



Updates to National Security Related License Conditions

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Promote a healthy commercial sector

A series of interagency meetings since Summer 2016 have addressed:

- Enabling new mission areas and technologies;
- Relaxing licensing conditions, where appropriate;
- Promoting a healthy commercial sector;
- Managing risks to national security and issues relating to foreign policy and international obligations in light of global trends.

These meetings concluded with a series of decisions on

- | | |
|-----------------------|--------------------------------------|
| • Off-Nadir Imaging | • Night-Time Imaging |
| • Non-Earth Imaging | • Short Wave Infrared Imaging (SWIR) |
| • Modified Operations | • Streamlining license reviews |

Specific wording of license conditions still under review.



Summary of Interagency Decisions

❑ Off-Nadir Imaging

- No limits to off-nadir imaging.
- Any restrictions previously being held in abeyance are removed.

❑ Non-Earth Imaging (NEI)

- Imaging of celestial bodies will continue to be permitted.
- Panchromatic electro-optical images may be collected in the visible/near infrared spectrum from 370-900nm.
- Consenting Imaging Operations (CIO)
 - Require written permission from owner/operator, ...
 - Permitted at any resolution
- Non-Consenting Imaging Operations (NCIO)
 - Permitted only at low/unresolved resolution
- Specific details of CIO and NCIO conditions on next two slides.



NEI: Details of Consenting Imaging Ops

❑ Consenting Imaging Operations (CIO)

- Intended for activities such as satellite inspection, rendezvous and proximity operations, satellite docking, servicing, etc.
- Framework developed to protect national security, foreign policy interests, international obligations, intellectual property, and promoting space flight safety.
- Licensee will have to adhere to following license conditions
 - Must obtain written permission from the imaged-object's owner/operator, manufacturer, and any necessary regulatory authority or foreign state;
 - Provide a plan for resolved imagery operations to the government at least 90 days prior to the operation; and
 - Must delete all resolved imagery content that is not part of the specific target satellite or object.
- Requests for waivers on license conditions or notification timeline will be considered on a case-by-case basis.



NEI: Details of Non-Consenting Imaging

❑ Non-Consenting Imaging Operations

- Unresolved imaging intended to enable data collection such as space-based SSA tracking.
- License conditions will provide that:
 - NEI systems shall not retain or disseminate non-consenting resolved images – defined as an object filling more than 3x3 pixels at a given instant;
 - When planning non-consenting imaging, the estimated resolution shall be coarser than or equal to 0.5m;
 - When processing collected imagery, any resolved images of non-consenting space objects shall be degraded to no better than 3x3 pixels and the original shall be purged from servers and storage devices and not disseminated;
 - Tracking data derived from unresolved imagery of resident space objects must be correlated, by the imaging system operator before release, with the U.S. Government approved space tracking catalog found at space-track.org
 - All uncorrelated observations shall be submitted to NOAA for correlation and determination of release-ability; non-releasable observations shall be purged from servers and storage devices.
 - Unresolved imagery may be disseminated by removing meta-data such as time, position, and attitude of sensor



Summary of Interagency Decisions

❑ Electro-Optical Night-Time Imaging (NTI)

- Previously held restrictions held in abeyance are removed.
- License conditions will include:
 - Permission to electro-optically image at night-time from 370nm to 1100nm at resolutions better than 30m with specific NTI modes;
 - NTI modes will be approved individually but should correspond to a specific radiance of no less than a typical street light. Detail TBD.
 - Prohibition of night-time imaging of certain geographic sites with resolutions better than 30m;
- List of geographic sites is currently being developed for Secretary of Defense approval.
- Licensees wishing to operate under NTI conditions should reach out to NOAA for further guidance and for developing permissible imaging modes. Permissible NTI modes will become part of the license.



Additional interagency decisions

Short Wavelength Infrared Imagery (SWIR)

- Currently affecting only one license holder.
- Hyperspectral imaging will be reviewed and brought in sync with SWIR conditions as appropriate.

Geographic Exclusion Areas (GEA)

- Applied to certain spectroscopic imagers and low-light imagers only.
- Geographic Exclusion Areas are currently being developed for Secretary of Defense approval.
- Geographic Exclusion Areas (GEA) will be for the shortest period and smallest area necessary to mitigate national security risks.

Streamlined processes – updated MOU Among Departments and Agencies regarding licensing and operations of private remote sensing satellite systems

- Updating existing MOU (2000) and strengthening approval time-line and interagency conflict resolution.
- Currently being staffed for Principal signature and released when signed.



Summary

Agencies:

- Are addressing new commercial mission areas
- Have agreed on several pending license decisions, and
- Are sustaining our commitment to promote a healthy commercial space sector.

Industry engagements are key and mutually beneficial;

More frequent engagements likely in the future;

The new license technical standards for NEI and NTI are intended to provide clarity and be more permissive.

Specific wording of license conditions still under review.