Regulation of navigational satellites in Japan

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QZSS: Japan’s regional navigational satellite system

Japan is developing its regional navigational satellite system, called the Quasi-Zenith Satellite System (QZSS) as one of its primary space projects. The project officially started in 2003, following the proposal by the Japan Business Federation (Keidanren) in 2001 and the subsequent report by the specialized committee of the Council for Science and Technology (now Council for Science, Technology, and Innovation) endorsing the project.1 The most recent Basic Plan on Space Policy of Japan confirms the commitment to advance the project further for both civil and national security purposes.

The aim of QZSS is to complement and augment the Global Positioning System (GPS) of the United States (US). Its basic idea is to form a constellation of a minimum of three satellites on the geosynchronous orbit (GSO) on different planes, so that at least one of them is observed from Japan’s near zenith all the time. The high elevation angle is considered important, because tall buildings in the cities and high mountains in the rural areas can hinder observation of a satellite if it is on the low elevation angle.2 The first satellite “Michibiki” was launched on September 11, 2010 with the aim of technological validation. The current plan is to realize the constellation of four satellites by the end of the fiscal year 2017, which will be expanded to a constellation of seven by 2023.3

As to the legal framework, the Basic Space Law stipulates that the government shall take necessary measures to use satellites for the “improvement of the lives of the citizenry”, and refers to the promotion of information systems on positioning as one of such measures.4

Furthermore, the Basic Act on the Advancement of Utilizing Geospatial Information (the so-called National Spatial Data Infrastructure (NSDI) Law) provides that the Japanese government shall take necessary measures to advance utilization of geospatial information by:

- using the credible positioning satellite services;
- proceeding with the research and development technology, and the feasibility study concerning satellite positioning; and
- promoting its application.5

Bodies responsible for the operation of QZSS

Since the Cabinet decision on September 30, 2011,6 the Cabinet Administration Office (CAO) is responsible for the development, maintenance, and operation of the QZSS. The CAO then decided to procure the ground segment of the system, including the maintenance of the satellites, from the private sector under the Private Finance Initiative (PFI) scheme. Bids were invited in December 2012, and the group led by the NEC Corporation was nominated as the provider of the service. The group later formed Quasi-Zenith Satellite System Services Inc. (QSS) as the contractor. The procurement of three satellites with Rubidium clocks to be launched by 2017 was contracted separately by the CAO, also through a public auction.

The procurement by the PFI scheme is carried out according to the PFI Act in Japan. The Act was first enacted in 1999, but was amended to cover space projects only as late as 2011. The Act enables the contractor to offer services for a fee, if it is allowed in the procurement conditions. In the case of QZSS, however, no such service is anticipated. According to the procurement conditions, the scheme is build, own and operate (BOO): the contractor owns the facilities, and is responsible for their renewal and maintenance, when necessary.

The PFI procurement of the ground facilities includes exploration of the potential application services. However, no agreement with the application service provider is anticipated by either the CAO or QSS. Therefore, any entity may offer services on its own, pursuant to the performance standard and interface specifications, though the latter two documents are distributed only to the members of QZS System User Society (QSUS). The membership of QSUS is open to any individual for free. In order to establish contacts with the industry, another organization named QZSS Business Innovation Council (QBIC) was established in 2013.8

The international and domestic framework for the use of signals

The signals of QZSS are compatible with GPS. In this sense, QZSS is complementary to GPS by adding “more satellites” to the NAVSTAR constellation. Furthermore, QZSS satellites send

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7 See Souichirou Kozuka, “The first PFI procurement of satellites in Japan” Space Law Newsletter of the International Bar Association Legal Practice Division 13 (June 2013) 17.

8 The QBIC is administered by the Satellite Positioning Research and Application Center (SPAC) as the secretariat. For the history of SPAC, see Pekkanen & Kallender-Umezu, supra note 1 at 199.
augmentation signals to improve precision of positioning by GPS. The Japanese Ministry of Land, Infrastructure, and Transport (MLIT) is responsible for the augmentation services by using the latter signals, as MLIT currently administers the GPS augmentation system, the Multi-Functional Transport Satellite (MTSAT) Satellite Augmentation System (MSAS).

The basis for these collaborations with GPS is the Joint Statement by the US government and the Japanese government on cooperation in the use of GPS of September 22, 1998.9 Based on this Joint Statement, the two governments have held regular consultations at least once a year since 1998. The US government has supported the development of QZSS by Japan through these meetings. The consultation has established working groups focused on the coordination of various technical issues with regard to complementing and augmenting the GPS by QZSS.

There is no specific regulation concerning spoofing or jamming of QZSS signals. Generally, the radio signals are protected by the Radio Act under Japanese law. The user of a device that transmits radio waves must be licensed as a radio operator to operate a radio station.10 To be duly licensed, the radio waves emitted from the radio station shall not disturb the function of other radio equipment.11

No specific statute exists, either, concerning civil liability that could arise in the event of errors in signals. The services will be offered subject to the disclaimer to be included in the performance standard and interface specifications, which emphasize the need for the service provider or device manufacturer to incorporate redundancies, where necessary, to avoid liabilities.

The interests of users: privacy concerns

As the use of GPS develops in Japan, the privacy of the user with respect to his or her positioning has become a big issue. There is no doubt that the track record of a person’s position is personal information to be protected by the Act on the Protection of Personal Information.12 As regards the Act’s application to the telecommunication carriers, the Ministry of Internal Affairs and Communications issued Guidelines on the Protection of Personal Information in the Telecommunications Business. The guidelines are not applicable to the owner or operator of the QZSS satellites, since none of them is a communication service provider. On the other hand, not only the information acquired through QZSS but also that from GPS and other GNSS is covered.

While the general rule under the guidelines requires that the carrier acquire the personal information only when it is necessary for providing a telecommunications service, the special provision on positioning information (which by its definition is limited to the information concerning the holder of a mobile device) permits acquisition of such information subject to a judicial warrant for the purposes of crime investigation as well as at the request of a rescuing...

10 See Japan, Radio Law, Law No. 131 of May 2, 1950, as amended most recently by Law No. 26 of 2015, art 4.
11 See ibid., art 29.
agency in the event of an imminent serious danger to the person. Whether the police may use the GNSS receiver without a warrant is disputed, and the decisions of the lower court are divided.

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14 See e.g. Osaka District Court, 5 June 2015 [unpublished], where the Court excluded the positioning track record acquired by attaching the GPS receiver on the car without a warrant as evidence acquired through an unreasonable search. The Court, however, later in Osaka District Court, 10 July 2015 [unpublished] held that the accused was found guilty even without the excluded evidence. Another judge of the same Court in Osaka District Court, 27 January 2015 [unpublished] earlier held that such acquisition of GPS information is not unreasonable.