| Flight Procedure Tracking Form | Action: FLIGHT CHECK | Task Type: SID | Date Open: 10/05/2011 | Task #: 2011100529630801006 | Request #: 20111005296308 |
|---|---|---|---|---|---|
| Procedure: SID SHPRD (RNAV) ONE RALEIGH-DURHAM NC KRDU | | Airport ID: KRDU | Airport: RALEIGH-DURHAM INTL | | Reimbursable #: |
| City: RALEIGH/DURHAM | ST: NC | GPS #: | | Estimated Chart Date: 01/10/2013 | FICO #: |
| Fac ID: | Fac. Type: Rec D | Specialist: DAVID SAUER | | | |

## Procedure Review

P3

| | Rec'd | Rel'd | Full Name | Comments |
|---|---|---|---|---|
| Lead: | 07/03/2012 | 08/29/2012 | MARLON ROBINSON | DME / DME |
| QA: | 08/29/2012 | 09/05/2012 | STEVEN SZUKALA | |
| Liaison: | 09/05/2012 | | Spurlin | DME/DME |

ESV REQUEST INCLUDED

**Procedure Comments:** ENROUTE

**Remark Type:** INFORMATION

pkg 7 of 7

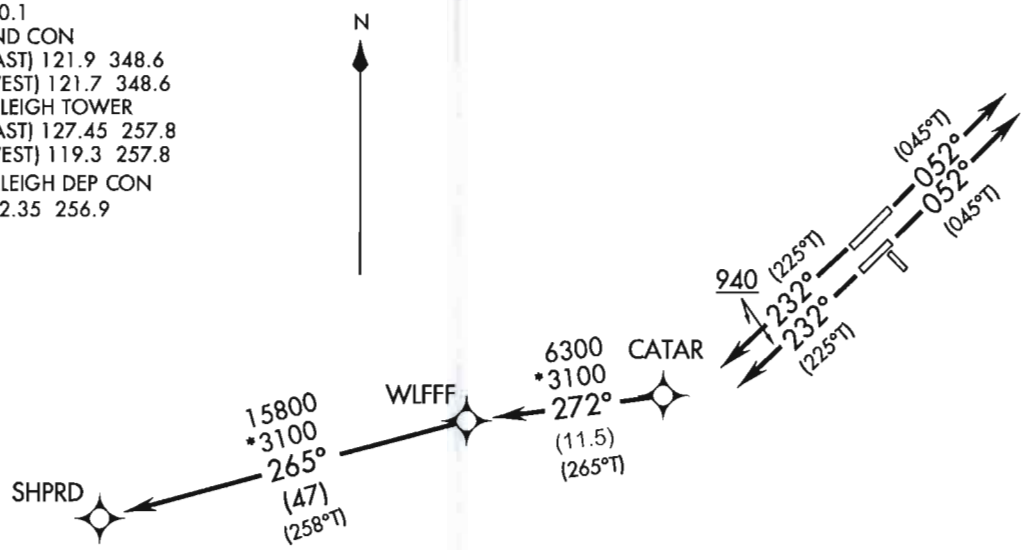
RALEIGH/DURHAM, NC RALEIGH-DURHAM INTL (KRDU) SHPRD ONE (RNAV) (SID) ENROUTE-YES FC: 11.13.12 PUB: 1.10.13

ATTACHED FORMS: ESV REPORTS; 8260-15B; 8260-15C; 8260-2(S): CATAR, ORIG; SHPRD, ORIG; WKFFF, ORIG.

CONTACT: DON SMITH/MARLON ROBINSON-AJV-352 LEADS, 405.954.1036 / 405.954.3636.

ATIS 123.8
CLNC DEL
120.1
GND CON
(EAST) 121.9 348.6
(WEST) 121.7 348.6
RALEIGH TOWER
(EAST) 127.45 257.8
(WEST) 119.3 257.8
RALEIGH DEP CON
132.35 256.9

PROTOTYPE: NOT FOR NAVIGATION




CATAR: 35 50.124 N / 079 18.011 W
SHPRD: 35 39.259 N / 080 28.606 W
WLFFF: 35 49.057 N / 079 32.092 W

NOTE: Transponder code will be issued via PDC or Raleigh clearance delivery.
NOTE: If unable to accept climb rate, advise ATC on initial contact.
NOTE: RNAV-1.
NOTE: DME/DME/IRU or GPS required.
NOTE: Radar required.
NOTE: For Turbojet aircraft only.

