

REVISED GUIDANCE FOR APPLICANTS OUTER SPACE ACT 1986

Please note that the application should be made as soon as possible, ideally at least six months in advance of any plans for launch or operation of a space system. Delays in making the application could result in the project having to be delayed.

Introduction & background

The Outer Space Act 1986 (the Act) is the legal basis for the regulation of activities in outer space carried out by organisations or individuals established in the United Kingdom or one of its Overseas Territories (OTs) or Crown Dependencies (CDs).

The Act confers licensing and other powers on the Secretary of State for Business, Innovation and Skills, who carries these powers out through the British National Space Centre (BNSC). The Act seeks to ensure compliance with the UK's obligations under international treaties and principles covering the use of outer space, including liability for damage caused by space objects, the registration of objects launched into outer space and the principles for the remote sensing of the Earth.

A copy of the Act can be found at

<http://www.bnsc.gov.uk/assets/channels/about/outer%20space%20act%201986.pdf> to these notes and applicants are strongly advised to make themselves familiar with its provisions, before completing the application form.

Do I need a licence?

The Outer Space Act 1986 applies to United Kingdom nationals (as defined in the Act), Scottish firms, and bodies incorporated under the law of any part of the United Kingdom, the Bailiwick of Guernsey, the Bailiwick of Jersey, or the Isle of Man. carrying out the following activities in the United Kingdom or elsewhere:

- launching or procuring the launch of a space object;
- operating a space object;
- any activity in outer space

The following activities do not in our view require a licence:

- the leasing of space segment satellite capacity (transponders) from international inter-governmental satellite organisations or privately owned entities for use by the lessee or by a person sub-letting the capacity;
- the utilisation of space segment capacity (transponders) using earth stations for either transmission or reception purposes. **N.B.** This exception does not apply to persons involved in telemetry, tracking and control of satellites in orbit.

Notes:

- **Applicants should consult BNSC (contact details may be found at the end of these notes) if they are in any doubt as to whether they need a licence.**
- **Applicants from one of the UK's Overseas Territories to which the Act has been extended (Cayman Islands, Gibraltar, Bermuda) will need to apply to their own Governor's office for an OSA licence.**
- **Applicants from one of the UK's Overseas Territories to which the Act has not been extended should approach the Government of the Overseas Territory, which would then liaise with the Foreign and Commonwealth Office (FCO) and BNSC over whether it was appropriate to extend the Act to that territory. If decided upon, extension of the Act would be by Order in Council. This is a lengthy process and could take many months.**

Obligations of licensees:

It is an offence for a person to whom the Act applies to carry on a licensable activity without a valid licence.

Under section 10 of the Act, all persons to whom the Act applies (whether licensed or not) must indemnify the UK Government against any claims for damage or loss arising out of licensable activities.

In addition, the Secretary of State has discretion to attach conditions to the grant of a licence. A copy of a typical licence, which includes our standard conditions, can be found at <http://www.bnsc.gov.uk/assets/channels/industry/OSA2008Example.pdf>

BNSC's standard insurance requirement (at clause 4 of the attached sample licence) is that licensees must insure themselves (currently to £100million) against third party liabilities arising from each licensed activity (i.e. the launch and in-orbit phases of the mission). The UK Government must be named as an additional insured party and in the case of applications from companies in the Overseas Territories and Crown Dependencies, the relevant territorial Government should also be named.

Additional conditions may be imposed, depending on the circumstances of each application.

Application for a licence

Applications for licences under the Outer Space Act may be made either in hard copy or electronically (e.g. a .pdf of the signed application form), using the application form at <http://www.bnsc.gov.uk/assets/channels/industry/OSA2008App.pdf>. Other supporting material as requested on the application form or that the applicant sees fit to include should be submitted at the same time.

