



412th Test Wing



War-Winning Capabilities ... On Time, On Cost



**Electronic Warfare Group
Edwards AFB, CA**

U.S. AIR FORCE

**EWG Open House
30 April 2024**

Integrity - Service - Excellence



Air Force Test Center



Mission

Develop, Test, and Evaluate Air, Space, and Cyberspace Systems to Deliver War-Winning Capabilities.



412th Test Wing
Edwards AFB, CA



Arnold Engineering
Development Complex
Arnold AFB, TN



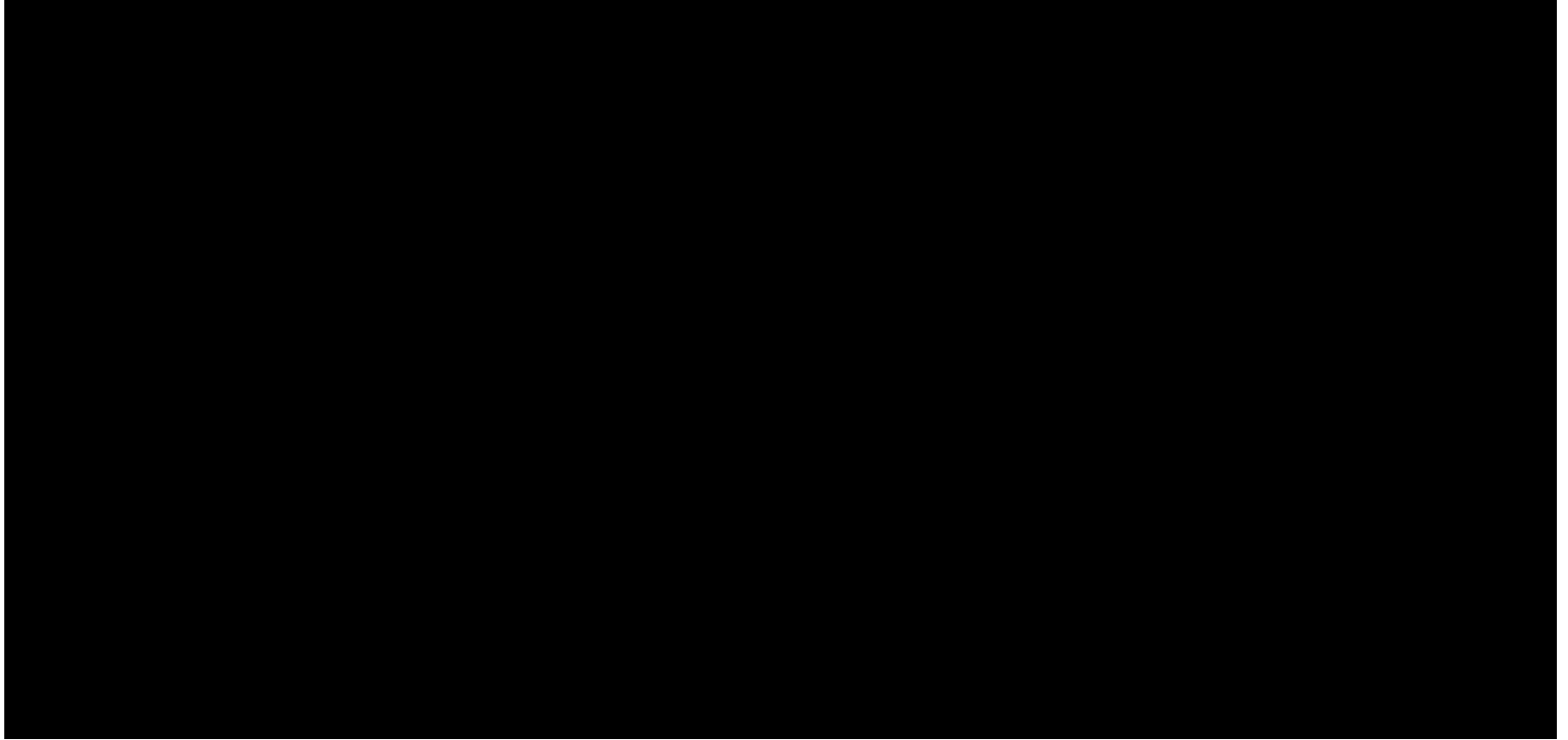
96th Test Wing
Eglin AFB, FL



Air Force Test Center



412TW

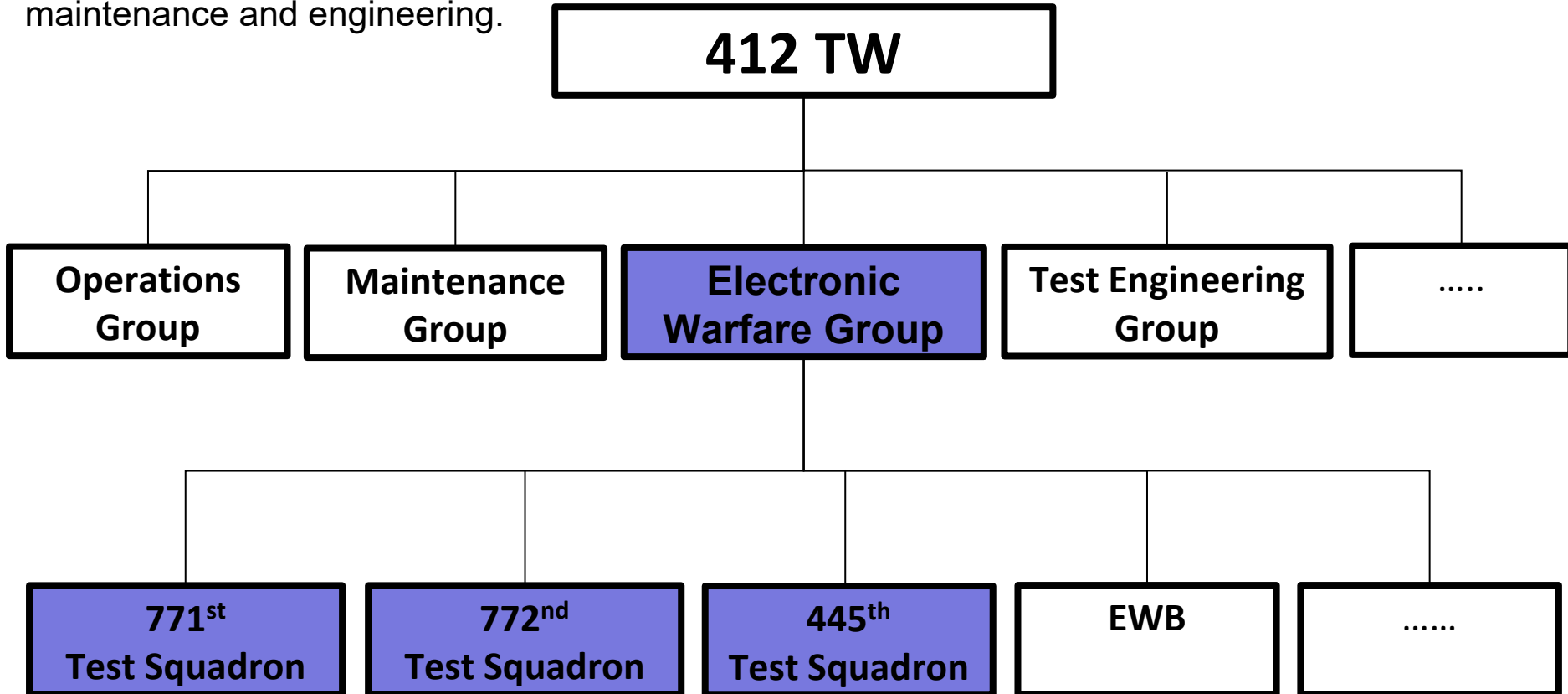




412th Test Wing



The 412th Test Wing plans, conducts, analyzes, and reports on all flight and ground testing of aircraft, weapons systems, software and components as well as modeling and simulation for the U.S. Air Force. There are three core components for this mission: flying operations, maintenance and engineering.



