Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305208F / *Distributed Common Ground/Surface Systems*

COST ($ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	25.009	14.126	24.568	0.000	24.568	-	-	-	-	-	-
674826: *Common Imagery Ground / Surface Systems*	-	25.009	14.126	24.568	0.000	24.568	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

Air Force Distributed Common Ground System (AF DCGS) is the Combat Air Force (CAF) weapon system for planning and direction, collection, processing and exploitation, analysis and production, and dissemination (PCPAD) of data from Intelligence, Surveillance, and Reconnaissance (ISR) missions. Since AF DCGS is also a major component of the DoD DCGS, the system is designed to complement and interoperate with the DoD, Army, Navy and Marine Corps DCGS. The AF DCGS mission is to provide Joint Task Force (JTF) Commanders, Air Component Commanders, Unified Commands, and other directed organizations with global, time-sensitive ISR PCPAD across the spectrum of military operations. AF DCGS is a multi-INT, federated weapon system (AN/GSQ-272) capable of exploiting intelligence data from manned platforms, remotely piloted aircraft (RPA), non-traditional ISR platforms, national and commercial satellites and other collection systems.

AF DCGS is designed to support Joint operational requirements by providing a common PCPAD means to provide time-sensitive intelligence to field commanders and in support of the Air Operations Center (AOC) mission requirements and supports the "kill chain" across the full range of military operations. Currently, AF DCGS is composed of eight core sites (two active duty worldwide, three active duty regional and three Air National Guard regional), three remote Air Force Forces (AF FOR) sites, six SIGINT Distributed Mission Sites (four collocated with National Mission Partner), three Air National Guard full-motion video sites, three support sites, three training sites, and three integration and test sites. AF DCGS currently supports ongoing operations from forward deployed and in-garrison CONUS and OCONUS-based locations. AF DCGS provides integrated ISR by providing quality, fused Geospatial Intelligence (GEOINT), Signals Intelligence (SIGINT), and Measurement and Signature Intelligence (MASINT) tailored to the warfighter for all levels of conflict.

In alignment with DoD and AF direction, AF DCGS is migrating to an open architecture (OA DCGS) to rapidly incorporate new technologies and tools to easily integrate new and/or improved sensor capabilities, as well as provide improved mission applications to meet emerging and urgent operational needs. AF DCGS integrates commercial-off-the-shelf and government-off-the-shelf services and applications to the maximum extent possible to fulfill operational requirements and data sharing requirements across the DoD DCGS community. The next iteration will involve transitioning to a mission-assured hybrid cloud (mix of private on premise and public cloud) architecture.

Program management consists of five ACAT III efforts: GEOINT Transformation, SIGINT Transformation, Multi-INT, Network Infrastructure Transformation, and DCGS Reference Imagery Transition (DRT)

1. GEOINT Transformation: Rapidly develop, integrate and test new GEOINT capabilities, enables quick/seamless integration of new sensors, data types, sensor planning, and command and control (C2) capabilities and migrates GEOINT-specific applications into the open architecture framework. Leverages mission partner methods and tools to the maximum extent possible.

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305208F / *Distributed Common Ground/Surface Systems*

2. SIGINT Transformation: Rapidly develop, integrate and test new SIGINT capabilities, enables quick/seamless integration of new sensors, data types, sensor planning, command and control (C2) capabilities and migrates SIGINT-specific applications into the open architecture framework. Leverages mission partner methods and tools to the maximum extent possible.

3. Multi-INT-1: Rapidly develop, integrate and test new and updated enterprise applications, to include voice/video/chat communications, collaboration and situational awareness, multi-INT fusion, and data analytics capabilities (to include Artificial Intelligence/Machine Learning (AI/ML)) into the open architecture framework. Also includes Intelligent Modeling and Predictive Analysis of Cyberspace Targeting (IMPACT) program, which develops concepts, Tactics/Techniques/Procedures (TTPs) and technologies for synchronizing ISR and non-kinetic capabilities. Addressees program office test and evaluation activities.

4. Network Infrastructure Transformation: Modernizes the AF DCGS infrastructure to a cyber-resilient, open, scalable, commercial-based, architecture, improving data ingest, transfer, and storage capabilities, collaboration, and content driven discovery. OA DCGS Platform as a Service, along with migration to a hub-based architecture and public cloud represents the AF DCGS mission-assured hybrid cloud (mix of private on premise and public cloud) architecture.

