;
- `\OPTICONfunded` must be uncommented if your proposal can apply for travel funds from the OPTICON programme. (Read more about OPTICON in the Call for Proposals.) This flag will NOT produce any visible output in the compiled document.
- `\ProgrammeType` should be `NORMAL` for Normal Programmes, `GTO` for Guaranteed Time Observation (GTO), or `TOO` for Target of Opportunity (ToO) programmes. Types `SHORT` and `LARGE` are also defined, respectively for Short Programmes and for Large Programmes, but they can be used exclusively within the corresponding specific templates, `templateshort.tex` and `templatelarge.tex` (see Sects. 4 and 5). Note that a GTO proposal should ask only for GTO time; it is compulsory to fill another, non-GTO proposal if you need more non-GTO time, even if it is for exactly the same project. If you submit a TOO proposal, your proposal must include a duly completed ToO page (see Sect. 3.18). If you submit a GTO proposal, you must additionally uncomment and fill in the macro `\GTOcontract`, which is described below.
- `\GTOcontract` *must* be uncommented if the proposal type is GTO. This macro takes one mandatory argument: the keyword corresponding to the contract or agreement governing the allocation of Guaranteed Time under which the present proposal is submitted. The applicable keyword for each contract or agreement has been communicated by ESO to the coordinator of the respective GTO Team or to the designated contact person. Every single GTO proposal is allowed to request time within the framework of only one GTO contract or agreement. If your project involves Guaranteed Time corresponding to several different agreements, you must submit separate proposals for the time to be charged to each agreement.
- `\ObservationInRRM` must be uncommented if your proposal is a Target of Opportunity proposal applying for Rapid Response Mode (RRM) observations.
- `\ObservationWithXMM` must be uncommented if your proposal is applying for time under the VLT-XMM agreement (see the Call for Proposals for details on this agreement). Note that in this case users can apply for both Periods 81 and 82.

Your first sequence will then have the following general format:

```
\Cycle{81A}  
\Title{AGN host galaxies}  
\SubCategoryCode{B9}  
\ProgrammeType{GTO}  
\GTOcontract{<your-contract-keyword>}
```

which means that you would like to study some AGN host galaxies, with subcategory code B9, and this would be Guaranteed Time Observations within the framework of the contract or agreement referred to by keyword `<your-contract-keyword>`.

### 3.2 The Abstract: BOX 2

This macro (`\Abstract`) contains the abstract of the proposal, i.e., a brief summary, in up to nine lines, of your scientific aim.



Table 2: ESO OPC categories and subcategories

Panels	Categories	Code	Subcategories
<b>A</b>	Cosmology	A1	Surveys of AGNs and high-z galaxies;
		A2	Identification studies of extragalactic surveys;
		A3	Large scale structure and evolution;
		A4	Distance scale;
		A5	Groups and clusters of galaxies;
		A6	Gravitational lensing;
		A7	Intervening absorption line systems;
		A8	High-redshift galaxies (star formation and ISM).
<b>B</b>	Galaxies and galactic nuclei	B1	Morphology and galactic structure;
		B2	Unresolved stellar populations;
		B3	Chemical evolution;
		B4	Galaxy dynamics;
		B5	Peculiar/interacting galaxies;
		B6	Non-thermal processes in galactic nuclei (incl. QSRs, QSOs, blazars, Seyfert galaxies, BALs, radio galaxies, and LINERS);
		B7	Thermal processes in galactic nuclei and starburst galaxies (incl. ultraluminous IR galaxies, outflows, emission lines, and spectral energy distributions);
		B8	Central supermassive objects;
		B9	AGN host galaxies.
<b>C</b>	ISM, star formation and planetary systems	C1	Gas and dust, giant molecular clouds, cool and hot gas, diffuse and translucent clouds;
		C2	Chemical processes in the interstellar medium;
		C3	Star forming regions, globules, protostars, HII regions;
		C4	Pre-main-sequence stars (massive PMS stars, Herbig Ae/Be stars and T Tauri stars);
		C5	Outflows, stellar jets, HH objects;
		C6	Main-sequence stars with circumstellar matter, early evolution;
		C7	Young binaries, brown dwarfs, exosolar planet searches;
		C8	Solar system (planets, comets, small bodies).
<b>D</b>	Stellar evolution	D1	Main-sequence stars;
		D2	Post-main-sequence stars, giants, supergiants, AGB stars, post-AGB stars;
		D3	Pulsating stars and stellar activity;
		D4	Mass loss and winds;
		D5	Supernovae, pulsars;
		D6	Planetary nebulae, nova remnants and supernova remnants;
		D7	Pre-white dwarfs and white dwarfs, neutron stars;
		D8	Evolved binaries, black-hole candidates, novae, X-ray binaries, CVs;
		D9	Gamma-ray and X-ray bursters;
		D10	OB associations, open and globular clusters, extragalactic star clusters;
		D11	Individual stars in external galaxies, resolved stellar populations;
		D12	Distance scale – stars.



```

\Abstract{ .
.
.
The text of your summary which will usually be
several lines long. Line breaking will
automatically be taken care of by LaTeX.
.
.
.
} <-- Do not forget the
      closing brace !

```

### 3.3 Information about the Different Runs: BOX 3

The next macro (`\ObservingRun`) allows the description of the different parameters characterizing your observing run(s) and is necessary for the scheduling and completion of your programme (see examples below). This macro takes nine arguments, to be specified between nine pairs of curly braces {}, which are related to the parameters described below.

