

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Air Force **Date:** February 2020

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0304260F / <i>Airborne SIGINT Enterprise</i>
--	---

COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	-	109.838	85.157	128.110	0.000	128.110	135.043	134.278	100.872	94.686	Continuing	Continuing
675180: <i>RC-135 (Airborne SIGINT Development - RC-135 Rivet Joint)</i>	-	50.577	33.396	45.066	0.000	45.066	45.954	46.725	47.507	48.327	Continuing	Continuing
675183: <i>Common Development (Airborne SIGINT Development - Common Development)</i>	-	51.349	21.103	55.075	0.000	55.075	66.684	64.746	36.174	28.851	Continuing	Continuing
675185: <i>COMPASS BRIGHT</i>	-	0.000	23.289	20.484	0.000	20.484	14.763	15.028	9.274	9.445	Continuing	Continuing
675186: <i>Special Programs (Airborne SIGINT Development - Special Platforms)</i>	-	7.912	7.369	7.485	0.000	7.485	7.642	7.779	7.917	8.063	Continuing	Continuing

Note
 Project 675185, (COMPASS BRIGHT), changed from (Non-Traditional SIGINT (NTS))
 FY19: COMPASS BRIGHT projects zeroed out to support higher Air Force priorities with payback in FY20 & FY21

A. Mission Description and Budget Item Justification

This program funds multi-domain, multi-Intelligence, Surveillance and Reconnaissance (ISR) research, development, test and evaluation (RDT&E) efforts in support of the National Defense Strategy (NDS), as applied by the Air Force in the Next Generation ISR Dominance Flight Plan. Specifically, Program Element (PE) 0304260F provides authorized and appropriated funding to Signals Intelligence (SIGINT) RDT&E efforts for utilization on airborne platforms.

According to the 2018 NDS, we are facing an increasingly complex security environment with adversaries in every operating domain and we need to ensure operations while under persistent multi-domain attack. The future ISR portfolio will consist of multi-domain, multi-intelligence systems and remain confident across the entire conflict spectrum. The Airborne SIGINT Enterprise (ASE) PE is integral to developing the SIGINT component of the multi-domain, multi-ISR system capable of maintaining the warfighter's decisive advantage through all ranges of military operations, to include the highly contested environments (HCE).

ASE Program funds are distributed to projects based on the development priorities established by the USAF SIGINT Capabilities Working Group (SCWG). The SCWG is chartered to guide the ASE capability investment. When required, the USAF may move funds between ASE projects, developing the highest priority projects in response to urgent (e.g., JUON) and emerging (e.g., JEON) warfighter needs.

The ASE Program participates in the development, integration, testing, and implementation of International and Air Force standards (e.g., North Atlantic Treaty Organization (NATO) standardization) to ensure Joint, Allied, and Coalition interoperability with ASE fielded systems. ASE funds lead the modernization efforts including

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Air Force	Date: February 2020
--	----------------------------

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0304260F / <i>Airborne SIGINT Enterprise</i>
--	---

existing airborne platform sensors, and where appropriate, their interfaces with the Air Force Distributed Common Ground System (AF DCGS). Summarizing, the ASE Program approach is a synergistic development effort providing Air Force-wide ISR capabilities consistent with the NDS.

ASE will use the Air Force SIGINT Architecture (AFSA) for planning and decision-making. AFSA is focused on employing open architecture standards whenever possible, to allow maximum effectiveness, efficiency and flexibility of development upgrades with multi-domain interoperability. That is, the ASE primary goal is to produce an open system architecture-based, capability-focused SIGINT investment strategy for the USAF.

Funds in any project may be utilized to cover activities to include studies and analysis activities, supporting both current program planning and execution and future program planning. This program element may include necessary civilian pay expenses required to manage, execute, and deliver technology and sensor capabilities. The use of such program funds would be in addition to civilian pay expenses budgeted in program elements 0605831F.