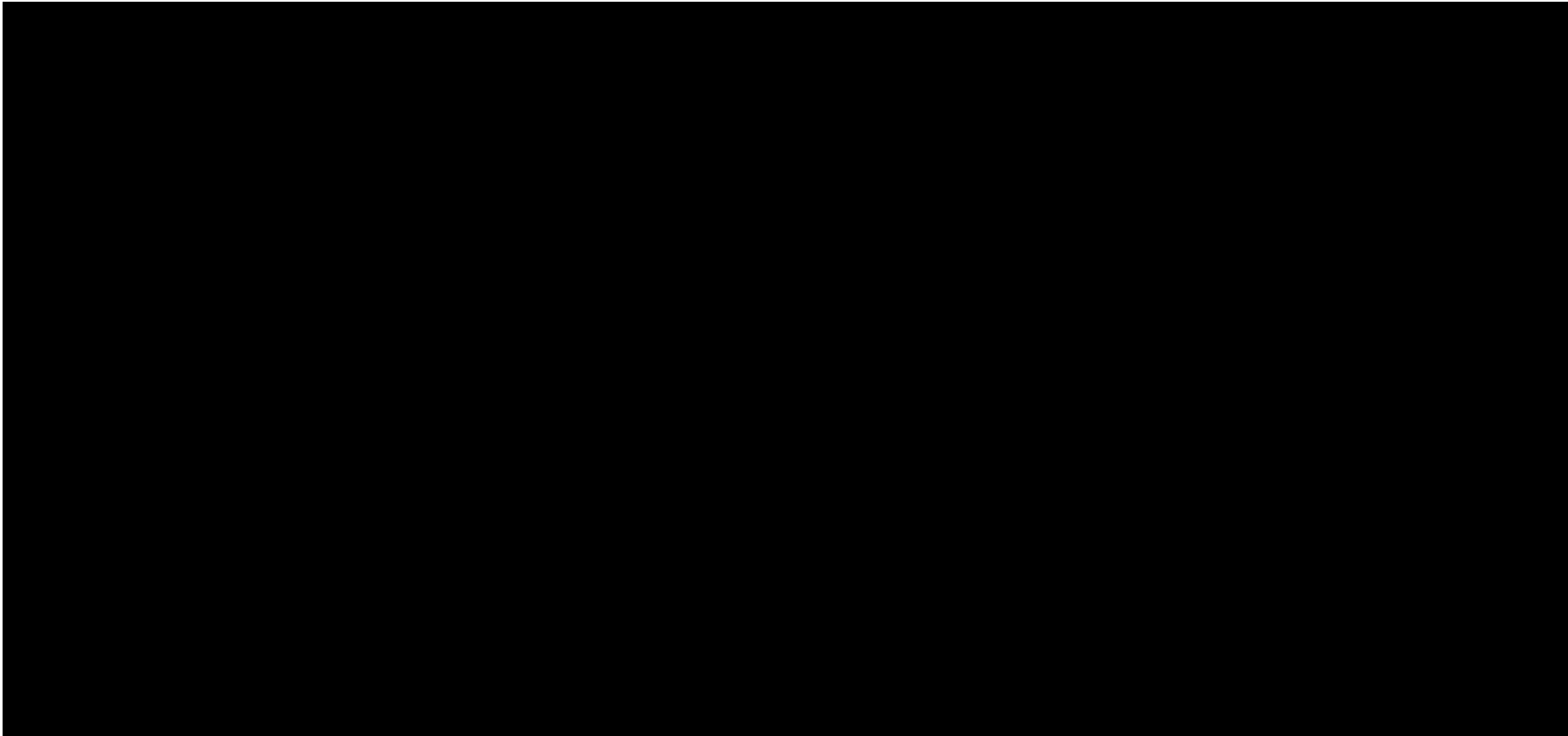
Mission: We Test & Evaluate advanced aerospace systems with world class installation & mission support to accelerate war-winning capabilities to the warfighter.



412th Test Wing



412TW





Air Force Acquisition



Human Systems



Research & Development



Testing Systems



This is what we do at Edwards!



Delivering Weapon Systems



Sustainment

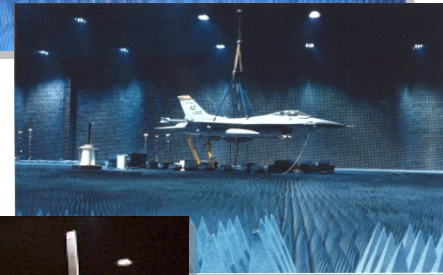
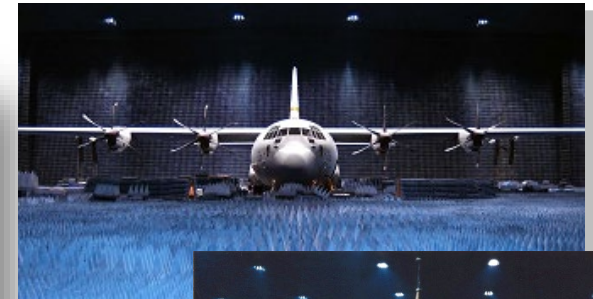




412th Electronic Warfare Group (EWG)



412th EWG Mission
Provide our nation and its allies expertise and credible capabilities to perform Electronic Attack and Survivability Test & Evaluation, ensuring our continued world-wide air dominance





412 EWG



771 TS

- 60 – 80 engineers
- Matrixed Structure
- EW T&E University



772 TS

- Benefield Anechoic Facility (BAF)
- Integrated Air Defense System (DIADS)



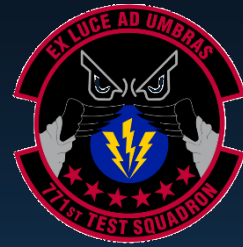
445 TS

- Joint Simulation Environment for 5th Gen Platforms
- Integrated Facility for Avionics Sys Test (IFAST)