The following information will be required as a minimum:

- the nature of the space activity the applicant is proposing to carry out;
- the relationship of the applicant with other parts of the corporate group (if applicable);
- the applicant's financial standing (including certified accounts for the three most recent years, accounts information for parent companies may also be required if the applicant is a subsidiary);
- mission costs;
- insurance arrangements for launch (if applicable) and in-orbit phase of the mission (including copies of all certificates and policies);
- technical details of the mission (including copies of the launch services contract, satellite supply contract and technical specifications and ground station specification);
- plans for disposal of space object at end of life;
- emergency procedures;
- radio frequencies and powers used during the mission;
- orbital location information.

Applicants wishing to *launch* space objects should attach the additional information listed at Annex A.

Licence fee

The application should be accompanied by a non-refundable fee of **£6,500** in the form of a cheque or banker's order made payable to: **Department for Business, Innovation and Skills**.

Note: Recognised educational institutions carrying on an activity to which the Act applies for the purpose of scientific research or teaching are not required to pay the fee.

Applications should be sent by post or email to:

Richard Blayber
Manager, Regulation & European Policy
British National Space Centre
SFS Polaris House
North Star Avenue
Swindon
Wiltshire SN2 1SZ

E-mail: richard.blayber@bnc.gsi.gov.uk

In case of enquiries, please email or telephone Richard Blayber on: 01793 418073

BNSC licensing procedure under the Outer Space Act

The information provided with the initial application is assessed and BNSC may need to seek further information or clarification of particular points from the applicant in the course of assessing the application. BNSC will normally seek a meeting with the applicants at an early opportunity to help us to understand the activity to be licensed. In particular, we will wish to ascertain whether there are any novel or special circumstances that might have a bearing on the licence. At all stages of the licensing process, BNSC will keep the applicants informed and explain the reasons for any decisions or additional requests for information.

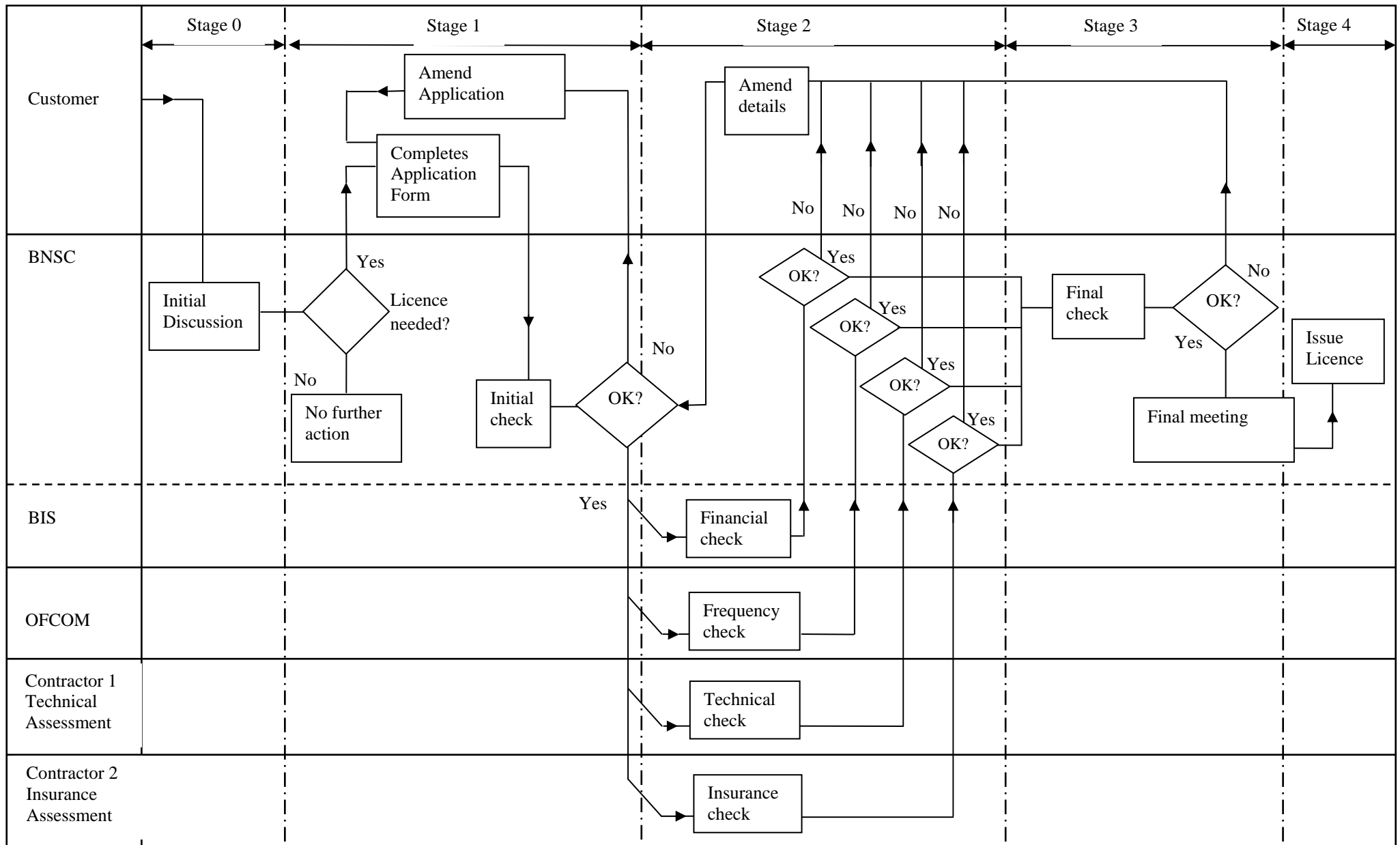
Normally, the main stages of the licensing process are:

- identification of whether a licence is required and initial contact /consultation: to explain the licensing process to the applicant and for BNSC to learn whether there are any special circumstances related to the mission **(Stage 0)**;
- completed application form and initial information, together with fee received by BNSC **(Stage 1)**;
- suitability of applicant's insurance cover: to ensure that the cover for the mission provides appropriate cover for the UK Government under the conditions of the licence **(Stage 2)**;
- applicant's financial status: to ensure that the applicants have adequate resources to carry out the proposed activity and to meet and maintain their obligations under the licence (e.g. continuing to meet insurance premium payments) and that the applicant is sufficiently sound to enable a licence to be issued (bearing in mind (i) the UK Government's potential liabilities for the activity under international treaties, and (ii) the statutory indemnity in favour of the Government from everyone to whom the OSA applies and which is contained in the OSA) **(Stage 2)**;
- technical assessment: to ensure that the launch and operation of the space object conform with international treaties (e.g. the requirements on liability and registration) and law and that they do not pose a risk to lives or property **(Stage 2)**;
- checks with OFCOM to ensure that correct ITU filings have been made (i.e. that the frequencies used will not cause interference issues) **(Stage 2)**;
- licence application review - political and legal: BNSC liaise as appropriate with other Government Departments and partners (e.g. MoD, PPARC, NERC) to ensure that the licensed activity does not affect Government activities **(Stage 2)**;
- final decision: BNSC ensures that all checks are complete and decides whether or not to issue the licence. Licence prepared, adding conditions where necessary (e.g. in response to advice from any of the above process) **(Stage 3)**;
- final meeting with applicant to explain any conditions in the licence **(Stage 3)**;
- licence issued or refused **(Stage 4)**.

Conditions for the grant of a licence

Before a licence can be granted BNSC must be satisfied that the proposed activities will not jeopardise public health, the safety of persons or property, or national security. BNSC will also wish to be satisfied that the proposed activities will not compromise the UK's ability to carry out its obligations under the various international treaties and agreements that govern space activities.

During the licensing process set out above, BNSC and its advisors will assess any information submitted. Should special conditions be required for a particular licence (e.g. a parent guarantee to be in place when a licence is granted to a subsidiary company), these will be explained to the applicant.