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	109.873	102.667	125.782	0.000	125.782
Current President's Budget	109.838	85.157	128.110	0.000	128.110
Total Adjustments	-0.035	-17.510	2.328	0.000	2.328
• Congressional General Reductions	0.000	-9.000			
• Congressional Directed Reductions	0.000	-8.500			
• 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	-0.035	-0.010	2.328	0.000	2.328

Change Summary Explanation

FY19: 0.035M reduction in Common Development BPAC due to current for canceled bill paid to contractor.

FY20: 17.510M reduction due to congressional marks against ASE PE.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force										Date: February 2020		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise				Project (Number/Name) 675180 / RC-135 (Airborne SIGINT Development - RC-135 Rivet Joint)			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
675180: RC-135 (Airborne SIGINT Development - RC-135 Rivet Joint)	-	50.577	33.396	45.066	0.000	45.066	45.954	46.725	47.507	48.327	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports design studies, engineering analysis, non-recurring engineering, and other efforts associated with the integration and modification of the RC-135 SIGINT sensors and their associated air and ground components. Through extensive utilization of commercial-off-the-shelf (COTS) based solutions to field needed capabilities, it also incurs a need for continuous identification of suitable replacements for components affected by Diminishing Manufacturing Sources and integration efforts consistent with the COTS technology cycle. These efforts provide required engineering for preliminary assessments of technical feasibility, operability, or military utility as well as specific engineering implementations integrated into the various baseline modifications. These funds will be disbursed among the RC-135V/W RIVET JOINT, the RC-135U COMBAT SENT, and the RC-135S COBRA BALL programs. Funding reflects the SCWG priorities and the accomplishment of other Airborne SIGINT Enterprise initiatives.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2019	FY 2020	FY 2021
Title: RC-135 SIGINT Development	50.577	33.396	45.066
Description: Non-Recurring Engineering for the RC-135 signals intelligence systems. See Classified Budget Exhibits (PE 0305207F)			
FY 2020 Plans: - Continue SIGINT development efforts for the RC-135 fleet to include new signal sets and upgrades to current capabilities.			
FY 2021 Plans: - Will continue SIGINT development efforts for the RC-135 fleet to include new signal sets and upgrades to current capabilities. See PE 0305207F for classified details. Classified requirements POC is HAF AF/A200 (704) 614-7317.			
FY 2020 to FY 2021 Increase/Decrease Statement: Funding increased because of a requirement increase for new signal sets and increased number of upgrades to the RC-135 fleet for SIGINT development. These improvements will increase RC-135 fleet effectiveness, efficiency, and flexibility through sensor integration and fusion.			
Accomplishments/Planned Programs Subtotals	50.577	33.396	45.066

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675180 / RC-135 (Airborne SIGINT Development - RC-135 Rivet Joint)

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>			<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u>	
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	<u>Total Cost</u>
• APAF 05 Line Item DARPO1: RC-135	394.532	227.673	191.332	-	191.332	211.736	210.502	85.720	232.123	Continuing	Continuing

Remarks

The funds within Program 0305207F procure all necessary aircraft modifications for the RC-135 program and include those funds necessary to field SIGINT capabilities developed under Project 675180 of the ASE. Not all procurement funds in #DARPO1: RC-135 are for ASE SIGINT projects.

D. Acquisition Strategy

Aircraft, aircraft sensor systems, and associated ground support system modifications planned include the procurement, fielding and logistical support for future RC-135V/W RIVET JOINT, RC-135U COMBAT SENT and RC-135S COBRA BALL baseline configurations. Development and integration is managed by the Big Safari Systems Group. They employ evolutionary acquisition approaches to field incremental capability improvements.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Air Force **Date:** February 2020

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675180 / RC-135 (Airborne SIGINT Development - RC-135 Rivet Joint)
--	--	--

Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
RC-135 SIGINT Development	SS/ Various	L3COM : Greenville, TX	-	50.577	Jan 2019	33.396	Jan 2020	45.066	Jan 2021	-		45.066	Continuing	Continuing	-
Subtotal			-	50.577		33.396		45.066		-		45.066	Continuing	Continuing	N/A

Remarks
Above contract method/type will be CPFF and FFP

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	50.577		33.396		45.066		-		45.066	Continuing	Continuing	N/A

Remarks
FY20: RC-135 projects decreased to support higher Air Force priorities

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675180 / RC-135 (Airborne SIGINT Development - RC-135 Rivet Joint)

	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Development of RC-135 mission sensors																												
Development of RIVET JOINT mission sensors (see 0305207F for classified details)																												
Development of COMBAT SENT mission sensors (see 0305207F for classified details)																												
Development of COBRA BALL mission sensors (see 0305207F for classified details)																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675180 / RC-135 (Airborne SIGINT Development - RC-135 Rivet Joint)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Development of RC-135 mission sensors</i>				
Development of RIVET JOINT mission sensors (see 0305207F for classified details)	1	2019	4	2025
Development of COMBAT SENT mission sensors (see 0305207F for classified details)	1	2019	4	2025
Development of COBRA BALL mission sensors (see 0305207F for classified details)	1	2019	4	2025

Note

Requirements documentation is classified. Classified requirements POC is HAF AF/A200 (703) 614-7317

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force										Date: February 2020		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise				Project (Number/Name) 675183 / Common Development (Airborne SIGINT Development - Common Development)			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
675183: Common Development (Airborne SIGINT Development - Common Development)	-	51.349	21.103	55.075	0.000	55.075	66.684	64.746	36.174	28.851	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Common Development project supports airborne SIGINT design studies, engineering analysis, non-recurring engineering (NRE), program management, and other efforts associated with support to the fielded Airborne Signals Intelligence Payload (ASIP) and the development of follow-on SIGINT sensors and their associated air and ground components. The Common Development project also supports the development and integration of new sensor capabilities, quick reaction capabilities, and replacement components affected by Diminishing Manufacturing Sources and Material Shortages (DMSMS).

Development supports the ASIP system and follow-on SIGINT sensors to include Global High-altitude Open-system Sensor Technology (GHOST). The ASIP sensor provides a common SIGINT system, allowing for maximum coverage of the electromagnetic spectrum through the use of an integrated high and low band system. The GHOST sensor is being developed as a platform agnostic SIGINT sensor to replace ASIP through the use of rapid acquisition strategies, implementation of open architecture concepts, and rapid integration of new signals of interests. GHOST will be designed to address the NDS and Next Generation ISR Dominance Flight Plan identified needs for multi-ISR systems in order to sustain SIGINT operations in a highly contested environment.

This project also supports overarching Airborne SIGINT Enterprise Program common development to include, but not limited to, the Air Force SIGINT Architecture maintenance, SIGINT modeling and simulation efforts, and technology development and risk reduction through the Air Force Research Lab managed Open Architecture Technology Lab (OATL). Capability improvements needed to exploit service identified signals of interest will be identified as priorities by the Air Force SCWG. This project provides the warfighter increased SIGINT combat capability via rapid acquisition. Capability enhancements are implemented as soon as the ASE technology achieves satisfactory risk levels. ASE developed Sensors will be integrated and tested on available platforms, funding permitting.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver technology and sensor capabilities. The use of such program funds would be in addition to civilian pay expenses budgeted in program element 0605831F.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2019	FY 2020	FY 2021
Title: Common SIGINT Development	51.349	21.103	55.075
Description: Develop and test common open architecture compliant SIGINT system for multiple SIGINT platforms, to include ASIP support and follow-on SIGINT sensors using an open system architecture to the maximum extent possible. Additionally, will advance testing capabilities through the Open Architecture Technology Lab for current and future SIGINT sensors.			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675183 / Common Development (Airborne SIGINT Development - Common Development)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
<p>FY 2020 Plans:</p> <ul style="list-style-type: none"> - Conclude ASIP Increment 2 Build A development. - Conclude ASIP Systems Integration Lab (SIL) and Cybersecurity support efforts. - Develop new signals capabilities and enhancements. Details are classified. - Support development of replacement components affected by DMSMS. - Demonstrate SIGINT capability insertion through OATL Phase III project. <p>FY 2021 Plans:</p> <ul style="list-style-type: none"> - Develop new signals capabilities and enhancements. Details are classified. - Enhance OATL infrastructure to support future SIGINT sensor development and testing. - Leverage sensor development activities to support GHOST prototype efforts by multiple vendors. - Evaluate open architecture compliance of GHOST prototypes in the OATL. <p>FY 2020 to FY 2021 Increase/Decrease Statement: Funding increased due to support in ramp up in GHOST prototyping and development among multiple vendors, and open architecture efforts/events within the OATL.</p>			
Accomplishments/Planned Programs Subtotals	51.349	21.103	55.075