**1. RUN ID.** Your programme may involve several observing runs, e.g. for complementary use of different telescopes or different instruments. Each observing run (up to 26) required by a proposal should be identified by a different letter, following the sequence A, B, C, ..., Z as needed. Provide, in the first pair of curly braces, this (these) run identification(s). For example,

```

\ObservingRun{A}{}{}{}{}{}{}{}{}
\ObservingRun{B}{}{}{}{}{}{}{}{}

```

A Normal Programme may have up to 26 runs. Since the space for the run description in Box 3 is limited to 10 lines, a new box containing the observing runs beyond this limit will be created at the end of the proposal form if needed.

**2. PERIOD KEYWORD.** Provide, in the second pair of curly braces, the period number. For normal proposals this has always to be 81, unless the users are applying under the VLT-XMM agreement, in which case 82 is also a valid period.

**3. INSTRUMENT.** Provide the keyword of the instrument required for each observing run. The complete list of keywords of all instruments offered in Period 81 for Normal Programmes is given in Table 3.

Table 3: Keywords of Available Instruments (Normal Programmes)

Telescope	Instrument keywords
UT1	FORS2, ISAAC, CRIRES
UT2	FORS1, UVES, FLAMES
UT3	VIMOS, VISIR, SpecialUT3
UT4	NACO, SINFONI, HAWK-I
VLTI	MIDI, AMBER
NTT	SOFI, EFOSC2, SpecialNTT
3.6	HARPS, Special3.6
APEX	APEX-2A, LABOCA

Provide, in the third pair of curly braces, the instrument(s) required for each observing run. For example,

```

\ObservingRun{A}{81}{FORS1}{}{}{}{}{}{}

```

For visitors bringing their own Visitor Instrument, please use the corresponding “Special” keyword, i.e., “SpecialUT3” for an instrument to be installed at UT3, “Special3.6” for an instrument to be mounted on the



3.6, and “SpecialNTT” for the NTT. It is then compulsory to fill in the Visitor Instrument information page in Box 14 (see Sect. 3.19).

**4. REQUESTED TIME.** In order to allow for the automated scheduling of proposals, you must specify the amount of time that you are requesting (hours in Service Mode and nights in Visitor Mode).

**For Service Mode (SM),** provide at this stage only the total number of hours requested, followed by the letter **h** for hours. This should include also the time related to any special calibrations required in addition to the standard calibrations provided by ESO. Any more detailed information about possible particular scheduling features will be provided during Phase 2 Service Mode proposal preparation.

**For Visitor Mode (VM) proposals,** the runs are scheduled according to the information supplied in the Phase 1 proposal form. Consequently, you are required to provide already in this form detailed information about any particular scheduling requirements for the successful completion of your programme. You should code the requested time (in nights), starting with the total time requested, followed by the letter **n** for nights, according to the examples below:

4n	for 4 consecutive nights,
4n=4x1	for 4 times 1 night, with intervals in between,
6n=3x2	for 3 times 2 consecutive nights,
7n=3x2+1	for 3 times 2 consecutive nights followed by 1 night.

If the programme needs half-nights, you should code the requested time (in nights and half-nights), starting with the total time requested, following the few examples below (with **H1** = first half of the night, and **H2** = second half of the night):

2n=4H1	for 4 consecutive first halves of a night,
2n=4x1H2	for 4 times the second half of a night, with intervals in between,
3n=3x2H1	for 3 times 2 consecutive first halves of a night,
8n=3x2+4H2	for 3 times 2 consecutive nights followed by 4 consecutive second halves of a night,
8n=3x2+4x1H1	for 3 times 2 consecutive nights followed by 4 non-consecutive first halves of a night.

Provide, in the fourth pair of curly braces, the total amount of time which is required for the observing run, with the details about possible sub-runs. For example,

```
\ObservingRun{A}{81}{FORS2}{8n=3x2+4H2}{ }{ }{ }
```

**For all non-consecutive schedules, the details of the time intervals between the different sub-runs must be provided in Box 13** (see Sect. 3.15).

**5. MONTH PREFERENCE.** Provide the first three letters of the month (e.g. jun) which would be your first preference for scheduling (valid months are the ones included in the current period, namely apr, may, jun, jul, aug, sep). If you do not have any month preference simply write “any” For example,

```
\ObservingRun{A}{81}{FORS2}{8n=3x2+4H2}{jun}{ }{ }{ }
```

**6. MOON REQUIREMENT.** Provide the required phase of the moon, by using only one of the following three characters (see the Call for Proposals for the exact definition), namely:

- **d** for “dark time”
- **g** for “grey time”
- **n** for “no restriction”

For example,

```
\ObservingRun{A}{81}{FORS2}{8n=3x2+4H2}{jun}{d}{ }{ }
```



**7. SEEING REQUIREMENT.** Provide the required maximum acceptable seeing value in arcseconds (FWHM) at the wavelength of observation (see the Call for Proposals for the exact definition). Your requirement must be one of the following values:

0.4, 0.6, 0.8, 1.0, 1.2, 1.4, n

For example,

```
\ObservingRun{A}{81}{FORS2}{8n=3x2+4H2}{jun}{d}{0.8}{}
```

**8. TRANSPARENCY REQUIREMENT.** Provide the transparency condition of the atmosphere required during your observations (see the Call for Proposals for the exact definition). Your requirement must be one of the following values:

PHO for photometric, a perfect night

CLR for clear sky, although with some rare clouds

THN for thin cirrus, inducing absorption up to 0.2 mag

For example,

```
\ObservingRun{A}{81}{FORS2}{8n=3x2+4H2}{jun}{d}{0.8}{PHO}{}
```

**9. OBSERVING MODE.** Provide the requested observing mode: *v* = Visitor Mode and *s* = Service Mode. For example,

```
\ObservingRun{A}{81}{FORS2}{8n=3x2+4H2}{jun}{d}{0.8}{v}
```

### Alternative runs

For each requested run, you may specify one or several “alternative runs” for possible execution of the proposed observations with another instrument (in general mounted on another telescope). To this effect, add another line in Box 3, with in the first pair of curly braces, the letter identifying your primary run, followed by “*alt*”. For example,

```
\ObservingRun{A}{FORS1}{20h}{jun}{d}{0.8}{CLR}{s}
\ObservingRun{A/alt}{81}{VIMOS}{6n}{jun}{d}{0.8}{CLR}{v}
```

indicates that the observations of run A could be obtained through allocation either of 20 hours in Service Mode with FORS-1 (primary choice) or of 6 nights in Visitor Mode with FORS2 (secondary choice). You may specify several alternative runs for each primary run (e.g., in the example above, FORS2 or EFOSC2 runs might plausibly be other suitable alternatives).

### Multiple runs

If more than one run is needed for execution of the programme, then fill as many lines as needed. For example,

```
\ObservingRun{A}{81}{FORS2}{24h}{jun}{d}{0.8}{PHO}{s}
\ObservingRun{A/alt}{81}{VIMOS}{6n=3x4H1}{jun}{d}{0.8}{PHO}{v}
\ObservingRun{B}{81}{NACO}{6n=6x1}{jul}{n}{0.6}{CLR}{v}
```

APEX users should note that all observations for a given APEX instrument must be included in a **single run**. The proposal receiver will reject any proposal with more than one run per APEX instrument.

### Proprietary time

The default data proprietary time is 12 months. Nevertheless, you can ask to reduce it for your data by using the macro `\ProprietaryTime{time}`. The *time* is expressed in months, and only the following values can be entered: 0, 1, 2, 6, 12. For example,

```
\ProprietaryTime{6}
```

Please note that this macro does not produce any printable output at compilation, but the information that it contains will be duly stored in ESO’s database when the proposal is submitted.



### 3.4 Past, Present, and Future of this Programme: BOX 4

In order to allow for the evaluation of the proposal within the broader context of the project of which it is part, taking into account the observations already obtained in the past and the data still to be acquired in the future, indicate in Box 4:

- `\AwardedNights`: the amount of time (in nights or hours) allocated to this project in previous periods, together with the programme number (e.g., 079.B-1234), and the telescope on which this time was allocated;
- `\FutureNights`: the amount of time (in nights or hours) still necessary, in the future, after this proposal, to complete the programme, if any, and the corresponding telescope(s).

For example,

```
\AwardedNights{UT1}{4n in 079.B-1234}  
\FutureNights{UT3/NTT}{2n/20h}
```

### 3.5 Special Remarks: BOX 5

Take advantage of this box to provide any special remark (up to three lines). For example,

```
\SpecialRemarks{This programme is a resubmission, in updated form, of  
proposal 079.B-1234, which had been granted 2n in VM  
with UT2+UVES and was entirely clouded out.}
```

### 3.6 Name and Affiliations of PI and CoI(s): BOX 6

The macro `\PI` must be used to identify the Principal Investigator (PI) of the proposals. Its parameters are, in order, the PI's initial(s), last name, and present affiliation, the country or organisation code of his/her present institution, and his/her email address. Usage of this macro is illustrated in the following example:

```
\PI{I.}{Name1}{Paris Observatory}{F}{name1@obspm.fr}
```

where “I.” is the initial of the PI. The only country or organisation codes that may be used are listed in Table 4. For those countries or organisations not explicitly appearing in this table, the code “OTHER” must be used.

You should use the macro `\CoI` to specify also, for all the Co-Investigators (CoIs) of this proposal, their initial(s), last name, present institution, and the country or organization code of the latter (as defined in Table 4). You should have one instance of the macro `\CoI` for each CoI of the proposal. The number of instances is unlimited. However, due to the limited available space, only the names of the first 20 CoIs will appear in the printed version of the proposal form, followed by an ellipsis (...) if the actual number of CoI is greater than 20. The whole list of CoIs is nonetheless stored in the ESO database, where it can be accessed for any purpose requiring it. An example of input of a CoI list follows:

```
\CoI{I.}{Name2}{Leiden}{NL}  
\CoI{I.}{Name3}{Moscow}{OTHER}  
\CoI{I.}{Name4}{STScI}{USA}  
\CoI{I.}{Name5}{ESO}{ESO}
```

### 3.7 Link to student PhD Thesis: BOX 7

If this programme is part of a PhD thesis work, please uncomment the line containing the macro `\Thesis{}{}`, give the name of the student, and indicate also the status of his/her thesis work by: s = starting, m = mid-course, n = near completion. (The status will not appear in the printed version of the form, but it will be stored in ESO's database.) For example,

```
\Thesis{StudentName. Data important for PhD thesis and student  
will lead the project}{m}
```



Table 4: Country/organisation codes to be used in ESOFORM

Code	Country or organisation
AUS	Australia
B	Belgium
CH	Switzerland
CZ	Czech Republic
D	Germany
DK	Denmark
ESA	European Space Agency
ESO	European Southern Observatory
E	Spain
F	France
FIN	Finland
I	Italy
NL	The Netherlands
OTHER	Other Countries
P	Portugal
RCH	Republic of Chile
S	Sweden
UK	United Kingdom
USA	United States of America

### 3.8 Description of the Proposed Programme: BOX 8

The next two pages contain the description of the proposed programme. This description is restricted to TWO pages and composed of five different sections, activated by five different macros.