INITIAL INFORMATION REQUIREMENTS FOR LAUNCHING ACTIVITY

Launch licensing questions for technical assessment

Applicants are expected to be able to demonstrate that:

- they have clear understanding of the hazards involved in the planned space activity and
- a reasonable attempt has been made to limit those hazards.

The information provided should be sufficient to allow the safety evaluator and the BNSC to understand the potential for liabilities. Provision of a risk assessment written by the applicant and accompanied by contributions written by organisations through which the applicant is procuring services may be required. The process is expected to be iterative and time should be allowed for further questions. Any liabilities arising through launch and in-orbit operations should be addressed.

This is an indicative list of typical detailed questions pertinent to the safety assessment. During the licensing process, BNSC or its advisors may contact applicants for further information.

Batteries

1. What is the name of the supplier?
2. What is the capacity in Ah?
3. How many cells?
4. What is the nominal depth of discharge?
5. What is the battery type – eg Lithium ion, Nickel hydrogen, Nickel cadmium etc?
6. What battery parameters are monitored (eg voltage, temperature) at what frequency?
7. Is there any redundancy in the sensors?
8. Is there any redundancy in the hardware?
9. What are the operational temperature limits and how are they maintained (eg passively or heaters). If heaters, how many watts? If passively what are the predicted temperature excursions?
10. Are there procedures for reconditioning – if so what?
11. How are the end of charge and end of discharge levels set – if hardware is there any software override capability?

12. What is the charge rate?
13. How close is the cell matching?
14. Will the batteries be discharged at end of life and disconnected from the arrays?

Wheels

1. What is the name of the supplier?
2. How many wheels with what torque/momentum capability?
3. What is the orientation of the wheels with respect to pitch, yaw, and roll axes?
4. How are the wheels desaturated?
5. What is the design limit rpm and the operational limit?
6. Are the wheels off loaded autonomously through wheel drive electronics – are thrusters used?
7. Is there any redundancy?
8. Can software override the wheel torque/momentum limit?
9. If the wheels become disconnected from the wheel drive electronics, would attitude control recourse be through manual commanding of the thrusters?
10. What procedures are in place at end of life to prevent wheel overspin when the propellant is used up – ie disconnect from the wheel drive electronics?

Propellant

1. What are the names of the tank/valve suppliers?
2. What is the nominal tank pressure at beginning of life?
3. What is the tank volume?
4. What is the pressurant?
5. What is the tank pressure rating?
6. What is the propellant?
7. What is the specific impulse?
8. What tank parameters are monitored (eg temperature/pressure) at what frequency?
9. Is there any redundancy in the sensors?
10. How many thrusters with what thrust on what faces (X,Y,Z)?

11. How many pressurant/propellant tanks are there, and what procedures exist for equalising pressure between the tanks?

Operations

1. Where is the ground segment?
2. How frequently is battery/wheel/tank housekeeping data downlinked?
3. What happens if a parameter is out of bounds – does the spacecraft have any autonomous safeguarding measures?
4. How many staff are dedicated to the satellite, with what shifts and what responsibilities – do they have the necessary experience?
5. Is there any redundancy in the ground segment elements – eg mission computer, antennas, software – is there a backup control centre?
6. Is the ground segment protected by an uninterruptable power supply?
7. Are there any plans for early end of life upon a failure condition covered by the authorised operational procedures or will LEOPs be followed. Please provide a draft plan as applicable.
8. Details of other systems or factors, which may affect the operation, end of life passivation procedures and re/de orbiting.
9. How often is housekeeping data downloaded to the ground, and what data rates are supported by the ground segment?

Collision risk

1. What are the spacecraft dimensions for the bus/arrays/antennas? Please include thickness of arrays and antennas.
2. What procedures exist for de-orbiting at end of life?
3. What is the expected launch date, and intended operational lifetime?
4. What are the orbital parameters? eg apogee, perigee, inclination
5. What is the vehicle mass wet/dry?

Frequency management

Please indicate the payload and TM/TC operational bands and include the ITU filing reference.