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 05 Line Item HAWK00: RQ-4 Mods	23.715	4.851	126.340	-	126.340	117.382	106.166	-	-	167.265	545.719
• RDTE 07 0305202F: Dragon U-2	0.520	0.550	1.840	-	1.840	3.920	0.000	-	-	0.000	6.830

Remarks
Not all Other Program Funding is associated with SIGINT.

D. Acquisition Strategy
SIGINT capabilities will be developed and integrated onto various platforms using an evolutionary acquisition approach to field incremental capability improvements, leveraging the OATL to incorporate platform agnostic, open system architecture. Requirements as validated and prioritized by the SCWG, will be executed through acquisition strategies employing maximum use of Middle Tier Acquisition (MTA) authorities to include Section 804 rapid prototyping. The GHOST System will evolve rapidly starting with demonstrations of open architecture compliance on representative prototype hardware in the OATL before successively progressing to a testing

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / <i>Airborne SIGINT Enterprise</i>	Project (Number/Name) 675183 / <i>Common Development (Airborne SIGINT Development - Common Development)</i>

program of a flyable prototype system and eventually production system. Such capabilities will be acquired and delivered by contracting with the appropriate vendor(s) while encouraging competition where possible and leveraging any existing USG capabilities that have already been developed.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Air Force **Date:** February 2020

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675183 / Common Development (Airborne SIGINT Development - Common Development)
--	--	--

Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ASIP Global Hawk Increment 1	SS/CPFF	Northrop Grumman : San Jose, CA	-	3.133	Jan 2019	-		-		-		-	Continuing	Continuing	-
ASIP Upgrades Increment 2 - Build A; SIL / Cyber Support	SS/CPFF	Northrop Grumman : San Jose, CA	-	15.812	Jan 2020	6.094	Aug 2020	-		-		-	Continuing	Continuing	-
Open Architecture Technology Lab (OATL)	Various	Various : Various	-	6.762	May 2019	3.316	Feb 2020	7.628	Mar 2021	-		7.628	Continuing	Continuing	-
Global High-Altitude Open-system Sensor Technology (GHOST)	TBD	Various : Various	-	10.153	Mar 2020	7.148	Jul 2020	39.795	Dec 2020	-		39.795	Continuing	Continuing	-
Air Force SIGINT Architecture (AFSA)	Various	AECOM : Annapolis Junction, MD	-	6.402	Dec 2019	2.370	Mar 2020	4.000	Dec 2020	-		4.000	Continuing	Continuing	-
Subtotal			-	42.262		18.928		51.423		-		51.423	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Various integration efforts and flight test	Various	Various : Various	-	0.297	Dec 2018	-		-		-		-	Continuing	Continuing	-
Subtotal			-	0.297		-		-		-		-	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PMA	Various	Various : Dayton, OH	-	8.790	May 2019	2.175	Mar 2020	3.652	Feb 2021	-		3.652	Continuing	Continuing	-
Subtotal			-	8.790		2.175		3.652		-		3.652	Continuing	Continuing	N/A

