Department of Transportation
Federal Aviation Administration

**Terminal Data Link Services in the
National Airspace System**

14 May 2012

Version 1.1

Office of Primary Responsibility:
Director – Terminal Operations Safety and Support

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Terminal Data Link Services in the NAS

General

In general, data link services are added to the NAS to reduce frequency congestion, aircrew workload, controller workload, enhance safety and reduce confusion.

In an effort to protect these benefits, the agency has adopted the position that there shall be no test call signs assigned or used by the users of data link. If a user needs to test their AOC or data link capabilities, it will be done in an offline (outside of the NAS) fashion with an A/G DLSP where no interconnection with the NAS is possible. Users found violating this policy will not be allowed to participate in NAS data link services.

Data Link services in the NAS may be delivered in a variety of fashions via various communications technologies and equipment. This document is not about the technologies nor the communications channels employed.

This document is not intended to be a standards document or statement regarding standards, but rather a simple guide to aid the NAS users and providers of Data Link Services. Data Link Services in other countries may bear no resemblance to similarly "named" services in the NAS. Refer to information from those countries for specifics about the services offered in/from those countries. Data Link Services offered or provided in other countries are not mentioned here. This document is not intended to be primer on Data Link Services.

Clearance Delivery Services

PDC

PDC is a subscriber based service that is used at the larger airports in the NAS to provide an effective and efficient means of delivering departure clearances before aircraft pushback. Data Link technologies are utilized within the NAS to provide a PDC message to a subscriber's AOC. Once the PDC message has been deposited on the subscriber's AOC, it is then retrieved and printed by the subscriber through one of several means:

1. Internet access
2. Airline Gate Terminal
3. Airline Operations Area Terminal
4. FBO Terminal
5. Cockpit Avionics via A/G or other Data Link

It is not necessary for an aircraft to be equipped with Data Link avionics for a flight to participate in the PDC service. It is only necessary for the flight crew to be able to obtain a printed copy of the PDC message prior to pushback through one of these means. The list above is not all inclusive, and as technology is deployed by the users of the NAS for various business reasons, other means of delivering the printed PDC message to the flight crew may be employed. The basic requirements for the delivery of the message to the air crew are:

Terminal Data Link Services in the NAS

1. The contents of the PDC message are to be relayed to the air crew faithfully and without modification, omission or alteration of any sort.
2. If there is any confusion or uncertainty on the part of the flight crew, they are to not use the PDC message, but instead contact CD via voice (telephone or radio) and obtain their clearance via manual means.
3. PDC messages will not be accepted by an AOC unless the operator of the AOC is certain that the message can be delivered to the intended flight crew.

How to Subscribe to PDC:

Airlines:

Note: Just because a particular airlines subscribes to one or more data link services at one airport in the NAS does not mean it subscribes to those same services at other NAS airports where they are offered. There may be equipment, personnel, training or other issues preventing the subscription to identical services throughout the NAS. That is why it is up to individual airlines to determine where they subscribe to data link services, and which service(s) they choose for subscription.

Each airline that wishes to participate in the FAA's PDC program shall contact the FAA Headquarters' Terminal Data Link Representative (refer to Attachment 16 – FAA Points of Contact) to make their request. The FAA Headquarters' Representative shall coordinate with all the effected parties within the FAA (regions, ATCT's, and support organizations) to ensure there are no issues with fulfilling the request. One of the issues that is examined is how the AOC applications communicates with the FAA's PDC service. The following are the known possibilities:

1. The requesting airline is an existing PDC user elsewhere in the NAS and proposes to use their existing AOC capability (no AOC testing required).
2. The requesting airline is an existing PDC user elsewhere in the NAS and proposed to use a different AOC capability (AOC testing required with a A/G DLP followed by limited "phase in" testing).
3. The requesting airline is new to PDC in the NAS and proposes to use an established AOC provider (a provider that is already providing AOC services "for hire" to other airlines) (limited "phase in" testing is required).
4. The requesting airline is new to PDC in the NAS and proposes to establish an "in house" AOC capability using their internal resources (AOC testing required with a A/G DLP followed by limited "phase in" testing).
5. The requesting airline is new to PDC in the NAS and proposes to establish an "in house" AOC capability using commercial software and other internal resources (AOC testing required with a A/G DLP followed by limited "phase in" testing).

For a detailed explanation of the different types of testing listed, refer to Attachment 2 – FAA's PDC Testing Requirements.
Note: Refer to Attachment 4 – Requirements for Airline Participation in the FAA's PDC Service for fleet requirements for PDC service.

General Aviation

GA operators wishing to subscribe to the PDC service will need to contact one of the established DLSP (refer to for a list of the established DLSPs) companies and make arrangements for the service. Refer to Attachment 3 – Established Data Link Service Providers for a list of Data Link Service Providers in the United States. GA operators are limited to consideration for a single PDC per departure terminal per 24 hour period. This means that if the same call sign was used earlier in the day, even if PDC was not offered (revision or other reason for denial), PDC cannot be offered on subsequent flights in the same 24 hour period.