A) Scientific rationale: this section should describe the scientific background of the project, with pertinent references; any previous work in the field plus the justification for the present proposal should be included. The content of this section should be placed between the curly braces of the macro `\ScientificRationale{}`.

B) Immediate objective of the proposal: this section should state what is actually going to be observed and what will be extracted from the observations, so that the feasibility becomes clear. The content of this section should be placed between the curly braces of the macro `\ImmediateObjective{}`.

C) This section should provide a justification for the use of the selected telescope (e.g., VLT, NTT, etc...) with respect to other available alternatives. The content of this section should be placed between the curly braces of the macro `\TelescopeJustification{}`.

D) This section should provide a justification for the observing mode requested (Visitor or Service). The content of this section should be placed between the curly braces of the macro `\ModeJustification{}`.

E) This section should provide a brief explanation of the strategy for data reduction and analysis with a description of available hardware, software, and manpower. The content of this section should be placed between the curly braces of the macro: `\Strategy{}`

The references should preferably use the simplified abbreviations used in *Astronomy & Astrophysics*.

**THE RELATIVE LENGTHS OF EACH OF THESE FIVE SECTIONS ARE VARIABLE, BUT THEIR SUM IS RESTRICTED TO TWO PAGES.** Any text not fitting within the allocated 2 pages will be ignored. It is the responsibility of the proposers to check that their programme description does not exceed the maximum acceptable length. To this effect, proposers should carry out a careful visual inspection of a print-out of their proposal prior to submitting it. Also, when the proposal is compiled with pdfL<sup>A</sup>T<sub>E</sub>X, the length of the text is checked, and a warning message is issued if it is greater than 2 pages. While this warning may easily be overlooked in the real-time terminal window from which pdfL<sup>A</sup>T<sub>E</sub>X is run because of the continued scrolling resulting from other output, it is recorded in the logfile generated by pdfL<sup>A</sup>T<sub>E</sub>X. Users are strongly encouraged to check this log file.



### 3.9 Figures: BOX 8 (cont'd)

The two pages of the description of the proposed programme can be followed by up to TWO pages of figures. This material can be included using the macros `\MakePicture{}` and `\MakeCaption{}`.

**NOTE THAT POSTSCRIPT PICTURES ARE NOT ACCEPTED.** Since the proposals are compiled using the pdfL<sup>A</sup>T<sub>E</sub>X package, only JPEG and PDF file formats are accepted. Attachments in other formats should be converted into one of the accepted formats using appropriate tools (such as ps2pdf, convert, or gimp). In order to reduce the size of the attachments, **we strongly suggest the use of the PDF format for simple plots and graphs, and JPEG for large figures (such as astronomical images).**

The figure macro `\MakePicture{}` has two arguments: the name of the file of the picture, and a list of optional keywords specifying formatting parameters of the image (as defined in the `graphicx` package). For example:

```
\MakePicture{MyPic1.pdf}{width=15cm,height=8.0cm,angle=90}
\MakePicture{MyPic2.jpg}{width=12cm}
```

The filename should have a `.jpg` or `.jpeg` extension for JPEG files, and a `.pdf` extension for PDF files; other extensions are not accepted.

The caption macro `\MakeCaption{}` takes one single argument, which should contain any L<sup>A</sup>T<sub>E</sub>X caption. For example:

```
\MakeCaption{Whatever caption using LaTeX.}
```

These attachments will be printed on up to two pages immediately following the scientific description. You must check the pdf output generated by pdfL<sup>A</sup>T<sub>E</sub>X before submitting your proposal to make sure that the attachments are properly included. In particular, **colour figures should still be readable if printed in black and white**. Also, it is **your responsibility** to check that your attachments **fit within the allocated 2 pages**. Please note that when the proposal is compiled with pdfL<sup>A</sup>T<sub>E</sub>X, the space required by the attachments is checked, and a warning message is issued if it exceeds 2 pages. While this warning may easily be overlooked in the real-time terminal window from which L<sup>A</sup>T<sub>E</sub>X is run because of the continued scrolling resulting from other output, it is recorded in the logfile generated by LaTeX. You are strongly encouraged to check this log file.

### 3.10 Justification of Requested Time: BOX 9

In this box, you should provide a careful justification of the requested lunar phase and of the requested amount of time. To this effect, you should use the ESO Exposure Time Calculators whenever possible; these exist for all Paranal and La Silla instruments and are available at <http://www.eso.org/observing/etc>. Links to exposure time calculators for APEX instrumentation can be found in Sections 7.1 and 7.2 in the Call for Proposals.