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Air Force **Date:** February 2020

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675183 / Common Development (Airborne SIGINT Development - Common Development)
--	--	--

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	51.349	21.103	55.075	-	55.075	Continuing	Continuing	N/A

Remarks

- Funding decrease from FY19 to FY20 of \$14.772M for higher Air Force priorities.
- Funding increase from FY20 to FY21 due to returning to normal funding levels and supports GHOST follow-on SIGINT sensor prototyping efforts ramping up in FY21.
- ASIP Global Hawk Increment 1 completed development efforts in FY19.
- ASIP Increment 2 Build A development efforts and support efforts to maintain the ASIP Systems Integration Lab (SIL) and cybersecurity authority to operate were ended in FY20, and will transition to the airborne platforms.
- Open Architecture Technology Lab (OATL) technology development and risk reduction efforts will continue in FY21 to demonstrate rapid technology insertion and support GHOST prototyping efforts.

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675183 / Common Development (Airborne SIGINT Development - Common Development)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>SIGINT Common Development</i>				
ASIP Global Hawk Increment 1 Upgrades	1	2019	2	2020
ASIP Upgrades Increment 2 - Build A; SIL / Cyber Support	1	2019	4	2020
Open Architecture Technology Lab (OATL)	1	2019	4	2025
Global High-Altitude Open-System Sensor Technology (GHOST)	1	2019	4	2025
Air Force SIGINT Architecture (AFSA)	1	2019	4	2025

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force										Date: February 2020		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise				Project (Number/Name) 675185 / COMPASS BRIGHT			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
675185: COMPASS BRIGHT	-	0.000	23.289	20.484	0.000	20.484	14.763	15.028	9.274	9.445	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The COMPASS BRIGHT program develops, demonstrates, and rapidly transitions advanced Air Force specific SIGINT capabilities against emerging and future target signals of interest. This program pursues SIGINT technologies for program transition, to include Communications Intelligence (COMINT), Electronic Intelligence (ELINT), Audio, Analytics, Special Signals of Interest, and Radio Frequency Measurement and Signature Intelligence (MASINT). The COMPASS BRIGHT program objective is to mature technologies for application in SIGINT and MASINT systems or subsystems. Production and integration of these developed technologies will be conducted by the appropriate programs. COMPASS BRIGHT projects are selected through a data call process, whereby the USAF evaluates proposals from the laboratories, platforms, and other government agencies, to select those projects that are most promising.

Operational Reconnaissance (Ops Recce) is part of the initiative to improve overall USAF intelligence, surveillance, and reconnaissance (ISR) capability through development and use of sensor data from non-traditional ISR platforms and innovative use of sensors. This program pursues Ops Recce capabilities for transition through development, testing, demonstration and implementation efforts across all platforms. The Ops Recce program objective is to provide increased battlespace awareness through the use of sensors/platforms to achieve effects beyond what those sensor/platforms were originally designed.

The program office authority extends to accomplishment of out-of-cycle COMPASS BRIGHT efforts. These tasks may be filtered through the SIGINT Capability Working Group (SCWG) outside the normal vetting process to expedite acquisition of high-end capabilities for the warfighter.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver technology and sensor capabilities. The use of such program funds would be in addition to civilian pay expenses budgeted in program element 0605831F.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2019	FY 2020	FY 2021
Title: COMPASS BRIGHT Tech Development	0.000	23.289	20.484
Description: Develops projects in the SIGINT and MASINT areas for transition to the RC-135 fleet, other intelligence, surveillance, and reconnaissance platforms and Ops Recce.			
FY 2020 Plans: Initiate various SIGINT projects to include but not limited to: - 5x ELINT projects - 1x audio project - 2x COMINT projects - 2x special signal projects, and analytic projects.			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force	Date: February 2020
---	----------------------------

