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# Working with the Japanese New Remote Sensing Data Act

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**Abstract**

The basic principles of space law such as the freedom of use of outer space and the UN Remote Sensing Principles, grants the freedom of remote sensing activities from outer space, and although many technological difficulties exist, as a result of continuous endeavor in R&D, the possible civil and private use of satellite remote sensing data to solve various issues is increasing in various fields such as disaster management, global environment issues, and is expected to further increase.[1]

The expansion of the use of Satellite Remote Sensing Data by current and new users is welcomed, however not all data could be with no restrictions. As a solution to this matter, on November 15th, 2017, the Remote Sensing Data Act came into full effect in Japan. The Act was established based on the fact that the use of satellite remote sensing data by private actors have increased, rules are necessary to prevent wrongful use, and a legal system is necessary to promote the new industry and services that use satellite remote sensing data. It is similar to the legislation related to remote sensing in many other countries that have high resolution satellites such as the U.S., Canada, France and Germany.

The Act mainly sets an authorization regime for use of satellite remote sensing instruments, and a Certificate for the use of satellite remote sensing data, in order to ensure appropriate handling of remote sensing data. Japan Aerospace Exploration Agency (JAXA) is subject to these authorization and certificates. JAXA has worked closely with the Cabinet Office on the

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application, and now gains two authorization of the satellites, including the first Authorization based on this law.
This paper introduces the legal system in brief, and how JAXA responds to the authorization scheme. Furthermore, describes the impacts of the law on the practical use of data, and suggestions for future improvements.

## 1. History of the Act on Ensuring Appropriate Handling of Satellite Remote Sensing Data (Remote Sensing Data Act) [1]

### 1.1 History of Legislation

In January 2015, the 3rd Basic Plan on Space Policy was established by the Strategic Headquarters for National Space Policy, and the government set a target to draw up a bill required to promote business initiatives by private sector business operators using remote sensing satellites, taking into account the need to ensure our nation's security interests, and submit it to the Diet in Fiscal Year 2016. [2]
In February 2015, the Space Legislation Subcommittee, was established under the Committee on National Space Policy, and in June 2015, it reported the basic concepts of the Remote Sensing Data Act. The report mentions, the recognition of current situation, the rationale of promoting the nation's satellite remote sensing policy, and the legal points of consideration (scope of data, activities and actors subject to legislation, etc.).
After subsequent consideration, on March 2016, the bill on Remote Sensing Data was decided by the Cabinet and submitted to the Diet together with the Space Activities Bill (a legislative bill concerning the launching of satellites and the control of satellites).
The bill passed the House of Representatives on October 2016, and the House of Councilors on November, and was promulgated on November 16th, 2016, as the Act on Ensuring Appropriate Handling of Satellite Remote Sensing Data (Act No. 77 of November 16, 2016; hereinafter referred to as the "Act" or the "Remote Sensing Data Act").
During the deliberative process in the Diet, a supplementary resolution was made in the House of Councilors, Cabinet Committee, mentioning that "restrictions on Satellite Remote Sensing data should show appropriate

1 The Act itself and other related laws and regulations can be found in English at the following Cabinet Office Webpage: http://www8.cao.go.jp/space/english/rs/application.html

2 The Strategic Headquarters for National Space Policy was established to comprehensively and systematically promote policies related to the space development and utilization, in accordance with the Basic Space Law (enacted in 2008, Law No. 43), and is formed by the cabinet members and headed by the Prime Minister.

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examples of the way of handling processed data and the method of provision, ensuring balance of restriction and the promotion of industrial development".

### 1.2 Schedule for obtaining license

Based on the supplementary provisions of the Act, the Act was to execute within a year from the promulgation, from the date defined by Cabinet Order, and will start accepting applications within nine months from the promulgation, also from the date defined by Cabinet Order. The standard time for government review of each application was made 2 months.
On August 9th, 2017, the Regulation for Enforcement of the Act on Ensuring Appropriate Handling of Satellite Remote Sensing Data (Cabinet Office Order No. 41) was promulgated, and on August 15th, acceptance of applications started and on November 14th, Guidelines on Measures, etc. Under Act on Ensuring Appropriate Handling of Satellite Remote Sensing Data was published by the National Space Policy Secretariat, Cabinet Office.
Finally, the Act entered into full force on November 15th, 2017.