What is Electronic Warfare



**Protect
Friendly
Systems**



**Counter
Adversary
Systems**



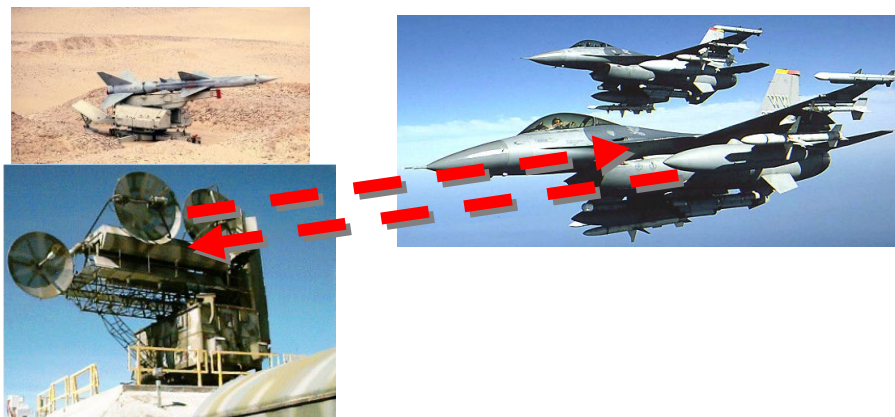


EW Test Objectives

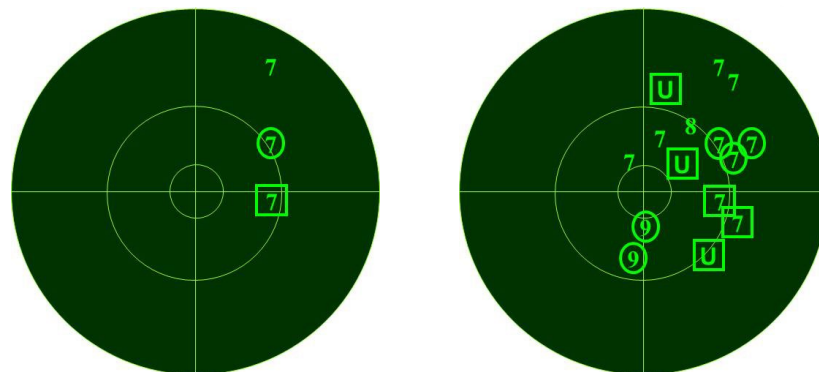


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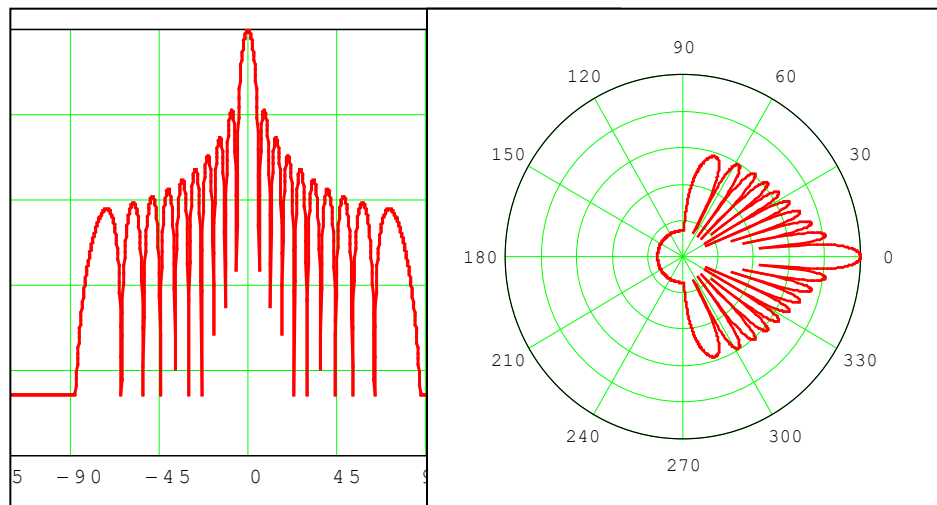
Electronic Warfare Core Testing



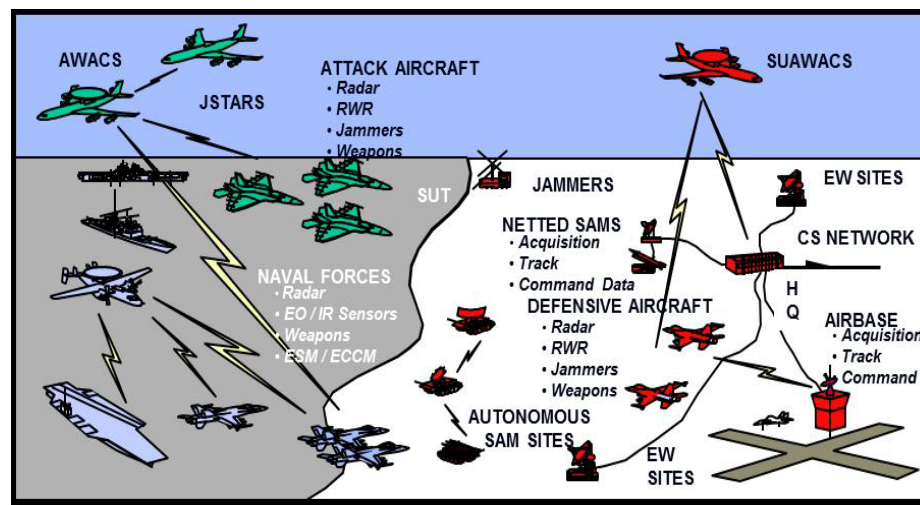
System Interoperability & Compatibility



Installed/Uninstalled Freespace Antenna Pattern Measurements



Electromagnetic Environmental Effects (EEE) Measurements

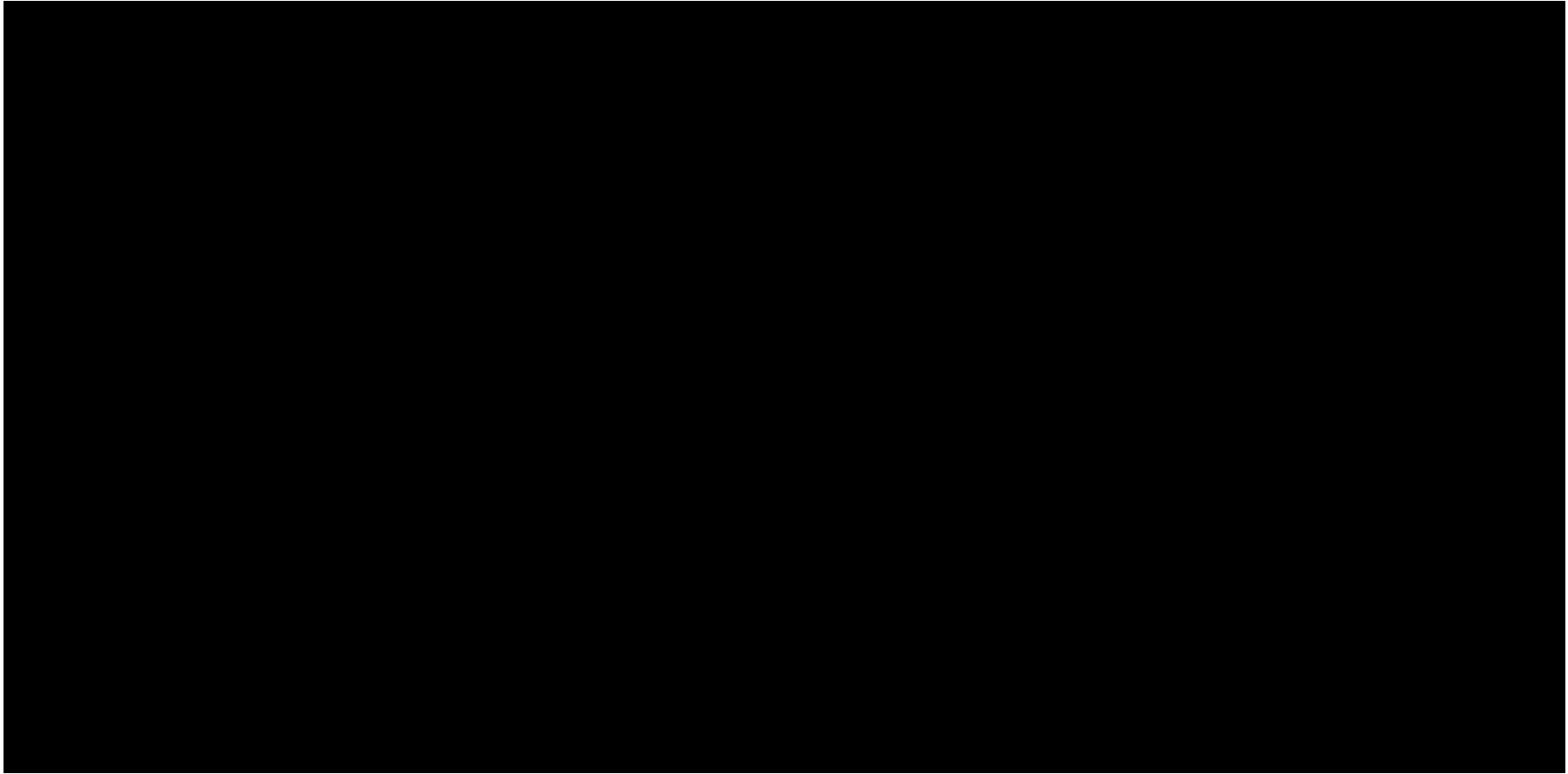




Electronic Warfare Group



412TW





Air Force Test Center



War-Winning Capabilities ... On Time, On Cost

Benefield Anechoic Facility (BAF)



