



Access
Partnership

Commercial Space Activity

London Institute of Space Policy and Law
Space Policy & Law Course

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Content

- Nature and range of commercial space activities
- Relevance and scope of national laws
- Licensing and authorisation
- Typical requirements
- Discussion and questions

Key Proposition

We analyse global trends for risks and opportunities they create for your business, drawing on long experience of international public policy and technologies new and old. Then, we identify policy and technical strategies to mitigate those risks, and drive the opportunities to your advantage, using our proven advocacy methods.

- ✓ Deploy our teams to deliver the analysis, strategy and outcomes you need
- ✓ Maintain your knowledge base through our engagement in international policy forums
- ✓ Be confident in our unimpeachable policy and technical experts

Practice Focused on Technology

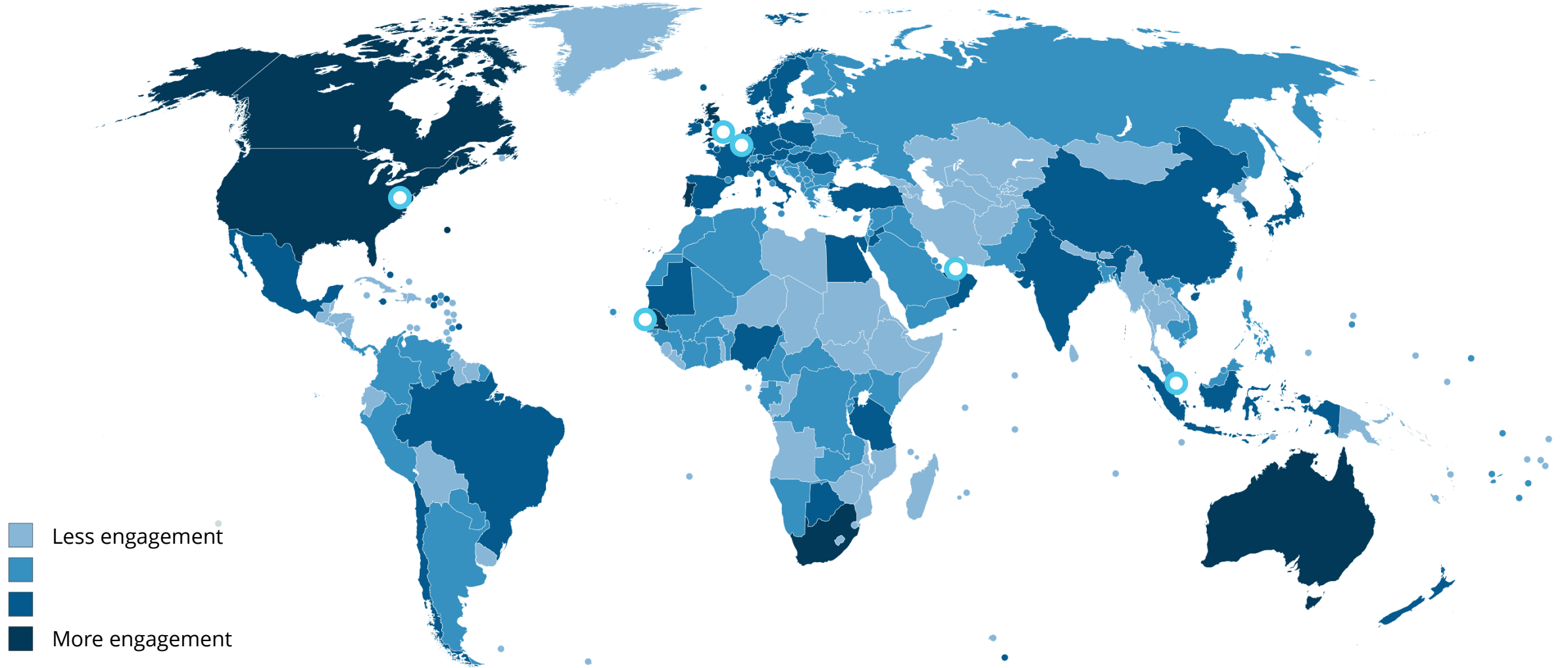
Market Access & Technical Advisory

- Ensure clients' regulatory compliance
- Obtain licenses for goods, services
- Market and technical analysis to support advocacy
- Monitor regulatory environments
- Technical and Regulatory due diligence
- Coordination of radio-services