## 2. Purpose of Establishment of the Act

The government explains the necessity of this Remote Sensing Data Act as follows.[3]
The rapid progress takes place in the global market due to the development of remote sensing technology, such as the improvement of resolution (spatial and temporal), the reduction of cost of commercial satellites due to the miniaturization of satellites/small-sats constellations, development of innovative business ideas (e.g. motion picture). Likewise, the rapid expansion of uses of satellite data is also expected to happen in Japan. Furthermore, the global remote sensing satellite data market was about 150 billion yen in 2013 and is expected to grow a few times in the next 10 years.[4]
Under such progress in the expansion of the use of satellite remote sensing data, considering the fact that countries such as the U.S., Germany, France and Canada have established legislation to prevent such data from wrongful use by some countries and international terrorists, it is necessary for Japan to establish rules to prevent misuse of remote sensing systems and data. Also, the need to clarify criteria and standards that need to be complied with by private companies is necessary so as to enhance foreseeability and to reduce

3 From Cabinet Office website: http://www.cao.go.jp/houan/doc/190-4gaiyou.pdf
4 In Japan, JAXA has satellites such as ALOS-2 with 3m resolution and has plans to launch satellites with higher resolution. Private companies also have satellites with high resolution that are subject to the Act, such as ASNARO-1 (Optical 0.5m) developed in the Ministry of Economy, Trade and Industry project.

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business risks. This act is expected to contribute to promoting new industries and services using satellite remote sensing data as a legal infrastructure.

## 3. Outline of the Act

The Remote Sensing Data Act establishes a licensing regime for the use of high-resolution satellites, makes restrictions on the handling of certain high-resolution satellite data, establishes a certification regime for people handling such satellite data, and defines supervision by the Prime Minister, transitional measures and penal provisions, as follows.

### 3.1 License for the Use of Satellite Remote Sensing Instruments

A person who intends to conduct the Use of Satellite Remote Sensing Instruments by using a Ground Radio Station for Command and Control located in Japan (excluding Specified User Organization) must obtain a license from the Prime Minister per Satellite Remote Sensing Instrument (Article 4).

"Satellite Remote Sensing Instruments" means system including an equipment on board a satellite that observes the Earth surface using electromagnetic waves from a satellite circulating the Earth orbit, that is capable of detecting the movement of vehicles, ships, aircraft and other moving facilities (Article 2 item 2), and

"Ground Radio Station for Command and Control" means a ground radio station which has the function of transmitting signals to the Satellite Remote Sensing Instruments, directly or via other ground station using electromagnetic waves, necessary for the operation of Satellite Remote Sensing Instruments (Article 2 item 3), and

"Use of Satellite Remote Sensing Instruments" means to operate Satellite Remote Sensing Instruments and send observation data to the ground, by setting methods for sending necessary signals to the Satellite Remote Sensing Instruments to the Ground Radio Station for Command and Control operated by oneself or by others. (Article 2 item 4)

#### 3.1.1 Scope of the License

This Act regulates certain Satellite Remote Sensing Instruments and leaves the scope to be defined in the Cabinet Office Order, in order to apply the Act flexibly and to avoid preventing the growth of new business using satellite data, in this field where technology is showing drastic advance.

In the Cabinet Order, the Distinguishing Accuracy of Target (spatial resolution) is defined for each category of the Satellite Remote Sensing Instruments.

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1) optical sensor: an optical sensor with Distinguishing Accuracy of Target not exceeding 2 meters.
2) SAR sensor: a SAR sensor with Distinguishing Accuracy of Target not exceeding 3 meters.
3) thermal infrared sensor: a thermal infrared sensor with Distinguishing Accuracy of Target not exceeding 5 meters
4) hyperspectral sensor: a hyperspectral sensor with Distinguishing Accuracy of Target not exceeding 10 meters, and with detectable wavelength bands exceeding 49.

Of such Satellite Remote Sensing Instruments, license is required for the control and downlink of observation data using a Ground Radio Station for Command and Control located in Japan (Article 4)
The exceptions are, for instance, 1) use of Satellite Remote Sensing Instruments by the national government and local authorities, that are defined in the Cabinet Order, 2) use of satellite sensors that do not meet the criteria in the Cabinet Office Order (such as low spatial resolution sensors), 3) instruments using Ground Station for Command and Control out of Japan. Also, from the definition of Satellite Remote Sensing Instruments, 4) such Instruments that observe places other than the Earth (Moon, etc.) is out of the scope.

