Review Standards and Standard Period of Time for Process Relating to Procedures under the Act on Launching of Spacecraft, etc. and Control of Spacecraft

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Cabinet Office
National Space Policy Secretariat

The review standards under Article 5, paragraph (1) of the Administrative Procedure Act (Act No. 88 of 1993) in relation to permissions, etc. related to the launching of spacecraft, etc., and the control of spacecraft, pursuant to the Act on Launching of Spacecraft, etc. and Control of Spacecraft (Act No. 76 of 2016), and the standard period of time for process under Article 6 of the Administrative Procedure Act, are as set out in the appended table.

The terms used in these review standards are governed by the definitions under the Act on Launching of Spacecraft, etc. and Control of Spacecraft (hereinafter referred to as the "Act") and the Regulation for Enforcement of the Act on Launching of Spacecraft, etc. and Control of Spacecraft (Cabinet Office Order No. 50 of 2017; hereinafter referred to as the "Cabinet Office Order").

Supplementary Provisions

These regulations come into effect from the date on which the Act comes into effect.

(Appended Table)

[Permission Related to Launching of Spacecraft, etc.]

Category	Provisions	Review standards		Standard period of time for processing
Permission related to launching of spacecraft, etc.	Article 4, paragraph (1) of the Act	Article 6, item (i) of the Act (Design of launch vehicle)	Same as the review standards for "Design of launch vehicle" as referred to in [Type certification for launch vehicle]	When a type certification is obtained: 1-3 months Other cases: 4-6 months
		Article 6, item (ii) of the Act (Launch site)	Same as the review standards for "Launch site" as referred to in [Compliance certification for launch site]	
		Article 6, item (iii) of the Act (Launch plan and sufficient ability to execute the launch plan)	1. Safety and security measures - In connection with the launching of a spacecraft, etc. (hereinafter simply referred to as a "launch"), the applicant takes appropriate safety and security measures during the period from the prelaunch processing phase to the completion of launch. 2. Development of disaster prevention plan, etc. - The applicant prepares a disaster prevention plan for preventing the occurrence of a disaster at the launch site, and complies with the related laws and regulations for ensuring the safety of facilities and handling thereof necessary for the disaster prevention. - The applicant ensures that information including the detection of fire and gas, security alarm, etc. is centralized and is kept updated on the status, and performs a sufficient facility inspection for fire prevention, firefighting and protection facilities before doing any hazardous activities. 3. Safety measures related to handling of propellant, etc. - The applicant establishes measures based on the applicable laws and regulations, so as to ensure the safety of handling of propellant, etc. (meaning explosives, high-pressure gases and hazardous materials, etc.) at the launch site. 4. Design of trajectory considering the planned impact area, etc. - The planned impact area of objects to be separated and jettisoned from a spacecraft launch vehicle (hereinafter	

			simply referred to as a "launch vehicle") in the course of its normal flight, including its combustion residue, is separated from the land or its surrounding sea waters to the possible extent. - The planned impact area would not interfere with any territory or territorial waters of a foreign state. If any interference is expected, the applicant obtains consent from the relevant state. - For a dispersion area of a trajectory of the estimated impact point in the case of a sudden thrust termination of a launch vehicle in thrust flight (a trajectory of estimated impact point), a trajectory has been determined so that the launch vehicle will pass an area as far as possible from densely populated areas, and the necessary measures have been taken so that the level of risk to the vicinity of the trajectory and launch site will not exceed the international standard or standard provided by the space agency of each state, even in emergency situations. 5. Design of the appropriate impact limit lines - The applicant establishes a set of lines indicating the boundary limit beyond which the launch vehicle must not cause any harmful effect in case of suspension of flight of the launch vehicle to ensure safety (i.e. impact limit lines). 6. Creation of restricted area and establishment of system to prevent entry of third parties - The applicant designates a restricted area according to each stage during the preparation period for launch considering the situations surrounding the launch site, and restricts entry of non-related parties. (1) Restricted area for preparation period For each stage of launch vehicle assembling work, the applicant designates a warning area to minimize the effect of an accident, etc. (2) Restricted area for launch Restricted areas for launch cover all of the areas which are, at least, included in the following restricted areas for ground safety and flight safety. [Restricted area for ground safety] At least blast, scattering objects, gas,	