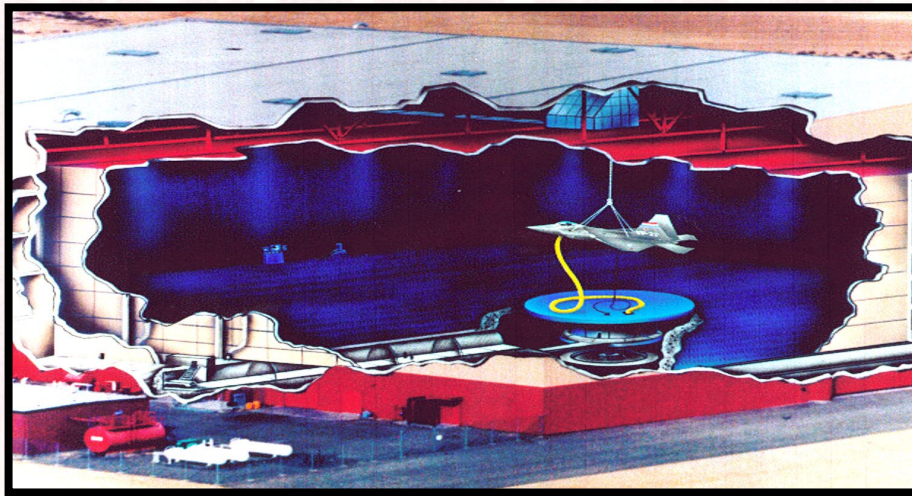
412TW EWG

772d Test Squadron

Integrity - Service - Excellence



What is the BAF?



- Completed in 1989 for B-1B
- **BAF Physical Layout (chamber)**
 - 264 ft L X 250 ft W X 70 ft H
- **Two 40-ton hoists**
- **Unique 175-ton 80-ft diameter turntable**
- **Power, Cooling (air and liquid), Hydraulics available**
- **Quiet Zone Isolation (typically)**
 - 500 MHz* $\geq 72\text{dB}$
 - 1.0 GHz $\geq 84\text{dB}$
 - 2.0 GHz $\geq 96\text{dB}$
 - 3.0-18.0 GHz $\geq 100\text{dB}$Characterized for each test configuration
- * Below 500 MHz special techniques may be used to optimize range for specific SUT
- **RF Shielding Effectiveness**
 - To/from outside environment $\geq 100\text{dB}$

“Virtual range” within four walls

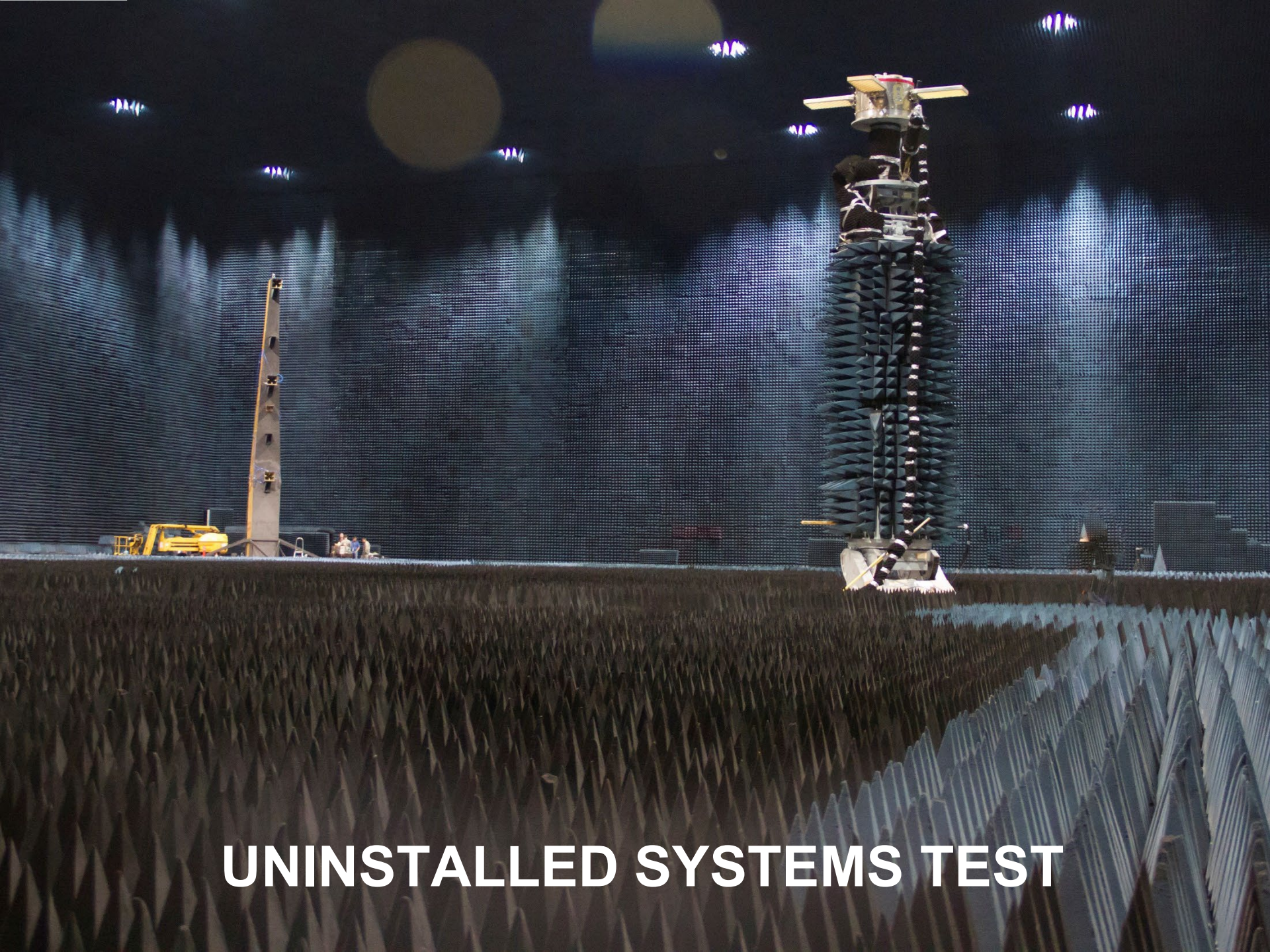
LARGE AIRCRAFT INSTALLED SYSTEMS TEST



an·e·cho·ic (anə 'kōik) - free from echo ("an anechoic chamber")