#### 3.1.2 Requirements

In order to obtain a license, one must meet the following requirements.
Measures have to been taken for the structure, capability and the location, as well as methods of management of the Satellite Remote Sensing Instruments, the ground radio station for command and control and Receiving Stations thereof, to prevent persons other than the applicant from the Use of Satellite Remote Sensing Instruments, or to meet other criteria specified by Cabinet Office Order (Article 6 item 1),
Measures have to be taken for prevention of divulgence, loss or damage of Satellite Remote Sensing Data (see 3.2 below) and any other necessary measures specified by Cabinet Office Order for the safety management (Article 6 item 2), and
The Prime Minister finds that the applied Use of Satellite Remote Sensing Instruments is unlikely to cause adverse effect on ensuring peace of the international community, etc. (Article 6 item 4)

#### 3.1.3 Measurements to be taken

A license holder must take the following measures.

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One must perform a conversion process for signals which are necessary to operate Satellite Remote Sensing Instruments, and for Electromagnetic Data of Detected Information transmitted from the Satellite Remote Sensing Instruments, and take other necessary measures specified by Cabinet Office Order to prevent the Use of Satellite Remote Sensing Instruments by a person other than the license holder(Article 8 (1)), stop the function when the instrument does not stay in the orbit applied for in the license (Article 9), not use any Receiving Stations other than those that are licensed (Article 10), notify the Prime Minister in case of malfunction of the Satellite Remote Sensing Instruments (Article 11), keep a log concerning the status of the Use of Satellite Remote Sensing Instruments as specified by Cabinet Office Order (Article 12).[5]

One must also take appropriate termination measures and notify the Prime Minister when terminating the Use of Satellite Remote Sensing Instruments (Article 15 Paragraph 2).

As a transitional measure, for Satellite Remote Sensing Instrument already on orbit at the time of the execution of the Act, restrictions, such as requirements concerning the structure of the Instrument, structure and location of receiving stations, do not apply, and obligations such as conversion process, and stopping satellite function outside the applied orbit, use of receiving stations not licensed(Article 8,9, and 10) are not reqired.

### 3.2 Regulations Concerning Handling of Satellite Remote Sensing Data

Concerning the handling of Satellite Remote Sensing Data, a Satellite Remote Sensing Data Holder (certified user and license holder) must take the following measures when handling the Satellite Remote Sensing Data (Chapter 3).

"Satellite Remote Sensing Data" means Electromagnetic Data of Detected Information data which is sent to the ground by Use of Satellite Remote Sensing Instruments and data processed from such Electromagnetic Data of Detected Information, when such information and processed data fall under the criteria specified by Cabinet Office Order where the use of such information is likely to cause adverse effect on ensuring the peace of the international community, in view of their Distinguishing Accuracy of Target, the extent and degree of modification of data through processing, the elapsed time since the observation data was recorded, and other circumstances.

5 The article requiring to stop function of instruments when leaving licensed orbit, takes into account the fact that the resolution of optical sensors increases when the orbit lowers down.

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#### 3.2.1 Scope

In line with the Satellite Remote Sensing Instruments, the Act leaves the scope of Satellite Remote Sensing Data to be defined in the Cabinet Office Order as follows, considering resolution, level of process, and time elapsed from recording.

##### 3.2.1.1 *Raw Data*

"Raw Data" means an Electromagnetic Data of Detected Information obtained by an optical sensor, hyperspectral sensor or thermal infrared sensor, on which no radiometric correction (meaning processing for correcting the sensor sensitivity characteristics) and geometric correction (meaning correcting geometric distortion of image caused by the movement of the Earth Orbiting Satellite) has been performed, and for Electromagnetic Data of Detected Information obtained by a SAR sensor, on which no range compression processing, azimuth compression processing (meaning processing for improving the accuracy of the data using characteristics of radio magnetic waves), and geometric correction has been performed (Cabinet Office Order Article 1 item 5).