			radiation heat generated by a fireball, etc. are taken into consideration. [Restricted area for flight safety] The following matters are taken into consideration: (A) The area is capable of preventing the occurrence of the following hazards in the vicinity of the launch site. (i) Collision of falling objects (ii) Blast in case of explosion in flight (iii) Blast and secondary scattering of fragments caused by a secondary explosion when there is a risk of a solid propellant falling to and impacting the ground surface, etc. and exploding (secondary explosion) (iv) Leak and dispersion of propellant onboard (B) In addition, in relation to the sea waters in the vicinity of the launch site, the distribution of impact of fragments generated due to the termination of flight immediately after the lift-off is evaluated, and the hazard to ships, etc. that may be caused by the impact of fragments is prevented to the possible extent. 7. Measures to be taken at the time of natural disaster warning, etc. - The applicant provides measures in response to a warning of stormy weather, lightning strike, earthquake, etc. 8. Prior notice to aircraft, ships, etc. - The applicant establishes communication means, etc. with relevant agencies so as to ensure the safety of aircraft, ships, etc. during the launch operation period. 9. Determination of the appropriate date and time for launch - The applicant sets the date of launch such that a collision with international space stations or manned spacecraft on the orbit will be avoided, so as to ensure the safety of lives of persons operating on the orbit. 10. Flight capability considering the spacecraft to be loaded - The flight capability of the launch vehicle can provide the ability to put the spacecraft into the planned orbit. - Safety-critical systems, etc. of the	

			launch vehicle which constitute the function to ensure the safety of the vicinity of the trajectory and launch site will not receive any severe adverse effect by the spacecraft onboard the launch vehicle. 11. Confirmation of feasibility for flight considering weather conditions - The applicant, immediately before the launch, confirms that the launch vehicle will not deviate from the planned trajectory and planned impact area due to the effect of weather conditions. - The applicant avoids any circumstances that may result in third-party damage, including a failure of equipment due to lightning, by predicting the possibility of lightning on the course of the trajectory. 12. Prevention of third-party damage prior to the termination of designation of restricted areas - During the launch operation period, the applicant takes safety measures as necessary, including the suspension of the operation. 13. Implementation of flight safety operation - The applicant takes measures for the monitoring of the conditions of the launch vehicle in flight and ensures that the flight can be terminated in a safe manner if necessary, so as to ensure the safety against falling objects in the case of a failure of the launch vehicle. 14. Implementation of flight termination - The applicant terminates the flight of the launch vehicle in any of the following cases: (i) When the estimated impact area of the launch vehicle and its fragments may cross the impact limit line; provided, however, that this does not apply to the case where the estimated impact area of the launch vehicle flying over the scheduled flight range passes the impact limit line, and where the flight is normal under the sufficient monitoring of the flight conditions immediately before the passage. (ii) When it is impossible to monitor the estimated impact area of the launch vehicle, and there is a risk that the estimated impact area of the launch vehicle and its fragments may cross the impact limit line.	

			(iii) When there is a possibility of loss of the flight termination function of the launch vehicle, and there is a risk that the estimated impact area of the launch vehicle and its fragments may cross the impact limit line. (iv) In other cases where any risk is considered to exist which may cause any adverse effect on the ensuring of safety if the thrust flight of the launch vehicle is continued. 15. Retrieval of objects remaining buoyant on the sea - The applicant makes efforts to retrieve objects remaining buoyant on the sea generating from jettisoned objects from a launch vehicle which pose the risk of any severe adverse effects on the navigation of ships. 16. Mitigation of the generation of orbital debris - The applicant takes the following measures in relation to the generation of objects which may become orbital debris. (i) Take measures to prevent the unexpected activation of pyrotechnic devices for command destruction of the orbital stage of launch vehicle. (ii) In the case of a launch vehicle for which the propellant is liquid fuel, vent the remaining propellant, gas, etc. to the possible extent, and take measures to install safety valves to avoid the increase of internal pressure or ensure the safety by way of design so as to avoid break-up even if the venting is not completed. 17. Removal of an orbital stage of a launch vehicle from protected regions - Where possible, the orbital stage of a launch vehicle that completed the launching into an orbit passing through a low earth orbit region (meaning a spherical region up to the altitude of 2,000km from the Earth's surface) or an orbit that may interfere with a low earth orbit region must be transferred into an orbit for which the orbital life is shorter or must be disposed of by a reentry in a way to prevent damage to the ground, by controlling its position, attitude and conditions. - Where possible, eternal or periodic	

