

AW139 CPDLC OPERATIONS



Export Classification: EAR99

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WHAT IS DATALINK?

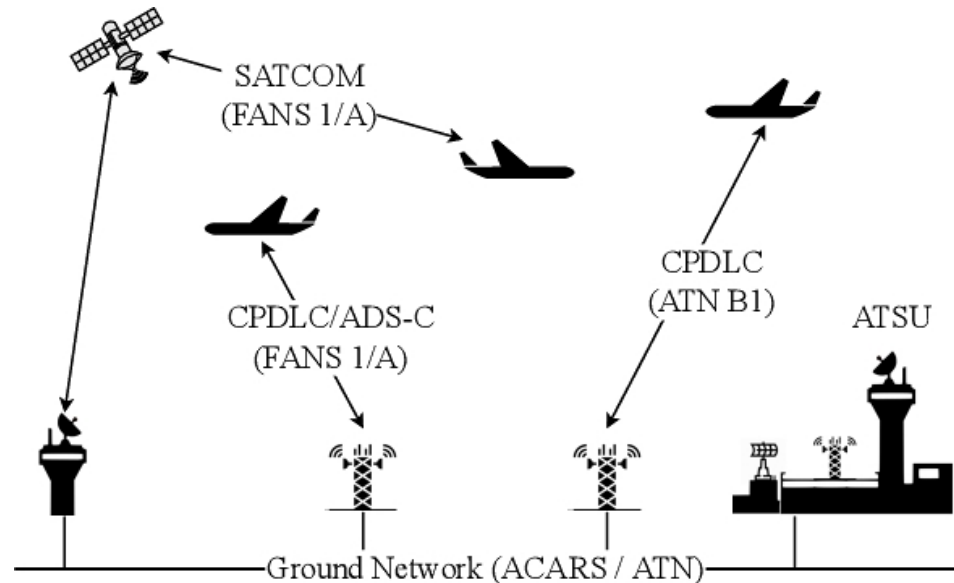
- ✓ Datalink is designed to replace traditional communication and surveillance methods.
- ✓ Datalink capabilities allow the flight deck crew to communicate and interact with ATC ground controllers, air traffic services (ATS), and AOC services (operations and maintenance) through datalink communications, both on ground (both parked and during taxi) and in-flight.
- ✓ The communications management function (CMF) is an airborne communications router supporting datalink service access between aircraft datalink applications and ground service providers.

Datalink is a generic term that encompasses different types of datalink systems and sub-networks.

DATALINK

Datalink capabilities are associated with:

- FANS 1/A+ Datalink Applications (AFN, ADS-C, CPDLC)
- Air Traffic Services (ATS) Datalink Applications
- FMS AOC Datalink Applications
- CMF AOC Datalink Applications
- Communication Management for the ACARS Network
- Datalink HMI for all Datalink Applications



AW139 REQUIRED EQUIPMENT

Hardware:

- a. PROC with Compact Flash (CF)
- b. NGCIO (replaces legacy CIO)
- c. ASPIRE-350 3A SATCOM Iridium
- d. MCDU-R required for Datalink
- e. Recorder with Data and Voice recording capability
- f. 2 VHF Digital Radios (VDR) configuration is sufficient for Data and Voice, no mini cabinet VDR is needed



Current Phase 7/8 MAU Architecture			
S L O T #	P C I #	MAU 2 (219) (Right - Pilot)	B U S
9	24	GPS	2
8	23	AIOPB2	2
7	22	(AFCSA2, SCMS2)	2
6	21	AIOPA2	2
5	20	(AFCSA2, SCMS2)	2
4	28	PROC 2 (MWS2, FMS2)	2
		NIC 2 (ID33:HCMS20)	
	10	Video (Optional)	2
3	11	CIO 2 (CAL2, AW)	2
2	12	CSIO 2	2
1	13		2
		Power Supply 2	

AOC DATALINK

Airline Operational Communications (AOC)