1) optical sensor: data with Distinguishing Accuracy of Target not exceeding 2 meters, which is within five years after the recording.
2) SAR sensor: data with Distinguishing Accuracy of Target not exceeding 3 meters, which is within five years after the recording.
3) thermal infrared sensor: a thermal infrared sensor with Distinguishing Accuracy of Target not exceeding 5 meters, and within five years after recording.
4) hyperspectral sensor: a hyperspectral sensor with Distinguishing Accuracy of Target not exceeding 10 meters, and with detectable wavelength bands exceeding 49, and within five years after recording.

##### 3.2.1.2 *Standard Data*

"Standard data" means, for Electromagnetic Data of Detected Information obtained by an optical sensor, hyperspectral sensor or thermal infrared sensor, on which radiometric or geometric correction has been performed, and for Electromagnetic Data of Detected Information obtained by a SAR sensor, on which the range compression processing and azimuth compression processing or geometric correction has been performed. Nonetheless, it is not a Standard data if such data 1) does not include any metadata such as the date and time of recording, position of Earth Orbiting Satellite at recording,

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observation mode, pointing angle etc., or 2) is no longer restorable to the condition processed above.[6]

1) Optical sensor: data with Distinguishing Accuracy of Target less than 0.25meters
2) SAR sensor: data with Distinguishing Accuracy of Target less than 0.24meters
3) thermal infrared sensor: a thermal infrared sensor with Distinguishing Accuracy of Target not exceeding 5 meters
4) hyperspectral sensor: a hyperspectral sensor with Distinguishing Accuracy of Target not exceeding 5 meters, and with detectable wavelength bands exceeding 49

The subject of certificate includes people who handle the Satellite Remote Sensing Data abroad. So for instance, people who operate ground stations for direct reception of such data abroad are subject to this certificate.[7]
Major examples of exception will be 1) the handling of Satellite Remote Sensing Data by the Japanese national government and other Specified Data Handling Organizations, 2) handling of satellite observation data that does not meet the criteria of the Cabinet Office Order, 3) satellite observation data of Satellite Remote Sensing Instruments that are no longer used at the time of the full execution of the Act (for example, data of ALOS which has ended its operation in 2011).

#### 3.2.2 Measures to be taken

First of all, one may not provide Satellite Remote Sensing Data to people other than certified users, License holders, or Specified Data Handling Organization. And when providing Satellite Remote Sensing Data to a certified user, one must verify that the recipient has obtained that certification by requiring such recipient to present a certificate, and provide the information using cryptography or any other method as necessary and appropriate for prevention of acquisition and use of Satellite Remote Sensing Data by any person other than the recipient, pursuant to the provisions of Cabinet Office Order. (Article 18)
However, exception is made in case where provision is necessary for the public interest, such as request based on law by the Diet or Judicial

6 Such data are out of scope of restriction of the Act as they do not meet the criteria of Standard Data.
7 Certain foreign governments with satellite remote sensing legislation (currently Government of the U.S., Canada, Germany and France) are "Specified Data Handling Organizations" who are not required to hold certificates.

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Authorities, or such provision is carried out in an urgent situation when measures must be taken to rescue human life, for disaster relief or for other emergencies (including responses through international cooperation), and in such case, one must report to the Prime Minister, the detail of the situation, the background and process of provision, the data provided, and the recipient, etc.(Article 18, Paragraph 3, Cabinet Office Order Article 21). The "disaster" here is disaster defined in the Basic Act on Disaster Control Measures (Act No. 223 of 1958), which widely includes storm, tornado, heavy rainfall, heavy snowfall, flood, slope failure, mudflow, high tide, earthquake, tsunami, eruption, landslide, other abnormal natural phenomena, a large fire and explosion, etc. Therefore, disaster management activities done by international cooperation activities such as Sentinel Asia and the Disasters Charter apply to this exception.[8]

Furthermore, a Satellite Remote Sensing Data Holder must take measures for prevention of divulgence, loss or damage of Satellite Remote Sensing Data and any other necessary and appropriate measures specified by Cabinet Office Order for the safety management of the relevant Satellite Remote Sensing Data.