New PDC Airport

When an airport wishes to add the PDC service, once all of the appropriate hardware, software and communications equipment and circuits have been installed, then the site will enter into a transition test phase. Refer to Attachment 2 – FAA's PDC Testing Requirements.

New DLSP

When a new provider wishes to offer AOC services, it is necessary for them to test their applications with an existing A/G DLP. These entities are required to conduct AOC testing with a DLP followed by limited "phase in" testing. Refer to Attachment 2 – FAA's PDC Testing Requirements. These new providers will have to make their own arrangements with an established A/G DLP to provide the air/ground portion of the service.

New A/G DLP.

New A/G DLP providers shall have to enter into offline testing with the FAA in order to establish service.

Architecture

Subscriber Lists:

The current architecture of PDC utilizes subscriber lists. There are two basic lists, the airline list and the GA list. These lists are maintained separately.

Airline Subscriber Lists:

An airline subscriber list is maintained for each PDC airport. That means that just because an airline has subscribed to the PDC service at one airport, does not mean that the same airline has subscribed at all PDC airports. The airline list contains the first three letters of the airline's call sign. Any flight ID that matches the first three letters is examined to determine if PDC is possible. Once this examination has taken place, this flight ID cannot be re-used by PDC until the next 24 hour PDC cycle.

GA Subscriber List:

A single GA list is utilized at all commercial PDC airports. It is composed of discrete call signs. Call signs do not contain dashes or hyphens or other special characters. Call signs always start with at least one letter. Subscriber lists submitted which contain invalid call signs will be stripped of the invalid call signs before inclusion into the master list distributed to the sites.

Note: If an aircraft always flies under a call sign instead of using its registration number (N-number for US registered aircraft), then having its registration number listed in the GA subscriber list serves no purpose.

If two different service providers "claim" the same call sign, an arbitrary method is used to break the tie. It is in everyone's best interest for such ties to be the exception and kept to a minimum and for DLSPs to coordinate amongst themselves when their customers are changing from one DLSP to another DLSP.

AOC computer Applications Related to PDC:

The user's AOC computer (this service may be provided by a third party) is responsible for accepting or rejecting each PDC message. When the user's AOC computer accepts the PDC message, this represents that the owner of the computer service shall make all reasonable efforts to provide the PDC message to it's intended air crew. When the user's AOC computer rejects a PDC message, it is for one or more of the following reasons:

1. The Call sign listed in the PDC is not for a flight that is known to this AOC.
2. Unable to accept a PDC for this call sign.
3. PDC received is a duplicate of a recently received PDC message.
4. The time stamp on the PDC message is more than 300 seconds different from the current Zulu time at the AOC computer.
5. The AOC was unable to decode the PDC message.

Note that the aircraft is not part of the PDC message handshake between the FAA and the AOC.

Limitations:

PDC <u>does not support revisions in any form</u>, to the flight plan or the clearance. Any flight plan that has been revised for any reason is not eligible for PDC service. The source (AT, automation, air crew, airline, etc.) of the revision doesn't matter, the flight is marked as ineligible for the PDC service.

A given call sign can be <u>considered</u> for PDC once in a 24 hours period for a given airport. Even if PDC is not delivered for the first occurrence of the call sign during that period, subsequent submissions of the same call sign at the same airport will be denied PDC service.

If there are routing problems within a flight plan, and the en-route facility "tags" the flight plan as "FRC" (full route manual clearance required), the flight is ineligible for PDC service.

PDC is at the option of the CD controller in the tower. If the controller determines that issuing a PDC could introduce confusion, the controller is required to withhold PDC service from the flight in question and issue a manual verbal clearance to the air crew.

PDC messages are sent from the tower to the AOC as soon as is practicable. Flight plans are received in the tower twenty five to thirty minutes in advance of the P-Time of the flight plan. Air crews seeking to retrieve their PDC message from the AOC cannot obtain the PDC message before it has been issued by the tower.

PDC is not available at all airports in the NAS. Refer to Attachment 1 – Data Link Airports in the NAS for a list of commercial airports where the PDC service is currently offered.

Future Enhancements:

At some point in the future, as a matter of policy, the PDC Service will be discontinued NAS wide. Prior to that time, other departure clearance services will be offered to users so as to not lose the benefits of Data Link Services for Clearance Delivery.

DCL (ARInc 623/ED85a)

Note: The DCL (623) service is in the study phase and is not available for use in the NAS.

The DCL service is a "request/reply" service. The air crew in the cockpit submits a data link request to the ATSP and requests a departure clearance message. The avionics interacts directly with the FAA computer systems in the control tower to make the request. Various handshaking messages take place between the avionics and the control tower automation systems. DCL does not rely on a subscriber list to know "where" to deliver the message, but a subscriber list of sorts is still required so that the controller working at the CD position has a way to "know" which flights will call for manual clearances, which flights will call for PDC clearances and which flights will utilize DCL to make their request via data link.

DCL (ATN)

Note: The DCL (ATN) service is in the study phase and is not available for use in the NAS.

The DCL service is a "request/reply" service. The air crew in the cockpit submits a data link request to the ATSP and requests a departure clearance message. The avionics interacts directly with the FAA computer systems in the control tower to make the request. Various handshaking messages take place between the avionics and the control tower automation systems. DCL does not rely on a subscriber list to know "where" to deliver the message, but a subscriber list of sorts is still required so that the controller working at the CD position has a way to "know" which flights will call for manual clearances, which flights will call for PDC clearances and which flights will utilize DCL to make their request via data link. The service utilizes discrete addresses for each airframe so equipped.

Pushback Clearances

At those airports where there is a non FAA "ramp tower", pushback clearances would come from the ramp tower and not the FAA. For those airports where the ramp(s) is/are controlled by the FAA (GC), the FAA would be the provider of the pushback clearances.

Pushback Clearance (ARInc 623/ED85a)

Note: The Pushback Clearance (623) service is in the study phase and is not available for use in the NAS.

The Pushback Clearance (623) service is a "request/reply" service. The air crew in the cockpit submits a data link request to the ATSP and requests a departure clearance message. The

avionics interacts directly with the FAA computer systems in the control tower to make the request. Various handshaking messages take place between the avionics and the control tower automation systems. Pushback Clearance does not rely on a subscriber list to know "where" to deliver the message, but a subscriber list of sorts is still required so that the controller working at the GC position has a way to "know" which flights will call for manual clearances, which flights will call for Pushback Clearance request via data link.

Pushback Clearance (ATN)

Note: The Pushback Clearance (ATN) service is in the study phase and is not available for use in the NAS.

The Pushback Clearance(ATN) service is a "request/reply" service. The air crew in the cockpit submits a data link request to the ATSP and requests a departure clearance message. The avionics interacts directly with the FAA computer systems in the control tower to make the request. Various handshaking messages take place between the avionics and the control tower automation systems. Pushback Clearance does not rely on a subscriber list to know "where" to deliver the message, but a subscriber list of sorts is still required so that the controller working at the GC position has a way to "know" which flights will call for manual clearances, which flights will call for Pushback Clearance request via data link.

Taxi Clearances

D-TAXI Service (ARInc 623/ED85a) for Departures

Note: The D-TAXI (623) service is in the study phase and is not available for use in the NAS.

In order for D-TAXI service to be available for a departure, it is necessary for the automation system on the ground to know a few pieces of information before the controller can assign a departure taxi route:

1. Where (as in which gate or stand) is the aircraft located on the airport surface?
2. Which specific runway will the aircraft use for take off?
3. What kind (make and model) of aircraft is making the request?

The "where" and the "which" are somewhat obvious because you have to know where someone is currently located and where they want to go to be able to tell them how to get there. The "what kind" comes into play where there are clearance issues (wing span) as well as pavement loading issues (overall gross weight as well as weight per truck). All of these pieces of information are used to determine the best route(s) that can be selected by the controller.

D-TAXI Service (ARInc 623/ED85a) for Arrivals

In order for D-TAXI (623) service to be available for an arrival, it is necessary for the automation system on the ground to know a few pieces of information before the controller can assign an arrival taxi route:

1. Which specific runway will the aircraft use for landing, as well as which taxiway turnoff will be used after landing?

2. Where (as in which gate or stand) is the aircraft going to park on the airport surface?
3. What kind (make and model) of aircraft is making the request?

The "which" and the "where" are somewhat obvious because you have to know where someone is going to be located and where they want to go to be able to tell them how to get there. The "what kind" comes into play where there are clearance issues (wing span) as well as pavement loading issues (overall gross weight as well as weight per truck). All of these pieces of information are used to determine the best route(s) that can be selected by the controller.

D-TAXI Service (ATN) for Departures

Note: The D-TAXI (ATN) service is in the study phase and is not available for use in the United States.

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1. Which specific runway will the aircraft use for landing, as well as which taxiway turnoff will be used after landing?
2. Where (as in which gate or stand) is the aircraft going to park on the airport surface?
3. What kind (make and model) of aircraft is making the request?

The "which" and the "where" are somewhat obvious because you have to know where someone is going to be located and where they want to go to be able to tell them how to get there. The "what kind" comes into play where there are clearance issues (wing span) as well as pavement loading issues (overall gross weight as well as weight per truck). All of these pieces of information are used to determine the best route(s) that can be selected by the controller.

Terminal Information Services

D-ATIS (ARInc 620)

Currently, in the United States, D-ATIS is an ARInc 620 "free text" message. These messages are currently warehoused within the ARInc network. At some point in the future, these messages will be warehoused within the confines of the FAA network(s).

D-ATIS (ARInc 623)

Note: The D-ATIS (623) service is in the study phase and is not available for use in the NAS.

D-ATIS (ATN)

Note: The D-ATIS (ATN) service is in the study phase and is not available for use in the NAS.

Attachment 1 – Data Link Airports in the NAS

Site ID	State	Data Link Services Available	Commercial Airport Common Name
ANC	Alaska	PDC, D-ATIS(Arrival and Departure)	Anchorage International Airport
PHX	Arizona	PDC, D-ATIS(Arrival and Departure)	Phoenix-Sky Harbor International Airport
LIT	Arkansas	PDC, D-ATIS(Combined)	Little Rock Adams Field Airport
BUR	California	PDC, D-ATIS(Combined)	Burbank/Glendale/Pasadena Airport
LAX	California	PDC, D-ATIS(Arrival and Departure)	Los Angeles International Airport
OAK	California	PDC, D-ATIS(Arrival and Departure)	Oakland International Airport
ONT	California	PDC, D-ATIS(Arrival and Departure)	Ontario International Airport
SAN	California	PDC, D-ATIS(Arrival and Departure)	San Diego (Lindbergh) International Airport
SFO	California	PDC, D-ATIS(Arrival and Departure)	San Francisco International Airport
SJC	California	PDC, D-ATIS(Combined)	San Jose Municipal Airport
SMF	California	PDC, D-ATIS(Arrival and Departure)	Sacramento International Airport
SNA	California	PDC, D-ATIS(Arrival and Departure)	John Wayne (Orange County) Airport
DEN	Colorado	PDC, D-ATIS(Arrival and Departure)	Denver International Airport
BDL	Connecticut	PDC, D-ATIS(Arrival and Departure)	Bradley International Airport
DCA	District of Columbia	PDC, D-ATIS(Arrival and Departure)	Washington Reagan National Airport
FLL	Florida	PDC, D-ATIS(Arrival and Departure)	Fort Lauderdale-Hollywood International Airport
JAX	Florida	PDC, D-ATIS(Arrival and Departure)	Jacksonville International Airport
MCO	Florida	PDC, D-ATIS(Arrival and Departure)	Orlando International Airport
MIA	Florida	PDC, D-ATIS(Arrival and Departure)	Miami International Airport
PBI	Florida	PDC, D-ATIS(Arrival and Departure)	Palm Beach International Airport
TPA	Florida	PDC, D-ATIS(Arrival and Departure)	Tampa International Airport
ATL	Georgia	PDC, D-ATIS(Arrival and Departure)	Atlanta International Airport
HNL	Hawaii	PDC, D-ATIS(Arrival and Departure)	Honolulu International
BOI	Idaho	PDC, D-ATIS(Arrival and Departure)	Boise Air Terminal

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Site ID	State	Data Link Services Available	Commercial Airport Common Name
MDW	Illinois	PDC, D-ATIS(Arrival and Departure)	Chicago-Midway Airport
ORD	Illinois	PDC, D-ATIS(Arrival and Departure)	Chicago-O'Hare International Airport
IND	Indiana	PDC, D-ATIS(Arrival and Departure)	Indianapolis Airport
CVG	Kentucky	PDC, D-ATIS(Arrival and Departure)	Cincinnati/Northern Kentucky International Airport
SDF	Kentucky	PDC, D-ATIS(Arrival and Departure)	Sandiford (Louisville) Field
MSY	Louisiana	PDC, D-ATIS(Arrival and Departure)	New Orleans International Airport
BWI	Maryland	PDC, D-ATIS(Arrival and Departure)	Baltimore-Washington International Airport
BOS	Massachusetts	PDC, D-ATIS(Arrival and Departure)	Boston Logan International Airport
DTW	Michigan	PDC, D-ATIS(Arrival and Departure)	Detroit Metro (Wayne County) Airport
MSP	Minnesota	PDC, D-ATIS(Arrival and Departure)	Minneapolis-St Paul International Airport
MCI	Missouri	PDC, D-ATIS(Arrival and Departure)	Kansas City International Airport
STL	Missouri	PDC, D-ATIS(Arrival and Departure)	Saint Louis Lambert International Airport
OMA	Nebraska	PDC, D-ATIS(Arrival and Departure)	Eppley (Omaha) Airfield
LAS	Nevada	PDC, D-ATIS(Arrival and Departure)	McCarran (Las Vegas) International Airport
RNO	Nevada	PDC, D-ATIS(Arrival and Departure)	Reno-Tahoe International Airport
EWR	New Jersey	PDC, D-ATIS(Arrival and Departure)	Newark Liberty International Airport
TEB	New Jersey	PDC, D-ATIS(Arrival and Departure)	Teterboro Airport
ABQ	New Mexico	PDC, D-ATIS(Arrival and Departure)	Albuquerque International Airport
ALB	New York	PDC, D-ATIS(Arrival and Departure)	Albany International Airport
BUF	New York	PDC, D-ATIS(Arrival and Departure)	Buffalo International Airport
HPN	New York	PDC, D-ATIS(Arrival and Departure)	Westchester County (White Plains) Airport
JFK	New York	PDC, D-ATIS(Arrival and Departure)	New York JFK International Airport
LGA	New York	PDC, D-ATIS(Arrival and Departure)	New York La Guardia Airport
CLT	North Carolina	PDC, D-ATIS(Arrival and Departure)	Charlotte-Douglas International Airport
GSO	North Carolina	PDC, D-ATIS(Arrival and Departure)	Piedmont Triad (Greensboro) International Airport
RDU	North Carolina	PDC, D-ATIS(Arrival and Departure)	Raleigh-Durham Airport
CLE	Ohio	PDC, D-ATIS(Arrival and Departure)	Cleveland-Hopkins International Airport

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Site ID	State	Data Link Services Available	Commercial Airport Common Name
CMH	Ohio	PDC, D-ATIS(Arrival and Departure)	Port Columbus International Airport
OKC	Oklahoma	PDC, D-ATIS(Combined)	Will Rogers World Airport
TUL	Oklahoma	PDC, D-ATIS(Arrival and Departure)	Tulsa International Airport
PDX	Oregon	PDC, D-ATIS(Arrival and Departure)	Portland International Airport
PHL	Pennsylvania	PDC, D-ATIS(Arrival and Departure)	Philadelphia International Airport
PIT	Pennsylvania	PDC, D-ATIS(Arrival and Departure)	Pittsburgh International Airport
SJU	Puerto Rico	PDC, D-ATIS(Arrival and Departure)	San Juan Luis Munoz Marin International Airport
PVD	Rhode Island	PDC, D-ATIS(Arrival and Departure)	Theodore Francis Green (Providence) State Airport
BNA	Tennessee	PDC, D-ATIS(Arrival and Departure)	Nashville International Airport
MEM	Tennessee	PDC, D-ATIS(Arrival and Departure)	Memphis International Airport
AUS	Texas	PDC, D-ATIS(Arrival and Departure)	Austin Bergstrom International Airport
DAL	Texas	PDC, D-ATIS(Arrival and Departure)	Dallas Love Field
DFW	Texas	PDC, D-ATIS(Arrival and Departure)	Dallas Fort Worth International Airport
ELP	Texas	PDC, D-ATIS(Arrival and Departure)	El Paso International Airport
HOU	Texas	PDC, D-ATIS(Arrival and Departure)	William P Hobby (Houston) Airport
IAH	Texas	PDC, D-ATIS(Arrival and Departure)	George Bush Intercontinental/Houston Airport
SAT	Texas	PDC, D-ATIS(Arrival and Departure)	San Antonio International Airport
SLC	Utah	PDC, D-ATIS(Arrival and Departure)	Salt Lake City International Airport
IAD	Virginia	PDC, D-ATIS(Arrival and Departure)	Washington Dulles International Airport
SEA	Washington	PDC, D-ATIS(Arrival and Departure)	Sea-Tac International Airport
MKE	Wisconsin	PDC, D-ATIS(Arrival and Departure)	General Mitchell (Milwaukee) International Airport

Attachment 2 – FAA's PDC Testing Requirements

There are various levels of testing that are required to ensure compatibility between the FAA PDC service and a user's AOC application. Depending on certain factors, a user may be required to accomplish in depth testing with their A/G DLP in advance of the FAA configuring the user in the PDC application. These same factors may only require a limited "phase in" testing. There are even situations where no testing is required.

AOC Testing Required With A DLSP

This type of testing is accomplished to ensure that the AOC PDC Message handling software handles the following:

1. Ability to positively reply to those PDC messages where the intended recipient flight crew is known to the AOC application to be capable of utilizing the PDC Information.
2. Ability to negatively reply to those PDC messages where:
    a. The intended recipient is not known to the AOC application.
    b. Flight ID received from the FAA is not known to the AOC application.
    c. Route information received from the FAA is incomplete or unrecognizable as a flight known to the AOC.
    d. Departure point listed in the PDC message is incorrect for the flight ID in the PDC message.
    e. The PDC timestamp is more than 300 seconds different than the time received in the AOC computer application.
    f. The PDC message received is garbled or unintelligible.
    g. Unable to accept a PDC for this call sign.
    h. PDC received is a duplicate of a recently received PDC message.
    i. The AOC was unable to decode enough of the PDC message to determine it is valid for their purposes.
3. Ability to provide the aircraft registration number. The AOC software shall include the aircraft registration number in the appropriate field as part of a positive acknowledgement. For data link equipped aircraft utilizing the 623 protocol, the registration number is generally the data link "address" of the aircraft. Providing this information enables the FAA to send unsolicited information to the air crew in the future.
4. Ability to provide an accurate gate/stand identifier in the positive acknowledgement. The gate/stand must be one shown or listed on the airport diagram for the departure airport of the flight. Having this information will help the FAA in the future by allowing the FAA to pre-plan the taxi route(s). Note that the character "G" by itself does not satisfy this requirement. Those flights that do not provide accurate or recognized gate/stand identifiers may not be allowed to participate in data link services requiring accurate gate/stand information.
5. PDC messages from the FAA shall always be responded to with either a positive acknowledgement (AOC accepts and promises to ensure delivery of PDC to appropriate air crew), or a negative acknowledgement (AOC is unable to accept and/or unable to promise delivery of PDC to appropriate air crew).

The engineering staff of the A/G DLP that conducted the AOC testing will furnish the FAA with an end of test report which details the results of the DLSP testing. At a minimum, the areas listed above will be addressed and the results provided. The FAA will evaluate the report and make a determination as to whether additional testing or clarification is required, or if the request for the user can begin to move forward.

Limited "Phase In" Testing

This type of testing is used to validate configuration changes to ensure that the AOC provider and the FAA have compatible operations. This type of testing entails the FAA configuring a limited set of call signs (discrete call signs, 10 or less) to ensure that all of the network routing and adaptations are compatible. With less than 10 call signs in play, it allows for problems to occur that are not operationally significant in nature to the airline or the FAA. If no problems occur, then at the end of 30 days, the 10 discrete call sign limit is removed, and all flights for a given airline are allowed to participate in the PDC service at that location.

Transition Test Phase

This is used when a new PDC site is preparing to enter into full operational capability. For a minimum of 30 days, the site where the new PDC service is located will use PDC with a "guinea pig" user. The service will be limited to this one user. Criteria for the selection of the user:

1. Less than 20 flights per day from the facility.
2. User's fleet is 100% capable of using PDC from the airport under test.
3. User is an established user of PDC elsewhere in the NAS.

Once the new terminal site is capable of sending PDC's and receiving the reply messages error free (no timeouts or other communications errors) for 30 days, then the site can enter operational service and allow other established users of PDC to begin requesting and utilizing the PDC service. For those sites with no scheduled airline service, 20 discrete, established (as in the users of the call signs are already experienced PDC users elsewhere in the NAS) call signs shall be utilized.

Attachment 3 – Established Data Link Service Providers for the NAS

The following is a list of companies that offer data link services to the aviation industry in the United States. The listed companies have accomplished testing and established themselves as capable of being able to provide data link and AOC services in the United States. Their inclusion in this list does not constitute an endorsement of any of these companies by the FAA or the United States Government:

ARINC

2551 Riva Road
Annapolis, Maryland 21401-7435
Program Mgmt. Yuri Maslov (410) 266-4504
Techinical Mgmt. Diane McClatchy (410) 266-4526
Web: http://www.arinc.com
email: globalink@arinc.com

Honeywell Global Data Center

15001 NE 36th Street
Redmond, Washington 98052
Telephone: (425) 885-8942
Web: http://www.mygdc.com
Email: gfo@mygdc.com

Satcom Direct, Inc.

1901 Hwy A1A
Satellite Beach, Florida 32937
Telephone: (321) 777-1435
Web: http://www.satcomdirect.com
Email: ncook@satcomdirect.com

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Attachment 4 – Requirements for Airline Participation in the FAA's PDC Service

For an airline to participate in the PDC service at a departure terminal facility, some requirements have to be met:

1. 100% of the airline's flights originating from the terminal facility in question have to be capable of obtaining the PDC message through some means from their AOC prior to pushback.
2. The airline's aircrews have to be able to utilize the PDC message from the terminal facility.
3. Airlines AOC's that reject 15% or more of the PDC messages offered at a given site may be dropped from the PDC service at that site.

Attachment 5 – Requirements for GA Participation in the FAA's PDC Service

For a GA operator to participate in the PDC service at a departure terminal facility, some requirements have to be met:

1. Subscribe to the PDC service through a DLSP.
2. The aircrews have to be able to utilize the PDC message from the terminal facility.

Attachment 6 – Requirements for Aircraft Participation in the FAA's DCL (623) Service

For an aircraft to participate in the DCL(623) service at a departure terminal facility, some requirements have to be met:

1. The aircraft has to be equipped with avionics that are capable of utilizing the 623 protocol for DCL (version 2 of DCL preferred).
2. The airline's aircrews have to be able to utilize the DCL message from the terminal facility.

Attachment 7 – Requirements for Aircraft Participation in the FAA's DCL (ATN) Service

For an aircraft to participate in the DCL(ATN) service at a departure terminal facility, some requirements have to be met:

1. The aircraft has to be equipped with avionics that are capable of utilizing the ATN protocol for DCL.
2. The airline's aircrews have to be able to utilize the DCL message from the terminal facility.

Attachment 8 – Requirements for Aircraft Participation in the FAA's Pushback (623) Service

For an aircraft to participate in the Pushback Clearance(623) service at a departure terminal facility, some requirements have to be met:

1. The aircraft has to be equipped with avionics that are capable of utilizing the 623 protocol for Pushback Clearance.
2. The airline's aircrews have to be able to utilize the Pushback Clearance message from the terminal facility.

Attachment 9 – Requirements for Aircraft Participation in the FAA's Pushback (ATN) Service

For an aircraft to participate in the Pushback Clearance(ATN) service at a departure terminal facility, some requirements have to be met:

1. The aircraft has to be equipped with avionics that are capable of utilizing the ATN protocol for Pushback Clearance.
2. The airline's aircrews have to be able to utilize the Pushback Clearance message from the terminal facility.