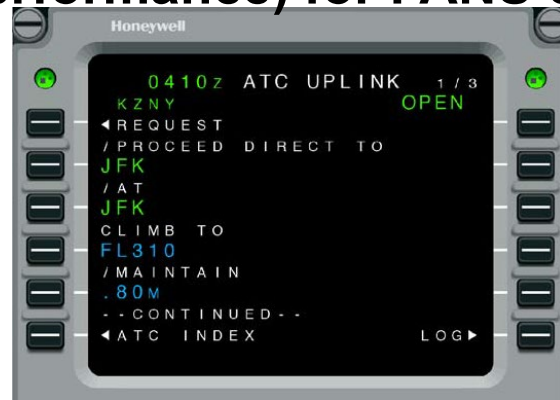
- ✓ Flight plans, winds, and position reports are transferred between the aircraft and a ground service provider (GSP)
- ✓ The airline operational control (AOC) pages are customizable by the airline or operator.



FANS 1/A+ DATALINK

FUTURE AIR NAVIGATION SYSTEM (FANS 1/A+)

- ✓ **FANS 1/A air traffic services (ATS) applications:**
 - ✓ **ATS facilities notification (AFN)**
 - ✓ **automatic dependent surveillance- contract (ADS-C), and**
 - ✓ **controller pilot datalink communications (CPDLC).**
- ✓ **The AFN function permits the pilot to log on to an ATC center to begin CPDLC operations.**
- ✓ **ADS-C uses the various systems onboard the aircraft to supply aircraft position, velocity, intent, and meteorological data.**
- ✓ **The CPDLC application is an ATS application in which pilot and controller exchange messages using datalink.**
- ✓ **FANS will meet RCP 240 (Required Oceanic Performance) & RSP 180 (Required Surveillance Performance) for FANS oceanic crossing.**

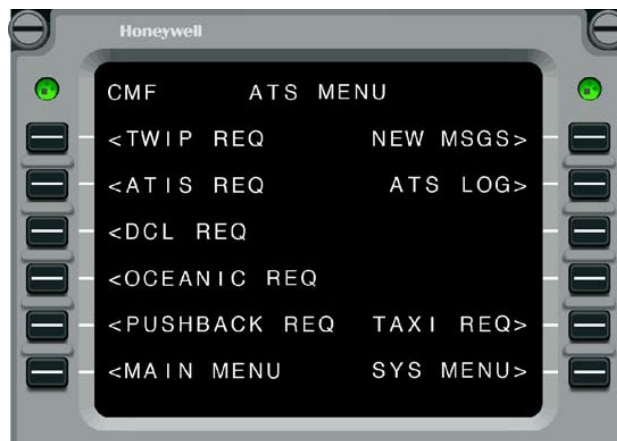


ATS DATALINK

AIR TRAFFIC SERVICE (ATS) SYSTEM DISPLAYS

The ATS consists of the following:

- ✓ TWIP REQ (Terminal Weather Information for Pilots)
- ✓ NEW MESSAGES
- ✓ D-ATIS REQ (Digital - Automatic Terminal Information Service)
- ✓ ATS LOG (Air Traffic Services)
- ✓ PDC / DCL REQ (Pre-Departure Clearance / Departure Clearance)
- ✓ OCEANIC REQ
- ✓ PUSHBACK CLX REQ (request)
- ✓ TAXI CLX REQ



Flight Operational Scenario

Pre-flight/Taxi/Departure

Flight plan Request	(AOC)
Winds	(AOC)
Pushback clearance	(ATS)
Taxi clearance	(ATS)
D-ATIS (weather and airport data)	(ATS)
PDC/Departure Clearance	(ATS)
ATC Logon for CPDLC	(AFN/CPDLC)
Route clearance (SID)	(CPDLC)

