(S//SI//REL) APPARITION Becomes a Reality: New Corporate VSAT-Geolocation Capability Sees Its First Deployment

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(S//SI//REL) The first operational version of APPARITION achieved Initial Operating Capability (IOC) at Misawa, Japan, in late September. APPARITION is a precision geolocation capability for targeting foreign very small aperture satellite terminals (VSAT) -- an important target, because VSATs are often used by Internet cafes and foreign governments in the Middle East. APPARITION builds on the success of the GHOSTHUNTER prototype developed at Menwith Hill Station, a tool that enabled a significant number of capture-kill operations against terrorists.

(U) **Going Global**

(S//SI//REL) The GHOSTHUNTER prototype (see background) capitalized on the co-location of Overhead SIGINT and FORNSAT* at Menwith Hill Station to combine collection from both apertures to perform precise geolocations of VSATs. With APPARITION, this capability will not be limited to collocated sites; it will now be possible for collection from sites *worldwide* to be combined with Overhead collection. Plans call for APPARITION to be deployed to a number of FORNSAT and Special Collection Service (SCS) sites in the coming years.

(S//SI//REL) This first APPARITION system builds on lessons learned from the initial GHOSTHUNTER implementation, and represents a more generic concept of operations (CONOP) for use worldwide. Rather than "chasing" the targets when they come on-line in a reactive approach, APPARITION uses an "industrial survey" concept that proactively targets and geolocates VSATs and populates the MASTERSHAKE (see background) database with the results. This approach reduces response time: by interrogating the database, a geolocation of the VSAT can be provided within seconds of the target appearing on-line.

(U//FOUO) **Misawa System Up and Running**

(S//SI//REL) The new APPARITION system at the Misawa Security Operations Center (the LADYLOVE site) is currently targeting VSAT terminals** believed to be servicing Internet cafés used by high-value counterterrorism (CT) targets in Afghanistan, Pakistan, and Indonesia, as well as non-CT targets in China. The APPARITION system at LADYLOVE has already provided results on specific targets in Kabul, Afghanistan, and Pakistan, among others. On 4 October alone, the system provided 184 geolocations on iDirect VSAT terminals with an average circular error of probability (CEP) of only .07NM.

(U) **Future Plans**

(TS//SI//REL) Plans are well advanced to install APPARITIONs at SCS sites in New Delhi, Ankara, Kuwait, and Istanbul before the end of this year, and at 27 FORNSAT/SCS sites worldwide, including Second Party locations, in the next two years. APPARITION has transitioned to using agile development methods and short, incremental development spirals, an approach that allows rapid evolution of the system. This has resulted in two further VSAT signals -- LinkStar and single channel per carrier (SCPC) -- being incorporated into the baseline within 2 months of IOC, thereby increasing the number of targets that can be geolocated.

(S//SI//REL) The development of APPARITION is a great example of teaming across NSA, the National Reconnaissance Office (NRO), and the developers. This effort illustrates the strength of the collaboration and combined operations between NSA's Office of Overhead (OOH - S333), Radio Frequency Operations (RFO - S331), SIGDEV, SCS, NRO, target offices of primary interest (TOPIs), and other elements from across the Enterprise.

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(S//SI//REL) Geolocation examples and associated imgery from recent APPARITION collection in Pakistan (above) and Afghanistan (below)

Aerial

(U//FOUO) POCs: ██████████████ and ██████████████.

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* (S//SI//REL) "Overhead" refers to SIGINT collected by US satellite systems. FORNSAT is collection done against foreign communications satellites, carried out at ground-based collection sites.

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