Public Policy

- Navigate regulators, shape regulations
- Create path for new technologies
- Design and execute issue-specific campaigns
- Deliver outcomes in national and international proceedings

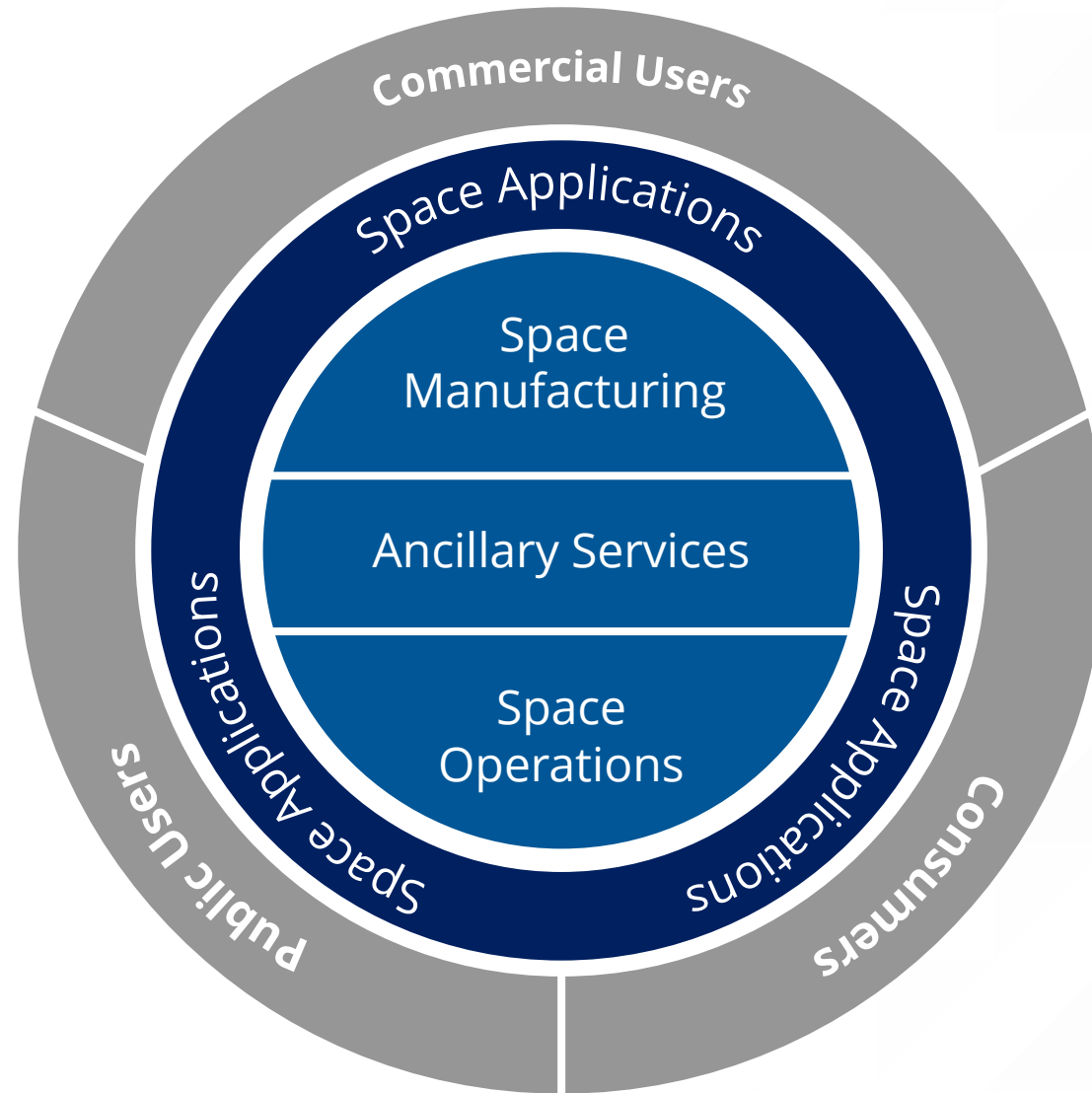
History



Established in 1999, Operate internationally from 6 offices, advised on market access in 202 jurisdictions.