TAKEOFF MINIMUMS
Rwys 5L, 5R, 23R: Standard with minimum climb of 500' per NM to 940.
Rwy 23L: Standard with minimum climb of 500' per NM to 1100.

NOTE: Chart not to scale.

## DEPARTURE ROUTE DESCRIPTION

TAKEOFF RUNWAYS 5L/5R: Climb heading 052° or as assigned by ATC, expect radar vectors to CATAR, thence. . .
TAKEOFF RUNWAY 23L: Climb heading 232° or as assigned by ATC, expect radar vectors to CATAR, thence. . .
TAKEOFF RUNWAY 23R: Climb heading 232° or as assigned by ATC, expect radar vectors to CATAR, thence. . . .

. . . on depicted route to SHPRD, maintain 7000 or altitude assigned by ATC. Expect clearance to filed altitude within ten minutes after departure.

TAKEOFF OBSTACLES NOTES
Rwy 5L: Trees beginning 3802' from DER, 1237' left of centerline, up to 77' AGL/506' MSL. Tank and trees beginning 2011' from DER, 948' right of centerline, up to 138' AGL/547' MSL.
Rwy 5R: Trees beginning 1436' from DER, 803' right of centerline, up to 80' AGL/469' MSL.
Rwy 23L: Trees 1495' from DER, 797' left of centerline, up to 58' AGL/447' MSL. Light pole 1457' from DER, 878' right of centerline, 93' AGL/452' MSL.

## ESV Details

| | | | |
|---|---|---|---|
| Originating Office : | Airspace Docket Number : | Request Type : Establish | |
| **Facility Data** | | | |
| Chart Name : FAYETTEVILLE | City : FAYETTEVILLE | Ident : FAY | State : NC |
| Type/Class : DME | Frequency : M986 | Reference No.: 09108076 | |

**Expanded Service Volume Data: (Requesting Officer)**

| ESV ID | Radial 1 | Radial 2 | Distance | Minimum Altitude | Maximum Altitude |
|---|---|---|---|---|---|
| FAA 815801-021 | 335 | 12 | 60 | 40 | 180 |

Requirement: ESTABLISH ESV FOR RDU WLFFF RNAV SID

| | | |
|---|---|---|
| Signature: Osterhage Dennis | Routing Symbol: AJV-E2 | Date: 10/22/2009 |

**Expanded Service Volume Data: (FMO)**

| ESV ID | Radial 1 | Radial 2 | Distance | Minimum Altitude | Maximum Altitude | Action Type |
|---|---|---|---|---|---|---|
| FAA 815801-021 | 335 | 12 | 60 | 40 | 180 | APPROVE |

Requirement/Remarks: ESTABLISH ESV FOR RDU WLFFF RNAV SIDApproved. Pend. Flight Chk/Inspect @ the req. dist. and MIN ALT.

| | | |
|---|---|---|
| Signature: Cassella Charles | Routing Symbol: | Date: 10/23/2009 |

**Expanded Service Volume Data: (Super FMO)**

| ESV ID | Radial 1 | Radial 2 | Distance | Minimum Altitude | Maximum Altitude | Action Type |
|---|---|---|---|---|---|---|
| FAA 815801-021 | 335 | 12 | 60 | 40 | 180 | APPROVE |

Requirement/Remarks: ESTABLISH ESV FOR RDU WLFFF RNAV SIDApproved. Pend. Flight Chk/Inspect @ the req. dist. and MIN ALT.

| | | |
|---|---|---|
| Signature: CHRISTEIN THOMAS | Routing Symbol: | Date: 10/26/2009 |

**Expanded Service Volume Data: (FIFO)**

| ESV ID | Radial 1 | Radial 2 | Distance | Minimum Altitude | Maximum Altitude | Action Type |
|---|---|---|---|---|---|---|
| FAA 815801-021 | 335 | 12 | | | | |

Requirement/Remarks:

| | | |
|---|---|---|
| Signature: | Routing Symbol: | Date: |

## ESV Details

| | | | |
|---|---|---|---|
| Originating Office : | Airspace Docket Number : | Request Type : Establish | |
| **Facility Data** | | | |
| Chart Name : SANDHILLS | City : SANDHLLS | Ident : SDZ | State : NC |
| Type/Class : TACR | Frequency : M1016 | Reference No.: 11044981 | |

**Expanded Service Volume Data: (Requesting Officer)**

| ESV ID | Radial 1 | Radial 2 | Distance | Minimum Altitude | Maximum Altitude |
|---|---|---|---|---|---|
| FAA 704009-016 | 301 | 327 | 60 | 110 | 240 |

Requirement: ESTABLISH ESV FOR CLT SUDSY AND KELLS RNAV STARS

| | | |
|---|---|---|
| Signature: Osterhage Dennis | Routing Symbol: AJV-E2 | Date: 04/18/2011 |

**Expanded Service Volume Data: (FMO)**

| ESV ID | Radial 1 | Radial 2 | Distance | Minimum Altitude | Maximum Altitude | Action Type |
|---|---|---|---|---|---|---|
| FAA 704009-016 | 301 | 327 | 60 | 110 | 240 | APPROVE |

Requirement/Remarks: ESTABLISH ESV FOR CLT SUDSY AND KELLS RNAV STARSApproved. Pend. Flight Chk/Inspect @ the req. dist. and MIN ALT.

| | | |
|---|---|---|
| Signature: Cassella Charles | Routing Symbol: | Date: 04/20/2011 |

**Expanded Service Volume Data: (Super FMO)**

| ESV ID | Radial 1 | Radial 2 | Distance | Minimum Altitude | Maximum Altitude | Action Type |
|---|---|---|---|---|---|---|
| FAA 704009-016 | 301 | 327 | 60 | 110 | 240 | APPROVE |

Requirement/Remarks: ESTABLISH ESV FOR CLT SUDSY AND KELLS RNAV STARSApproved. Pend. Flight Chk/Inspect @ the req. dist. and MIN ALT.

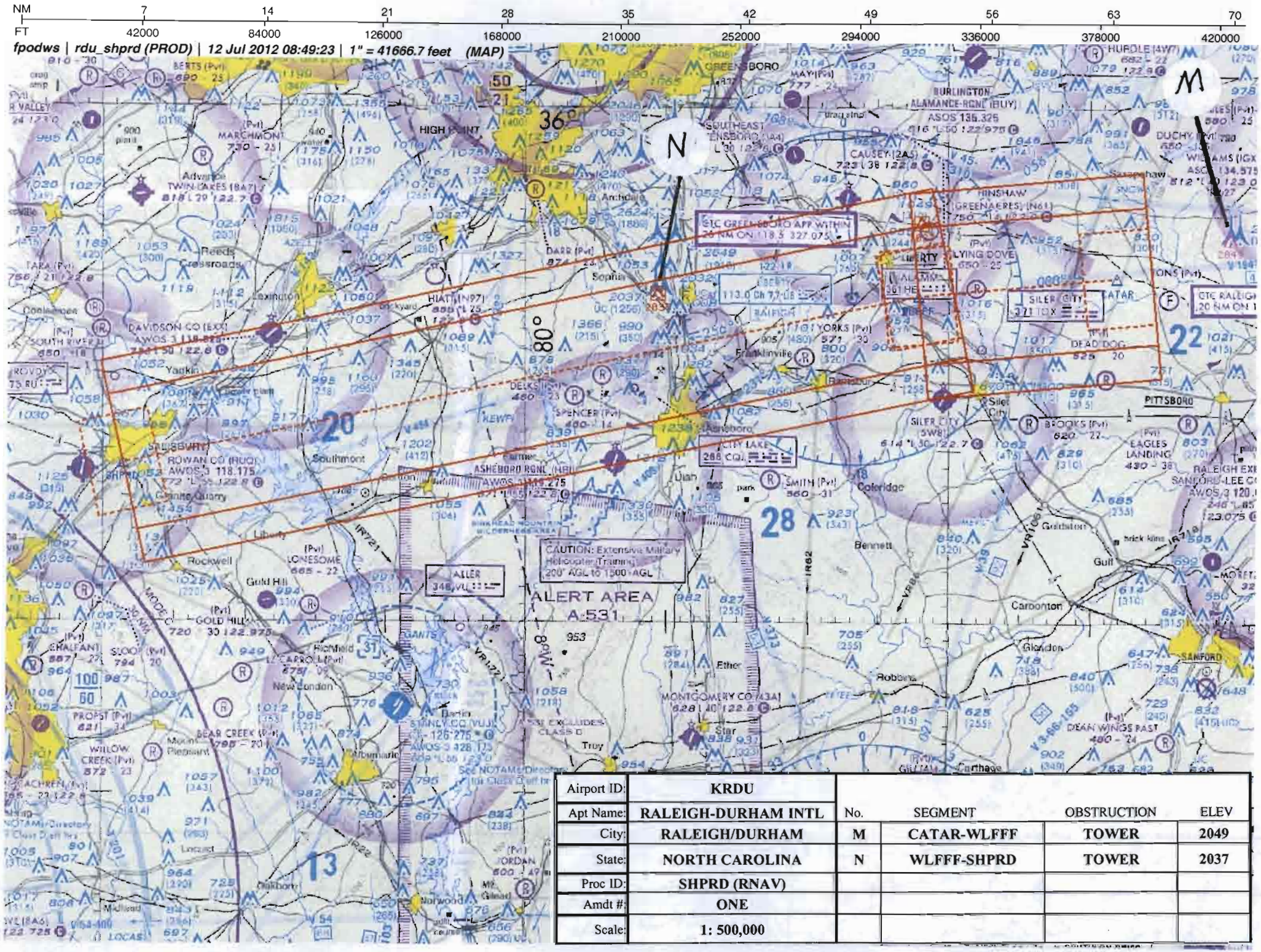
| | | |
|---|---|---|
| Signature: CHRISTEIN THOMAS | Routing Symbol: | Date: 04/29/2011 |

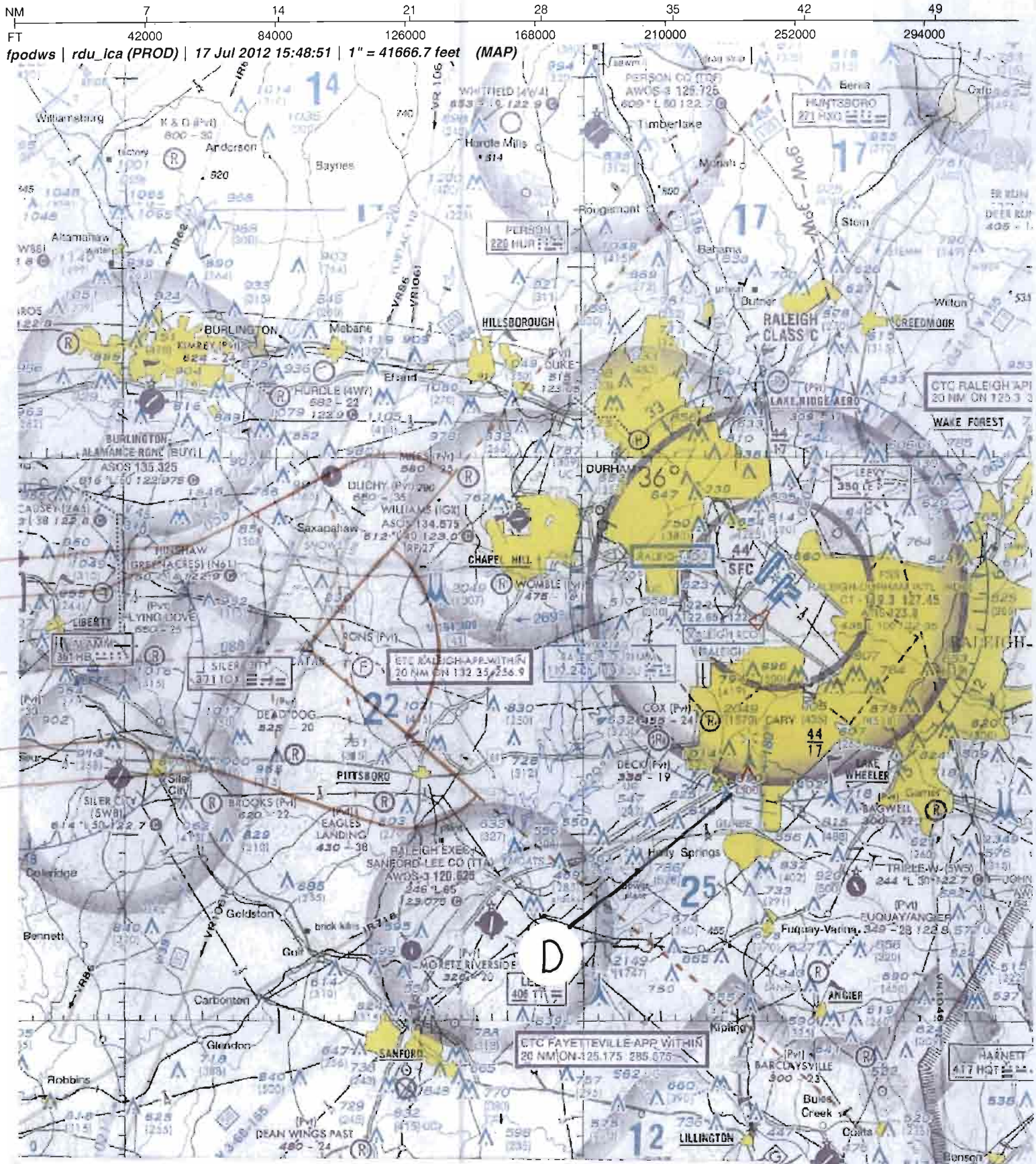
**Expanded Service Volume Data: (FIFO)**

| ESV ID | Radial 1 | Radial 2 | Distance | Minimum Altitude | Maximum Altitude | Action Type |
|---|---|---|---|---|---|---|
| FAA 704009-016 | 301 | 327 | | | | |

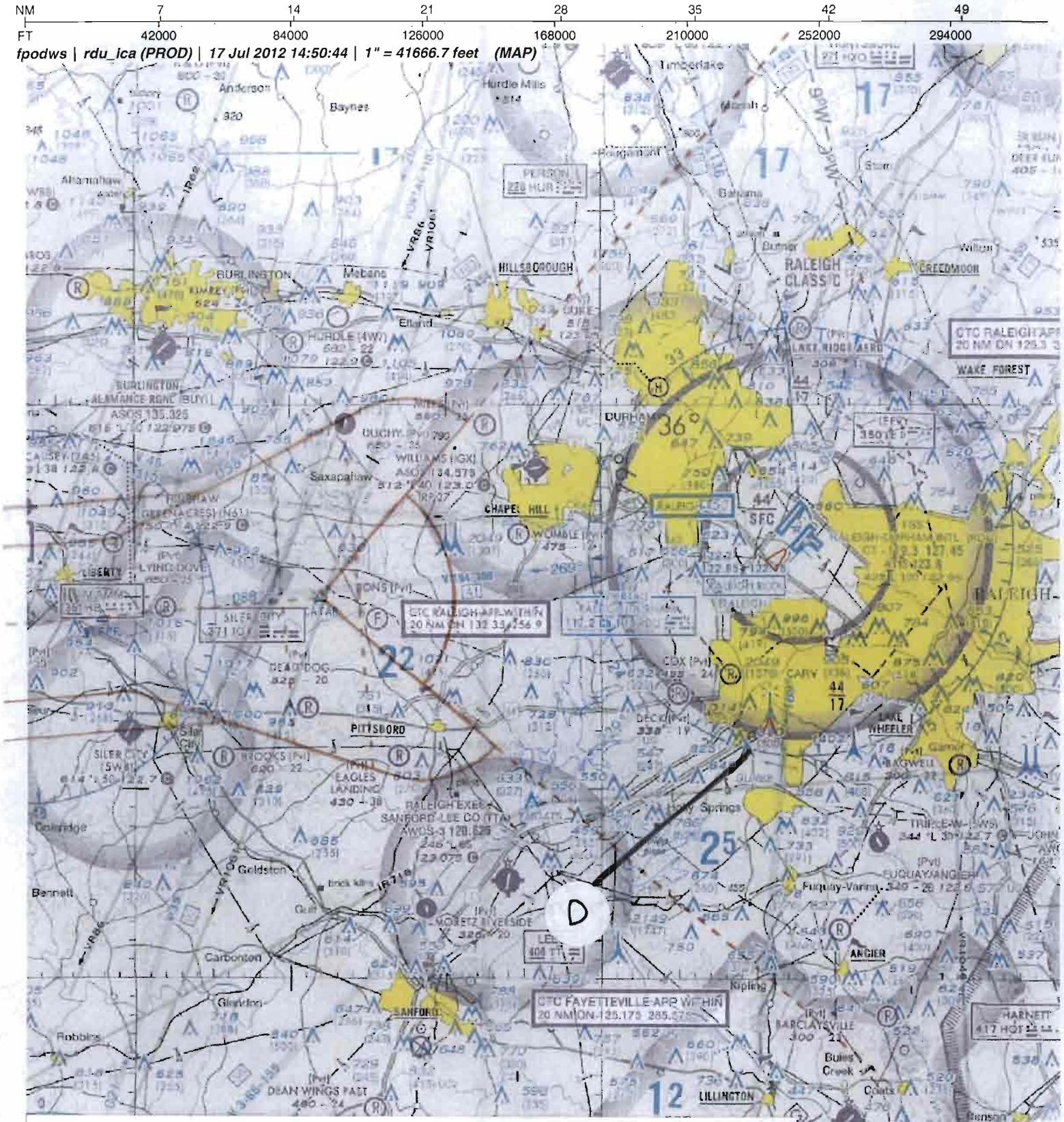
Requirement/Remarks:

| | | |
|---|---|---|
| Signature: | Routing Symbol: | Date: |

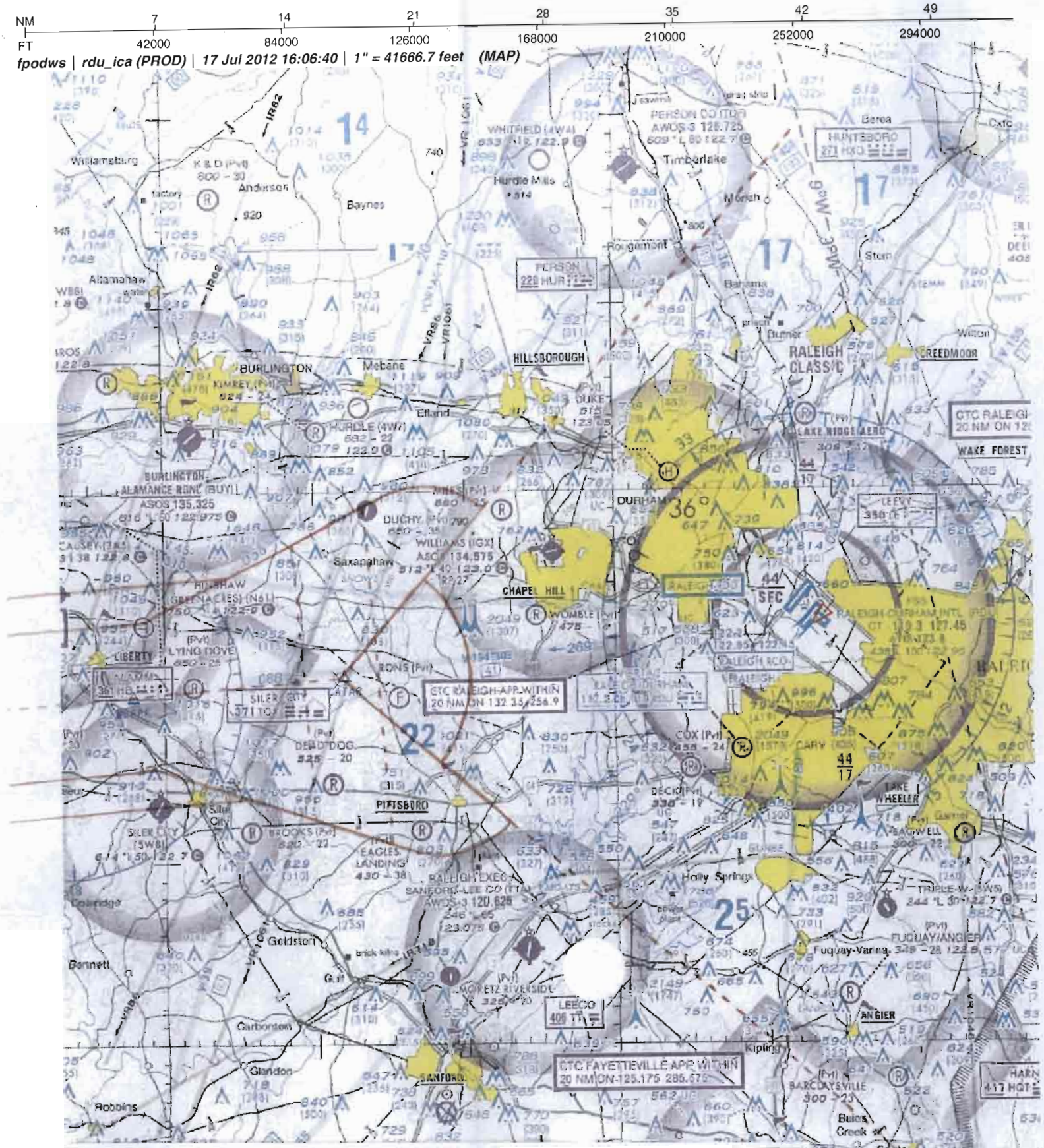

NM 7 14 21 28 35 42 49 56 63 70
FT 42000 84000 126000 168000 210000 252000 294000 336000 378000 420000
fpodws | rdu_shprd (PROD) | 12 Jul 2012 08:49:23 | 1" = 41666.7 feet (MAP)
N
M
ALERT AREA A-531
CAUTION: Extensive Military Helicopter Training 200' AGL to 1500' AGL
CTC GREENSBORO APP WITHIN 26 NM ON 118.5 327.075
CTC RALEIGH 20 NM ON
SILER CITY
LIBERTY
ALAMANCE
CITY LAKE
ASHEBORO
GREENSBORO
BURLINGTON
PITTSBORO
SANFORD
HIGH POINT
Reidsville
Eden
Mebane
Hillsborough
Chapel Hill
Pittsboro
Siler City
Sanford
Lillington
Dunn
Fuquay-Varina
Zebulon
Wake Forest
Knightdale
Clayton
Smithfield
Selma
Benson
Angier
Garner
Apex
Cary
Raleigh
Durham
Chapel Hill
Hillsborough
Mebane
Graham
Burlington
Gibsonville
Whitsett
Pleasant Garden
Stokesdale
Oak Ridge
Summerfield
Kernersville
Lewisville
Clemmons
Advance
Mocksville
Cooleemee
Yadkin
Lexington
Thomasville
Jamestown
Archdale
Randleman
Asheboro
Ramseur
Liberty
Franklinville
Sophia
Coleridge
Bennett
Gulf
Carbonton
Glendon
Robbins
Ether
Star
Troy
Carthage
Cameron
Vass
Lakewood
Southern Pines
Aberdeen
Pinehurst
Carthage
Norwood
Mt. Gilead
Oakboro
Mint Hill
Matthews
Indian Trail
Wingate
Marshville
Wadesboro
Lilesville
Polkton
Morven
Ansonville
Rockingham
Hamlet
Laurinburg
Maxton
Pembroke
Lumberton
Fairmont
Rowland
Red Springs
Parkton
Lumberton
Pembroke
Maxton
Laurinburg
Hamlet
Rockingham
Ansonville
Morven
Polkton
Wadesboro
Lilesville
Marshville
Wingate
Indian Trail
Matthews
Mint Hill
Oakboro
Norwood
Mt. Gilead