SMALLER AIRCRAFT INSTALLED SYSTEMS TEST

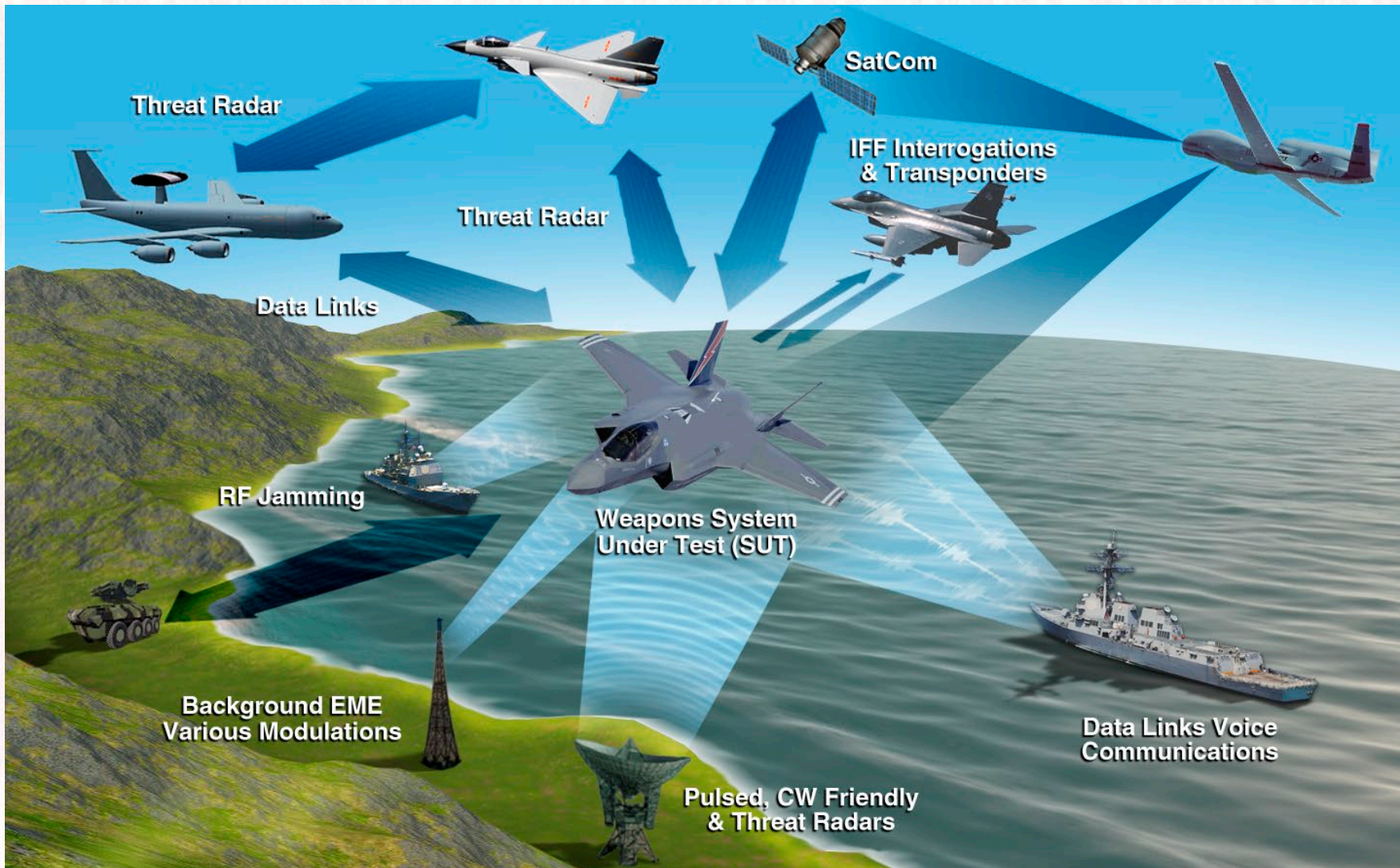




UNINSTALLED SYSTEMS TEST



Electronic Warfare/Information Operations Systems Test



In the BAF the SUT is put in the “real world” free-space RF Spectrum



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771ST TEST SQUADRON OVERVIEW BRIEF



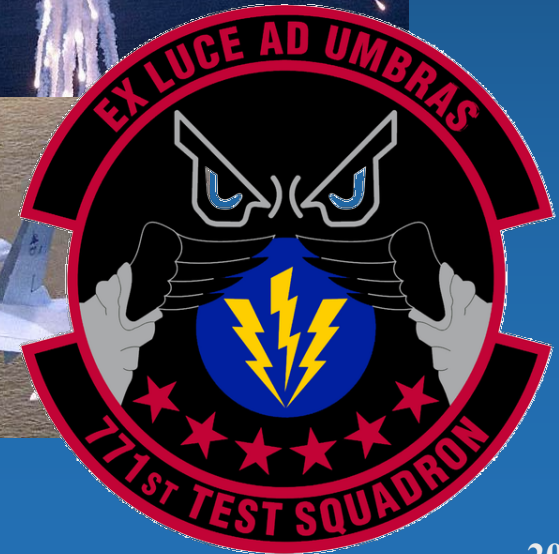


771st Test Squadron



Mission

Conduct cost-effective electronic warfare developmental test and evaluation of Air Force and foreign weapon systems





EW Functions

Electronic Support

Intercept, identify, and locate

Electronic Attack

Direct attack (offensive and defensive), chaff, flares, and directed energy

Electronic Protection

Protect from friendly and enemy EW employment



Electronic Support



Surveillance &
Reconnaissance

RC-135J Rivet Joint



Radar Warning
Receivers (RWR)



F-16CJ

HARM Targeting
System (HTS)

ES enables the commander's accurate assessment of the situation in the operational area



Electronic Protection



EP of Systems

- Anti-jam
- EM Hardening, etc.



Low Observables



Operational Security

- Integrate EP & Security Measures
- RF Management



EP enhances the use of the electronic spectrum for friendly forces



Electronic Attack



Direct Attack (offensive)



Direct Attack (defensive)



Chaff & Flares



Directed Energy



EA limits adversary use of the electronic spectrum



Where Our People Work



Global Reach

Global Power Bomber

Airpower Foundations



Global Vigilance



And others...



(Photo: Northrop Grumman)



What We Do

PLAN • PROVISION • EXECUTE • ANALYZE • REPORT

Radar Warning Receivers



Electronic Support
Intercept, identify, and locate

Electronic Attack
Direct attack, chaff, flares, and directed energy

Electronic Protection
Protect from friendly and enemy EW employment

Chaff & Flares



Low Observables



EP of Systems



Enabling worldwide spectrum warfare dominance through testing from concept to combat



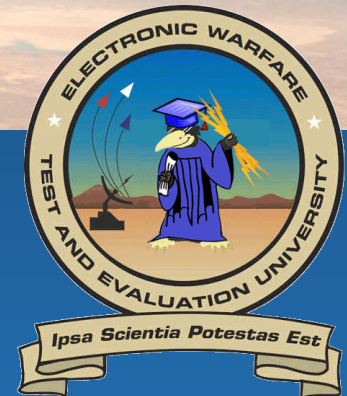
EW T&E University



- EW T&E Focus
 - Develop EW T&E Subject Matter Experts
- Comprehensive Curriculum
 - Fundamentals
 - Threat Systems
 - Systems Under Test
 - T&E Applications
- Classified Forum



Interaction



- Sep 2000 Inauguration
- Unique Courses
 - EW T&E Specific
- 211 Offerings (4155 seats) to date
- Students from across DoD



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445TS OVERVIEW BRIEF





DTTR Vision



To provide digital high density operations using human-in-the-loop Cockpits for a 5th, 6th, space, & cyber battlespace environment.



