(S//TK) Mission 7600 is a versatile SIGINT collection system designed to downlink unprocessed SIGINT data. Mission 7600 satellites are in geostationary orbits designed to allow near continuous coverage of the majority of the Eurasian landmass. Signals processed at the Mission 7600 MGSs (RAF Menwith Hill Station, UK and the Joint Defense Facility Pine Gap, Alice Springs, Australia) are primarily military COMINT targets located on the Eurasian landmass, although a variety of non-communications emitters can be processed as well. Some analysis of the collected data is done at the MGS, but the great majority of the collected signals are forwarded to NSA for exploitation. Dissemination of intelligence from the collection is primarily through NSA reporting channels.

(S//TK) The geostationary orbit of the Mission 7600 satellites allows them to provide continuous coverage of the majority of the Eurasian landmass and Africa. [redacted] (Movement of the satellite within its orbit results in partial daily coverage [redacted]

(S//TK) The satellites' configuration of fixed and steerable feeds allows simultaneous collection against multiple signal types (COMINT, ELINT, MASINT, etc.) located across a broad geographic area.

(S//TK) Geolocation computations can be performed at the MGS against signals which are simultaneously collected by at least two satellites. Currently geolocation is possible against signals [redacted] Geolocation accuracy varies [redacted]

(S//TK) Unprocessed SIGINT signal intercepts are downlinked to the MGS in real-time for processing, recording and/or dissemination as required. High priority COMINT data is forwarded in real-time to NSA, with some data also sent to the Kunia Regional SIGINT Operations Center (RSOC) for immediate processing by NSA analysts and reporting as a TACREP. Lower priority data is forwarded to NSA for later processing.

4.5.1 (U) Primary System Mission

(S//TK) Mission 7600 was designed originally as a FISINT collector but now is primarily used as a COMINT collection system against known targets of high intelligence value. Currently, about 85% of Mission 7600 collection is against these COMINT targets.

4.5.2 (U) Secondary System Missions

(S//SI/TK) Mission 7600 also has the capability to collect against the following target types:

a. FISINT

b. MASINT

c. Technical ELINT

d. PROFORMA/RSBN

e. Other COMINT

f. Satellite links (uplinks, cross-links, and downlinks)

4.6 (S//TK) Mission 8300 (ORION/RIO) Program Overview

(S/TK) The Mission 8300 system, the geosynchronous earth orbit (GEO) component of IOSA, is a four satellite constellation, and replaces both Mission 7500 and Mission 7600 current systems. Mission 8300 satellites has command and control located at two overseas mission ground sites. The first Mission 8300 spacecraft was launched 9 Sep 03.

4.6.1 (U) System Missions

4.6.1.1 (S/TK) The Mission 8300 system is designed to collect, process, record, and report Signals Intelligence (SIGINT) information.
4.6.1.2 SIGINT support to US military combat operations
4.6.1.3 Crisis monitoring
4.6.1.4 Indications and warning support to the United States and deployed US forces

4.6.1.5 OPELINT operations to collect, identify and geolocate threat emitters (cross-site/cross system operations in conjunction with Mission 8200)
4.6.1.6 COMINT associated with command and control of military forces, movements of VIPs, deployment of military units, states of readiness, training proficiency, and combat operations
4.6.1.7 PROFORMA associated with military data systems (air defense, artillery, etc.)
4.6.1.8 Collection of line-of-sight low/high capacity COMINT signals
4.6.1.9 Collection of communications and electronic signals [Foreign Instrumentation Signals Intelligence (FISINT)], associated with weapons test ranges, science and technology centers, and production and logistics facilities
4.6.1.10 Monitoring testing activity to detect changes in weapons employment doctrine and to verify compliance with strategic arms limitations agreements
4.6.1.11 Collection of satellite/space systems signals
4.6.1.12 Monitor nuclear weapons and high-energy weapons testing [MASINT-Electromagnetic Pulse (EMP)]

4.6.2 (U) Orbital Characteristics

4.6.2.1 (S/TK) The Mission 8300 system has four satellites in near-geosynchronous earth orbits. Residual satellites may be available to augment the baseline three-spacecraft constellation. It is important to note that the satellites do not have simultaneous access to the entire area where the potential for coverage exists. Actual targeted areas will be determined by specific tasking instructions.

4.6.2.2 (S/TK) Within areas of potential coverage, the effective coverage footprint is determined by the following factors:

1. Primary Factors

a. Emitter frequency: Generally, the targeting of higher frequencies results in smaller collection footprints than for lower frequencies.
b. Look angle: The coverage footprint will increase as the satellite look angle increases, i.e., the farther towards the horizon that the satellite looks. Other factors being equal, the footprint will be smallest when the look angle is 0º (directly below the spacecraft).

2. Other Factors

a. Emitter transmission power
b. Emitter antenna type
c. Emitter antenna orientation
d. Modulation type

4.6.2.3 (S/TK) Mission 8300 Orbit Benefits:

1. Stable, continuous dwell for 24-hour collection
2. Coverage of primary target areas: Former Soviet Union, China, South Asia, East Asia, Middle East, Eastern Europe, and the Atlantic landmasses.

4.6.3 (U) Operational Characteristics and Capabilities

4.6.3.1 (TS/TK) System Characteristics:

1. Four spacecraft in near-geosynchronous earth orbit
2. Simultaneous multi-mission SIGINT operations (ELINT, COMINT, FISINT and PROFORMA)
3. Common command and control; spacecraft can move between Mission Ground Stations in response to crisis/contingency requirements

4.6.4 (S/TK) Mission 8300 benefits:

1. Increased wideband channels and downlink capacity for wideband collection, especially TECHELINT from modern modulation emitters

2. Dedicated second antenna for ELINT, test range surveillance and signal search
3. High-accuracy OPELINT geolocation capability through cooperative cross-site/cross-system operations with Mission 8200
4. Common high-sensitivity spacecraft design, with capability to relocate spacecraft (orbit nodal repositioning)
5. Collection from different orbit locations through two different MGSs
6. Flexible crisis/contingency support