Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Army											Date: April 2022	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 6: *RDT&E Management Support*					R-1 Program Element (Number/Name) PE 0604258A / *Target Systems Development*							
COST ($ in Millions)	**Prior Years**	**FY 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**Cost To Complete**	**Total Cost**
Total Program Element	-	35.279	42.404	19.132	-	19.132	11.821	15.668	15.091	15.208	Continuing	Continuing
238: *Aerial Targets*	-	32.271	36.085	12.722	-	12.722	8.383	12.359	11.370	11.451	Continuing	Continuing
459: *Ground Targets*	-	3.008	6.319	6.410	-	6.410	3.438	3.309	3.721	3.757	Continuing	Continuing

A. Mission Description and Budget Item Justification

This funding line supports testing of Army Modernization Priority Programs.

This Program Element funds aerial and ground target hardware and software development, maintenance, and upgrades. The overall objective is to ensure validation of weapon system accuracy and reliability by developing aerial and ground targets essential for test and evaluation (T&E). These targets are economical and expendable, remotely controlled or stationary, and often destroyed in use. The Army is the Tri-Service lead under the Secretariat Reliance panel for providing rotary wing, mobile ground, towed, and designated targets for T&E. The Army executes development of some service-peculiar target requirements in support of quality assurance, lot acceptance, and training and continues development of service-peculiar and on-going target materiel upgrades to maintain continuity with current weapons technology and trends in modern and evolving Army weapons.

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	35.279	17.404	0.000	-	0.000
Current President's Budget	35.279	42.404	19.132	-	19.132
Total Adjustments	0.000	25.000	19.132	-	19.132
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	25.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	19.132	-	19.132

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2021	FY 2022
Project: 238: *Aerial Targets*		
Congressional Add: *UAS Swarm Threat and Mitigation*	25.000	25.000
Congressional Add Subtotals for Project: 238	25.000	25.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Army	Date: April 2022
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0604258A *I Target Systems Development*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2021	FY 2022
Congressional Add Totals for all Projects	25.000	25.000