Attachment 10 – Requirements for Aircraft Participation in the FAA's D-TAXI (623) Service

For an aircraft to participate in the D-TAXI(623) service at a departure terminal facility, some requirements have to be met:

1. The aircraft has to be equipped with avionics that are capable of utilizing the 623 protocol for D-TAXI Service.
2. The airline's aircrews have to be able to utilize the D-TAXI message from the terminal facility.

Attachment 11 – Requirements for Aircraft Participation in the FAA's D-TAXI (ATN) Service

For an aircraft to participate in the D-TAXI(623) service at a departure terminal facility, some requirements have to be met:

1. The aircraft has to be equipped with avionics that are capable of utilizing the ATN protocol for D-TAXI Service.
2. The airline's aircrews have to be able to utilize the D-TAXI message from the terminal facility.

Attachment 12 – Acronyms

A/G   Air Ground

AOC   Airline Operations Computer

ARInc 620   ARInc Standard #620

ARInc 623   ARInc Standard #623 (supplanted by ED85a)

AT   Air Traffic

ATC   Air Traffic Control

ATCT   Air Traffic Control Tower

ATIS   Automatic Terminal Information Service

ATN   Aeronautical Telecommunications Network

CD   Clearance Delivery

CONUS   Continental United States

D-ATIS   Digital ATIS

DCL   Departure Clearance Request

DLP   Data Link Provider

DLSP   Data Link Service Provider

DOT   Department of Transportation

ED85a   EUROCAE Standard 85, modification "a"

EDCT   "Edict" (Estimated Departure Clearance Time) Time

FAA   Federal Aviation Administration

GA   General Aviation

GC   Ground Control (FAA)

NAS   National Airspace System

Terminal Data Link Services in the NAS

OCONUS   Outside CONUS

P-Time   Proposed Time

PDC   Pre-Departure Clearance

TDLS   Tower Data Link Services

UTC   Coordinated Universal Time

Zulu   Z-Time, slang for Coordinated Universal Time

Attachment 13 – References for Additional Information

The following documents should be referred to regarding the various data link services offered by the agency:

FAA Order 7032.11 – Air Traffic Operational Requirements for the Pre-Departure Clearance System (PDC)

FAA Order 7032.12 – Air Traffic Operational Requirements for Tower Automation Systems

FAA Order 7110.113C – Procedures for Issuing Automated Clearances

ARInc Document 12889 Rev H PreDeparture Clearance Application Segment Specification dated September 29, 1999 – Copyrighted © 1999 by Aeronautical Radio Incorporated – Available from ARInc only

FAA Document – PreDeparture Clearance Application Segment Specification dated June 2, 2000

As other data link services within the NAS move closer to being available, additional entries will appear in this attachment.

Attachment 14 – Suggested format for hard copy of PDC messages directed at cockpit crew

In order to minimize confusion, the following format is suggested for use by cockpit crews. First, some terminology:

Computer ID: CCC (where CCC is the FAA computer ID assigned to this flight

Flight ID: FFFFFFF (flight ID/Call sign of the flight)

Beacon Code: BBBB (4 digit beacon or "squawk" code assigned to this flight)

Departure Point: DDDD (3/4 character departure point ID)

Equipment Type:
H/GGGG/N (Number of Aircraft and or Heavy Indicator/Aircraft Type/Aircraft Equipment)

Requested Altitude: AAA (Flight Level – altitude in hundreds of feet)

Estimated Departure Clearance Time (EDCT): EEEE (when no EDCT time is provided, the word "None" may be substituted.

Proposed Time (P-Time): PPPPP

Departure Frequency Information: IIII (one line of text with departure frequency information)

Altitude restriction data field: JJJ (one line of text with altitude restriction information)

Standard Instrument Departure(SID) data field: SSS (one line of text with SID information)

Route of flight: RRR (list of way points/identifiers for the route of flight – up to 3 lines of way points/identifiers, separated by spaces)

Free Text Line 1: TTT (one line of text with free text information)

Free Text Line 2: UUU (one line of text with free text information)

Free Text Line 3: VVV (one line of text with free text information)

The above items are provided in the PDC message sent from the FAA tower to the AOC computers. It is suggested that it be provided to the cockpit crews in the following format. The items in **bold text** are fixed and do not vary. The items in *italic text* represent the information received from the FAA tower. It is not appropriate to insert/delete/interpret this information.

Sample PDC hardcopy message:

Pre-Departure Clearance Start
Call sign: *FFFFFFF*   **Beacon Code:** *BBBB*
Flight Level: *AAA*   **Computer ID:** *CCC*
Proposed Time: *PPPPP*   **EDCT Time:** *EEEE*
Departing From: *DDDD*
Equipment: *H/GGGG/N*
Approved Route:
RRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRR
RRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRR
RRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRR

Departure Frequency Information:
IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII

Altitude Restrictions:
JJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJJ

SID Information:
SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS

Additional Information:
TTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT
UUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUU
VVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVV
Pre-Departure Clearance End

Notes:
1. Phrases such as "Cleared as filed" or "revisions" should never be used by the AOC in presenting the PDC message to the cockpit crew.
2. It is not necessary to present the Strip Request Originator field to the cockpit crew.
3. It is not necessary to provide the revision number field since flights carrying a revision number are never eligible for PDC messages or PDC services.