Nature and Range of Commercial Space Activities

Overview of Commercial Space Ecosystem



Relevance and Scope of International and National Laws

United Nations Space Law Treaties and Principles

United Nations Committee on the Peaceful Uses of Outer Space (COPUOS)

- **The Outer Space Treaty**

Principles Governing the Activities of States in the Exploration and use of Outer Space, including the moon and other celestial bodies (1967)

- **The Moon Agreement**

Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (1984)

- **The Registration Convention**

Convention on Registration of Objects Launched into Space (1976)

- **The Liability Convention**

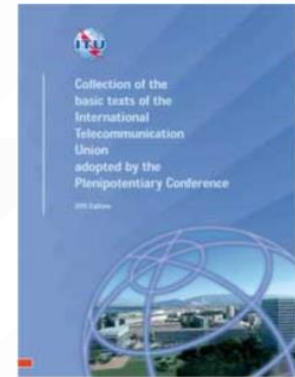
Convention on International Liability for Damage Caused by Space Objects (1972)

- **The Rescue Agreement**

Agreement on Rescue of Astronauts and the Return of Objects Launched into Outer Space (1968)

International Telecommunication Union

- The Constitution (CS) - Rights and Obligations
- The Convention (CV) - ITU Structure
- ITU-R Radio Regulations
- ITU-T International Telecommunication Regulations



▀ ITU-R Radio Regulations Relevance in National Law

Founding Principles

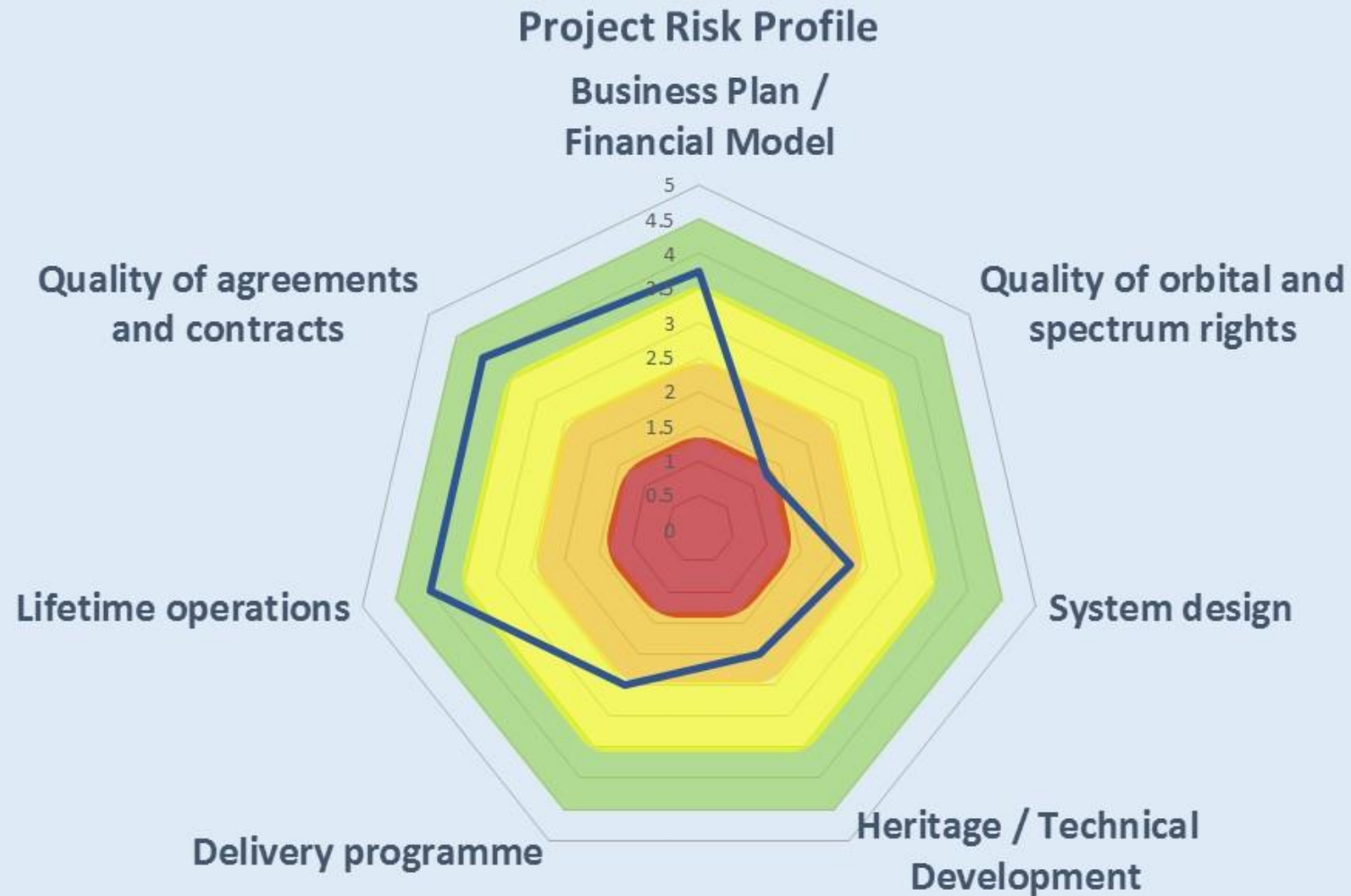
- Limit the number of frequencies and spectrum used to the minimum needed to provide satisfactory service
- Endeavor to apply technical advances as soon as possible
- Bear in mind frequencies and any associated orbits are limited resources and must be used rationally, efficiently and economically
- All stations must be operated in a manner not to cause harmful interference to services of another member

▀ ITU-R Radio Regulations Relevance in National Law

Objectives

- Equitable access to / rational use of spectrum
- Availability of and protection from interference of frequencies for distress and safety
- Prevention and resolution of cases of harmful interference **between administrations**
- **Efficient and effective** operation of services
- Regulate **new applications of radiocommunication technology**

Commercial Considerations For Space Activities



Market Access Requirements for Space Activities

Satellite Construction, Launch, and Operation

Satellite Network
Authorisation

Launch and
Operations

- UN Treaties
- ITU-R Radio Regulations
- National Regulatory Framework

Teleport Operations and Associated Frequency Use

Teleport (Country A)

Teleport (Country B)

TT&C (Country A)

TT&C (Country C)

- ITU-R Radio Regulations
- National Regulatory Framework

Communication Services and Radio Frequencies in Markets of Interest

Market A

Market B

Market C

Market D

Market E

Market (n)

Licensing and Authorisation

▀ Satellite Construction, Launch, and Operation

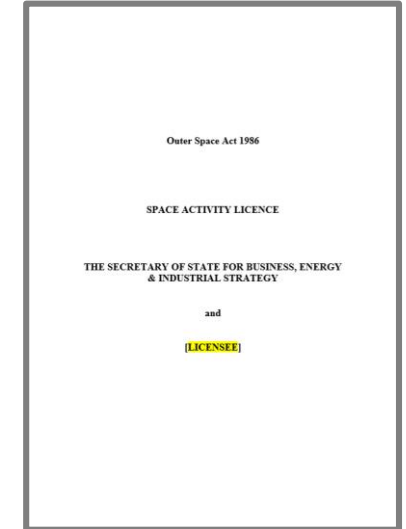
Licences

UK Space Agency issues UK Outer Space Act licences for the following activities:

- Launching or procuring the launch of a space object
- Operating a space object
- Any activity in outer space

Network Filing

UK Office of Communications (Ofcom) submits satellite network filing to the ITU. The filing is required to ensure the network receives protection under the ITU Radio Regulations



Outer Space Act Licence (1)

Who needs one?