Change Summary Explanation

FY 2023 funding increase reflects the fact that the FY 2022 President's Budget request did not include out-year funding.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0604258A / *Target Systems Development*	Project (Number/Name) 238 / *Aerial Targets*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
238: *Aerial Targets*	-	32.271	36.085	12.722	-	12.722	8.383	12.359	11.370	11.451	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Aerial Targets Project supports Army readiness and multi-domain operations through development, acquisition, operation and modernization of aerial targets. Multi-spectral Aerial Targets include realistic surrogates, actual high performance threat aircraft, and virtual target computer models. Current and emerging weapons systems require test, evaluation, and training using threat representative aerial targets to assess weapons systems effectiveness in the operational environment. This project encompasses a portfolio of full-scale, miniature, and subscale fixed wing/rotary wing targets, virtual targets, ancillary devices, and associated control systems. For accurate threat portrayal that properly stresses weapons systems during test and evaluation, aerial targets must exhibit the flight characteristics, threat signatures, and other performance factors to represent or emulate relevant and validated threats. This Project funds: the long-range planning necessary to determine future target needs and development of coordinated requirements; the management of target research, development, test and evaluation, production, and modernization; execution of the validation process to ensure that aerial targets accurately represent the threat; as well as storage and repair parts. The Army is the Test Enterprise Reliance lead for Rotary Wing Targets and Towed Target development.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Towed Targets/Ancillary devices.	0.363	0.536	0.492
Description: Engineering & Manufacturing Development (EMD) phase activities for Towed Targets/Ancillary devices.			
FY 2022 Plans: Continues EMD for Towed Targets/Ancillary devices, to include development, enhancement, maintenance, and sustainment for towed targets and ancillary devices as needed. Continued development and testing of Low Cost Towed target systems (Sphere Tow and the Glide Tow Target) emulating current threats at a very low cost to Lower Tier Project Office (LTPO), Indirect Fire Protection Capability (IFPC), Center for Countermeasures/Office of the Secretary of Defense (CCM/OSD), and classified customers. Signature modification and performance enhancement efforts for these targets is ongoing. Investigates and tests other cost-saving towed systems (Glide-Tow, Cruise Missile Tow Target, Towed Spheres, and Tow Test Bed) for Air Defense Weapons System customers.			
FY 2023 Plans: Continue EMD for Towed Targets and Ancillary devices, to include development, enhancement, maintenance, and sustainment for towed targets and ancillary devices as needed. Continue development and testing of Low Cost Towed target systems specifically the Glide Tow and TLX-1 Height Keeping Tow Targets. These targets emulate current threats or provide calibrated radar cross section sources at a very low cost to Lower Tier Project Office (LTPO), Center for Countermeasures/Office of the Secretary of Defense (CCM/OSD), the USAF Three Dimensional Long Range Radar and the Navy Enterprise Air Surveillance			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0604258A / *Target Systems Development*	**Project (Number/Name)** 238 / *Aerial Targets*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Radar. Signature modification and performance enhancement efforts for these targets is ongoing. Investigate and test other cost-saving towed systems specifically modifications to the Cruise Missile Tow Target for High Energy Laser system tests. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding decreased in FY 2023 for higher Army priorities.			
Title: Aerial Virtual Targets. ***Description:*** EMD phase activities for Aerial Virtual Targets. ***FY 2022 Plans:*** Will continue engineering and manufacturing for Aerial Virtual Targets for evolving Army and DoD simulation standards and evolving implementation techniques; focuses on simulation target models of airplanes, helicopters, missiles, unmanned aerial vehicles, and aerial targets in commonly used formats to support visualization, infrared analysis, and radar analysis simulations; will support verification and validation of models, will provide archiving and distribution of simulation target models to simulation developers throughout the Army and DoD T&E communities. Simulation target models are employed to facilitate simulations for Development Testing (DT) and Operational Testing (OT) planning, test rehearsal, post-test analysis, hardware-in-the-loop testing, and execution of test events that are too costly or difficult to be conducted under actual field conditions. These models will be used by multiple DoD agencies and multiple weapon systems such as, but not limited to Close Combat Weapon Systems, Unmanned Aerial Systems, and Lower Tier Program offices. ***FY 2023 Plans:*** Will continue modeling, simulation, and development of aerial threat targets for use throughout Army and DoD simulation environments for evolving Army and DoD simulation standards and evolving implementation techniques; focuses on simulation target models of airplanes, helicopters, missiles, unmanned aerial vehicles, and aerial targets in commonly used formats to support visualization, infrared analysis, and radar analysis simulations; will support verification and validation of models, will provide archiving and distribution of simulation target models to simulation developers throughout the Army and DoD T&E communities. Life cycle maintenance of threat virtual targets will be addressed for creation, validation, and distribution of simulation target models and physics based software and simulation formats evolve. Aerial Virtual Targets will necessarily address continued adoption, utilization, and proliferation of unmanned aerial vehicles as well as rocket, artillery, and mortar (RAM) threats. Aerial Virtual Target models will continue to incorporate electronic attack (EA) and electronic warfare (EW) components. Simulation target models are employed to facilitate simulations for Development Testing (DT) and Operational Testing (OT) planning, test rehearsal, post-test analysis, hardware-in-the-loop testing, and execution of test events that are too costly or difficult to be conducted under actual field conditions. These models will be used by multiple DoD agencies and multiple weapon systems such as, but not limited to Close Combat Weapon Systems, Unmanned Aerial Systems, and Lower Tier Program offices. ***FY 2022 to FY 2023 Increase/Decrease Statement:***	0.581	0.858	0.738

