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DESTROY NO LATER THAN: 21 AUG 90

WHY MISSION 7300 DOES SO WELL IN DETECTING NEW SIGNALS

SUMMARY

Mission 7300 is ~~unsurpassed~~ superior in its ability to find new signals in the SIGINT environment because it has the following inherent ~~capabilities~~ characteristics:

- Special system capabilities
- Extensive parametric and geolocation information from a single blip (pulse or CW sample)

SPECIAL SYSTEM CAPABILITIES

These Mission 7300 capabilities are ~~further~~ described, as follows.

1. Full Earth Coverage

Mission 7300 provides world-wide coverage (including geolocation of signals) as depicted in Figure 1, which shows one day's DF coverage for Mission 7348. The coverage includes the southern hemisphere and broad ocean areas. Mission 7300 continues to evaluate the world environment prior to, during, and after events. While other systems are focussing on special events, Mission 7300 continues to provide General Search data.

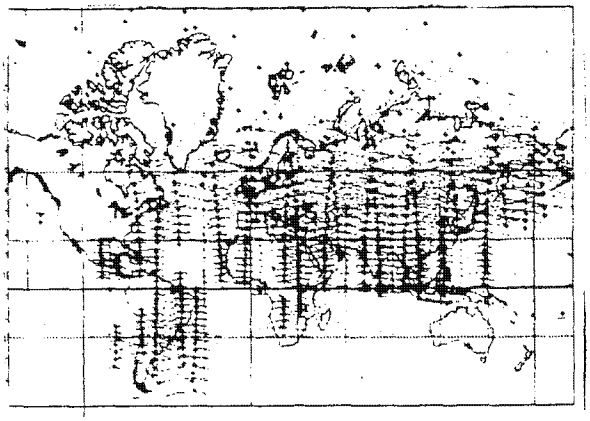

Figure 1

2. Extensive Frequency Coverage

Current frequency coverage for Mission 7300 is from 2 GHz to 18 GHz, plus 20 MHz to 60 MHz, 150 MHz to 170 MHz, and 30 GHz to 38 GHz. (Future capability will also include the region from 0.8 GHz to 2 GHz and 18 to 26 GHz.)

3. Wide Instantaneous Bandwidth

Mission 7300 has an instantaneous ~~bandwidth of 2 GHz in the 2 GHz to 18 GHz~~ spectrum. This characteristic is important in detecting frequency agile emitters.

4. Rapid Frequency Span Coverage

In the normal General Search mode, Mission 7300 covers a 10-GHz bandwidth in 2.4 sec (2 spacecraft spins).

5. Geolocation with Single Collector

Mission 7300 provides signal geolocation from data independently intercepted by single spacecraft. Figure 2 portrays the collection geometries for Missions 7300

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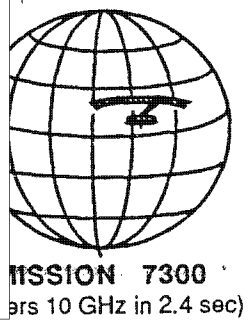

Figure 2

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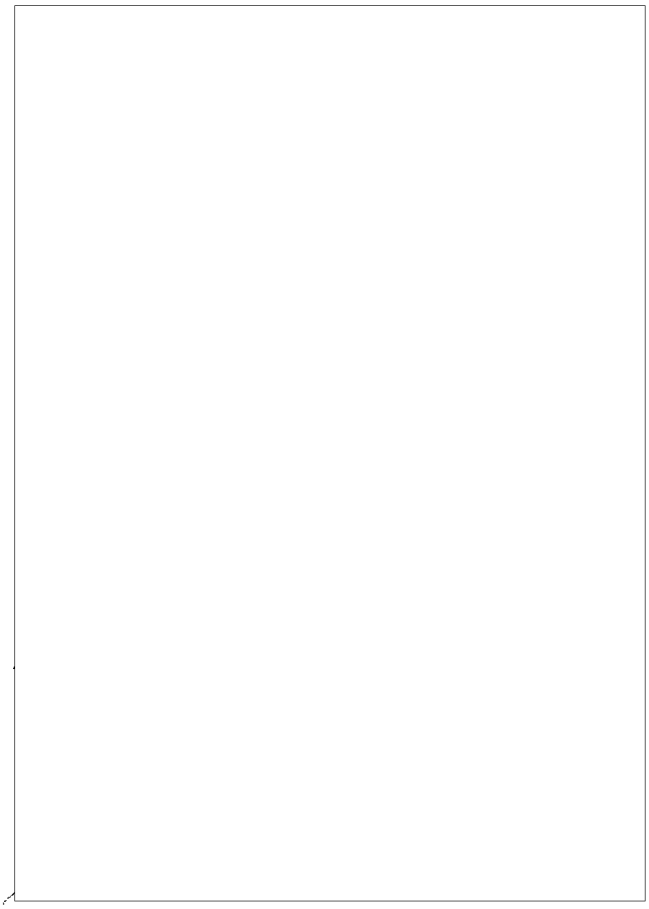
Handle via TALENT-KEYHOLE
Control System Only