- UK nationals and UK companies
- Application filed six months prior

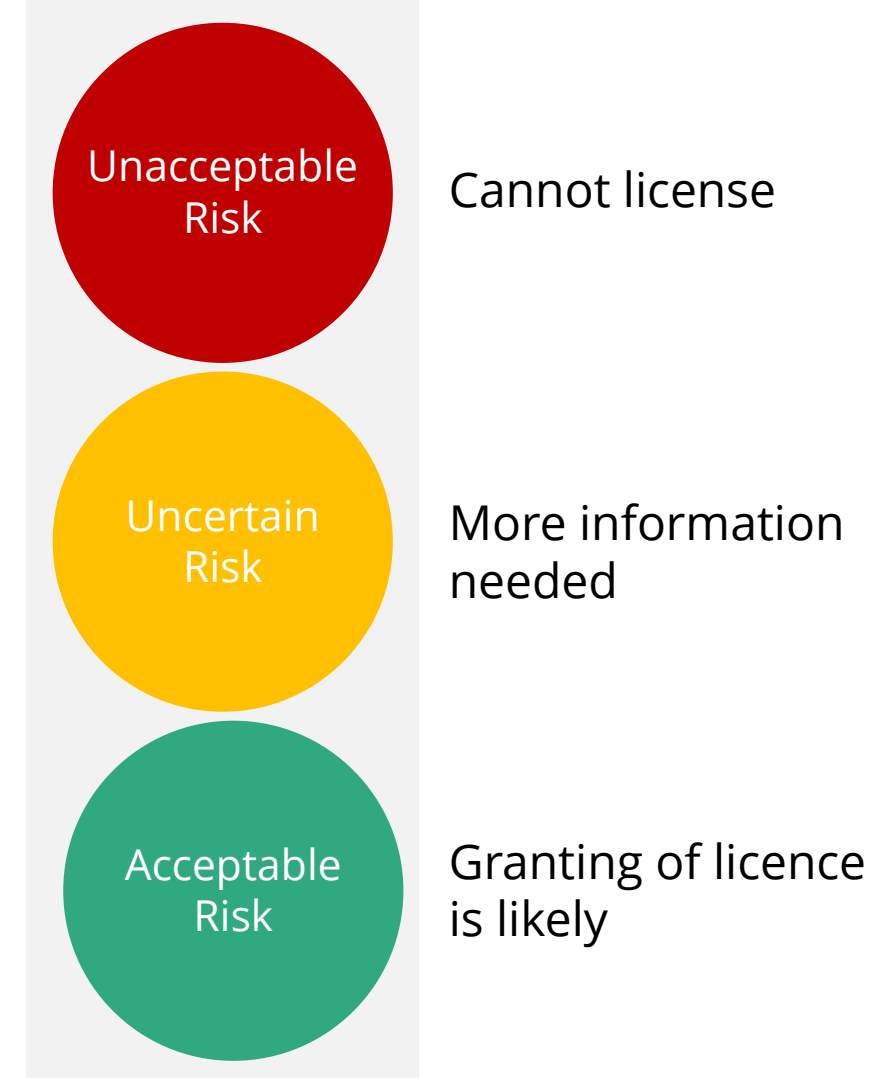
Traffic Light System of Licensing

- Application process proportionate to the scale and risks of a particular mission type

Liability and Indemnity Regime

- Third-party liability insurance requirement
- Indemnity cap: case-by-case basis
 - Standard missions (limit: EUR 60 million)

Traffic Light System



Outer Space Act Licence (2)

Obligations on licences

- Inform and seek approval of UKSA of any planned change to their licensed activity
- Prevent contamination of outer space and adverse changes in the environment of the Earth
- Avoid interference in the space activities of others
- Avoid jeopardising public health or safety of persons or property
- Avoid any breach of the UK's international obligations
- Preserve the national security of the UK
- Indemnify the UK government for any claims for third-party damage
- Insure themselves against third-party liabilities
- Dispose of the licensed space object appropriately

OUTER SPACE ACT: ANNUAL STANDARD MISSION SATELLITE HEALTH REPORT						Date:
SPACECRAFT NAME:	COSPAR IDENTIFIER:		SSN UNIQUE ID:			
SPACECRAFT FUNCTION (COMMS/PNT/EO/Other):		Comments:				
INJECTION ALTITUDE, km (Apogee/Perigee)		ORBIT INCLINATION (or Longitude if GEO)				
CURRENT ALTITUDE, km (Apogee/Perigee)		CURRENT INCLINATION (or Longitude if GEO)				
PLATFORM STATUS: (ACTIVE/SPARE/DISPOSED)					Comments:	
Commissioning Epoch	Qn/20NN	Decommissioning Epoch	Qn/20NN	Nominal Lifetime (years)		
SUBSYSTEM STATUS:	NOMINAL OPERATION	MINOR ANOMALY: NO MISSION IMPACT	MODERATE ANOMALY: DEGRADED MISSION	MAJOR ANOMALY: MISSION CRITICAL	LOSS OF CONTROL/ MISSION FAILURE	
ATTITUDE CONTROL	Mode (1/2/3/Spin)	Sensor 1	Sensor 2	Actuator 1	Actuator 2	
Status →						
Description (if non-nominal)						
PROPULSION	Fuel available (kg/years)	Valves/Lines	Pressurant(s)	Propellant(s)	Thrusters	
Status →						
Description (if non-nominal)						
ELECTRICAL POWER	Power available (W)	Conditioning/Distribution	Solar Array/Drive	Battery	Other	
Status →						
Description (if non-nominal)						
TELEMETRY AND CONTROL	Receivers	Transmitters	Antennas	Spectrum/Bands	Encryption	
Status →						
Description (if non-nominal)						
PAYLOAD(S)						
Status →						
Description (if non-nominal)						
REPORT PROVIDED BY:	NAME	POSITION/AFFILIATION				