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0604258A / *Target Systems Development*	**Project (Number/Name)** 238 / *Aerial Targets*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Funding decreased in FY 2023 for higher Army priorities.			
Title: Army Ground Aerial Target Control System (AGATCS). ***Description:*** EMD phase activities for the AGATCS in support of a modern current technology target control system for control of subscale and full scale aerial, surface (ground/seaborne), Small Unmanned Aerial System (SUAS) and rotary wing targets. ***FY 2022 Plans:*** AGATCS engineering and manufacturing to provide remote control of aerial (fixed wing, rotary wing, and small unmanned aerial systems (SUAS)), ground (heavy, medium, and light vehicles), and seaborne targets with a single control system in support of live fire testing necessary for lethality evaluation and sensor package testing for evaluation of suitability and effectiveness. Complies with DODI 8510.01 mandate / DOD Risk Management Framework on all target control systems to ensure a secure operating posture. Meets surface target testing requirements to include formation, collision avoidance, and swarming capabilities for U.S. Army test ranges. Provides Test Centers and the T&E community with a versatile seaborne and rotary wing resource for use in conducting tests to include live fire testing, observation, signal repeater and cargo transportation. ***FY 2023 Plans:*** AGATCS engineering and manufacturing to provide remote control of aerial (fixed wing, rotary wing, and simulated unmanned aerial systems (SUAS)), ground (heavy, medium, and light vehicles), and seaborne targets with a single control system in support of live fire testing necessary for lethality evaluation and sensor package testing for evaluation of suitability and effectiveness. Complies with DODI 8510.01 mandate / DOD Risk Management Framework on all target control systems to ensure a secure operating posture. Meets surface target testing requirements to include convoy, formation, collision avoidance, and swarming capabilities for U.S. Army test ranges. Provides Test Centers and the T&E community with a versatile seaborne and rotary wing resource for use in conducting tests to include live fire testing, observation, signal repeater and cargo transportation. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding decreased in FY 2023 for higher Army priorities.	2.691	3.962	3.534
Title: Unmanned Aerial System - Target (UAS-T). ***Description:*** Technical updates and life cycle management activities for the UAS-T to provide Threat representative support for test and experimentation missions. ***FY 2022 Plans:*** Technical and life cycle management for the UAS-T to operate and maintain a generic, tactical class unmanned aircraft system target to support a variety of test requirements by providing a generic threat representative aerial target to support test and experimentation missions. Projects to be supported include the Space and Missile Defense Command and the Joint Integration Air and Missile Defense Organization live fire testing. This activity will continue to require technical support for investigation,	1.018	1.500	3.975

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0604258A / *Target Systems Development*	**Project (Number/Name)** 238 / *Aerial Targets*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
demonstration, and integration of a more economical target, to include technical oversight of the targets' acquisition and ground support equipment. ***FY 2023 Plans:*** Technical and life cycle management for the Unmanned Aerial System-Threat (UAS-T) to operate and maintain a generic, tactical class unmanned aircraft system target to support a variety of test requirements by providing a generic threat representative aerial target to support test and experimentation missions. Projects to be supported include the Space and Missile Defense Command and the Joint Integration Air and Missile Defense Organization live fire testing. This activity will continue to require technical support for investigation, demonstration, and integration of a more economical target, to include technical oversight of the targets' acquisition and ground support equipment. Includes replenishment of Group 1 platforms consumed for Counter-Small Unmanned Aerial System (C-sUAS) test and training needs. In addition, provides for 35 Group 2 threat endurance Small Unmanned Aerial Systems (sUAS), 15 Tethered sUAS?s, Manned sUAS Deployment Systems, and GPS jamming payload systems. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increased funding in FY 2023 for the Unmanned Aerial System - Counter.			
Title: High Speed Aerial Target (HSAT). ***Description:*** Funds the EMD phase for the replacement of the aging MQM-107 with the new BQM-167A to provide a realistic aerial target capable of simulating the performance of enemy aircraft; technical and life cycle management activities for equipment, to include engineering change proposals, technology obsolescence, and safety and system data documentation for the HSAT Target. Program requires technical support for investigation, demonstration, and integration of a more economical target. Technical oversight of the replacement targets' acquisition along with Ground Support Equipment (GSE) and other activities related to getting it operational is essential; provides a realistic aerial target capable of simulating the performance of enemy aircraft to aid in the research, development, test, and evaluation of weapons systems and aid in training operational units employing production missile systems. ***FY 2022 Plans:*** The U.S Army Targets Management Office provides Aerial Targets to customers for threat realism required by law in Title 10 U.S.C., Section 2366 (Live Fire Test & Evaluation) for the testing of ACAT I/II major munitions, missile programs, or product improvements of these programs. This line is the technical sustainment of all HSATs. This funding covers the engineering, integration, safety, cyber security, technology obsolescence, safety and system data documentation, Air Worthiness Release development, and flight waivers for the entire enterprise, as well as, non-recurring engineering for software/firmware updates, and minor product upgrades. This includes the MQM-107, MQM-178, BQM-34, and the new BQM-167. These HSATs will continue	2.618	3.824	3.983

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0604258A / *Target Systems Development*	**Project (Number/Name)** 238 / *Aerial Targets*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
to support T&E programs such as Patriot, Stinger, Integrated Air and Missile Defense, Sentinel Radar, Cruise Missile Defense System, and classified programs for Army and Tri-Service customers. ***FY 2023 Plans:*** The U.S Army Threat Systems Management Office provides Aerial Targets to customers for threat realism required by law in Title 10 U.S.C., Section 2366 (Live Fire Test & Evaluation) for the testing of ACAT I/II major munitions, missile programs, or product improvements of these programs. This line is the technical sustainment of all HSATs. This funding covers the engineering, integration, safety, cyber security, technology obsolescence, safety and system data documentation, Air Worthiness Release development, and flight waivers for the entire enterprise, as well as, non-recurring engineering for software/firmware updates, and minor product upgrades. This includes the MQM-107, MQM-178, BQM-34, BQM-167, and MQM-185. These HSATs will continue to support T&E programs such as Patriot, Integrated Air and Missile Defense, Sentinel Radar, Cruise Missile Defense System, and classified programs for Army and Tri-Service customers. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY 2022 to FY 2023 funding increase for technical sustainment.			
Title: SBIR/STTR ***FY 2022 Plans:*** Funding transferred in accordance with Title 15 USC ?638. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC ?638.	-	0.405	-
Accomplishments/Planned Programs Subtotals	7.271	11.085	12.722

	FY 2021	FY 2022
Congressional Add: UAS Swarm Threat and Mitigation	25.000	25.000
FY 2021 Accomplishments: Funds development of US produced UAS platforms, ground control system, mission planner/simulation, payloads, and system mobility for Army DT & OT weapons testing in support of Army readiness and modernization. Funds development of 5G NSA cellular network simulator, field deployable 5G network system, and 5G NSA/SA CORE network capable of interoperability with foreign and future domestic architectures. This capability is key to TSMO?s ability to replicate realistic UAS swarms and testing of other related networks.		
FY 2022 Plans: Advancement of current U.S. produced Threat Unmanned Aerial System (UAS) platforms, ground control system, mission planner/simulation, payloads, and system mobility for Army Combat Training		