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675185 / COMPASS BRIGHT
--	--	---

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
(details of projects are classified)			
- FY21 Project selection process initiated.			
<i>FY 2021 Plans:</i>			
- Will initiate, continue, and complete various SIGINT projects to include enhanced ELINT exploitation, COMINT, Audio exploitation, Ops Recce, signals of interest prosecution, and NTS.			
- FY22 Project selection process initiated.			
<i>FY 2020 to FY 2021 Increase/Decrease Statement:</i>			
Funding decreased because of transition to traditional funding levels.			
Accomplishments/Planned Programs Subtotals	0.000	23.289	20.484

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 05 DARP01: RC-135	444.052	278.121	256.792	-	256.792	256.022	258.850	-	-	Continuing	Continuing

Remarks
Not all funds are associated with SIGINT.

D. Acquisition Strategy
Air Force Life Cycle Management Center/Intelligence, Surveillance, and Reconnaissance and Special Operations Forces Directorate (AFLCMC/WI) will execute COMPASS BRIGHT and Operational Reconnaissance efforts through technology development and demonstration contracts which leverage existing laboratory relationships and other existing contractual vehicles, with future development projects emphasizing full and open competition.

On an annual basis, the SIGINT Capabilities Working Group (SCWG) reviews developmental technologies against warfighter capabilities and requirements based on strategic roadmaps. Projects advancing the technological maturity of promising sensors and processing capabilities are reviewed and prioritized into a recommended list for senior executive direction to implement for the coming fiscal year.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Air Force **Date:** February 2020

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675185 / COMPASS BRIGHT
--	--	---

Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Product Development	C/CPAF	Not specified. : TBD	-	-		-		-		-		-	Continuing	Continuing	-
COMPASS BRIGHT	Various	Multiple : Various	-	-		17.789	Nov 2019	15.021	Jan 2021	0.000		15.021	Continuing	Continuing	-
Ops Recce	Various	Multiple : Various	-	-		3.500	Dec 2019	3.500	Jan 2021	0.000		3.500	Continuing	Continuing	-
Subtotal			-	-		21.289		18.521		0.000		18.521	Continuing	Continuing	N/A

Remarks
On an annual basis, the SIGINT Capabilities Working Group (SCWG) reviews developmental technologies against warfighter capabilities and requirements based on strategic roadmaps. Projects advancing the technological maturity of promising sensors and processing capabilities are reviewed and prioritized into a recommended list for senior executive direction to implement for the coming fiscal year.

Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Compass Bright PMA	Various	Various : Various, OH	-	-		1.500	Nov 2019	1.463	Nov 2020	-		1.463	Continuing	Continuing	-
OPS Recce PMA	C/CPAF	Not specified. : TBD	-	-		0.500	Apr 2020	0.500	Apr 2021	-		0.500	Continuing	Continuing	-
Subtotal			-	-		2.000		1.963		-		1.963	Continuing	Continuing	N/A

			Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	-	23.289	20.484	0.000	20.484	Continuing	Continuing	N/A

Remarks
FY20 COMPASS BRIGHT increased to restore program support levels following previous reductions.

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Air Force **Date:** February 2020

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675185 / COMPASS BRIGHT
--	--	---

	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Non-Traditional SIGINT (NTS)																												
SIGINT Technologies																												
- ELINT Programs																												
- COMINT Programs																												
- Special Signals Programs																												
- Audio Programs																												
- Analytics Programs																												
Ops Recce Efforts																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Air Force **Date:** February 2020

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675185 / COMPASS BRIGHT
--	--	---

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Non-Traditional SIGINT (NTS)</i>				
SIGINT Technologies	1	2019	4	2025
- ELINT Programs	1	2019	4	2025
- COMINT Programs	1	2019	4	2025
- Special Signals Programs	1	2019	4	2025
- Audio Programs	1	2019	4	2025
- Analytics Programs	1	2019	4	2025
Ops Recce Efforts	1	2019	4	2025