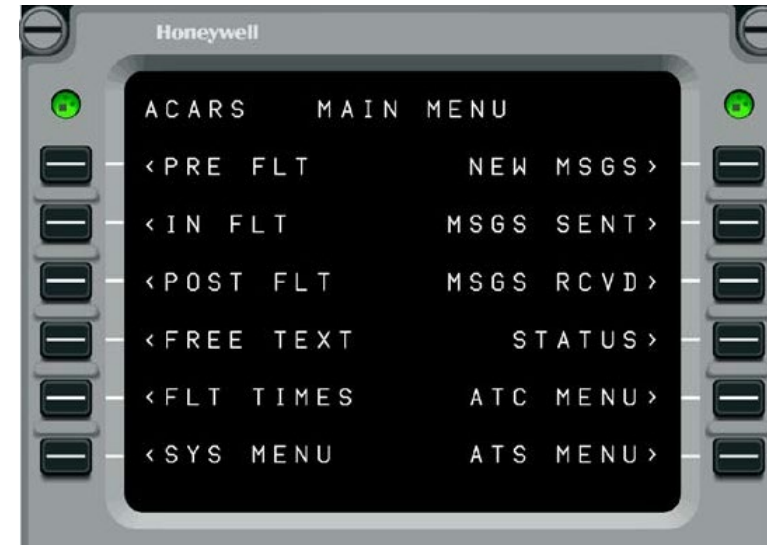
Take-off / Cruise

Altitude Request	(CPDLC)
Flight Plan	(CPDLC)
Offset	(CPDLC)
Speed	(CPDLC)
Voice Request	(CPDLC)
Emergency declaration	(CPDLC)
When Can I Expect (clearance request)	(CPDLC)
Oceanic Clearance	(ATS)
Hand-off to next data authority	(AFN/CPDLC)
ADS-C for surveillance	(ADS-C)

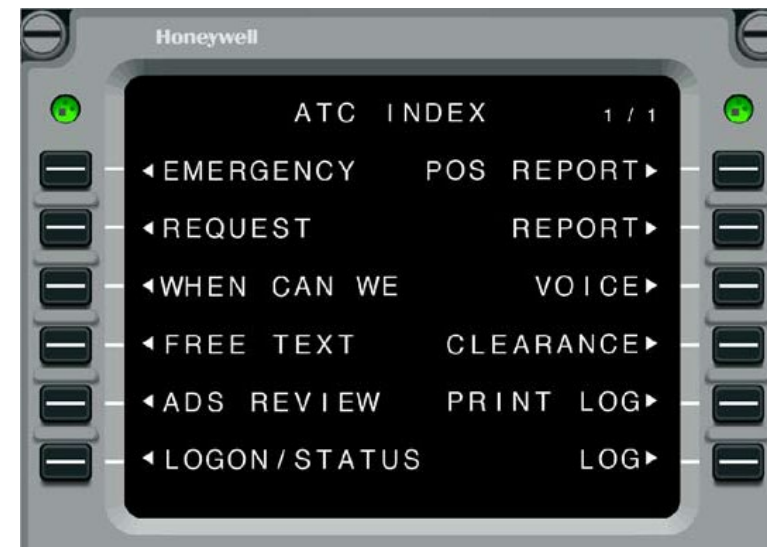
Descend/Approach/Landing

D-ATIS	(ATS)
TWIP	(ATS)
Route clearance (STAR, Approach)	(CPDLC)
ATC Termination for CPDLC	(CPDLC)
Flight Summary	(AOC)