For each telescope and instrument to be used, please specify the version of the ESO Exposure Time Calculator that you have used. Do **not** include any correction for unexpected meteorological conditions. The text should be typed as arguments of the following two macros:

```
\WhyLunarPhase{}
\WhyNights{}
```

For Service Mode runs, the calibrations foreseen in the instrument calibration plans are absorbed by the Observatory; they do not need to be included in the amount of requested time. In Visitor Mode, up to 30 min per night is devoted to the acquisition of these calibrations by the Observatory staff. If, in order to achieve the scientific goals of your projects, calibrations not foreseen in the respective calibration plan are required, you must include the additional amount of time that is needed to obtain them in the total amount of time that you are requesting.

The macro `\Calibrations` must be used to specify the calibration requirements of your proposal. It takes two arguments. The first one should be set to **standard** if the calibrations contemplated in the calibration plan are sufficient. In this case, no input is required for the second argument:

```
\Calibrations{standard}{}
```

If, on the other hand, you need additional calibrations, the first argument must be set to **special**, and a brief description of non-standard calibrations that you need must be given as second argument. For example,







N01230121	good
S33333331	good
n01230121	bad
N012301201	bad
S01230141	bad
S333333000001	bad
S01201201234567	bad

For 2MASS, the rules for reference star designation are available at:

[http://www.ipac.caltech.edu/2mass/releases/allsky/doc/sec2\\_2a.html](http://www.ipac.caltech.edu/2mass/releases/allsky/doc/sec2_2a.html).

Here are some examples of correct and incorrect identifiers:

2MASS J01234567+7801020	good
2MASS J00000000+7801020L	good
2MASS J01234567+9000000	good
2MASS J01234567+9000000W	good
2MASX J01234567+7801020	bad
2MASS J97234567+7801020	bad

Thus the following examples illustrate the correct usage of the `\Target` macro when a reference star must be specified:

```
\Target{B}{NGC 105}{22 55 00}{-47 50 30}{9.0}{ }{ }{S33333331}
\Target{C}{NGC 106}{00 24 43}{-05 09 00}{2.0}{ }{ }{2MASS J01234567+7801020}
```

The macro `\TargetsNotes{}` should be used to include any comments that apply to several or all targets (or to specify reference stars that are not found in the GSC2 or 2MASS catalogues).

```
\TargetsNotes{The planned grid of pointings around the targets
               listed above will be defined during the first
               observing night.}
```

### 3.14 ESO Archive: BOX 12b

You should use the `\RequestedDataRemark` macro to indicate if the data requested in the proposal are in the ESO Archive (<http://archive.eso.org>), and if so, to explain the need for new data.

### 3.15 Scheduling Requirements: BOX 13

If your proposal involves any of the following:

- observations to be executed on specific dates (e.g., for simultaneity with observations at other facilities);
- observations to be executed at pre-defined time intervals (e.g., at different epochs so as to achieve phase coverage of a periodically variable target);
- Visitor Mode runs split into non-consecutive nights (for which the fourth argument specifying the number of nights in Box 3 of the proposal form includes a formula);
- Visitor Mode runs mutually linked, which need to be scheduled in a given sequence and at specified time intervals,

you **must** uncomment the macro `\HasTimingConstraints`.

Please note that the macro `\HasTimingConstraints` should be **commented out** in the following cases:

- for scheduling constraints resulting only from the genuine visibility window of the target sources (defined by their location in the sky) or from the phases of the Moon;
- for time series of observations acquired during a single night or over several consecutive nights of a contiguous Visitor Mode run;



- for Target of Opportunity observations.

Furthermore, in order to allow for the automated scheduling of all Visitor and Service Mode observing runs, you must provide all information related to the details of the way your programme should be scheduled.

**1. RUN SPLITTING.** For Visitor Mode runs, if the fourth argument you have provided in Box 3 indicates a simple number of consecutive nights or half-nights, e.g.:

```
\ObservingRun{A}{81}{FORS1}{4}{may}{d}{0.8}{v}{}
```

you do not have to do anything. If the fourth argument in Box 3 indicates a more complicated requirement, with some non-consecutive nights, e.g.:

```
\ObservingRun{A}{81}{FORS1}{8n=3x2+4H2}{may}{d}{0.8}{v}{}
```

you must provide some additional information. The fourth argument above, namely,  $8n=3x2+4H2$ , means that you request a total of 8 nights, made of three sub-runs of 2 consecutive nights each, followed later by a sub-run of 4 consecutive second halves of a night.

You should use the macro `\RunSplitting{}`, and put the run identifier in the first argument. The second argument should indicate the way the run should be split into different sub-runs. If the interval between two sub-runs has to be exactly a given number of days, say 20, then this is a **strong** constraint and this number of days should be followed by the letter **s**. If the interval between two sub-runs has some tolerance on the number of days, say  $20\pm5$ , then this is a **weak** constraint and this number of days should be followed by the letter **w**. Consequently, if  $8n=3x2+4H2$  means that you want three sub-runs of 2 consecutive nights each, the first and the second separated by 10 nights exactly, the second and the third separated by more or less 20 nights, followed exactly 15 days later by one sub-run of 4 consecutive second halves of a night, then the second argument of the macro `\RunSplitting{}` should contain the following expression: `2,10s,2,20w,2,15s,4H2`. Hence the following entry should appear in your proposal file:

```
\RunSplitting{A}{2,10s,2,20w,2,15s,4H2}
```

Note that it is necessary to specify explicitly the time intervals among all non consecutive sub-runs.

The macro `\RunSplitting` is meaningless for Service Mode runs, for which constraints of the considered type should be fully specified at Phase 2 (but the macro `\HasTimingConstraints` should be uncommented for such runs, so that they are duly flagged). **However please note that in in Service Mode, monitoring programmes are executed on a best effort basis only.** In particular, a monitoring sequence can be interrupted by unsuitable weather conditions or by runs scheduled in Visitor Mode.

**2. SPECIFIC DATE(S) FOR TIME CRITICAL OBSERVATIONS.** If you have requested 2 nights in Box 3, e.g.:

```
\ObservingRun{A}{81}{FORS1}{2n}{may}{d}{0.8}{v}{}
```

and if for some reason (e.g., specific phase of a variable object or parallel observations with already scheduled HST observations, etc.) you need these two nights scheduled between some specific dates, then use the macro `\TimeCritical{}` in the following way:

```
\TimeCritical{A}{12-may-08}{14-may-08}{parallel observation with HST}
```

Note that the indicated dates correspond to 12:00 noon Local Time at the Observatory location (i.e., in Chile). In other words, the first date refers to the start of the first night of the acceptable interval, and the second to the end of the last night. Please make sure to duly convert event times from Universal Time to Local Time.

**3. UNSUITABLE PERIOD(S) OF TIME.** If you have requested two nights in Box 3 and would like them to be scheduled to avoid some unsuitable periods of time, for some reason, then use the macro `\UnsuitableTimes{}` in the following way:

```
\UnsuitableTimes{A}{15-jul-08}{18-jul-08}{International Conference}
```

Times are understood according to the same convention as for the macro `TimeCritical` (see above).

**4. LINK FOR COORDINATED OBSERVATIONS.** If you have requested three different runs in Box 3, e.g.:



```

\ObservingRun{A}{81}{FORS2}{2n}{may}{d}{0.8}{v}{}
\ObservingRun{B}{81}{FORS1}{3n}{may}{d}{0.8}{v}{}
\ObservingRun{C}{81}{UVES}{20h}{may}{d}{0.8}{v}{}

```

and would like some of them to be simultaneous and some later than others (by any delay, zero indicating immediately after), independently of the exact period of scheduling, then use `simultaneous`, `after` and the macro `\Link{}{}{}` in the following way:

```

\Link{B}{after}{A}{10}
\Link{B}{after}{A}{}
\Link{B}{simultaneous}{C}{}

```

### 3.16 Instrument configuration: BOX 14

The three template proposals (`template.tex` for normal applications, `templateshort.tex` for Short Programme applications, and `templatelarge.tex` for Large Programme applications) contain the full list of configurations for all available instruments at all available ESO telescopes (Paranal, La Silla and Chajnantor). In order to provide general information about the setup of the ESO instrument(s) you plan to use, please uncomment only the lines related to the instrument modes and configurations needed for the acquisition of your desired observations. For some lines related, e.g., to special filters or central wavelength, please add the required information where appropriate (between the already existing curly braces).

Note that you **must** put the run ID within the first pair of curly braces of the relevant lines. **Do not** specify any instrument configuration for alternative runs (see Box 3). Note that all parameters are **mandatory** for the `\INSconfig` macro (do not use empty fields).

### 3.17 Interferometry page

If your proposal includes VLTI runs, you **MUST** uncomment and fill in the arguments of the macro `\VLITITarget` with run ID, target name, visual magnitude, magnitude at wavelength of observation, wavelength of observation (in microns), size at wavelength of observation (in mas), baseline (see the following website for available configurations: [http://www.eso.org/paranal/insnews/vlti\\_overview.html](http://www.eso.org/paranal/insnews/vlti_overview.html)), visibility for the specified configuration (at preferred hour angle or at hour angle 0), correlated magnitude, and time on target (ToT) in hours. For example,

```

\VLITITarget{E}{NGC 106}{-0.7}{-3.5}{10.6}{40}{UT2-UT3-47m}{0.84}{-2.5}{6}
\VLITITarget{F}{NGC 107}{-0.7}{-3.5}{2.1}{40}{UT1-UT2-UT3}{0.84/1.0/0.1}{1./0.5/2.}{6}

```

Note that, for AMBER, you should specify the three visibilities corresponding to the various baselines as three values separated by a slash (/); up to two of the three values can be replaced by a star (\*). Similarly, the magnitudes for the various baselines are also specified as three values separated by slash.

You can use the macro `\VLITITargetNotes` to insert comments about some or all of your VLTI targets. You should take advantage of this macro to indicate suitable alternative baselines for your observations.

### 3.18 ToO page

If you are applying for Target of Opportunity (ToO) observations, you **must** uncomment and fill in the arguments of the macro `\TOORun`. These arguments are, in order: the run identifier, the nature of the observation, the number of targets per run, and the number of triggers per targets. There must be one occurrence of the macro `\TOORun` for each of the runs specified in Box 3. The second argument (nature of the observation) may be one of the four following keywords:

- RRM, for observations to be triggered via the automated Rapid Response Mode system;
- ToO-hard, for observations to be triggered manually that need to be carried out within 48 hours of receipt of the trigger by the Observatory (and in most cases, as soon as possible), or that involve a strict time constraint (i.e., that must be executed during a specific night);
- ToO-soft, for manually triggered observations for which the Observatory can receive notification more than 48 hours before execution, and which can be scheduled for execution with a flexibility of at least  $\pm 1$  day;



Table 5: Keywords of Available Instruments (Short Programmes)

Telescope	Instrument keywords
UT1	FORS2, ISAAC, CRIRES
UT2	FORS1, UVES, FLAMES
UT3	VIMOS, VISIR, SpecialUT3
UT4	NACO, SINFONI, HAWK-I
VLTI	MIDI, AMBER
APEX	APEX-2A, LABOCA

- normal, for observations that can be requested more than 1 week in advance, and which can be executed within a time window of several days. The short-term scheduling of such observations is handled in the same way as for non-ToO Service Mode observations of category A.