Note

On an annual basis, the SCWG reviews developmental technologies against warfighter capabilities and requirements based on strategic roadmaps. Projects advancing the technological maturity of promising sensors and processing capabilities are reviewed and prioritized into a recommended list for senior executive direction to implement for the coming fiscal year. As a result, the USAF will move funds between projects periodically to develop the highest priority projects in response to urgent and emerging warfighter needs.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force										Date: February 2020		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise				Project (Number/Name) 675186 / Special Programs (Airborne SIGINT Development - Special Platforms)			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
675186: <i>Special Programs (Airborne SIGINT Development - Special Platforms)</i>	-	7.912	7.369	7.485	0.000	7.485	7.642	7.779	7.917	8.063	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports special SIGINT studies as well as the development and integration of advanced SIGINT capabilities for special programs including, but not limited to: quick reaction capability sensors, the processing, exploitation, and dissemination associated with these systems, and other efforts approved by the USAF SCWG. Development efforts will include, but are not limited to: new signal sets, antenna improvements, sensitivity upgrades, and data distribution upgrades, and new/advanced deployment capabilities. This project provides the war fighter with near term combat capabilities with increased capability improvements accomplished as technologies and risks achieve satisfactory levels. Sensors will be integrated and tested on various platforms including the MQ-9A remotely piloted aircraft as funding permits.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2019	FY 2020	FY 2021
Title: SIGINT Development	7.912	7.369	7.485
Description: Develop, update, and test SIGINT capabilities for QRC and normalized special programs SIGINT projects.			
FY 2020 Plans: - Continue to modernize SIGINT systems used by the MQ-9A.			
FY 2021 Plans: - Will continue to modernize SIGINT systems used by the MQ-9A.			
FY 2020 to FY 2021 Increase/Decrease Statement: Funding increased due to slightly increased quick reaction capability upgrade requirements, which is consistent with future funding requests.			
Accomplishments/Planned Programs Subtotals	7.912	7.369	7.485

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / <i>Airborne SIGINT Enterprise</i>	Project (Number/Name) 675186 / <i>Special Programs (Airborne SIGINT Development - Special Platforms)</i>

D. Acquisition Strategy

SIGINT capabilities will be integrated to various classified platforms using an evolutionary acquisition approach. Capabilities and prototypes will be developed by Other Government Agencies and transitioned to select vendors as production needs develop.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Air Force **Date:** February 2020

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675186 / Special Programs (Airborne SIGINT Development - Special Platforms)
--	--	---

Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Upgrades to SIGINT systems used by the MQ-9 Remotely piloted aircraft	Various	Various : Various	-	7.000	Jan 2019	7.369	Jan 2020	7.265	Jan 2021	-		7.265	Continuing	Continuing	-
Subtotal			-	7.000		7.369		7.265		-		7.265	Continuing	Continuing	N/A

Remarks
Upgrades the quick reaction capability sensors already on the MQ-1/9 fleet

Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Flight Test	Various	Various : Various	-	0.912	May 2019	-		0.220	May 2021	-		0.220	Continuing	Continuing	-
Subtotal			-	0.912		-		0.220		-		0.220	Continuing	Continuing	N/A

Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
-	7.912	7.369	7.485	-	7.485	Continuing	Continuing	N/A

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675186 / Special Programs (Airborne SIGINT Development - Special Platforms)

FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

SIGINT Development	
MQ-9 Sensor 1 Modernization	
MQ-9 Sensor 2 Modernization	
MQ-9 Sensor Upgrades	

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0304260F / Airborne SIGINT Enterprise	Project (Number/Name) 675186 / Special Programs (Airborne SIGINT Development - Special Platforms)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
SIGINT Development				
MQ-9 Sensor 1 Modernization	1	2019	4	2025
MQ-9 Sensor 2 Modernization	1	2019	4	2025
MQ-9 Sensor Upgrades	1	2019	4	2025