			crossing of the orbital stage of a launch vehicle and the geosynchronous orbit region (geostationary earth orbit altitude of 35,786km ± 200km and latitude within ±15 degrees) is to be avoided. 18. Establishment of organizational structures for the implementation of launch plan - In order to ensure the proper implementation of the measures set forth in items 1 through 17 above, appropriate organizational structures must be established as follows. - Organization for safety and its duties The applicant establishes an organization dedicated to the ensuring of safety, takes measures to ensure that the organization will function in an organic way through closely connected means of communication, and establishes a reporting structure so that all safety issues will be communicated to the person responsible for launch. - Implementation of safety education training The applicant implements safety education and training for persons engaged in launch, and ensures that these persons are fully aware of the matters relating to the ensuring of safety. - Response to emergency The applicant establishes an organizational structure to accurately and immediately respond to emergencies, such as an accident occurred during the launch operation period.	
		Article 6, item (iv) of the Act (Purpose and method of spacecraft to be loaded on a launch vehicle)	Same as the review standards for "Purpose and method of use of spacecraft" as referred to in [License related to control of spacecraft]	
Permission to make changes	Article 7, paragraph (1) of the Act	As per the standards provided in Article 6, items (i) through (iv) of the Act.		No standard is set, as each application is to be reviewed on a case-by-case basis

				depending on the scope of change.
Authorization related to succession	Article 10, paragraph (1) of the Act (Transfer and acquisition)	Article 6, item (iii) of the Act (Limited to the part relating to the ability to execute the launch plan)	Same as the review standards of "18. Establishment of organizational structures for the implementation of launch plan" as referred to in "Launch plan and sufficient ability to execute the launch plan"	1 month
	Article 10, paragraph (2) of the Act (Merger)			
	Article 10, paragraph (3) of the Act (Corporate split)			

[Type certification for launch vehicle]

Category	Provisions	Review standard		Standard period of time for process
Type certification for launch vehicles	Article 13, paragraph (1) of the Act	Article 6, item (i) of the Act (Design of launch vehicle)	1. Flight capability (Article 7, item (i) of the Cabinet Office Order) - The launch vehicle is designed so that it has a flight capability sufficient for the launch, and the design has undergone verification. 2. Safety requirement for ignition device, etc. (Article 7, item (ii) of the Cabinet Office Order) - Measures are taken to ensure the safety of the vicinity of the trajectory and launch site of the launch vehicle for the case of any combinations of two types of failures, etc. This measure may also include the measures to be taken at the launch site. - Among the measures taken, two or more measures are always capable of being monitored. - Necessary measures have been taken to prevent any accidental ignition of pyrotechnic devices caused by stray lightning, etc. - Measures have been taken to prevent the easy occurrence of failures, etc. caused by the effect of the ambient electromagnetic waves, etc. 3. Function for flight safety operation (Article 7, item (iii) of the Cabinet Office Order) - The launch vehicle has a function of transmitting signals indicating its position, attitude and condition. 4. Flight termination function (Article 7, item (iv) of the Cabinet Office Order) - The launch vehicle has a function of receiving signals necessary for implementing the flight termination measures and a function of implementing flight termination, etc. In addition, the assessment on ensuring the safety is conducted according to the specific launch plan to be contemplated in the future, the risk to the vicinity of the trajectory and launch site does not exceed the level stipulated in the international standards or standards provided by the space agency of each state, and it is possible to prevent the risk of falling outside the impact limit line determined in advance. - Even in the case of another methods (including the methods, etc. to suspend sequences when signals are not received), the risk to the vicinity of the trajectory and	4-6 months

			launch site does not exceed the level stipulated in the international standards or standards provided by the space agency of each state, and it is possible to prevent the risk of violating the impact limit line established in advance. 5. Reliability and redundancy of safety-critical systems, etc. (Article 7, item (v) of the Cabinet Office Order) - For safety-critical systems, etc. which constitute the function to ensure the safety of the vicinity of the trajectory and launch site by flight termination measures of a launch vehicle, the reliability is 0.999 or more at a 95% confidence or an equivalent level, and the systems, etc. are fully redundant so that the they will function even in cases of failure, etc. 6. Mitigation of the generation of orbital debris relating to the separation of spacecraft, etc. (Article 7, item (vi) of the Cabinet Office Order) - The launch vehicle is designed so as to prevent the dispersion of fragments, etc. to the possible extent upon the operation of the stage separation system, spacecraft separation system, etc. of the launch vehicle; provided, however, that this does not apply to spacecraft support structures that are unavoidably released upon the launch of two or more spacecraft. 7. Mitigation of the generation of orbital debris relating to the orbital stage of launch vehicle (Article 7, item (vii) of the Cabinet Office Order) - Measures are taken to prevent the unexpected activation of pyrotechnic devices for command destruction of the orbital stage of the launch vehicle. - In the case of a launch vehicle for which the propellant is liquid fuel, the launch vehicle has a function to vent the remaining propellant, gas, etc. to the possible extent, and measures are taken to install safety valves to avoid the increase of internal pressure so as to avoid break-up even if the venting is not completed.	
Authorization related to change	Article 14, paragraph (1) of the Act	As per the standards provided in Article 6, items (i) of the Act.		No standard is set, as each application is to be reviewed on a case-by-case basis

				depending on the scope of change.

[Compliance certification for launch site]

Category	Provisions	Review standard		Standard period of time for process
Compliance certification for launch site	Article 16, paragraph (1) of the Act	Article 6, item (ii) of the Act (Launch site)	1. Securing of restricted areas and measures to prevent entry of third parties (Article 8, item (i) of the Cabinet Office Order) - The area is located in a place capable of securing an appropriate restricted area depending on the phases of the launch operation period. - The applicant makes efforts to establish the security measures for facilities, devices, information, etc. which would be important for the security of launch. 2. Installation of launcher (Article 8, item (ii) of Cabinet Office Order) - The launch site is capable of being equipped with a permanent or portable launcher appropriate for launch vehicles. - The launcher is capable of implementing the appropriate lift-off of a launch vehicle in a way to ensure the safety of the vicinity of the trajectory and launch site. 3. Safety requirement for ignition device, etc. (Article 8, item (iii) of the Cabinet Office Order) - Measures are taken to ensure the safety of the vicinity of the trajectory and launch site of the launch vehicle in case of any combinations of two types of failure, etc. This measure may also include the measures to be taken in relation to the launch vehicle. - Among the measures taken, two or more measures are always capable of being monitored. - Necessary measures have been taken to prevent any accidental ignition of pyrotechnics caused by stray lightning, etc. - Measures have been taken to prevent the easy occurrence of failures, etc. caused by the effect of ambient electromagnetic waves. 4. Radio equipment for flight safety operation (Article 8, item (iv) of the Cabinet Office Order) - The launch site is capable of being equipped with permanent or portable radio equipment having a function to detect a signal indicating the position, attitude and	1-3 months

			condition of the launch vehicle by the use of electromagnetic waves or other means; provided, however, that this does not apply if another place is used which is equipped with radio equipment having the same functions. - When the flight termination measures of a launch vehicle are to be implemented by way of receiving signals, the launch site is capable of being equipped with permanent or portable radio equipment having a function to transmit a signal necessary for the implementation of the flight termination measures to the radio equipment of the launch vehicle directly or via other radio equipment; provided, however, that this does not apply if another place is used which is equipped with radio equipment having the same functions. 5. Reliability and redundancy of safety-critical systems, etc. (Article 8, item (v) of the Cabinet Office Order) - For safety-critical systems, etc. which constitute the functions to ensure the safety of the vicinity of the trajectory and launch site by flight termination measures of a launch vehicle, the reliability is 0.999 or more at a 95% confidence or an equivalent level, and the systems, etc. are fully redundant so that the they will function even in cases of failure, etc.	
Authorization related to change	Article 17, paragraph (1) of the Act	As per the standards provided in Article 6, items (ii) of the Act.		No standard is set, as each application is to be reviewed on a case-by-case basis depending on the scope of change.

[License related to control of spacecraft]

Category	Provisions	Review standard		Standard period of time for process
License related to control of spacecraft	Article 20, paragraph (1) of the Act	Article 22, item (i) of the Act (Purpose and method of use of spacecraft)	- The purposes and methods of use of the spacecraft are in compliance with the basic principles (Articles 2 through 7 of the Space Basic Act). - The purposes and methods of use of the spacecraft are not likely to cause any adverse effect on the accurate	15 days - 3 months

			and smooth implementation of the conventions on development and use of outer space and ensuring public safety.	
		Article 22, item (ii) of the Act (Configuration of spacecraft)	1. Prevention of unintended release of objects (Article 22, item (i) of the Cabinet Office Order) - The spacecraft has a configuration to prevent the components, etc. from coming off or scattering easily. - The spacecraft has a configuration to prevent components, etc. from scattering easily upon the operation of the separation or deployment system, etc. of the spacecraft. - Due consideration is paid to the configuration so as to minimize the release of combustion products generated from pyrotechnics, etc. 2. Prevention of interference with the control of other spacecraft upon separation or docking (Article 22, item (ii) of the Cabinet Office Order) - The spacecraft has a configuration enabling it to be put into an appropriate orbit in a manner not having a severe adverse effect on the control of other spacecraft, including a manned spacecraft, upon the separation of components or parts of the spacecraft. - The spacecraft has a configuration enabling it to be docked with another spacecraft, etc. without the separation or release of components, etc. so as not to have any severe adverse effect on the control of other spacecraft. 3. Prevention of break-up in case of anomalies (Article 22, item (iii) of the Cabinet Office Order) - The spacecraft has a configuration to enable it to transmit signals indicating its position, attitude and condition to the spacecraft control facility directly or via other radio equipment. - The spacecraft has a configuration enabling the prevention of break-up, such as the venting of residual energy including residual propellant and electricity which may cause the break-up of the spacecraft. 4. Prevention of damage to the public upon reentry into Earth (Article 22, item (iv) of the Cabinet Office	