Only one keyword can be specified for each run. If observations pertaining to different categories are needed, several runs must be defined. The number of triggers must be indicated for RRM, ToO-hard and ToO-soft observations only; it should be omitted for normal observations. An occurrence of the macro `\TOORun` looks like the following example:

```
\TOORun{A}{ToO-hard}{2}{3}
```

You have the opportunity to add some notes to the ToO page by using the macro `\TOONotes`.

### 3.19 The Visitor Instrument Page

The following commands are only needed for proposals involving a Visitor Instrument, in which case they are also **mandatory**. You should uncomment them and provide the required information between the different pairs of curly braces.

```
%\Desc{}    % Description of the instrument and its operation
%\Comm{}    % On which telescope(s) has instrument been commissioned/used
%\WV{}      % Total weight and value of equipment to be shipped
%\Wfocus{} % Weight at the focus (including ancillary equipment)
%\Interf{}  % Compatibility of attachment interface with required focus
%\Focal{}   % Back focal distance value
%\Acqu{}    % Acquisition, focusing, and guiding procedure
%\Softw{}   % Compatibility with ESO software standards (data handling)
%\Suppl     % Estimate of services expected from ESO (in person days)
```

## 4 HOW TO FILL A SHORT PROGRAMME TEMPLATE

The ESOFORM package includes a specific template (`templateshort.tex`) that must be used to generate a Short Programme proposal. The only differences between this template and the Normal Programme template are:

- Box 3: the list of keywords of all instruments offered in Period 81 for Short Programmes is given in Table 5;
- Box 8: while two pages are allowed for the scientific description of Normal Programmes, the description of Short Programmes is restricted to **one page**. It comprises the same five subsections as the description of Normal Programmes: `\ScientificRationale{}`, `\ImmediateObjective{}`, `\TelescopeJustification{}`, `\ModeJustification{}`, and `\Strategy{}`;
- Box 8: in Short Programme proposals only **one additional page** is allowed for attachments (instead of two for Normal Programme proposals).



Table 6: Keywords of Available Instruments (Large Programmes)

Telescope	Instrument keywords
UT1	FORS2, ISAAC, CRIRES
UT2	FORS1, UVES, FLAMES
UT3	VIMOS, VISIR, SpecialUT3
UT4	NACO, SINFONI, HAWK-I
VLTI	MIDI, AMBER
NTT <sup>1</sup>	SOFI, EFOSC2, SpecialNTT
3.6 <sup>1</sup>	HARPS, Special3.6
APEX	APEX-2A, LABOCA

<sup>1</sup> Only for runs to be completed by end of Period 83.

## 5 HOW TO FILL A LARGE PROGRAMME TEMPLATE

The ESOFORM package includes a specific template (`templatelarge.tex`) that must be used to generate a Large Programme proposal. This template is only slightly different from the template for Normal Programmes. Hereafter is the list of the differences between the two templates. Any feature not appearing in this list is **identical** in both templates.

- Box 2: the abstract for Large Programme proposals can be slightly longer (up to 13 lines) than for Normal Programme proposals (up to 9 lines).
- Box 3: proposers must specify **all the runs across all the Periods** (maximum 4) covered by the Large Programme. A Large Programme can have up to 26 runs. Since the space for the runs description in Box 3 is limited to 12 lines, a new box containing the observing runs beyond this limit will be created at the end of the proposal form if needed.
- Box 3: the list of keywords of all instruments offered in Period 81 for Large Programmes is given in Table 6.
- Box 5: while two pages are allowed for the scientific description of Normal Programmes, the description of Large Programmes may take up to three pages, comprised of the following four subsections: `\ScientificRationale{}`, `\ImmediateObjective{}`, `\TelescopeJustification{}`, and `\ModeJustification{}`. There are two additional pages for attachments (e.g., figures, etc). In the Normal Programmes, there is a subsection about `\Strategy{}`, which does not exist here, since it is more extensively developed in Boxes 6 and 7.
- Boxes 6 and 7: specific to the Large Programme proposals, these two boxes should contain the required information describing the experience of the applicants with telescopes, instrumentation, and data reduction (`\Experience{}`), and the strategy for data reduction and analysis with description of the resources available to the observing team, such as: computing facilities and research assistants (`\Resources{}`).
- Box 8: Additional remarks or comments can be provided using the macro `\SpecialRemarks{}`.
- Box 9b: If the OPC does not recommend the approval of your proposal as a Large Programme, would you agree to see it reviewed by the OPC as a Normal Programme? If so, uncomment the macro `\ConvertLargeToNormal` and add a brief explanation on how this could be done.