ACARS Main Menu



ATC INDEX – FANS CPDLC



Flight Operational Scenario - Pre-flight/Taxi/Departure

Preflight Menu



Initialize Page



Departure delay report



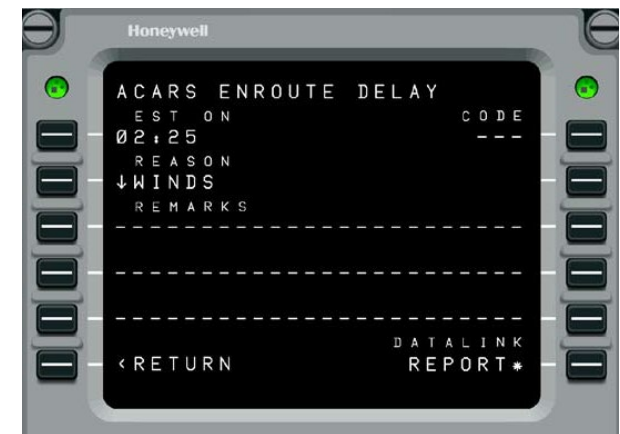
Company Weather Request



Inflight Information Page



Enroute delay report



Flight Operational Scenario - Pre-flight/Taxi/Departure

Pushback Clearance Request and Response



Taxi Clearance Request and Response



Pre-departure/Departure Clearances (PDC/DCL) Request and Response



Flight Operational Scenario - Pre-flight/Taxi/Departure

D-ATIS Request and Response



CPDLC ATC Logon/Status Page



Flight Plan and Winds



Flight Operational Scenario – Take-off/Cruise

ATC Request Page



ATC Altitude Request



ATC Flight Plan Request



ATC Speed Request



ATC Offset Request



ATC FPL Review and ATC Route Clearance



Flight Operational Scenario – Take-off/Cruise

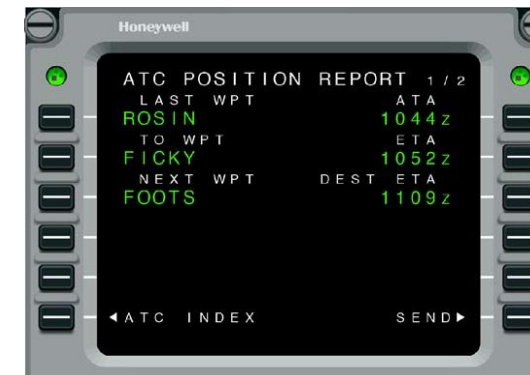
When Can We Expect Request



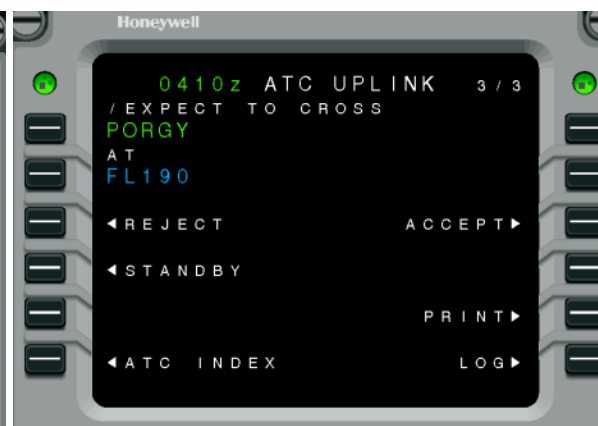
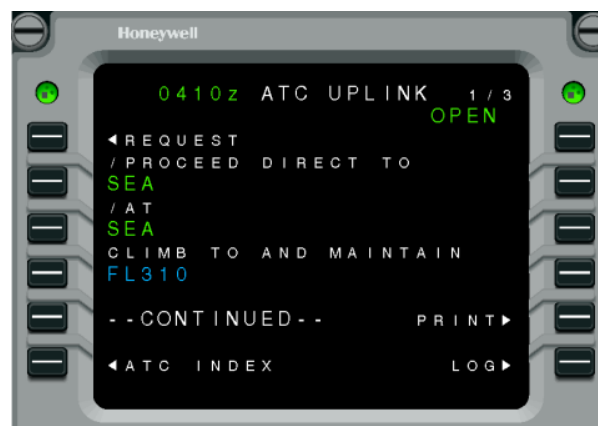
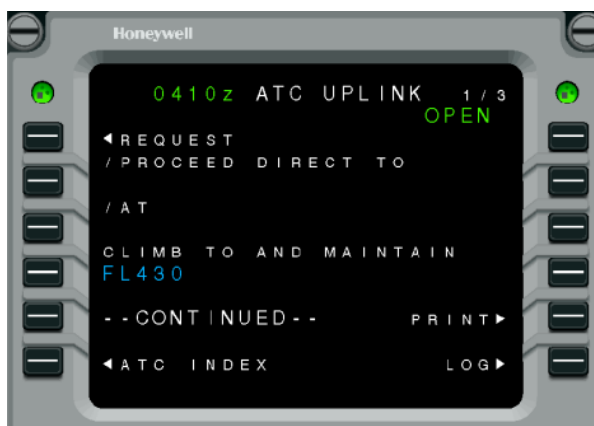
ATC Report Page



