# IMMERSE
## Integrated Modern Modular EW / RF System-of-systems Environment

IMMERSE produces an integrated life-cycle affordable programmable RF gray space capability that supports immediate test needs. It can be scaled and integrate with any Multi-Domain Operations (MDO) test range.

Software Programmable EW & CEMA Threat Representative Environment (SPECTRE) Enhancement and Integration
- Creates complex waveforms via software defined radio (SDR)
- Transmits from 30 MHz – 18 GHz with up to 100 MHz Bandwidth
- Maximum linear output power: ranges from 30 to 100 Watts
- Front-End / Back-End developed providing remote operation to control multiple hardware Back-Ends from a single common interface
- Cyber compliance developed from inception in coordination with range

Control of COTS Electronic Intelligence (ELINT), the Rohde & Schwarz Integrated Record, Analyze, and Playback System (IRAPS)
- Remote operation for waveform acquisition and analysis
- Records up to 1 GHz instantaneous bandwidth ranged over 2 Hz to 43 GHz

Harmonic Suppression System (HSS) Stratomist Integration
- Tailored to legacy hardware (Stratomist) and enhanced for greater power and cleaner transmit signal
- Transmits from 20 MHz – 6 GHz
- Linear output power: up to 50 Watts
- Modified SPECTRE Front End and Back-End providing a common control UI

TBCF Integration
- Interoperable with Threat Systems Management Office (TSMO)
- Coordinated Red & Gray Force Emissions
- Electronic Attack (EA) Effects integration with Threat Battle Command Force (TBCF)

**Consolidates range data and system**

**Build Copy, Extend Capabilities, and Integrate**

**SPECTRE - Node**
Transmitting:
Representative
Signals & Blue & Gray As-Needed

**Integrate Existing**

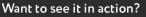**HSS / Stratomist Node**
Transmitting:
Blue Force Comms Signals

**Integrate**

**COTS ELINT**
Receiving:
Red Force ELINT

**Want to see it in action?**
www.geeksandnerds.com/immerse
Password: At-Scale

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## Proposed End State

- Dense Complex Realistic RF Environment over Limited Geographic Size Test Area
- Overall Bandwidth: 20MHz – 18GHz
- Centrally Controlled and Monitored
- Affordable Life-Cycle Costs
- Cybersecure with DevSecOps Pipeline

- Tailorable to Mission Need
- Interoperable with Other Range Systems
- Coordinate C2 & Health Monitoring
- MDO Test Bed Interoperability
- EA Effects / Real Time Casualty Assessment (RTCA)

**Threat Battle Command Force (TBCF)**

Future Integration

**TSMO Threat Interoperability**

Electronic Attack RTCA Node

**HSS / Stratomist Node**
Transmitting:
»Blue Force Comms Signals

**COTS ELINT**
Transmitting:
»Red Force ELINT

**SPECTRE Node**
Receiving:
»Red Force Representative* Signals & Blue & Grey As–Needed

**EW C2 Node**

Provides:
»SoS Test Planning
»C2
»DCRA&V
»SA
»Automation