▶ Satellite Network Filings (1)

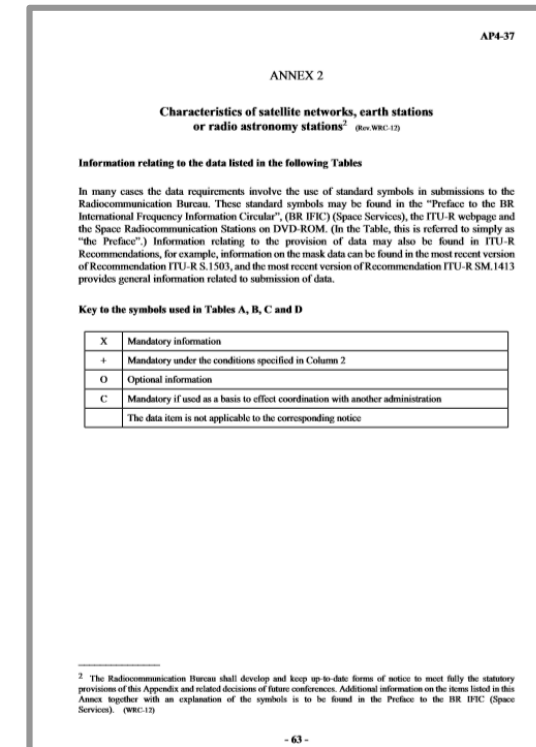


ITU-Radiocommunication Sector (ITU-R)

- Global management of radio-frequency spectrum and satellite orbits
- Mandatory submissions to the ITU for the construction and launch of satellite networks

Ofcom

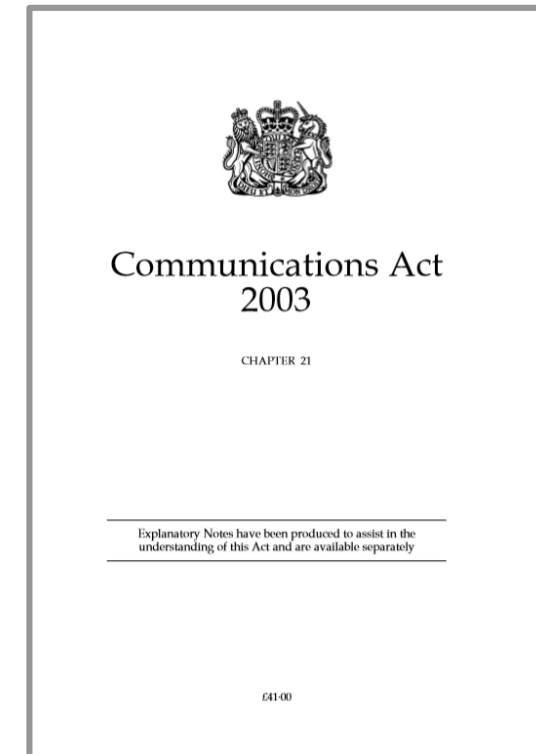
- Ensures that submitted applications are consistent with ITU provisions
- Requires applicants to demonstrate technical capability or legally binding contractual commitment that transmissions can be modified or ceased upon the request of Ofcom



▀ Satellite Network Filings (2)



- 2003 Communications Act amendment allows Ofcom to charge for services related to management of satellite filings
 - Submitting new filings
 - Managing filings through the ITU process
 - Notifying filings
 - Maintaining notified filings
 - Dealing with ad hoc requests (for filings going through ITU process), and
 - Undertaking project work related to performing our satellite filing work
- The change does not apply to any satellite filing work that Ofcom received the request for before the change comes into force (year end 2018)