PLATFORM OPERATIONAL TEST AND MISSION EFFECTIVENESS ASSESSMENTS



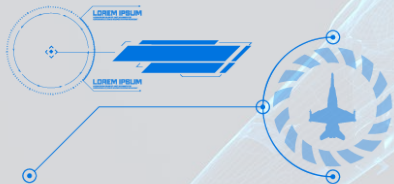
TACTICS DEVELOPMENT IN HIGH DENSITY THREAT ENVIRONMENT



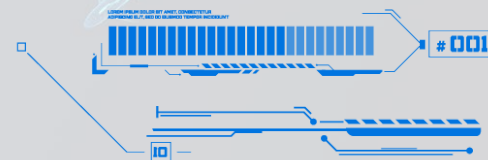
LARGE FORCE TRAINING



HIGH-FIDELITY, MULTI-PLATFORM WARFIGHTING CAPABILITY ASSESSMENTS



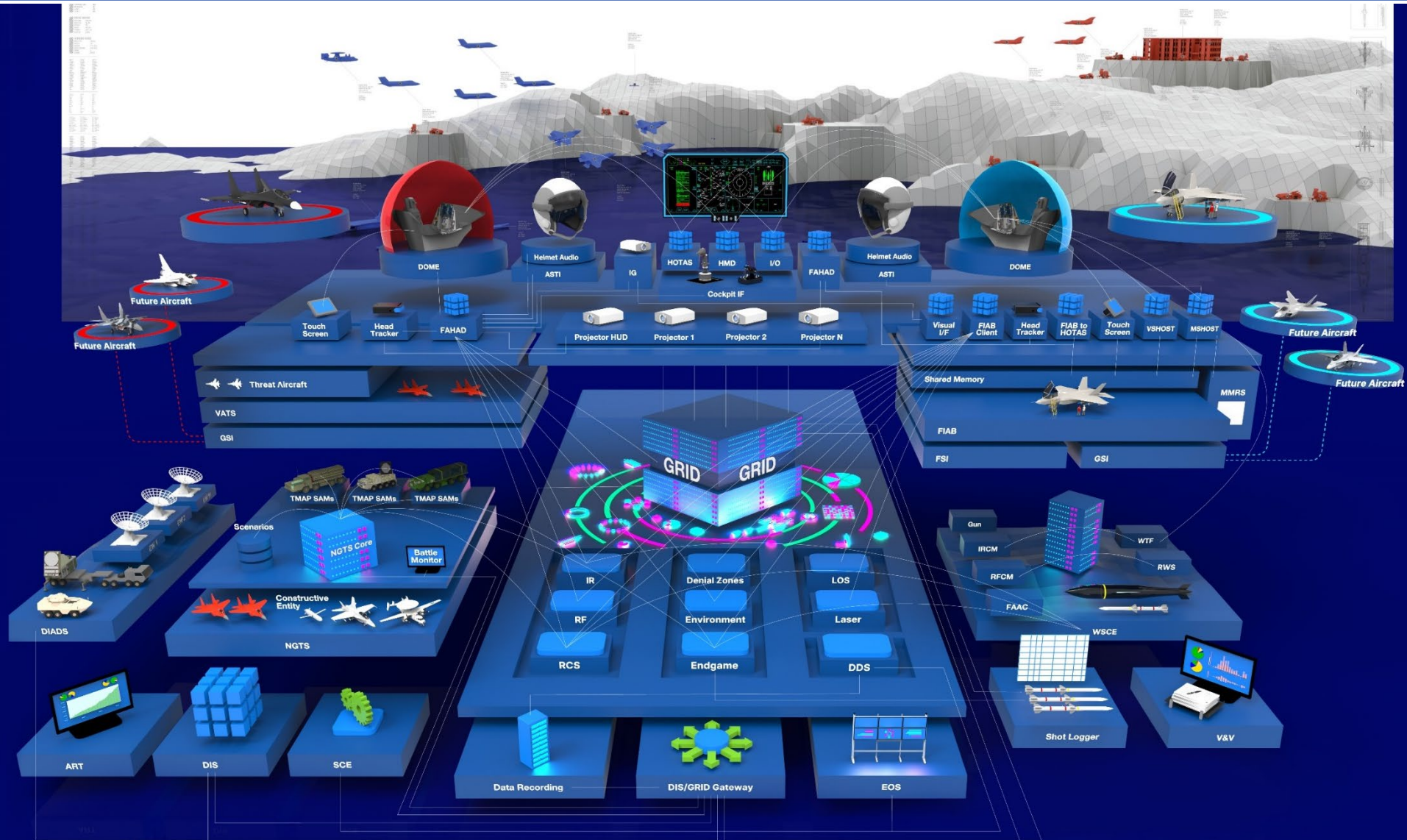
NEW CAPABILITY RESEARCH & DESIGN





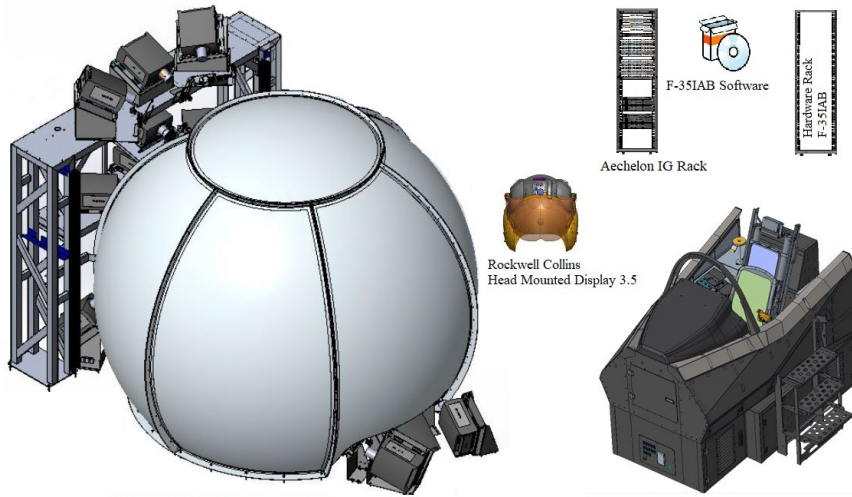
U.S. AIR FORCE

DTTR Overview





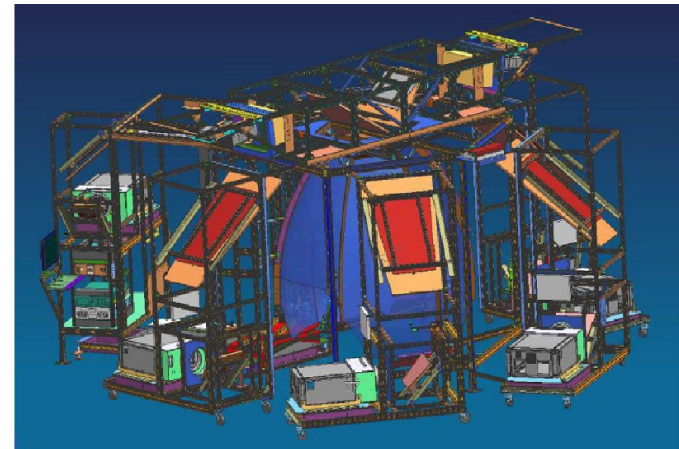
High Fidelity Visual Systems



Rockwell Collins 5 meter Spectra Dome

JF Taylor F-35 High Fidelity Cockpit

Rehosted aircraft software with 5M Domes



Boeing Constant Resolution Visual Systems - Small Footprint



XR- Feasibility Study



- Future objectives to replace large dome systems
- Evaluating Technology compatibility for Fidelity as well as Human Factors