ATC Position Report



ATC Uplink Message – Route Clearance



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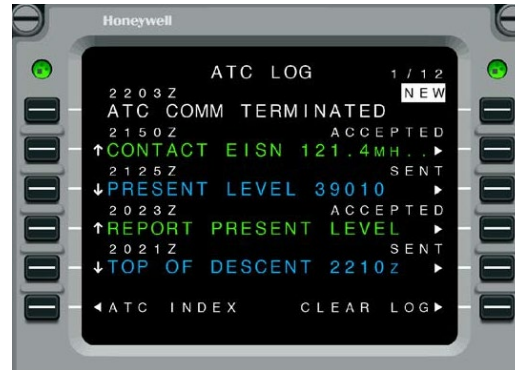
THE POWER OF CONNECTED

Flight Operational Scenario – Take-off/Cruise

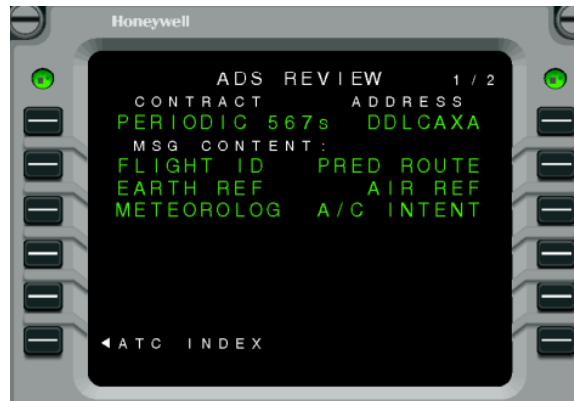
Emergency Report



ATC Log



ADS-C Review Page



Oceanic Clearance Request and Response



Flight Operational Scenario – Descend/Approach/Landing

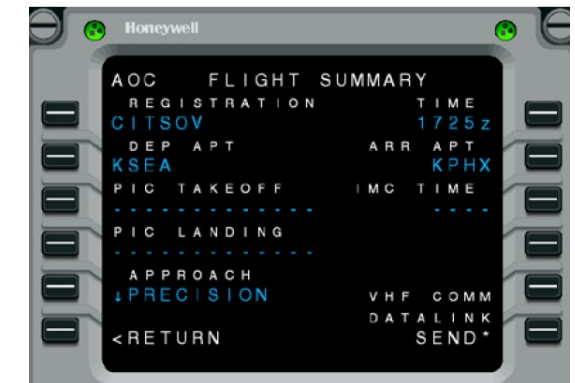
D-ATIS Request and Response



TWIP Request and Response



Flight Summary Page



Flight Report Log



How to use Honeywell's CPDLC?

- **Pre-Flight Preparations**

- Configure Flight Plans: Input and confirm your flight plan through the aircraft's FMS. Ensure that it is uploaded correctly to the FMS system, as this information will be crucial for ATC communications during flight.

- **Initiate CPDLC on Ground**

- Logon to ATC: Once on the ground and ready for departure, utilize the CPDLC interface to log on to the appropriate ATC service. This typically involves selecting the correct ATC facility identifier from the system options and submitting a log-on request.
- Receive Acknowledgment: Wait for a confirmation message from ATC indicating that your logon has been successful.

How to use Honeywell's CPDLC?

- **Communicate with ATC**

- **Send Messages:** Use the CPDLC interface to send messages to ATC, whether for clearance delivery, requests for altitude changes, or other operational communications:
- **Pre-departure Clearances:** Send a request for clearance before takeoff.
- **Standard Routes and Waypoints:** When prompted, respond to ATC messages efficiently. This may include acceptance of revised routes or altitudes.
- **Receive Messages:** Monitor incoming messages and notifications from ATC. The CPDLC system will display received messages for easy reading. Respond as required to any instructions provided.

- **In-Flight Operations**

- **Monitoring and Interaction:** During the flight, the CPDLC system may offer various communication options with ATC:
- **Routine Position Reports:** The system can automatically generate position reports to keep ATC informed of your location.
- **Additional Requests:** Use the CPDLC to request any changes to your flight plan, altitudes, or to report unexpected deviations.
- **Review Displays:** Regularly check CPDLC displays for any new messages, requests, or instructions from ATC.

How to use Honeywell's CPDLC?

- **Prepare for Arrival**
 - Approach Management: As you approach your destination, ensure that you are receiving all necessary updates from ATC regarding your landing approach, either through CPDLC or traditional radio communication.
 - Finalize Instructions: Utilize CPDLC to acknowledge final instructions from ATC regarding landing clearances or taxi instructions once on the ground.
- **Post-Flight Actions**
 - Log Off: Once you have landed and completed taxiing, log off from ATC using the CPDLC interface to complete communication procedures.
 - Post-Flight Review: After the flight, review all logged communications for accuracy and note any issues encountered during the use of the CPDLC system for future reference and training.

Benefits

- **Enhanced Communication:**
 - CPDLC facilitates the exchange of text-based messages between pilots and air traffic control (ATC), reducing reliance on voice communications.
 - This digitization aids in minimizing misunderstandings that can occur over radio transmissions, especially in noisy environments or under adverse conditions. Thus, increases safety.
- **Improved Situational Awareness**
 - CPDLC allows for real-time updates regarding flight plans, weather conditions, and airspace restrictions. This allows pilots to make informed decisions based on the latest information, improving situational awareness.
- **Operational Efficiency**
 - CPDLC allows pilots to request and receive clearances, change flight levels, and communicate intentions efficiently, leading to streamlined flight operations.
 - Automating routine communication tasks decreases pilot workload, allowing them to focus on flying and improving overall operational efficiency, particularly during peak traffic times and complex flight scenarios.
- **Cost Savings**
 - More efficient routing and altitude adjustments made possible by real-time communication through CPDLC can lead to reduced fuel consumption and cost savings for operators.
 - With faster and clearer communications, flights can be cleared for takeoff and landing more efficiently, reducing ground delays and resulting in time and cost savings throughout operations.
- **Interoperability with Other Systems**
 - CPDLC is designed to work in conjunction with systems like ADS-B, GNSS, and electronic flight bags (EFBs), fostering a collaborative ecosystem that enhances overall aviation **safety and efficiency**.

Benefits

IN APRIL 2021 ALONE DLC SAVED OVER 45,000 MINUTES OF RADIO TIME ACROSS THE NAS – THAT'S THE EQUIVALENT OF SAVING 5 YEARS!

>2,550,000

MINUTES OF RADIO TIME SAVED



>1,799,905

MINUTES OF AIRSPACE USER TIME SAVED



In that time some 200,000 flights were cleared digitally, saving almost 25,000 hours of ground time! Since 2016 the numbers are even more staggering:

>9,897,935

FLIGHTS CLEARED



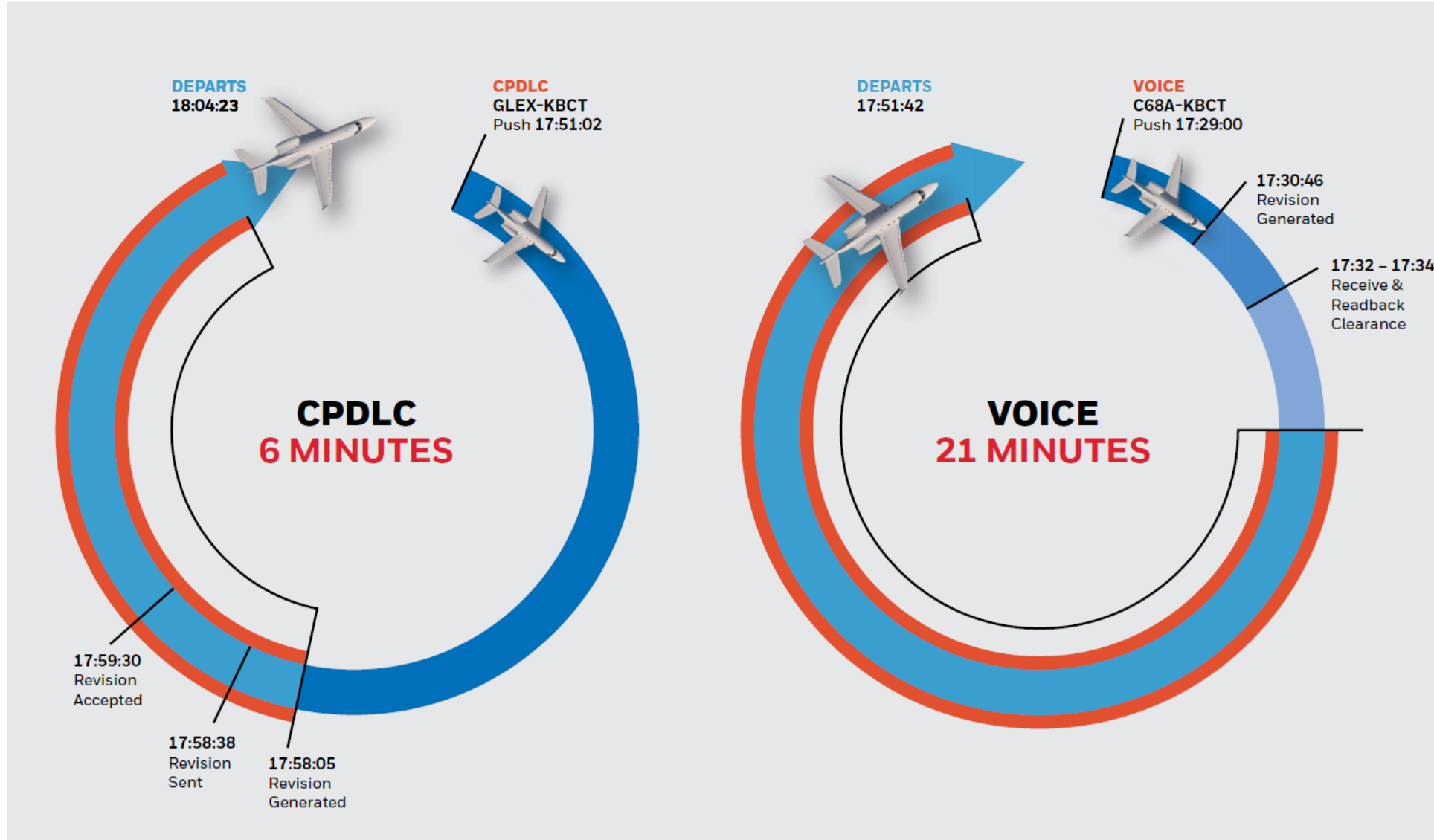
>220,840,000

KGS OF CO₂ EMISSIONS SAVED

The equivalent of removing 4,500 cars from the road, or planting 125,000 trees!



Benefits



Thank You!

Any Questions?

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