If the Prime Minister believes on the sufficient ground that the use of Satellite Remote Sensing Data is likely to cause adverse effect on ensuring peace of the international community, etc., the Prime Minister may issue an order to prohibit provision of the Satellite Remote Sensing Data designating the scope and time period. Such prohibition must be limited to the minimum extent required for ensuring peace of the international community, etc. (Article 19)

The factors to be considered when issuing this order, was discussed in the Diet, and a Government official made a reply that although it is difficult to make a general reply since comprehensive consideration needs to be made on solid cases, for example, if Satellite Remote Sensing Data is used by a party to a conflict or a terrorist organization, etc., and is possible to foster armed conflicts or terrorism, etc. or possibly be used for political or military means of collecting information, and could cause adverse effect on ensuring national security, and has sufficient information and objective reasonable grounds, such case could be subject to this article.[9]

8 In fact, Standard Data or those processed to higher levels are provided in these activities, and there seems to be no record of providing Satellite Remote Sensing Data restricted by this Act.

9 See record of Cabinet Committee, House of Representatives, 192nd session of the Diet, October 26th, 2016

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### 3.3 Certification for handling Satellite Remote Sensing Data

A person handling Satellite Remote Sensing Data (excluding Specified Data Handling Organization) may, obtain a certification from the Prime Minister that states that person is found to be capable of properly handling Satellite Remote Sensing Data, according to the categories of Satellite Remote Sensing Data specified by Cabinet Office Order having regard to circumstances such as Distinguishing Accuracy of Target, the scope and degree of information changed as a result of processing the Detected Information, or the time elapsed since the relevant Electromagnetic Data of Detected Information was recorded.(Article 21)

"Specified Data Handling Organization" means national or local governmental organization in Japan or a governmental organization of a foreign country (meaning a country or region outside of Japan; the same applies hereinafter) prescribed by Cabinet Order as an entity capable of performing an appropriate handling of Satellite Remote Sensing Data. (Article 2 item 7) According to the Cabinet Order, it was made to be most of the national government organizations and the local government organizations, of which the measures equivalent to the measures for the safety management of Satellite Remote Sensing Data pursuant to Article 20 have been taken. (Cabinet Order Article 2)

A person who intends to obtain a certification must submit a written application to the Prime Minister, specifying the category of Satellite Remote Sensing Data, the purpose and method of usage of the data, methods of management of the data, the place of a receiving station if the applicant receives the data from such station. Certification will be granted if the Prime Minister finds that the applicant has not violated the provisions of this Act or other acts and regulations relating to the regulations of conducts which are likely to cause adverse effect on ensuring peace of the international community, etc., or the laws and regulations of a foreign country equivalent thereto, and has been sentenced to a fine or severer punishment and for whom certain years have not elapsed, and is not an "international terrorist"[10], and that the applicant is not likely to cause adverse effect on ensuring peace of the international community, etc. by taking into consideration the purpose and methods of use of Satellite Remote Sensing Data, the capability to carry out analysis or processing of Satellite Remote

10 "International Terrorist" is a person currently specified in the list pursuant to the provisions of Article 3, paragraph (1) of the Act on Special Measures Concerning Asset Freezing, etc. of International Terrorists Conducted by Japan Taking into Consideration United Nations Security Council Resolution 1267, etc. (Act No. 124 of 2014) (Article 5 item 5)

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Sensing Data, measures to ensure the safety management of Satellite Remote Sensing Data and other circumstances.(Article 21)

### 3.4 Supervision by the Prime Minister

The Prime Minister may, to the extent necessary for the enforcement of this Act, request a Satellite Remote Sensing Instruments User or Satellite Remote Sensing Data Holder to provide necessary reports or have Cabinet Office officials enter its office to inspect books, documents or other items or to question relevant persons. (Article 27)

And the Prime Minister may give necessary guidance, advice and recommendations in order to ensure the proper handling of Satellite Remote Sensing Data. (Article 28)

Also, when the Prime Minister finds that a Satellite Remote Sensing Instruments User is in violation of this Act, the Prime Minister may order such person to take necessary measures for correcting that violation. (Article 29)

### 3.5 Penal Provisions

In case a person violates this Act, one could be punished by imprisonment for not more than three (3) years or a fine of not more than 1,000,000 yen, or both, and except in the case of trivial violation, the Prime Minister may rescind the license/certificate (Article 17, 25, 33 to 38). The crimes of violation to orders to correct violations and to prohibit provision of Satellite Remote Sensing Data, and providing such data to uncertified people, also apply to crimes committed outside Japan (Article 36). The penalty is set considering balance with other related legislation that regulates conducts which are likely to cause adverse effect on Ensuring Peace of the International Community, etc., and actions that cause harmful risk to the protection of life, body, property.[11]