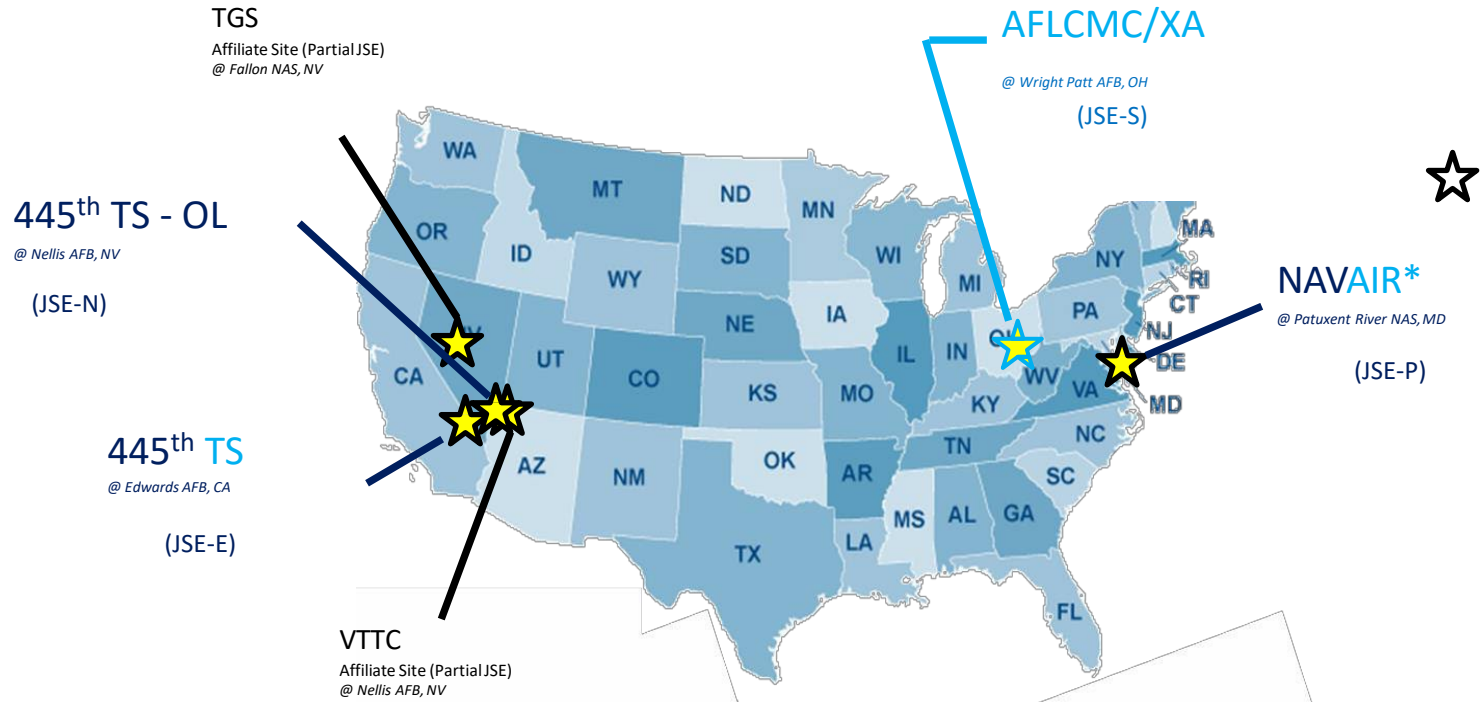




DTTR Partner Sites



Test/Training Sites - Dev Sites



* JSE-P is operational in support of F-35 Blk 3F IOT&E



Summary



- **DTTR is a Multi-Service effort**
- **DTTR provides an unprecedented battlespace environment for enhanced test and training needs**
- **DTTR is Real!**
 - Site 1 is operational at JSE-P (Patuxent River NAS)
 - Sites 2 and 3 JSE-E (Edwards AFB) and JSE-N (Nellis AFB) open in early FY24
- **DTTR threat environment and infrastructure is Government-owned and available to support additional DoD test and training needs**

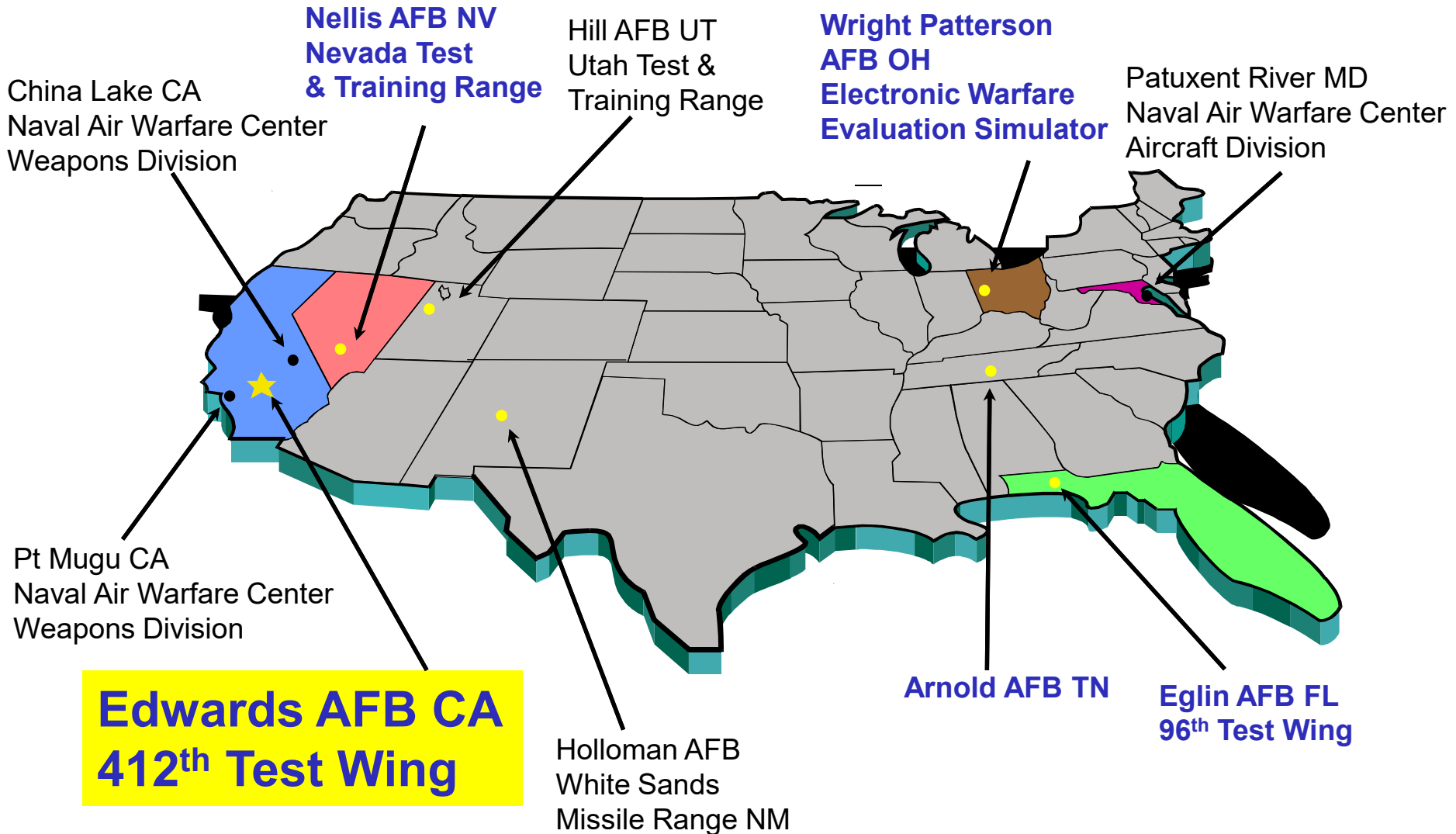
DTTR presents a multi-Service opportunity to revolutionize high end, complex test and training