5. *DRT: The Air Force DCGS Reference Imagery Transition (DRT) effort provides data ingest, transfer, and storage capabilities for NGA reference imagery data.

Note:*No additional RDT&E or Investment Funding planned in FY20 or outyears; ACAT will be closed once the capability is installed at all sites

This program element may include necessary civilian pay expenses required to manage, execute, and deliver AF DCGS weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605831F. In FY20 0.00M was expended for civilian pay expenses in this program element, and in FY21 0.00M is forecasted for civilian pay expenses in this program element

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary ($ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	25.009	14.152	25.933	0.000	25.933
Current President's Budget	25.009	14.126	24.568	0.000	24.568
Total Adjustments	0.000	-0.026	-1.365	0.000	-1.365
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	-0.026	-1.365	0.000	-1.365

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Air Force	Date: May 2021
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305208F / *Distributed Common Ground/Surface Systems*

Change Summary Explanation

The FY 2022 funding request was reduced by $1.365M to account for the availability of prior year execution balances.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force			Date: May 2021
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305208F / *Distributed Common Ground/Surface Systems*	Project (Number/Name) 674826 / *Common Imagery Ground / Surface Systems*	

COST ($ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
674826: *Common Imagery Ground / Surface Systems*	-	25.009	14.126	24.568	0.000	24.568	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Program management consists of five ACAT III efforts: GEOINT Transformation, SIGINT Transformation, Multi-INT, Network Infrastructure Transformation, and DCGS Reference Imagery Transition (DRT)

1. GEOINT Transformation: Rapidly develop, integrate and test new GEOINT capabilities, enables quick/seamless integration of new sensors, data types, sensor planning, and command and control (C2) capabilities and migrates GEOINT-specific applications into the open architecture framework. Leverages mission partner methods and tools to the maximum extent possible.

2. SIGINT Transformation: Rapidly develop, integrate and test new SIGINT capabilities, enables quick/seamless integration of new sensors, data types, sensor planning, command and control (C2) capabilities and migrates SIGINT-specific applications into the open architecture framework. Leverages mission partner methods and tools to the maximum extent possible.

3. Multi-INT-1: Rapidly develop, integrate and test new and updated enterprise applications, to include voice/video/chat communications, collaboration and situational awareness, multi-INT fusion, and data analytics capabilities (to include Artificial Intelligence/Machine Learning (AI/ML)) into the open architecture framework. Also includes Intelligent Modeling and Predictive Analysis of Cyberspace Targeting (IMPACT) program, which develops concepts, Tactics/Techniques/Procedures (TTPs) and technologies for synchronizing ISR and non-kinetic capabilities. Addressees program office test and evaluation activities.

4. Network Infrastructure Transformation: Modernizes the AF DCGS infrastructure to a cyber-resilient, open, scalable, commercial-based, architecture, improving data ingest, transfer, and storage capabilities, collaboration, and content driven discovery. OA DCGS Platform as a Service, along with migration to a hub-based architecture and public cloud represents the AF DCGS mission-assured hybrid cloud (mix of private on premise and public cloud) architecture.

5. *DRT: The Air Force DCGS Reference Imagery Transition (DRT) effort provides data ingest, transfer, and storage capabilities for NGA reference imagery data.

NOTE:
*ACAT will be closed once the capability is installed at all sites.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305208F / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** 674826 / *Common Imagery Ground / Surface Systems*

This program element may include necessary civilian pay expenses required to manage, execute, and deliver AF DCGS weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: GEOINT Transformation	0.500	0.500	2.000
Description: The GEOINT Transformation effort rapidly integrates new GEOINT capabilities, enables quick/seamless integration of new sensors, data types, sensor planning, and command and control (C2) capabilities and migrates GEOINT-specific applications into the open architecture framework. Leverages mission partner methods and tools to the maximum extent possible. ***FY 2021 Plans:*** • Continue High Altitude (HA) and Full Motion Video (FMV) Agile Release Trains to rapidly develop and integrate new GEOINT-specific capabilities on OA DCGS. ***FY 2022 Plans:*** • Will continue High Altitude (HA) and Full Motion Video (FMV) Agile Release Trains to rapidly develop, integrate and test new GEOINT-specific capabilities on OA DCGS. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase for development of improved High Altitude GEOINT operator exploitation capabilities in HA GEOINT Agile Release Train			
Title: SIGINT Transformation	2.899	3.153	6.230
Description: The SIGINT Transformation effort rapidly integrates new SIGINT capabilities, enables quick/seamless integration of new sensors, data types, sensor planning, command and control (C2) capabilities and migrates SIGINT-specific applications into the open architecture framework. Leverages mission partner methods and tools to the maximum extent possible. ***FY 2021 Plans:*** • Continue SIGINT Modernization Agile Release Train to rapidly develop and integrate new SIGINT-specific capabilities into OA DCGS. ***FY 2022 Plans:*** • Will continue SIGINT Modernization Agile Release Train to rapidly develop and integrate new SIGINT-specific capabilities into OA DCGS. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase for additional development of National Mission Partner Gateway SIGINT capabilities in the SIGINT Modernization Agile Release Train			
Title: Multi-INT Transformation	21.110	9.973	14.338

Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305208F / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** 674826 / *Common Imagery Ground / Surface Systems*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Description: The Multi-INT effort rapidly develops and integrates new and updated enterprise applications, to include voice/video/ chat communications, collaboration and situational awareness, multi-INT fusion, and data analytics capabilities (to include Artificial Intelligence/Machine Learning (AI/ML)) into the open architecture framework. Also includes Intelligent Modeling and Predictive Analysis of Cyberspace Targeting (IMPACT) program, which develops concepts, Tactics/Techniques/Procedures (TTPs) and technologies for synchronizing ISR and non-kinetic capabilities. Addressees program office test and evaluation activities. ***FY 2021 Plans:*** • Continue to rapidly develop and integrate new Multi-INT and data analytics capabilities into OA DCGS • Continue agile development and fielding of IMPACT program capabilities • Continue development of the Enterprise Collaboration Capability (Voice portion) ***FY 2022 Plans:*** • Will continue to rapidly develop and integrate new Multi-INT and data analytics capabilities into OA DCGS • Will continue agile development and fielding of IMPACT program capabilities • Will continue development of the Enterprise Collaboration Capability (Voice portion) ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase for development of improved data analytics capabilities, development of improved enterprise collaboration capability, and additional developmental test activities			
Title: Network Infrastructure Transformation ***Description:*** The Network Infrastructure Transformation effort modernizes the AF DCGS infrastructure to a cyber-resilient, open, scalable, commercial-based, architecture, improving data ingest, transfer, and storage capabilities, collaboration, and content driven discovery. OA DCGS Platform as a Service, along with migration to a hub-based architecture and public cloud represents the AF DCGS mission-assured hybrid cloud (mix of private on premise and public cloud) architecture. ***FY 2021 Plans:*** • Continue to develop and integrate open architecture, mission-assured hybrid-cloud infrastructure and enterprise services. ***FY 2022 Plans:*** • Will continue to develop and integrate open architecture, mission-assured hybrid-cloud infrastructure and enterprise services. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase for development of additional Open Architecture Enterprise Services	0.500	0.500	2.000
Accomplishments/Planned Programs Subtotals	25.009	14.126	24.568

Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305208F / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** 674826 / *Common Imagery Ground / Surface Systems*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• OPAF 04 Line Item, 846080: *DCGS-AF*	96.137	117.940	136.296	-	136.296	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

AF DCGS acquisition strategy is to use approved lean and agile industry practices and leverage to the maximum extent possible commercial off the shelf, government off the shelf, and mission partner capabilities to continuously develop and field new and improved operational capabilities hosted on its open, hybrid cloud environment to meet mission requirements. Contracting strategy involves a combination of Basic Ordering Agreements (BOAs), Indefinite Delivery/Indefinite Quantity (IDIQ) contracts awarded to execute program funds and delivery/task orders are negotiated/awarded individually.

The program is managed as five ACAT III efforts: GEOINT Transformation, SIGINT Transformation, Multi-INT-1, Network Infrastructure Transformation, and DCGS Reference Imagery Transition (DRT).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Air Force			Date: May 2021
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305208F / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** 674826 / *Common Imagery Ground / Surface Systems*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
GEOINT Transformation	Various	Various : Various	-	0.500	May 2020	0.500	May 2021	2.000	May 2022	-		2.000	-	-	-
SIGINT Transformation	Various	Various : Various	-	2.400	Apr 2020	2.038	Dec 2020	4.880	Dec 2021	-		4.880	-	-	-
Multi-Intelligence	Various	Various : Various	-	16.259	Mar 2020	5.720	Dec 2020	9.783	Mar 2022	-		9.783	-	-	-
Network Infrastructure Transformation	Various	Various : Various	-	0.500	Jun 2020	0.500	Jun 2021	2.000	Jun 2022	-		2.000	-	-	-
		Subtotal	-	19.659		8.758		18.663		-		18.663	-	-	N/A