Attachment 15 – Subscriber List Submissions to the FAA

Data Link Service Providers notify the FAA of the subscribers of data link services via scheduled updates. Qualified Data Link Service Providers provide their subscriber customer information in the following format to the FAA.

Subscriber List Format

- Valid FAA Call sign
- The ASCII Colon (:) character
- The Provider ID (assigned by the FAA)
- The ASCII Colon (:) character
- The 7 letter destination address for PDC (AOC Address)
- The ASCII Colon (:) character
- The possible data link ATSP services contracted for this call sign, separated by ASCII comma (,) characters (the services can appear in any order).
    - **PDC** (Pre-Departure Clearance - this is the only supported service at this time)
    - D23 (623 Departure Clearance – not supported at this time)
    - T23 (623 Taxi Clearance – not support at this time)
    - DTN (ATN Departure Clearance – not supported at this time)
    - TTN (ATN Taxi Clearance – not supported at this time)
    - P23 (623 Pushback Clearance – not supported at this time)
    - PTN (ATN Pushback Clearance – not supported at this time)
- The ASCII Colon (:) character
- The 7 letter destination address for carbon copies of 623/ATN Departure Clearances. This is usually an AOC address.
- The ASCII Colon (:) character
- Special use Code. Unless directed otherwise by the FAA, this code is the ASCII character upper case C.
- The ASCII Colon (:) character
- The Zulu date the subscription starts for this customer
    - YYYY   ASCII character 4 digit year
    - MM   ASCII character 2 digit (zero fill) month
    - DD   ASCII character 2 digit (zero fill) day
- The ASCII Colon (:) character
- The Zulu time the subscription starts for this customer
    - HH   ASCII character 2 digit (zero fill) hour (24 hour format)
    - MM   ASCII character 2 digit (zero fill) minutes
- The ASCII Colon (:) character
- The Zulu date the subscription ends for this customer
    - YYYY   ASCII character 4 digit year
    - MM   ASCII character 2 digit (zero fill) month
    - DD   ASCII character 2 digit (zero fill) day
- The ASCII Colon (:) character
- The Zulu time the subscription ends for this customer
    - HH   ASCII character 2 digit (zero fill) hour (24 hour format)

- o MM   ASCII character 2 digit (zero fill) minutes
- The ASCII Colon (:) character
- Optional 30 character comment field (ASCII Text only, no colons)
- The ASCII carriage return character
- The ASCII line feed character

Details on Call Signs

Tail numbers (as well as call signs) contain only letters and numbers. No dashes/hyphens (call signs with dashes/hyphens/illegal characters are completely discarded).

The rules for airline call signs: The first three letters are the ICAO identifier, followed by a flight number, no spaces, no leading zeroes in the flight number. The use of airline call signs in the GA file is discouraged, and new ones will be admitted on a case by case basis. Call signs for airline fleets do not belong in the GA file.

If you have an air carrier that utilizes call signs (charter operator for example), if the entire fleet of the operator that will be using PDC is a single provider (DLSP) customer, then their calls signs do NOT go in the GA file, but instead, that coordination will take place like that of an airline. Don't put 100 different call signs in the file for the same outfit, if they use PDC for all of their airframes. Instead, get with Gary Norek and coordinate it as a new airline customer.

If you have a customer that always uses a call sign, and never uses their tail number for filing flight plans, then don't put the tail number in the file. Data Link services are targeted to the call sign of the flight plan. The only time data link services are target at the tail number is when the tail number is used as the call sign on the flight plan.

Resolution of Duplicate Call Signs Amongst Multiple Providers

PDC does not support multiple providers for a single call sign.

How will aircraft registration number duplications between the various data link providers be coordinated and resolved prior to use of the subscriber lists?

1.) The provider that shows the earliest contract date/time gets the subscription.
2.) In the event of a duplicate contract start date/time, the FAA will use a random method for "choosing" which provider will receive the traffic for this customer for this update period.

Subscriber List Submission Deadlines

Submit the information NLT than COB (17:00 Central time) on the 13th of the month. In addition, we need your information 2 days before the beginning of the next month, NLT than COB (17:00 Central time). (Example, for a month with 28 days, we need it by COB on the 27th for the following month)

Blocked Call Signs

Blocked call signs will be removed from the submitted lists and blocked from participation. For those call signs that have proven to be problematic to the safe operation of the NAS, the FAA reserves the right to block those call signs from participation in Data Link Services.

Attachment 16 – FAA Points of Contact

FAA Washington Headquarters' Terminal Data Link Representative:

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