

Integrated Navigation System for Surveillance Unmanned Aerial Vehicle

Answers the student should be able to generate with the information provided are in black.

Information not supplied to the student, and comments for the instructor, are highlighted in red.

SUMMARY: Two or three line summary highlighting the major issue with the case (if any) and the level of concern.

- This case involves export of 5 NTL 520 Integrated Inertial Navigation Systems from High End Electronics, Inc. to Global Surveillance Systems, Inc. located in Industria, Kappa.
- The INS meets the specifications for control given in EU 7A103, based on the MTCR 9.A.7.
- The stated end use and end user are legitimate; however, the end user is a large military systems integrator
- **Case recommendation is approval with conditions** (no re-export or transfer to non-MTCR country).

CONTROLS: Review proper categorization of the commodity and applicable controls. Summarize control specifications if necessary or useful.

- MTCR 9.A.7 Integrated Navigation Systems
- EU 7A103.c “integrated navigation systems, designed or modified missiles, and capable of providing a navigational accuracy of 200 m circle Equal Probability (CEP) or less. ”
- This product meets the specifications for control. The product description identifies the model as NTL 520, which the manufacturer’s product Specification Sheet indicates has a CEP of 35 meters. *[source: Student Information]*

STATED END-USE: Review stated end-use and consistency between stated end-use and the commodity (e.g., form and quantity). Review consistency between stated end-use and the activities of the end-user (if known). Review any proliferation concerns associated with the stated end-use.

- The stated end use, “Navigational system for surveillance UAV” is reasonable for the requested commodity. *[source: Student Information]*
- The stated end use is consistent with the activities of the end-user, an aerospace systems integrator. *[source: Student Information]*

END USER: Review End User (and consignee and/or affiliate entity) information and identify problems or inconsistencies, if any. Review any activities, or links, of concern.

- The stated end user, Global Surveillance Systems is legitimate. A web search confirmed that Global Surveillance Systems is a leading aerospace systems integrator. *[source: Student Information]*
- Press releases from numerous suppliers and foreign governments’ ministries of Defence announce the award of contracts to Global Surveillance Systems for military and border security systems. *[source: Student Information]*
- *The existence of a public website does not establish the legitimacy of a company (if possible independently confirm through the use of printed materials, news briefs, and/or business directories).*

NUCLEAR/WMD USES: Review nuclear/chem/bio/missile uses for the commodity (if any and if not identified above). Review potential impact of commodity on the recipient country’s WMD programs, if diverted.

- Inertial navigation systems provide the critical information needed to maintain a missile’s flight path on the correct trajectory to ensure a target hit. The inertial guidance instruments provide the primary acceleration data to the flight computer, which estimates missile altitude, position, and velocity. Integrated with global satellite systems, positional data can be updated with an external reference and compensate for the inaccuracies of drift within the inertial sensors. *[source: ASCOT Navigation Systems module]*

DIVERSION CONCERNS: Review potential for modifying the commodity and diverting to a proliferation program (e.g., reverse engineering, diversion in place).

- Inertial navigation systems can be very modular and incorporated into the design of numerous types of aerial vehicles, including delivery systems. Systems engineers are capable of using the data specified by the commercial INS manufacturers to provide the required navigational information required for low-speed platforms such as unmanned aerial vehicles.

Navigation System

- Through the use of integrated satellite navigation data, the resulting positional information is highly accurate.
- This equipment could be used in a system that has surveillance sensors as a payload or has a weapons payload.
- The end user is a known manufacturer and exporter of unmanned aerial vehicles to both the military and civilian markets; however, there is no evidence that any unlicensed exports have occurred. *[source: Student Information]*
- Based upon the requested quantity and lack of information indicating that Global Surveillance Systems is involved in activities that would imply proliferation, there is minimal risk of diversion.

PREVIOUS DENIALS: Note any previous national denials involving parties to this transaction. Note any MTCR denials (missile commodities only).

- *The student is not provided with any information regarding previous national denials or MTCR denials. However, this is a good point of discussion. If they ask:*
- *There have been previous national or MTCR license cases involving the end-user in Kappa.*

COUNTRY/TREND ANALYSIS: Review country's WMD program(s) status, international cooperative/nonproliferation agreements, and status of export control regulation and enforcement.

- Kappa is not a nuclear weapon state
- Kappa is a member of the MTCR
- Kappa is a signatory of the NPT
- Export control system is considered good; regulations adequately reflect all of the NSG/MTCR/AG guidelines

OTHER COMMENTS: Review any other issues or concerns; provide suggested license conditions which would alleviate issues or safeguard against diversion.

DEFINITIONS:

CEP: Circular Error Probable - In a circular normal distribution, the radius of the circle containing 50 percent of the individual measurements being made, or the radius of the circle within which there is a 50 percent probability of being located.

GPS: The Global Positioning System enables a GPS receiver to determine its location, speed, direction, and time.

MTBF: Mean time between failures is the mean (average) time between failures of a system, and is often attributed to the "useful life" of the device i.e. not including 'infant mortality' or 'end of life' if the device is not repairable.