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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	FY 2021	FY 2022
Centers (CTCs) and DT & OT weapons testing in line with advancement of Threat capabilities to include but not limited to GPS denied navigation, advanced day/night cameras, unattended launch/recovery/charging, and artificial intelligence. Continued development and deployment of 5G Non-Stand Alone (NSA) cellular network simulator, field deployable 5G network system, and 5G NSA/Stand Alone (SA) CORE network capable of interoperability with foreign and future domestic architectures. This capability is key to Threat System Management Office's ability to replicate realistic UAS swarms will be added as a command-and-control solution for Threat UAS.		
Congressional Adds Subtotals	25.000	25.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0604258A / *Target Systems Development*	Project (Number/Name) 459 / *Ground Targets*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
459: *Ground Targets*	-	3.008	6.319	6.410	-	6.410	3.438	3.309	3.721	3.757	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project funds Army efforts to support test and evaluation (T&E) of advanced weapon systems and supports Army Modernization, Multi-Domain Operations, and Tri-Service readiness by developing ground target surrogates, acquiring foreign equipment, and developing virtual target computer models of ground vehicle targets. These products are required to adequately stress weapon systems undergoing (T&E). The United States Army is the Tri-Service lead for providing mobile ground targets for (T&E). This tasking includes long-range planning to determine future target needs and development of coordinated requirement documents; the centralized management of the ground target research, development, test and evaluation processes; execution of the validation process; acquisition of foreign equipment; and continuing maintenance, storage, and development/enhancement/update via engineering services of developed and acquired targets to ensure availability for (T&E) customers. This Project also manages use of current assets and operates a centralized spare parts program.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Mobile Ground Target Operations (MGTO)	1.503	3.482	2.093
Description: MGTO provides oversight of five Primary Operating Centers to include operation, storage, maintenance, repair, safety and configuration management. The objective of the MGTO effort is to support the testing community as fully, efficiently and effectively as possible. The MGTO centrally manages a fleet of foreign threat ground vehicles while maintaining the foreign integrity of the assets.			
FY 2022 Plans: Will maintain a fleet of reusable ground targets emulating relevant, current, and emerging threats which provides cost effective solutions for T&E. The MGTO will centrally manage a fleet of foreign threat ground vehicles while maintaining the foreign integrity of the assets. The MGTO will provide support and oversight for actual threat foreign ground vehicles and mobile ground target surrogate vehicles for use as threat targets by the T&E community for destructive and non-destructive scenarios. Efforts will support users such as, but not limited to Army Futures Command Cross Functional Teams (CFTs) Apache 64E, Joint Air to Ground Missile, Javelin, Extended Range Guided Multiple Launch Rocket System, Army Tactical Missile System, Cruise Missile Defense System, Precision Fires, Counter Rocket Artillery and Missile, Close Combat Weapon System, and other research, prototyping, and operational users.			
FY 2023 Plans: Will maintain a fleet of reusable ground targets emulating relevant, current, and emerging threats which provides cost effective solutions for T&E. The MGTO will centrally manage a fleet of foreign threat ground vehicles while maintaining the foreign integrity of the assets. The MGTO will provide support and oversight for actual threat foreign ground vehicles and mobile ground target			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
surrogate vehicles for use as threat targets by the T&E community for destructive and non-destructive scenarios. Efforts will support users such as, but not limited to Army Futures Command Cross Functional Teams (CFTs) Apache 64E, Joint Air to Ground Missile, Javelin, Extended Range Guided Multiple Launch Rocket System, Army Tactical Missile System, Cruise Missile Defense System, Precision Fires, Counter Rocket Artillery and Missile, Close Combat Weapon System, and other research, prototyping, and operational users. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding decreased in FY 2023 for higher Army priorities.			
Title: Mobile Ground Targets Hardware (MGTH) ***Description:*** MGTH provides a mix of actual threat assets and surrogate targets to support Army T&E events. ***FY 2022 Plans:*** Will provide cost effective and highly threat representative surface targets (consisting of actual foreign equipment as well as surrogates) for Test and Evaluation of multiple Weapon System developers. Will continue to provide surface targets to meet the functionality and signature fidelity requirements of the objective force. Will acquire actual foreign equipment, to include insurgent vehicles, to meet known weapon system target shortfalls. Will continue to initiate analysis and design efforts to address specific capability shortfalls and the ability to develop threat representative surrogates. ***FY 2023 Plans:*** Will provide cost effective and highly threat representative surface targets (consisting of actual foreign equipment as well as surrogates) for Test and Evaluation of multiple Weapon System developers. Will continue to provide surface targets to meet the functionality and signature fidelity requirements of the objective force. Will acquire actual foreign equipment, to include insurgent vehicles, to meet known weapon system target shortfalls. Will continue to initiate analysis and design efforts to address specific capability shortfalls and the ability to develop threat representative surrogates. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding decreased in FY 2023 for higher Army priorities.	0.710	1.345	0.535
Title: Ground Virtual Targets ***Description:*** Government System (T&E) to support the research and development of Ground Virtual Targets. Virtual Targets are employed by multiple Department of Defense agencies and weapon systems to facilitate simulations for Developmental and Operational Test planning, rehearsal, post-test analysis, hardware-in-the-loop testing, and execution of test events that are too costly or difficult to be conducted under actual field conditions. ***FY 2022 Plans:***	0.795	1.262	0.735