## 4. Safety Management Measures

The Cabinet Office Order specifies the necessary measures for prevention of divulgence, loss or damage of Satellite Remote Sensing Data and any other necessary and appropriate measures for the safety management of the relevant Satellite Remote Sensing Data. (Act Article 6 item 2, Article 20) More specifically, it is necessary to implement, in an appropriate manner, "organizational safety management measures" including establishment of organizational structure, "human safety management measures" including supervision and education of persons engaged in handling of Satellite Remote

11 Kohei Sato, Councilor, National Space Policy Secretariat, Cabinet Office, "Outline of the Act on Ensuring Appropriate Handling of Satellite Remote Sensing Data (Remote Sensing Data Act), Jurist, May 2017, Number 1506 page37 (6)

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Sensing Data, "physical safety management measures" including management of areas for handling Satellite Remote Sensing Data and prevention of theft of computers and electronic media, and "technical safety management measures" including prevention of unauthorized access from outside and access control. The guideline describes examples of concrete methodologies for the safety management measures. (Cabinet Office Ordinance Article 7 paragraph 1, and the Guideline).

For the "organizational safety management measures", establishment of basic policy for safety management of Satellite Remote Sensing Data, clarifying the responsibilities and authorities, the duties of people handling the Satellite Remote Sensing Data, establishment of an organizational management system in case of divulgence, loss or damage of Satellite Remote Sensing Data, establishment and implementation of regulations on safety management measures, and operation of such regulations is continuously assessed and improved.

For "human safety management measures", confirm that people handling Satellite Remote Sensing Data does not fall under any disqualification criteria specified in the Act, take measures to ensure that people handling Satellite Remote Sensing Data and other related confidential information will not use such data for other purposes, and provide necessary education and training.

For "physical safety management measure", clearly distinguish facilities for handling Satellite Remote Sensing Data, take measures to restrict entry into and bringing in devices into facilities, take necessary physical measures such as securing computers using wires in order to prevent theft, loss or any other accidents of computers and other portable media or devices using Satellite Remote Sensing Data. (However, physical safety management measures are only required for Raw Data.)

For "technical safety management measures", take appropriate measures to prevent unauthorized access as provided in the Act on Prohibition of Unauthorized Computer Access (Act No. 128 of 1999, Article 2, paragraph (4)), restrict portable memory devices from being connected with computers, encrypt or take other necessary measures for appropriate protection in case of transfer or telecommunication transmission of Satellite Remote Sensing Data.

Also, Satellite Remote Sensing Instrument user (license holder) is required the same safety management measures for Conversion Codes (Act Article 8 paragraph 5, Cabinet Order Article 10 paragraph 2). However, as a transitional measure, this does not apply to Satellite Remote Sensing Instrument already on orbit at the time of the execution of the Act. The Conversion Codes means codes used for a signal conversion process for signals which are necessary to operate Satellite Remote Sensing Instruments or for Electromagnetic Data of Detected Information transmitted from the Satellite Remote Sensing Instruments, so that once the conversion process

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takes place, it cannot be reconstructed without using conversion codes corresponding to the conversion codes.

## 5. Measures taken by JAXA

### 5.1 Measures taken to gain license

#### 5.1.1 Schedule

JAXA started consultation in advance with the Cabinet Office on July 2017, with expectation that Cabinet Office Order will establish on August, and after a series of consultation, applied license for Advanced Land Observing Satellite 2 (ALOS-2) on September 15th. The license was issued on November 15th, the day the Act entered into full force.

For the license of Super Low Altitude Test Satellite (SLATS), pre-consultations started from the end of September 2017, and was issued a license on December before its launch. Since it is basically the same with the ALOS-2 except that the transition measures do not apply, explanation will mainly be made based on the ALOS-2 case.

#### 5.1.2 Establishment of internal regulations

Since Cabinet Office Order, that stated the details of the measures that need to be taken, was partially enacted, and application for license became open, as part of the preparation for application of ALOS-2, on September 1st, JAXA established internal regulations for remote sensing legislation, which included management organization and necessary measurements to meet the Act and governmental regulations, and revised necessary parts of the Organization Regulation.