## 6 SUBMISSION OF THE APPLICATION

Proposals must be prepared as pdfL<sup>A</sup>T<sub>E</sub>X source files, making use of the **latest ESOFORM** package, corresponding to the ESO Period for which they are submitted. Proposals received in any other format, or with modified ESOFORM macros, will be automatically rejected by the automated proposal handling system.



When the  $\text{\LaTeX}$  source file of your application is complete, **please process it with pdf $\text{\LaTeX}$**  so as to identify any possible  $\text{\LaTeX}$  format errors. In particular, we **strongly** recommend that you

- review the log file generated by  $\text{\LaTeX}$  so as to check for the presence of warning messages issued by the ESOFORM macros. Such messages report, among others, instances in which a text field is too long, so that your input is truncated in the pdf file that is generated, and part of the information that you submit will not be communicated to the OPC;
- carefully inspect a printed copy of the output to make sure that all parts of the application are duly completed, and that their formatting is appropriate.

**Please note** that while a significant number of checks are performed by the ESOFORM package when running pdf $\text{\LaTeX}$ , a successful outcome of this process **does not guarantee** that a proposal is fully compliant. Indeed, many other checks (about half of the total number) can only be performed by the proposal reception system at the time when the proposal is submitted.

In particular, please be aware that as of Period 80, the proposal reception system checks for **the presence of text outside the argument fields of the ESOFORM macros** in the  $\text{\LaTeX}$  source of the proposal, and rejects proposals in which such text is found. Although no such check is implemented at the stage of processing of the proposal with pdf $\text{\LaTeX}$ , its presence can be identified through inspection of the printed output. Any text (or extra space) appearing above the ESO logo on top of the first page of the latter results from the occurrence of input outside the ESOFORM macros in the  $\text{\LaTeX}$  source. This input **must be commented out or relocated within the relevant macro** before the proposal is submitted.

Proposals must be submitted via the Web Application for Submitting Proposals (WASP):

<http://www.eso.org/observing/wasp/welcome.do>

You should upload the  $\text{\LaTeX}$  file of your proposal, following the instructions on your browser. A number of checks are executed at the various steps of the submission process; if requested to do so, please keep reloading the page with your browser until you see the results of these checks. Should a problem be detected, it will be clearly reported by the system: fix it in your proposal and make a new attempt at submitting it. Otherwise, you can proceed with the upload of the attachments. Further tests are done on these files (in particular, regarding their formats and their filenames). If they are successfully completed, you will be requested to finalise the submission by clicking on the corresponding button. **It is essential that you execute this final step:** your proposal will not be submitted until this is done, even though you have uploaded all the necessary files! Upon submission of a correctly completed proposal, the ESO proposal validation software will return an identifier assigned to the valid proposal. This identifier, and the acknowledgment page in which it appears, represent the official confirmation that the proposal successfully entered the proposal handling system. We recommend that you take note of the identifier; you may also want to print the acknowledgment page for your records. In addition, an email confirmation is sent to the submitter and to the PI of the proposal.

**Note that WASP can be used just to verify your proposal without actually submitting it. In particular, you should take advantage of this by verifying a “skeleton” version of your proposal (containing only the technical details of your programme) well in advance of the Phase 1 deadline.**

## Submission Problems

The proposal submission acknowledgment page normally appears within seconds of completion of a submission. However, during the last few hours before the Phase 1 deadline, the system may be slowed down by the high load, and the acknowledgment process may take several minutes. Please **be patient**: even though it may look like “nothing is happening”, the system most likely is actually busy processing a queue of proposals. Please **do not** abort your submission or make a new attempt at submitting the same proposal: this would only increase the load on the system and make it slower. However, if you have not succeeded in completing your submission within 1 hour, please contact ESO via email to [esoform@eso.org](mailto:esoform@eso.org). **Do not under any circumstance** attach your application (in any format) to this email. **Do not try to resubmit your application** before receiving further instructions from ESO. **Do not panic!** Once you have uploaded the  $\text{\LaTeX}$  source of your proposal, your attempt, and the time at which you initiated it, are recorded in the ESO system, so that anomalous delays due to the proposal reception system will be duly identified. **Be aware** that if you experience difficulties due to the proposal reception system, you most likely are not the only user in this case, and the various problem reports must be handled sequentially, so that it may take some time before you receive feedback from ESO.



As mentioned above, the acknowledgment Web page providing the identifier of your proposal is the official confirmation of its successful submission. The subsequent email notification is only sent to you as a secondary confirmation, and delay in its delivery should not represent a concern. However, if you have not received it within 24 hours of your submission, please report this anomaly to [esoform@eso.org](mailto:esoform@eso.org).

A safe way to avoid submission problems (often related to heavy system load during the last few hours before the deadline) is to submit your proposal early. We strongly encourage you to send in your applications and all attachments several days before the deadline.

**All proposals and their attachments must reach the ESO servers via the WASP interface BEFORE 12:00 noon (Central European Summer Time) on the date of the deadline. Responsibility for verifying that ESO has correctly received, processed, and acknowledged your proposal before the proposal submission deadline rests entirely with you. Revisions, corrections, and/or modifications will not be accepted after the deadline.**

#### IMPORTANT NOTICE

Electronic proposal submission does not allow applicants to sign their proposals. Therefore ESO assumes that PI's take full responsibility for the contents of the proposal, in particular in regard to the names of co-investigators and the agreement to act according to the instructions for visiting astronomers, should observing time be granted.