Space and Missile Systems Center

Partnership Council
MGUE Test Program

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SMC/GPEV
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GYPSY Juliett: Overview

• GJ operational exercise
  – USSTRATCOM-sponsored PNT Operational Field Assessment
  – Location: Pacific Missile Range Facility (PMRF)
  – Executed by Joint Navigation Warfare Center (JNWC)
  – Operations in various GPS denied and degraded (D2) environments
    • Focused on Intelligence, Surveillance, & Reconnaissance (ISR) platforms
• SMC/GP participation
  – Evaluate performance of prototype MGUE cards on Non-Interference Basis
    • Test in representative operational threat environments
    • Utilization of Live Sky MNAV signals
  – MGUE Test Operations
    • Racks: Static Tests
    • RQ-11B Raven: Integration, Static/Dynamic Tests

First Successful Flight Data Collection of Integrated M-Code Receiver
MGUE RED FLAG Performance

- RED FLAG testing allowed MGUE to test in an operationally representative threat environment utilizing live sky signals.
- Utilized C-12J as a platform.
- Success:
  - First time M-Code signal was tracked during flight with an airborne receiver.
  - First INS Aiding of GRAM-S/M in flight.
  - M-Code receivers held lock longer and re-acquired signal faster than Y-Code receivers in a jamming environment.

First time in-flight aviation receiver acquired and tracked M-Code.
MGUE T-38 Demo Performance

• Utilized T-38 to showcase MGUE capabilities
  – “Fighter-type" dynamic profiles
    • Quick Accelerations / Inertial forces (g’s)
    • Rapid vector changes (altitude & directional)
  – Jamming environment
• Success -- MGUE card held lock!
  – Both in contested and benign environments

Aviation receiver acquired and tracked M-Code w/ fighter dynamics
QUESTIONS?