Where We Test

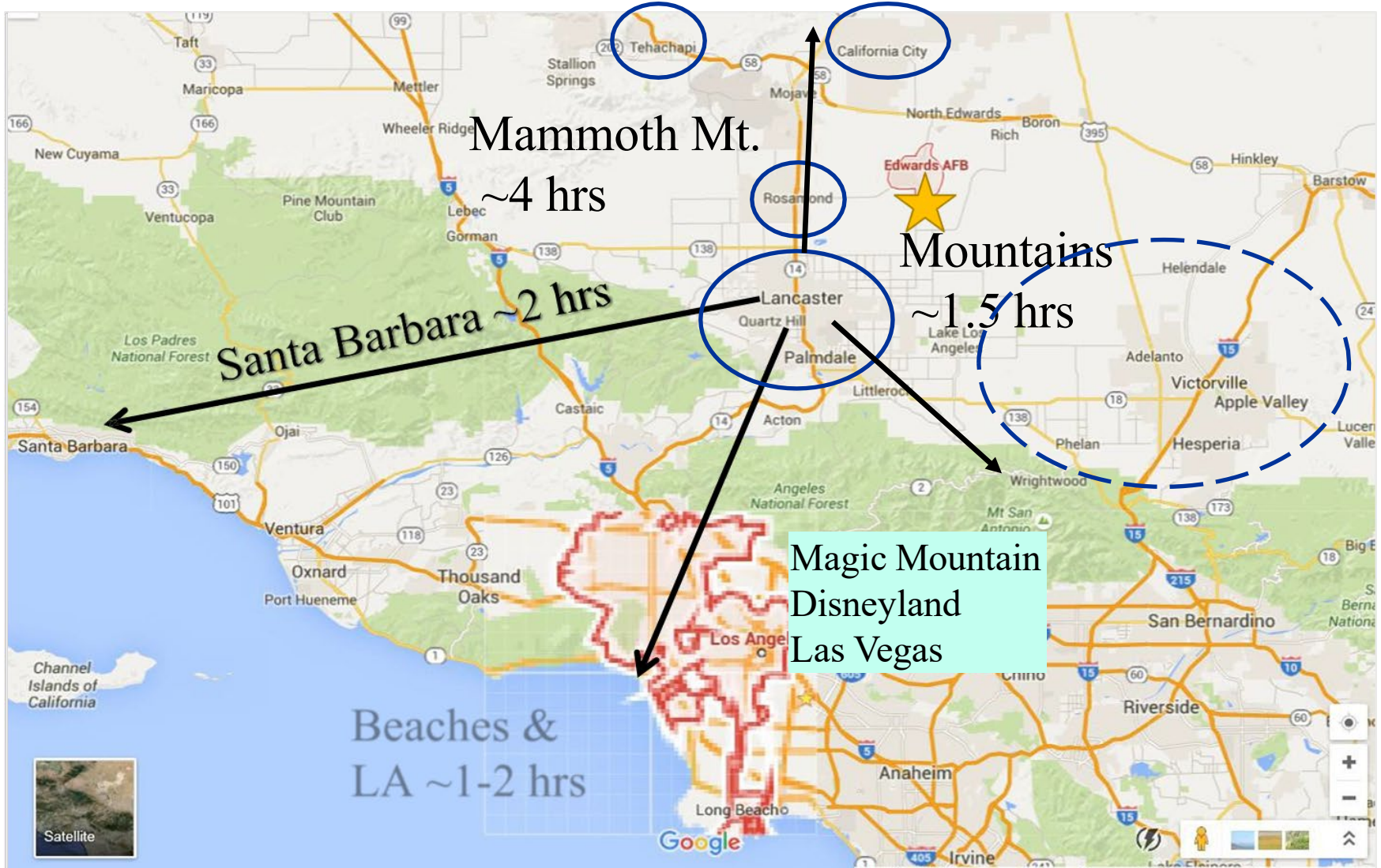


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Local Area





Benefits



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Work Schedule

- Flexible work schedule
- M-F, 40 hours/week, rarely on weekends
- Paid Travel Time to/from off-site duty locations
- 3 hours/week paid fitness time
- 11 paid holidays annually
- 13 paid sick days annually
- Vacation Time:
 - 13 days annually (first 3 years)
 - 20 days annually (years 3-15)
 - 26 days annually (years 15+)
- Over-Time, Credit Hours, Comp Time

Health & Savings

- 10 health plans
 - USAF pays ~ 70% of premiums
- Low-cost group life insurance
- Health Savings Accounts
 - Child Care
 - Dental, prescriptions, eye care
- Family Medical Leave Act
- Leave Donation Program
- Paid Parental Leave (12 weeks)



Benefits



Retirement

- Pension
 - 1% of average of 3 highest salaries multiplied by years of creditable service
 - Vested after 5 years of service
- Thrift Savings Plan
 - Similar to 401K
 - Agency matches up to 5% of contributions
 - May borrow from accumulated funds
- Social Security

Facility Usage

- Base gym (Free)
- Pool (Free)
- Golf Course (Discounted)
- Bowling Alley (Discounted)
- Base Gas Station (Discounted)
- Food (BX, BK, Starbucks, etc.)
- Outdoor Rec equipment rentals (Discounted)
- Child Development Center (Discounted)
- Pre K-12 Schools
- MakerSpace (Free)
- Hunting on Federal Land
- Aero Club/Airmanship Program



Benefits



412TW

Additional Benefits

- Awards/Monetary/Time-Off
- Potential Flight Time on USAF Aircraft
- Education/Tuition Assistance
 - Paid Full Time Programs
 - 75% Paid
- Student Loan Reimbursement (Merit Based)
- Travel
- Free TSA Pre-Check
- Parking at LAX (Free at LA AFB)
- Discounted Vacations/Attraction Tickets/Hotels/Airfare/Rental Car

Additional Benefits

- Conference Attendance
- Training
- Diversity of work/projects
 - Move to TENG, TPS, OG
- Cell Phone Discounts
- Car Insurance (GEICO)
- Vanpool Subsidies
- Child Development Center/Pre K to 12th grade on base schools



What We Look For



- Passion
- Leadership
- Intelligence
- Team Player
- Flexibility
- The ability to obtain/maintain a Security Clearance
 - **U.S. Citizenship Required**
- **Majors: Electrical, Mechanical, Aerospace, Computer Engineering, Computer Science**





Interested? Ways to Apply



412TW

E-Mail Resume

- 771TS.EWA.Recruiting@us.af.mil

Information about Air Force Civilian Career Opportunities

- <https://afciviliancareers.com/>

Internship Information

- PCIP: <https://afciviliancareers.com/PCIP-scienceengineering/>
- SMART: <https://www.smartscholarship.org/smart>

Edwards Air Force Base Public Website

- <https://www.edwards.af.mil/>



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Questions?



Join a Breakout Session!
(links available in email invitation)

REPORT DOCUMENTATION PAGE

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