At the time of the execution of the Act, since only the Space Technology Directorate I has satellites and produces data subject to the Act, the organization was made headed by the Director General of Space Technology Directorate I, and departments including those out of the Directorate were mandated to follow his orders. Under his leadership, each department has responsibility in ensuring appropriate handling of Satellite Remote Sensing Data.

The Director General of the Directorate governs the use of Satellite Remote Sensing Instruments and the handling of Satellite Remote Sensing Data, and the Project Manager of each Satellite is responsible to meet the obligations required by the Act, concerning the Satellite he oversees. For each Department that handles Satellite Remote Sensing Data, the Director of each Department is responsible to ensure appropriate handling of such data.

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The documentation structure was made so that the Regulation, covering the obligations of the Act, becomes the top document, and details are written in implementing guidelines.

#### 5.1.3 Contracts and Register of Users

In the internal regulations, all employees who handle Satellite Remote Sensing Data are required to sign a commitment form, in order to assure people handling Satellite Remote Sensing Data do not meet the disqualification criteria, and do not use it for unauthorized purposes. And people can only handle the data after they are listed in the register of users and have taken education.

In relation with the contractors who handle Satellite Remote Sensing Data, no matter whether the place they work is in or out of JAXA, they are required to obtain Certificate, and when concluding contracts, necessary measures are taken in the contract to clarify the responsibilities and obligations in terms of the Act.

#### 5.1.4 Refurbishment to meet the safety management measures

Certain refurbishment took place to meet the safety management measures. Additional measures were taken such as making additional fences and introducing additional entry control systems, and refurbishment of software related to access control. Since basic measures for access control were already taken before the Act, the refurbishment was not a large scaled one.

### 5.2 Measures taken after obtaining the license

The major tasks taken after obtaining the license is gaining the commitment form and revising the register when employees handling the Satellite Remote Sensing Data change, maintaining records when entering certain places, education, and responding to Cabinet Office site visit, and all is done relatively smoothly.

Satellite data that gets distributed is mainly standard data, and those who handle Raw Data is very limited to people who analyze crustal movement, who make fundamental research on ways to make new products, otherwise those who process Raw Data into Standard Data. And since the Satellite Remote Sensing Data subject to the Act that JAXA has today are Raw Data, cases to provide Satellite Remote Sensing Data is very limited. Once the related people gain necessary License or Certification, it is likely that only new Certification needs to be obtained when the contractor working on handling raw data changes. In such cases, we need to be aware that it takes a few months to obtain Certification.

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### 5.3 Suggestions for future improvements

As mentioned above, the Remote Sensing Data Act, aiming to promote business initiatives by private sector business operators using remote sensing satellites, taking into account the need to ensure our nation's security interests, is being executed by the licensing authority with sincere efforts on trying to minimize increase of burden to the License and Certificate holders. The following are suggestions of the author applying for such license.

While Satellite Remote Sensing Data subject to restrictions of the Act is extremely limited, it is not clear enough whether provision of satellite data *not* subject to the Act will neither be a legal nor political issue with the Government. Therefore JAXA, to appropriately perform its self-responsibility, held discussion with related authorities and entities and now manages distribution of high-resolution satellite data in line with industry practice, which deals satellite data in the same manner as the export trade control orders. Although this is a difficult issue, it is desirable to further enhance the level of predictability of handling of data not restricted by the Act.

Also, considering technological development towards the future, it is better for entities developing Satellite Remote Sensing Instruments to keep conversion codes, but it had to be withdrawn since it becomes the License holder's responsibility in case of its divulgence. Similar to the certification regime for Satellite Remote Sensing Data, it is desirable to have a regime where the company could be responsible for the safety handling of the conversion codes.

## 6. Conclusion

It is almost a year since the execution of the Act. Due to sincere effort of the licensing authority and the license/certificate holders, the increase of additional burden is minimized from before the execution of the Act, and the Act is operating smoothly. Fortunately, no violation to the Act has occurred. Following increase of use of satellite remote sensing technology, the number of license/certification holders will increase, and we will face challenges when such case occurs. Even in such cases, continuance of the current operation of the Act is desired considering the advance of satellite remote sensing technology and the improvement of life it leads to.