			Order) - The spacecraft or its component, etc. for reentry into Earth has a configuration to be completely ablated, or as a result of sufficient ablation, etc., the risk to the expected point of landing or water landing will not exceed the level stipulated in the international standards or standards provided by the space agency of each state. 5. Prevention of deterioration of the Earth's environment due to substances derived from other celestial bodies (Article 22, item (v) of the Cabinet Office Order) - In the case of retrieving a spacecraft, its components or parts which were put into orbit around a celestial body other than the Earth or which fell to the celestial body, by guiding them to fall to Earth, the spacecraft has a configuration for the prevention of the deterioration of the environment of the Earth that may be caused by the introduction of extraterrestrial substances. 6. Prevention of contamination of environment of other celestial bodies (Article 22, item (vi) of the Cabinet Office Order) - In the case of a spacecraft or its components, etc. which are put into the orbit around a celestial body other than the Earth or which are to be guided to fall to the celestial body, the spacecraft has a configuration for the prevention of the harmful contamination of the celestial body.	
		Article 22, item (iii) of the Act (Control plan and sufficient ability to execute the control plan)	1. Prevention of interference with the control of other spacecraft upon separation or docking (Article 23, item (i) of the Cabinet Office Order) - The applicant provides measures relating to the appropriate orbital insertion to ensure that there will be no severe adverse effect on the control of other spacecraft, including manned spacecraft, when separating components or parts of the spacecraft. - The applicant provides measures relating to the prevention of coming off or scattering of components, etc. to ensure that there will be no severe adverse effect on the control of other spacecraft when docking	

			the spacecraft with another spacecraft, etc. 2. Prevention of break-up in case of anomalies (Article 23, item (ii) of the Cabinet Office Order) - The applicant provides methods and guidelines for the implementation, etc. of measures to prevent break-up in cases of detecting anomalies in the condition, etc. of the spacecraft. 3. Prevention of collision with another spacecraft, etc. (Article 23, item (iii) of the Cabinet Office Order) - The applicant provides the methods of obtaining information on the possibility of collision with another spacecraft, etc. and the measures to be taken in case of obtaining the relevant information. 4. Establishment of organizational structures for the implementation of the control of spacecraft - In order to ensure the control plan set forth in 1 through 3 above, the following appropriate organizational structures are established. - Organization for management and its duties - Response to anomalies - Establishment of security measures	
		Article 22, item (iv) of the Act (Details of termination measures)	(In the case of Article 22, item (iv)(a) of the Act) - The applicant provides measures for the controlled reentry (e.g. trajectory, landing point) while ensuring the safety of an expected point of landing or water landing. (In the case of Article 22, item (iv)(b) of the Act) - The applicant provides measures to elevate the spacecraft to the altitude that would not have any adverse effect on the control of other spacecraft. (In the case of Article 22, item (iv)(c) of the Act) - The applicant provides measures to put the spacecraft into the orbit around a celestial body other than the Earth or guide it to fall to the celestial body, without any risk of significantly deteriorating the environment of the celestial body.	

			(In the case of Article 22, item (iv)(d) of the Act (Article 24 of the Cabinet Office Order))
			- The applicant provides measures to vent residual energy, including residual propellant and electricity, which may cause break-up of the spacecraft or to prevent the break-up.
			- Upon the termination of the control of the spacecraft, the following measures are to be taken for the protected regions:
			  - Efforts must be made so that the spacecraft will be removed from the low earth orbit region within 25 years from the termination of the control.
			  - The spacecraft is to be removed from the geosynchronous orbit immediately.	

Permission to make changes	Article 23, paragraph (1) of the Act	As per the standards provided in Article 22, items (i) through (iv) of the Act.		No standard is set, as each application is to be reviewed on a case-by-case basis depending on the scope of change.
Authorization on succession	Article 26, paragraph (1) of the Act (Transfer and acquisition) Article 26, paragraph (3) of the Act (Merger) Article 26, paragraph (4) of the Act (Corporate split)	Article 22, item (iii) of the Act (Limited to the part relating to the ability to execute the control plan)	Same as the review standards of "4. Establishment of organizational structures for the implementation of the control of spacecraft" as referred to in "Control plan and sufficient ability to execute the control plan."	1 month