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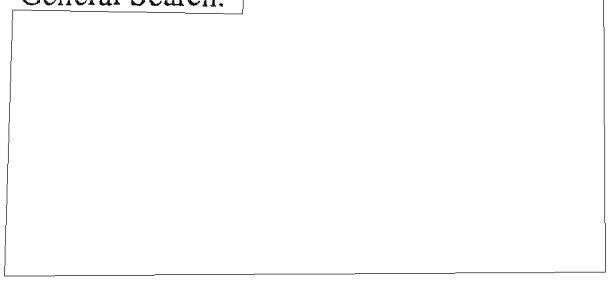
6. All Intercepted Data Processed and Analyzed

All intercepted data is processed and analyzed by the Mission 7300 system, not just data that passes templated criteria. Residue data that does not form into signals is examined for new signals or new modes. Analysts perform blip-level search of data that emanates from specific areas of interest. An extensive pulse and signal history file is maintained to assist analysts in their effort.

The inherent geometry of Mission 7300's orbit, its wide instantaneous bandwidth and broad frequency coverage, the fact that parameters and geolocation are both measured for each blip, and the availability of the extensive history data base makes Mission 7300 an ideal collection system for General Search.

25X1



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A COMPARISON OF MISSIONS 7300 CAPABILITIES TO PERFORM GENERAL SEARCH

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SUMMARY

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25X1

DISCUSSION

Mission 7300 is superior in its ability to find new signals in the SIGINT environment because it has the following inherent characteristics:

A. System capabilities
B. Extensive parametric and geolocation information from a single blip (pulse or CW sample)

A. SYSTEM CAPABILITIES

Pertinent Mission 7300 capabilities are described, as follows.

1. Full Earth Coverage

Mission 7300 provides world-wide coverage (including geolocation of signals) as depicted in Figure 1, which shows one day's DF coverage for Mission 7348. The coverage includes the southern hemisphere and broad ocean areas. Mission 7300 continues to evaluate the world environment prior to, during, and after events. While other systems are focussing on special events, Mission 7300 continues to provide General Search data.

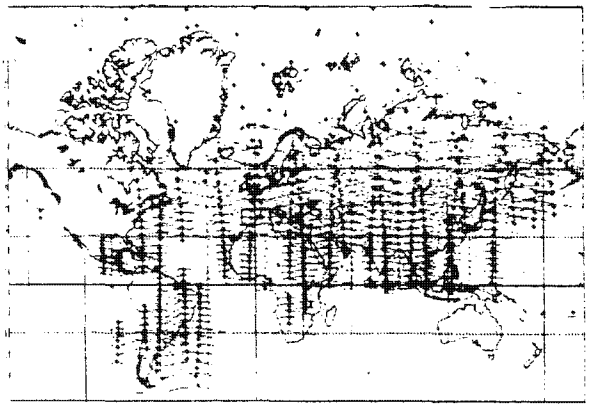

Figure 1

2. Extensive Frequency Coverage

Mission 7300 collects pulse and CW signals in its primary frequency range of 2 GHz to 18 GHz (0.8 to 18 GHz in future). This is important in that Mission 7300 continuously covers this wide range in both pulse and CW.

3. Wide Instantaneous Bandwidth

Mission 7300 has an instantaneous bandwidth of 2 GHz in the 2 GHz to 18 GHz spectrum. This characteristic is important in detecting frequency agile emitters.

4. Rapid Frequency Span Coverage

In the normal General Search mode, Mission 7300 covers a 10-GHz bandwidth in 2.4 sec (2 spacecraft spins).

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25X1

5. Geolocation with Single Collector

Mission 7300 provides signal geolocation from data independently intercepted by single spacecraft. Figure 2 portrays the collection geometries for Missions 7300

Figure 2

25X1

6. All Intercepted Data Processed and Analyzed

All intercepted data is processed and analyzed by the Mission 7300 system, not just data that passes templated criteria. Residue data that does not form into signals is examined for new signals or new modes. Analysts perform blip-level search of data that emanates from specific areas of interest. An extensive pulse and signal history file is maintained to assist analysts in their effort.

Any change in one of the parameters, such as power level or polarization, which can be measured at the blip level, indicates a new signal situation (new mode, failure, wartime reserve mode, etc.).

CONCLUSION

The characteristics and capabilities described above definitely show that the Mission 7300 system is the best overhead SIGINT collection system to perform General Search and provide information on new signals, new modes of existing signals, and new weapon systems before and during deployment.

For further information, contact: