

Topic: N141-064

HYPRES, Inc.

Modular, Multi-Function Digital RF Receiver

HYPRES, Inc. (HYPRES) – a superconducting electronics company – offers design, development, fabrication, testing and packaging services for their digital Radio Frequency (RF) product-lines.

This Phase II effort develops technology to manufacture high quality RF transmission lines using superconductor materials with a higher transition temperature than the Nb used in the circuits.

This allows a lowering of thermal parasitics on the 4K stage. HYPRES' Advanced Digital Receiver (ADR) enables full spectrum monitoring and maximizes signal reception for military satellite communication, signal intelligence, radar, electronic warfare systems and tactical data links, providing improved surveillance capabilities, detection of smaller targets, and superior range. Direct RF digitizing eliminates front-end analog components reducing size, weight, and power by 50%. A world leader in advanced digital RF superconductor technology development and production, HYPRES seeks program office and prime contractor support, and equity investors to transition ADR systems for DoD applications and commercial markets.

Technology Category Alignment:

Satellite Communications (SATCOM)

Robotics/Automated Material Handling Equipment

Shipyards/Shipbuilding

Supply; Storage

Satellite Communications (SATCOM)

Satellite Communications (SATCOM)

Supply; Storage

Supply; Storage

Satellite Communications (SATCOM)

Shipyards/Shipbuilding

Robotics/Automated Material Handling Equipment

Robotics/Automated Material Handling Equipment

Robotics/Automated Material Handling Equipment

Robotics/Automated Material Handling Equipment

Protection, Sustainment, and Warfighter Performance

Medical Chem-Bio Defense

Military Infectious Diseases

Propulsion and Extreme Environments

Fixed Wing Vehicles (includes UAS)

Survivability

Maintainability/Sustainability

Unmanned Ground and Sea Vehicles

Corrosion

Advanced Computing/Software Development

Networks and Communications

Modular/Open/Reconfigurable Architectures

RF Components for sensing, transmission and communication

Electronics Integration

Broadband/Multispectral Components and Systems

Sensors, Electronics and Photonics

Radio Frequency (RF) (non-EW)

Survivability

Broadband/Multispectral Components and Systems

RF Components for sensing, transmission and communication

Radio Frequency (RF) (non-EW)

Networks and Communications

Guidance, Navigation & Control (GN&C) and Data Links
RF Components for sensing, transmission and communication
Networks and Communications
Cognitive/Adaptive Capabilities
Preemptive/Proactive Effects
Broadband/Multispectral Components and Systems
Advanced Computing/Software Development
Networks and Communications
Personalized Assessment, Education, and Training
System Interfaces & Cognitive Processes
Aircraft Propulsion, Power and Thermal
Modeling, Simulation & Test Infrastructure
Rotary Wing Vehicles
Fixed Wing Vehicles (includes UAS)
Fixed Wing Vehicles (includes UAS)
Acoustic, Seismic and Magnetic
Rotary Wing Vehicles
Structures and Protection
Energy storage
Unmanned Ground and Sea Vehicles
Mobility
Power and Energy
Synthesis/Analytics/Decision Tools
Information Collection/Management
Advanced Computing/Software Development
Survivability
Unmanned Ground and Sea Vehicles
Radio Frequency (RF) (non-EW)
Power Generation/Energy Conversion
Energy storage
Power and Energy
Sensors, Electronics and Photonics
Maintainability/Sustainability
Advanced Computing/Software Development
EO/IR Components for sensing, transmission and communication
Microelectronics and Nanoelectronics
Networks and Communications
Mobility
Broadband/Multispectral Components and Systems
Sensors, Electronics and Photonics
Structures and Protection
Electro-Optical/Infrared (EO/IR)
Human/Autonomous System Interaction and Collaboration
Maintainability/Sustainability
System Interfaces & Cognitive Processes
Aircraft Propulsion, Power and Thermal
Power Generation/Energy Conversion

High Energy Lasers (HEL)
Propulsion
Biomedical Informatics / Health Information Systems & Technology
Protection, Sustainment, and Warfighter Performance
Modeling, Simulation & Test Infrastructure
Maintainability/Sustainability
Mobility
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Energy storage
Power Generation/Energy Conversion
Thermal Transport and Control
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High-Speed/Hypersonics
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Acoustic, Seismic and Magnetic
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Electromechanical conversion
Energy storage
Power Control and Distribution
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RF Components for sensing, transmission and communication
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Fixed Wing Vehicles (includes UAS)
Distributed/Coordinated/Net-Enabled Systems
High-Speed/Hypersonics
Propulsion and Extreme Environments
Energy storage
Ordnance
Human Computer Interfaces (HCI) for Decision Making
Information Collection/Management
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EO/IR Components for sensing, transmission and communication
Rotary Wing Vehicles

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Assuring Effective Missions
Modular/Open/Reconfigurable Architectures
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Aircraft Propulsion, Power and Thermal
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RF Components for sensing, transmission and communication
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Military Infectious Diseases
Military Operational Medicine
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Survivability
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Power Generation/Energy Conversion
Modeling, Simulation & Test Infrastructure
Propulsion
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Biomedical Informatics / Health Information Systems & Technology
Electro-Optical/Infrared (EO/IR)
High Energy Lasers (HEL)

EO/IR Components for sensing, transmission and communication
Networks and Communications
Sensors, Electronics and Photonics
Electro-Optical/Infrared (EO/IR)
Human Computer Interfaces (HCI) for Decision Making
Information Collection/Management
Synthesis/Analytics/Decision Tools
Human Aspects of Operations in Military Environments
System Interfaces & Cognitive Processes
Clinical & Rehabilitative Medicine
Combat Casualty Care
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Protection, Sustainment, and Warfighter Performance
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Protection, Sustainment, and Warfighter Performance
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Networks and Communications
Personalized Assessment, Education, and Training
Microelectronics and Nanoelectronics

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Maintainability/Sustainability
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Survivability
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Manufacturing Technology for Affordability
Propulsion
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Human/Autonomous System Interaction and Collaboration
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Human Aspects of Operations in Military Environments
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Rotary Wing Vehicles
Fixed Wing Vehicles (includes UAS)
Corrosion
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Power Control and Distribution
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Radio Frequency Weapons (RFW)
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Power Generation/Energy Conversion
Power and Energy
Combat Casualty Care
Biomedical Informatics / Health Information Systems & Technology
Biomedical Informatics / Health Information Systems & Technology
Military Operational Medicine
Machine Perception, Reasoning and Intelligence
RF Components for sensing, transmission and communication
Electronics Integration
Propulsion and Extreme Environments
Readiness
Structures and Protection
Fixed Wing Vehicles (includes UAS)
Machine Perception, Reasoning and Intelligence
Resilient Infrastructure
Trust Foundations
Unmanned Ground and Sea Vehicles
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High Energy Lasers (HEL)
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Readiness

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Preemptive/Proactive Effects
Power Control and Distribution
Acoustic, Seismic and Magnetic
Power Control and Distribution
Acoustic, Seismic and Magnetic
Fixed Wing Vehicles (includes UAS)
Aircraft Propulsion, Power and Thermal
Rotary Wing Vehicles
EO/IR Components for sensing, transmission and communication
Satellite Communications (SATCOM)
Networks and Communications
Trust Foundations
Electro-Optical/Infrared (EO/IR)
Unmanned Ground and Sea Vehicles
Maintainability/Sustainability
Modularity
Survivability
Electro-Optical/Infrared (EO/IR)
Sensors, Electronics and Photonics
EO/IR Components for sensing, transmission and communication
RF Components for sensing, transmission and communication
Networks and Communications
Broadband/Multispectral Components and Systems
Electronics Integration
Protection, Sustainment, and Warfighter Performance
Clinical & Rehabilitative Medicine
Combat Casualty Care
Medical Chem-Bio Defense
Energy storage
Protection, Sustainment, and Warfighter Performance
Human Computer Interfaces (HCI) for Decision Making
Synthesis/Analytics/Decision Tools
Undersea Weapons
Human Computer Interfaces (HCI) for Decision Making

Information Collection/Management
Synthesis/Analytics/Decision Tools
Power and Energy
Propulsion and Extreme Environments
RF Components for sensing, transmission and communication
Fixed Wing Vehicles (includes UAS)
Broadband/Multispectral Components and Systems
Preemptive/Proactive Effects
Radio Frequency (RF) (non-EW)
Energy storage
Manufacturing Technology for Affordability
Power and Energy
Structures and Protection
Synthesis/Analytics/Decision Tools
Fixed Wing Vehicles (includes UAS)
Advanced Computing/Software Development
Trust Foundations
Integrating Architecture and Capability Demonstrations
Unmanned Ground and Sea Vehicles
Aircraft Propulsion, Power and Thermal
Synthesis/Analytics/Decision Tools
EO/IR Components for sensing, transmission and communication
Networks and Communications
Preemptive/Proactive Effects
Electro-Optical/Infrared (EO/IR)
Sensors, Electronics and Photonics
Scalable Teaming of Autonomous Systems
Networks and Communications
Unmanned Ground and Sea Vehicles
Acoustic, Seismic and Magnetic
Test, Evaluation, Validation, and Verification
Propulsion and Extreme Environments
Fixed Wing Vehicles (includes UAS)
Networks and Communications
Mobility
Unmanned Ground and Sea Vehicles
Fixed Wing Vehicles (includes UAS)
Rotary Wing Vehicles
Manufacturing Technology for Affordability
Readiness
Aircraft Propulsion, Power and Thermal
Propulsion
Protection, Sustainment, and Warfighter Performance
Individual Warfighter
Synthesis/Analytics/Decision Tools
Collaborative Analysis and Decision-making
Survivability

Modeling, Simulation & Test Infrastructure
Fixed Wing Vehicles (includes UAS)
Human/Autonomous System Interaction and Collaboration
Scalable Teaming of Autonomous Systems
Synthesis/Analytics/Decision Tools
Acoustic, Seismic and Magnetic
Undersea Weapons
Frameworks for Interoperability
Information Collection/Management
Synthesis/Analytics/Decision Tools
Maintainability/Sustainability
Human/Autonomous System Interaction and Collaboration
Machine Perception, Reasoning and Intelligence
Protection, Sustainment, and Warfighter Performance
RF Components for sensing, transmission and communication
Networks and Communications
Advanced Electronic Protection Techniques and Technology
Survivability
Sensors, Electronics and Photonics
Information Collection/Management
Synthesis/Analytics/Decision Tools
EO/IR Components for sensing, transmission and communication
RF Components for sensing, transmission and communication
Fixed Wing Vehicles (includes UAS)
High-Speed/Hypersonics
Synthesis/Analytics/Decision Tools
Electromechanical conversion
Energy storage
Power Control and Distribution
Power Generation/Energy Conversion
Electronics Integration
Energy storage
Power Control and Distribution
Power Generation/Energy Conversion
Survivability
Fixed Wing Vehicles (includes UAS)
Networks and Communications
Energy storage
Power Generation/Energy Conversion
Unmanned Ground and Sea Vehicles
Electromechanical conversion
Energy storage
Power Control and Distribution
Power Generation/Energy Conversion
Thermal Transport and Control
Thermal Transport and Control
Protection, Sustainment, and Warfighter Performance

Modeling, Simulation & Test Infrastructure
Microelectronics and Nanoelectronics
RF Components for sensing, transmission and communication
Modularity
Acoustic, Seismic and Magnetic
EO/IR Components for sensing, transmission and communication
Broadband/Multispectral Components and Systems
Guidance, Navigation & Control (GN&C) and Data Links
Sensors, Electronics and Photonics
Maintainability/Sustainability
Manufacturing Technology for Affordability
Corrosion
Readiness
Test, Evaluation, Validation, and Verification
Advanced Computing/Software Development
Synthesis/Analytics/Decision Tools
Distributed/Coordinated/Net-Enabled Systems
Aircraft Propulsion, Power and Thermal
Energy storage
Thermal Transport and Control
High Energy Lasers (HEL)
Power and Energy
Mobility
Modularity
Electronic Materials
RF Components for sensing, transmission and communication
Manufacturing Technology for Affordability
Personalized Assessment, Education, and Training
Protection, Sustainment, and Warfighter Performance
System Interfaces & Cognitive Processes
Propulsion and Extreme Environments
Structures and Protection
Test, Evaluation, Validation, and Verification
Electronics Integration
RF Components for sensing, transmission and communication
Acoustic, Seismic and Magnetic
Electro-Optical/Infrared (EO/IR)
Sensors, Electronics and Photonics
Electronics Integration
Information Collection/Management
Maintainability/Sustainability
Acoustic, Seismic and Magnetic
Structures and Protection
Protection, Sustainment, and Warfighter Performance
Manufacturing Technology for Affordability
Electronics Integration
Rotary Wing Vehicles

Test, Evaluation, Validation, and Verification
Maintainability/Sustainability
Acoustic, Seismic and Magnetic
EO/IR Components for sensing, transmission and communication
Broadband/Multispectral Components and Systems
Guidance, Navigation & Control (GN&C) and Data Links
Sensors, Electronics and Photonics
Fixed Wing Vehicles (includes UAS)
Human/Autonomous System Interaction and Collaboration
Personalized Assessment, Education, and Training
EO/IR Components for sensing, transmission and communication
Electro-Optical/Infrared (EO/IR)
Radio Frequency Weapons (RFW)
Sensors, Electronics and Photonics
RF Components for sensing, transmission and communication
EO/IR Components for sensing, transmission and communication
Scalable Teaming of Autonomous Systems
Test, Evaluation, Validation, and Verification
Biomedical Informatics / Health Information Systems & Technology
Information Collection/Management
Protection, Sustainment, and Warfighter Performance
Individual Warfighter
Readiness
Acoustic, Seismic and Magnetic
Fixed Wing Vehicles (includes UAS)
Rotary Wing Vehicles
Corrosion
Readiness
Structures and Protection
EO/IR Components for sensing, transmission and communication
RF Components for sensing, transmission and communication
Networks and Communications
Maintainability/Sustainability
Networks and Communications
Cognitive/Adaptive Capabilities
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Fixed Wing Vehicles (includes UAS)
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Maintainability/Sustainability
Fixed Wing Vehicles (includes UAS)
Rotary Wing Vehicles
Human Computer Interfaces (HCI) for Decision Making
Synthesis/Analytics/Decision Tools
Fixed Wing Vehicles (includes UAS)
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Electronic Materials
RF Components for sensing, transmission and communication
Manufacturing Technology for Affordability
Radio Frequency (RF) (non-EW)
Sensors, Electronics and Photonics
RF Components for sensing, transmission and communication
EO/IR Components for sensing, transmission and communication
Fixed Wing Vehicles (includes UAS)
Human/Autonomous System Interaction and Collaboration
System Interfaces & Cognitive Processes
EO/IR Components for sensing, transmission and communication
Broadband/Multispectral Components and Systems
Survivability
High Energy Lasers (HEL)
EO/IR Components for sensing, transmission and communication
Broadband/Multispectral Components and Systems
Survivability
High Energy Lasers (HEL)
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Ordnance
Corrosion
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Advanced Computing/Software Development
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Manufacturing Technology for Affordability
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Advanced Computing/Software Development
Trust Foundations
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RF Components for sensing, transmission and communication
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Synthesis/Analytics/Decision Tools
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Acoustic, Seismic and Magnetic
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Test, Evaluation, Validation, and Verification
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Conceptual, Computational, and World-Wide Environmental Representation
Simulation Information Technology
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Radio Frequency Weapons (RFW)
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Rotary Wing Vehicles
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Rotary Wing Vehicles
Maintainability/Sustainability
Readiness
Maintainability/Sustainability
Structures and Protection

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EO/IR Components for sensing, transmission and communication
Microelectronics and Nanoelectronics
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Electronics Integration
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Electronics Integration
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Protection, Sustainment, and Warfighter Performance

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Modularity
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Machine Perception, Reasoning and Intelligence
Personalized Assessment, Education, and Training
System Interfaces & Cognitive Processes
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Undersea Weapons
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Acoustic, Seismic and Magnetic
Synthesis/Analytics/Decision Tools
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Synthesis/Analytics/Decision Tools
Synthesis/Analytics/Decision Tools
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Military Operational Medicine
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EO/IR Components for sensing, transmission and communication
Microelectronics and Nanoelectronics
Networks and Communications
Networks and Communications
Aircraft Propulsion, Power and Thermal
Electro-Optical/Infrared (EO/IR)
EO/IR Components for sensing, transmission and communication
Fixed Wing Vehicles (includes UAS)
Unmanned Ground and Sea Vehicles
Electro-Optical/Infrared (EO/IR)
Sensors, Electronics and Photonics
Broadband/Multispectral Components and Systems

Cognitive/Adaptive Capabilities
Electro-Optical/Infrared (EO/IR)
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Synthesis/Analytics/Decision Tools
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Modeling, Simulation & Test Infrastructure
Fixed Wing Vehicles (includes UAS)
Rotary Wing Vehicles
Human Computer Interfaces (HCI) for Decision Making
System Interfaces & Cognitive Processes
Human Computer Interfaces (HCI) for Decision Making
Information Collection/Management
Synthesis/Analytics/Decision Tools
Human Aspects of Operations in Military Environments
System Interfaces & Cognitive Processes
Rotary Wing Vehicles
Machine Perception, Reasoning and Intelligence
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Unmanned Ground and Sea Vehicles
Fixed Wing Vehicles (includes UAS)
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Scalable Teaming of Autonomous Systems
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Electronics Integration
Power Control and Distribution
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Modularity
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Survivability
Protection, Sustainment, and Warfighter Performance
EO/IR Components for sensing, transmission and communication
Fixed Wing Vehicles (includes UAS)
Networks and Communications
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Mobility
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Design and Integration
Modularity
Unmanned Ground and Sea Vehicles
System Interfaces & Cognitive Processes
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Information Collection/Management

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Broadband/Multispectral Components and Systems
Power Control and Distribution
Power Generation/Energy Conversion
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EO/IR Components for sensing, transmission and communication
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Sensors, Electronics and Photonics
EO/IR Components for sensing, transmission and communication
Survivability
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Electro-Optical/Infrared (EO/IR)
Undersea Weapons
Personalized Assessment, Education, and Training
System Interfaces & Cognitive Processes
Acoustic, Seismic and Magnetic
Undersea Weapons
RF Components for sensing, transmission and communication
Networks and Communications
Networks and Communications
Electronic Materials
RF Components for sensing, transmission and communication
Broadband/Multispectral Components and Systems
Energy storage
RF Components for sensing, transmission and communication
Power Control and Distribution
Assuring Effective Missions
Resilient Infrastructure
EO/IR Components for sensing, transmission and communication
Preemptive/Proactive Effects
Electro-Optical/Infrared (EO/IR)
Guidance, Navigation & Control (GN&C) and Data Links
Scalable Teaming of Autonomous Systems
Networks and Communications
Trust Foundations
Guidance, Navigation & Control (GN&C) and Data Links
Electronics Integration
EO/IR Components for sensing, transmission and communication
Design and Integration
Mobility
Sensors, Electronics and Photonics
Machine Perception, Reasoning and Intelligence
Information Collection/Management
Synthesis/Analytics/Decision Tools
Collaborative Analysis and Decision-making

RF Components for sensing, transmission and communication
Information Collection/Management
Networks and Communications
Broadband/Multispectral Components and Systems
Radio Frequency (RF) (non-EW)
Microelectronics and Nanoelectronics
Broadband/Multispectral Components and Systems
Electro-Optical/Infrared (EO/IR)
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Rotary Wing Vehicles
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Collaborative Analysis and Decision-making
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Machine Perception, Reasoning and Intelligence
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Information Collection/Management
Maintainability/Sustainability
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Combat Casualty Care
Military Infectious Diseases
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Acoustic, Seismic and Magnetic
Fixed Wing Vehicles (includes UAS)
Networks and Communications
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Assuring Effective Missions
Survivability
Maintainability/Sustainability
EO/IR Components for sensing, transmission and communication
Machine Perception, Reasoning and Intelligence
Unmanned Ground and Sea Vehicles
Electro-Optical/Infrared (EO/IR)
Propulsion
Power and Energy
Propulsion and Extreme Environments
Machine Perception, Reasoning and Intelligence
Networks and Communications
Unmanned Ground and Sea Vehicles
Acoustic, Seismic and Magnetic
Protection, Sustainment, and Warfighter Performance
Machine Perception, Reasoning and Intelligence
Information Collection/Management
Maintainability/Sustainability
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Integrated Weapon Demonstrators (IWD)

Fixed Wing Vehicles (includes UAS)
Networks and Communications
Cognitive/Adaptive Capabilities
Distributed/Coordinated/Net-Enabled Systems
Radio Frequency (RF) (non-EW)
Electronics Integration
Machine Perception, Reasoning and Intelligence
Scalable Teaming of Autonomous Systems
Test, Evaluation, Validation, and Verification
Information Collection/Management
Unmanned Ground and Sea Vehicles
Information Collection/Management
Biomedical Informatics / Health Information Systems & Technology
Human Computer Interfaces (HCI) for Decision Making
Information Collection/Management
Personalized Assessment, Education, and Training
Protection, Sustainment, and Warfighter Performance
Modular/Open/Reconfigurable Architectures
Human Computer Interfaces (HCI) for Decision Making
Assuring Effective Missions
System Interfaces & Cognitive Processes
Modeling, Simulation & Test Infrastructure
Electronics Integration
Fixed Wing Vehicles (includes UAS)
Readiness
Sensors, Electronics and Photonics
EO/IR Components for sensing, transmission and communication
High Energy Lasers (HEL)
Sensors, Electronics and Photonics
Information Collection/Management
Networks and Communications
Modular/Open/Reconfigurable Architectures
Modularity
Computational Research Engineering Acquisition Tools and Environment
Design and Integration
Manufacturing Technology for Affordability
Structures and Protection
Sensors, Electronics and Photonics
Personalized Assessment, Education, and Training
Protection, Sustainment, and Warfighter Performance
RF Components for sensing, transmission and communication
Fixed Wing Vehicles (includes UAS)
Networks and Communications
Distributed/Coordinated/Net-Enabled Systems
Survivability
Electronics Integration
Collaborative Analysis and Decision-making

Computational Research Engineering Acquisition Tools and Environment
Design and Integration
Modeling, Simulation & Test Infrastructure
EO/IR Components for sensing, transmission and communication
Fixed Wing Vehicles (includes UAS)
Electro-Optical/Infrared (EO/IR)
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Readiness
Microelectronics and Nanoelectronics
Machine Perception, Reasoning and Intelligence
Information Collection/Management
Electro-Optical/Infrared (EO/IR)
Protection, Sustainment, and Warfighter Performance
Sensors, Electronics and Photonics
Protection, Sustainment, and Warfighter Performance
System Interfaces & Cognitive Processes
Advanced Computing/Software Development
Computational Research Engineering Acquisition Tools and Environment
Fixed Wing Vehicles (includes UAS)
Rotary Wing Vehicles
Acoustic, Seismic and Magnetic
RF Components for sensing, transmission and communication
Fixed Wing Vehicles (includes UAS)
Acoustic, Seismic and Magnetic
Radio Frequency (RF) (non-EW)
Protection, Sustainment, and Warfighter Performance
Aircraft Propulsion, Power and Thermal
Fixed Wing Vehicles (includes UAS)
Power Generation/Energy Conversion
Rotary Wing Vehicles
Protection, Sustainment, and Warfighter Performance
Energy storage
Power Control and Distribution
Power and Energy
Propulsion and Extreme Environments
Ordnance
Energy storage
Power and Energy
Test, Evaluation, Validation, and Verification
Synthesis/Analytics/Decision Tools
Modular/Open/Reconfigurable Architectures
Collaborative Analysis and Decision-making
Readiness
Structures and Protection
Aircraft Propulsion, Power and Thermal
Corrosion

Propulsion and Extreme Environments

Readiness

Sensors, Electronics and Photonics

Structures and Protection

Electronics Integration

Networks and Communications

None

None

None

None

None

None

None

None

None

None

None

None

None

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None

None

Department of the Navy SBIR/STTR Transition Program

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ONR Approval #43-3252-17

Topic # N141-064

Modular, Multi-Function Digital RF Receiver

HYPRES, Inc.

WHO

SYSCOM: ONR

Sponsoring Program: Code 31 - Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR)

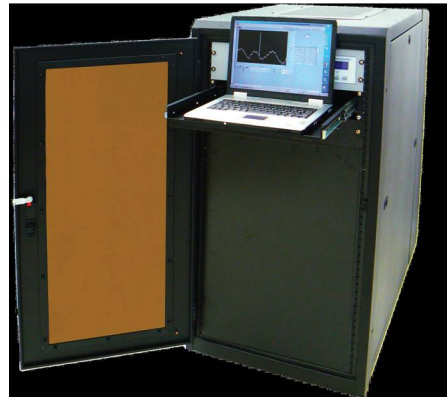
Transition Target: Shipboard Signals Exploitation Equipment next generation, Navy Multi-band SATCOM Terminal

TPOC:

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Other transition opportunities: Multifunctional Information Distribution System (MIDS) Link 16, Magnetic Resonance Imaging (MRI) systems for Traumatic Brain Injury (TBI)

Notes: Interested Program Offices include SPAWAR PMW 120, PMW 150, PMW/A 170, PMW 770



HYPRES Advanced Digital Receiver

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WHAT

Operational Need and Improvement: Naval radio frequency (RF) systems have a requirement to improve spectrum utilization by implementing high speed broadband analog to digital converters. Although great strides have been made with the third generation Modular, Multi-Function Digital-RF Receiver systems in terms of functionality, these systems are being upgraded to be more energy efficient and able to accommodate smaller platforms.

Specifications Required: Demonstrate rugged connectorization – to include ease of connectorization and simplicity of connection and reconnection - and the capability of Magnesium Diboride (MgB2) conductors and any supporting substrate to exhibit lower thermal conduction than an equivalent length copper multi-trace cable spanning the same temperature gradient and carrying the same current in order to minimize the heat transfer from room temperature to the 4 Kelvin (K) cold environment

Technology Developed: HYPRES' Advanced Digital Receiver (ADR) technology eliminates many components, enhances toleration of co-located high power transmitters and enables dominance of the RF spectrum for naval multi-function RF applications such as communications, Electronic Warfare (EW), Signals Intelligence (SIGINT) and radar.

Warfighter Value: HYPRES' ADRs maximize signal reception for communication, SIGINT and EW systems, enabling full broadband spectrum monitoring and precise emitter identification (ID) in a smaller form factor. Directly digitizing at RF potentially doubles system functionality for the same SWaP when compared to legacy analog systems.

WHEN

Contract Number: N00014-15-C-5142 **Ending on:** February 4, 2019

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Develop MgB2 data and dc cables	N/A	Meets test plan parameters	3	July 2016
Measure and characterize MgB2 data and dc cables	N/A	Measure heat conduction against test plan	3	January 2017
Option1-Develop Hybrid-temperature Heterogeneous Technology (HTHT) Datalink incorporating MgB2 data cables	Med	Passes tests in cryo-cooler test bed	3	October 2017
Option 2-Implement MgB2-enabled HTHT datalink in Advanced Digital-RF Receiver	High	MgB2 cabling performs in GFE ADR	6	January 2019

HOW

Projected Business Model: The output of this Phase II will result in a product that will be incorporated into the HYPRES digital RF receiver product family which in turn will be inserted into military systems directly and through other DoD prime contractors. HYPRES has worked with L-3 Communications, Argon ST, and ViaSat on digital-RF receiver projects in the past.

Company Objectives: HYPRES seeks program office support for completion of development, test and evaluation, and transition to Ship's Signals Exploitation Equipment (SSEE) and Navy Multiband Terminal (NMT) as examples of relevant programs of record. HYPRES also seeks relationships with prime contractors, DoD program offices and equity investors for transition to major communications, EW, SIGINT and radar acquisition programs, and to the commercial market.

Potential Commercial Applications: HYPRES has identified commercial applications in MRI systems, avionics equipment and commercial SATCOM.

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