Teleport Operations and Commercial Services

Gateway services

Provision of communications link to the space station/constellation and the Internet for customer traffic

- Incorporation under laws of a state of operation
- Registration of Gateway service provider on national telecommunication service provider register
- Satellite landing rights
- Spectrum landing rights
- Spectrum authorisation
- ISP authorisation
- Type approval, compliance with ITU, ETSI, FCC

TT&C authorisations can include:

Connectivity between the Satellite Control Centre and the satellites for control and monitoring process (TT&C)

- Incorporation under laws of a state of operation
- Spectrum authorisation
- Technical and legal capability to change or cease transmissions to and from space stations if required by telecom authorities of a licensed state

General Telecom Network Regulatory Requirements

- Sovereign right to set up telecommunication requirements
- Some states follow a trend on deregulation
- Common authorisation instruments:
 - General authorisation and licence exemption (blanket licence)
 - Network licence
 - Individual station licence
- Deregulation on telecom licensing:
 - Requirement for licensee to notify provision of service and register as national telecommunication service providers
- Type approval of equipment:
 - CE certification mark in the EU member states
 - Some states outside of the EU recognise CE certification mark

General Telecom Network Regulatory Requirements (2)

What are the main obligations for network operators and service providers?

- One-time and recurring regulatory fees
- Lawful intercept
- Data retention
- Consumer protection requirements
- Reporting requirements to the telecom authorities
- Emergency calling
- Security and integrity of network and services

Non-Compliance

- Fines
- Seizure of equipment
- Termination or suspension of licence
- Prohibition for future provision of services in the same jurisdiction
- Imprisonment (in rare cases)

Thank You



Access Partnership



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Ofcom Administrative Due Diligence Requirements

- Technical, financial and legal credentials to construct and operate the planned network
- Technical due diligence and management experience
- Information consistent with Articles 5,9 and 11 of the Radio Regulations
- A registered office in the UK, Crown Dependencies or Channel Islands
- All applicants must agree to pay ITU costs
- Technical operating data in the correct ITU software format

Administrative Due Diligence Timeline

Stage	Deliverable
At or before API/A submission (for frequencies not subject to coordination)*	<ol style="list-style-type: none">1) Business plan with milestones2) Financial security statement to meet construction and launch costs3) Current balance sheet with assets, income and revenue and details of financing consistent with business plan4) Technical information required by the ITU under Appendix 4a
At or before the CR/C submission (if required)*	<ol style="list-style-type: none">1) Same requirements as outlined above2) An electronic interference analysis3) Technical information required for CR/C stage as required by ITU under Appendix 4
Three years before regulatory deadline	<ol style="list-style-type: none">1) Evidence of a construction contract or evidence of a formal sharing arrangement to use an existing in-orbit satellite to bring the filing into use before the regulatory timeframe expires.
Two years before regulatory deadline	<ol style="list-style-type: none">1) Extracts of critical design review showing evidence of construction2) Copy of launch services agreement and contracts to construct the relevant earth stations

*Note from 2017, APIs are only submitted for services and frequencies where formal coordination under Article 9 is not required.

All due diligence procedures formally required at API/A have been moved to the CR/C stage.

Administrative Due Diligence Timeline

Stage	Deliverable
One year before regulatory deadline	1) Licences for earth station feeder links and telemetry, tracking, and command usage
Six weeks before bringing into use (BIU)	1) Current coordination report 2) ITU R Appendix 4 information for notification stage
At BIU	1) Report of successful satellite launch (unless agreed to use an in-orbit satellite) 2) If part of an NGSO, confirmation of the amount of satellites to be launched
At end of BIU Period	1) List of commercial name, payload description including frequency, PFD and coverage maps. Licence applications, in orbit test results and licence applications 2) Validated Annex 2 of Resolution 49 Information in software for ITU submission

▶ Ongoing Satellite Operator Requirements

- Following successful completion of the ITU's and Ofcom's administrative due diligence, annual reports should contain:
 - First report
 - Project activities, coordination reports and changes to the business plan and launch data
 - Subsequent reports
 - Operational health of satellites
 - Financial reports
 - Services provided by frequency/transponder/geographical area
 - Detailed log of operational and technical interference experienced
 - Mission, operational and design characteristics
- Failure to provide appropriate updates may result in the cancellation of the filing with the ITU