Remarks

Note on "various" entries - Contract Method, Contract Type, Performing Activity, Target Value of Contract are entered as "various" because there are multiple projects within each upgrade and depending on the type of effort to be completed determines the contract vehicle to use. There is no way on this document to delineate the contracts that support each upgrade as they are numerous.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Multi-Intelligence	Various	Various : Various	-	0.251	Jan 2020	1.318	Jan 2021	1.405	Jan 2022	-		1.405	-	-	-
		Subtotal	-	0.251		1.318		1.405		-		1.405	-	-	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PMA	Various	Various : Various	-	5.099	Dec 2019	4.050	Dec 2020	4.500	Dec 2021	-		4.500	-	-	-
		Subtotal	-	5.099		4.050		4.500		-		4.500	-	-	N/A

Remarks

Note on "various" entries - Contract Method, Contract Type, Performing Activity, Target Value of Contract are entered as "various" because there are multiple projects within in each upgrade and depending on the type of effort to be completed determines the contract vehicle to use. There is no way on this document to delineate the contracts that support each upgrade as they are numerous.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Air Force			Date: May 2021
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305208F / *Distributed Common Ground/Surface Systems*	Project (Number/Name) 674826 / *Common Imagery Ground / Surface Systems*	

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	25.009		14.126		24.568		-		24.568	-	-	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305208F / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** 674826 / *Common Imagery Ground / Surface Systems*

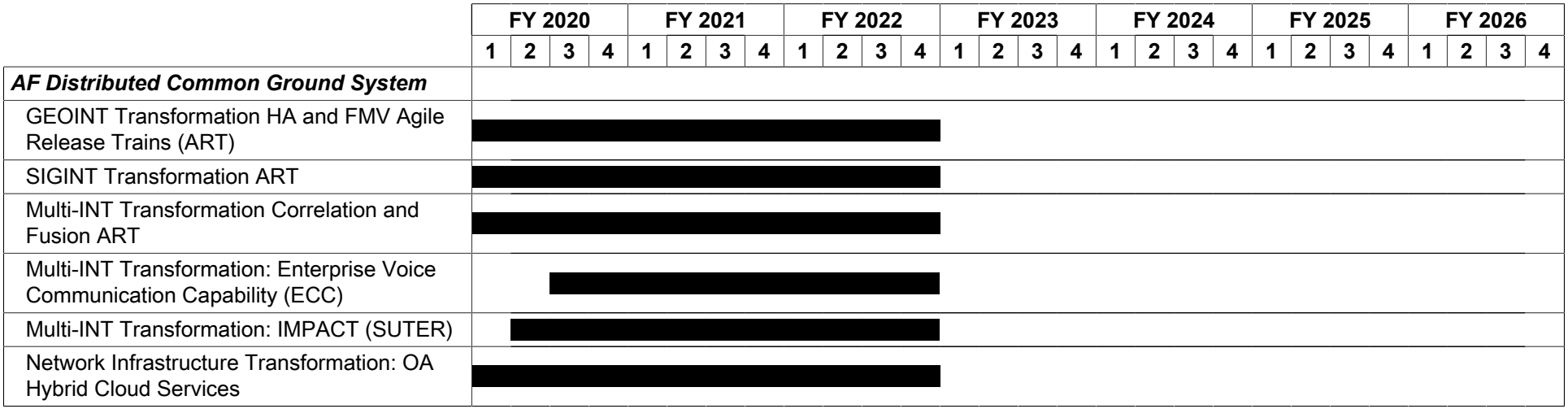

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 7	**R-1 Program Element (Number/Name)** PE 0305208F / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** 674826 / *Common Imagery Ground / Surface Systems*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
AF Distributed Common Ground System				
GEOINT Transformation HA and FMV Agile Release Trains (ART)	1	2020	4	2022
SIGINT Transformation ART	1	2020	4	2022
Multi-INT Transformation Correlation and Fusion ART	1	2020	4	2022
Multi-INT Transformation: Enterprise Voice Communication Capability (ECC)	3	2020	4	2022
Multi-INT Transformation: IMPACT (SUTER)	2	2020	4	2022
Network Infrastructure Transformation: OA Hybrid Cloud Services	1	2020	4	2022