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Will continue engineering and manufacturing for Ground Virtual Targets for evolving Army and DoD simulation standards and evolving implementation techniques. Will focus on simulation target models of armored assets, air defense systems, small unmanned aerial systems vehicles, maritime systems and other surface targets in commonly used formats to support visualization, infrared analysis, and radar analysis simulations. Will support verification and validation of models and provide archiving and distribution of simulation target models to simulation developers throughout the Army and DoD Test and Evaluation communities. ***FY 2023 Plans:*** Will continue engineering and manufacturing for Ground Virtual Targets for evolving Army and DoD simulation standards and evolving implementation techniques. Will focus on simulation target models of armored assets, air defense systems, small unmanned aerial systems vehicles, maritime systems and other surface targets in commonly used formats to support visualization, infrared analysis, and radar analysis simulations; will support verification and validation of models, will provide archiving and distribution of simulation target models to simulation developers throughout the Army and DoD T&E communities. Life cycle maintenance of threat virtual targets will be addressed for creation, validation, and distribution of simulation target models and physics based software as simulation formats evolve. Ground Virtual Targets will necessarily address continued application of cross domain, air defense, and denied access threats. Ground Virtual Target models will continue to incorporate electronic attack (EA) and electronic warfare (EW) components for air defense systems and simulations. Simulation target models are employed to facilitate simulations for developmental test (DT) and operational test (OT) planning, test rehearsal, post-test analysis, hardware-in-the-loop testing, and execution of test events that are too costly or difficult to be conducted under actual field conditions. These models will be used by multiple DoD agencies and multiple weapon systems such as, but not limited to Close Combat Weapon Systems, Strategic and Operational Rockets and Missiles, and Tactical Aviation and Ground Munition offices. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding decreased in FY 2023 for higher Army priorities.			
Title: Low Cost Ground Targets	-	-	3.047
Description: This proof-of-concept utilizes lower-cost Software Defined Radio (SDR) technology to demonstrate the feasibility of replicating a scalable, diverse, high-density Radio Frequency (RF) environment capable of supporting MDO, Test and Training within cost constraints. This proposed solution develops low-cost/low-risk solutions to emulate adversary high-dense RF environments using components developed for SDRs, coupled with available antennas and Commercial-Off-the-Shelf (COTS) devices and products to demonstrate operations. SDR radar systems have been employed mainly in military operations, like target detection, target recognition, surveillance, and other specific applications, such as meteorology and air-traffic control. However, in recent years, large-scale commercial applications are driving standard radar system operations at significant cost reductions with increased adaptability. According			

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
to this new operating context, Software Defined Radar (SDRadar) represents new challenges in radar technology given the possibility of performing basic operations (i.e. mixing, filtering, modulation, and demodulation) by simply employing software modules in order to eliminate much of the radar specific processing hardware. The main goal of a software defined approach is related not only to a clear cost reduction, but also to a significant increase of the versatility of the system, since signal generation and signal processing parameters may be easily adapted to the task under consideration. Integration into test and training range and Home Station networks, such as the Threat Battle Command Force (TBCF), provides significant Integrated Air Defense Systems (IADS) capability utilizing multiple units. This program supports US Army acquisition ability to adequately stress weapon systems undergoing both Developmental and Operational Tests, as well as Live, Virtual, and Constructive (LVC) training. The low-cost systems emulate known threat radars across multiple radar bands and to develop as many emitters as possible to create a dense, RF environment. ***FY 2023 Plans:*** Provides threat emitters in sufficient quantities to support Developmental and Operational Tests across multiple Army Test and Training programs, as well as the Cross Functional Teams. In addition, units will be deployed at Combined Training Centers (CTC) as well as to various Army installations in support of Home Station Training in a Live, Virtual and Constructive (LVC) environment. Develop interfaces required to integrate units into the Threat Battle Command Force operational system. Develop Time Space Position Information (TSPI) interface required for test and training exercises. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding increased in FY 2023 to support the required quantities for the Low Cost Ground Targets to support Army developmental and operational testing for home station training at Army installations.			
Title: SBIR/STTR ***FY 2022 Plans:*** Funding transferred in accordance with Title 15 USC ?638. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC ?638.	-	0.230	-
Accomplishments/Planned Programs Subtotals	3.008	6.319	6.410

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 6	**R-1 Program Element (Number/Name)** PE 0604258A / *Target Systems Development*	**Project (Number/Name)** 459 / *Ground Targets*

D. Acquisition Strategy

N/A