| Airport ID: | KRDU | | | | |
|---|---|---|---|---|---|
| Apt Name: | RALEIGH-DURHAM INTL | No. | SEGMENT | OBSTRUCTION | ELEV |
| City: | RALEIGH/DURHAM | | RWY 23L PNA | | |
| State: | NORTH CAROLINA | D | RWY 23L PEN | TOWER | 2049 |
| Proc ID: | SHPRD (RNAV) | | | | |
| Amdt #: | ONE | | | | |
| Scale: | 1: 500,000 | | | | |




| Airport ID: | KRDU | | | | |
|---|---|---|---|---|---|
| Apt Name: | RALEIGH-DURHAM INTL | No. | SEGMENT | OBSTRUCTION | ELEV |
| City: | RALEIGH/DURHAM | | RWY 23R PNA | | |
| State: | NORTH CAROLINA | D | RWY 23R PEN | TOWER | 2049 |
| Proc ID: | SHPRD (RNAV) | | | | |
| Amdt #: | ONE | | | | |
| Scale: | 1: 500,000 | | | | |


NM 7 14 21 28 35 42 49
FT 42000 84000 126000 168000 210000 252000 294000
fpodws | rdu_ica (PROD) | 17 Jul 2012 16:06:40 | 1" = 41666.7 feet (MAP)
BURLINGTON
Mebane
HILLSBOROUGH
RALEIGH CLASS C
CREEDMOOR
WAKE FOREST
DURHAM
CHAPEL HILL
PITTSBORO
SANFORD
Timberlake
Roxboro
Hurdle Mills
Baynes
Anderson
Williamsburg
Bethel
Berea
Stem
Burner
Holly Springs
Fuquay-Varina
ANGIER
Kipling
Bonnett
Carbonton
Glendon
Robbins
Goldston
Silk City
Liberty
Elland
Saxapahaw
Bailes Creek
Coats
Lillington
Lucama
Lynn
Linden
CTC RALEIGH-APP WITHIN 20 NM ON 132.35 256.9
CTC FAYETTEVILLE APP WITHIN 20 NM ON 125.175 285.575
CTC RALEIGH 20 NM ON 12
HUNTSBORO
PERSON
LEECO
SILER CITY
DEAD DOG
COX
DECK
BROOKS
EAGLES LANDING
RALEIGH EXEC
SANFORD-LEE CO
MORETZ RIVERSIDE
FUQUAY/ANGIER
BARCLAYSVILLE
TRIPLE W
LAKE WHEELER
BURLINGTON-ALAMANCE RGNL (BUY)
ASOS 135.325
WILLIAMS (IGX)
ASOS 134.575
WOMBLE
LYING DOVE
HILLSHAW
KIMREY
HURDLE (4W4)
DUKE
LEVY
CARY
RALEIGH-DURHAM INTL
SFC
36
44
17
25
22
14
17
17
IR62
VR1061
VR56
VR1061
VR56
VR1061
VR56

| Airport ID: | KRDU | No. | SEGMENT | OBSTRUCTION | ELEV |
|---|---|---|---|---|---|
| Apt Name: | RALEIGH-DURHAM INTL | | | | |
| City: | RALEIGH/DURHAM | | RWY 05L PNA | | ASC |
| State: | NORTH CAROLINA | | | | |
| Proc ID: | SHPRD (RNAV) | | | | |
| Amdt #: | ONE | | | | |
| Scale: | 1: 500,000 | | | | |

23L

NM 1 2 3 4 5 6 7 8 9 10

FT 8000 16000 24000 32000 40000 48000 56000 64000

*fpodws | rdu_ica (PROD) | 17 Jul 2012 15:58:43 | 1" = 8333.3 feet (MAP)*

| | | | | | |
|---|---|---|---|---|---|
| Airport ID: | KRDU | | | | |
| Apt Name: | RALEIGH-DURHAM INTL | No. | SEGMENT | OBSTRUCTION | ELEV |
| City: | RALEIGH/DURHAM | E | RWY 23L ICA | OL ON POLE | 452 |
| State: | NORTH CAROLINA | D | RWY 23L PEN | TOWER | 2049 |
| Proc ID: | SHPRD (RNAV) | | | | |
| Amdt #: | ONE | | | | |
| Scale: | 1: 100,000 | | | | |

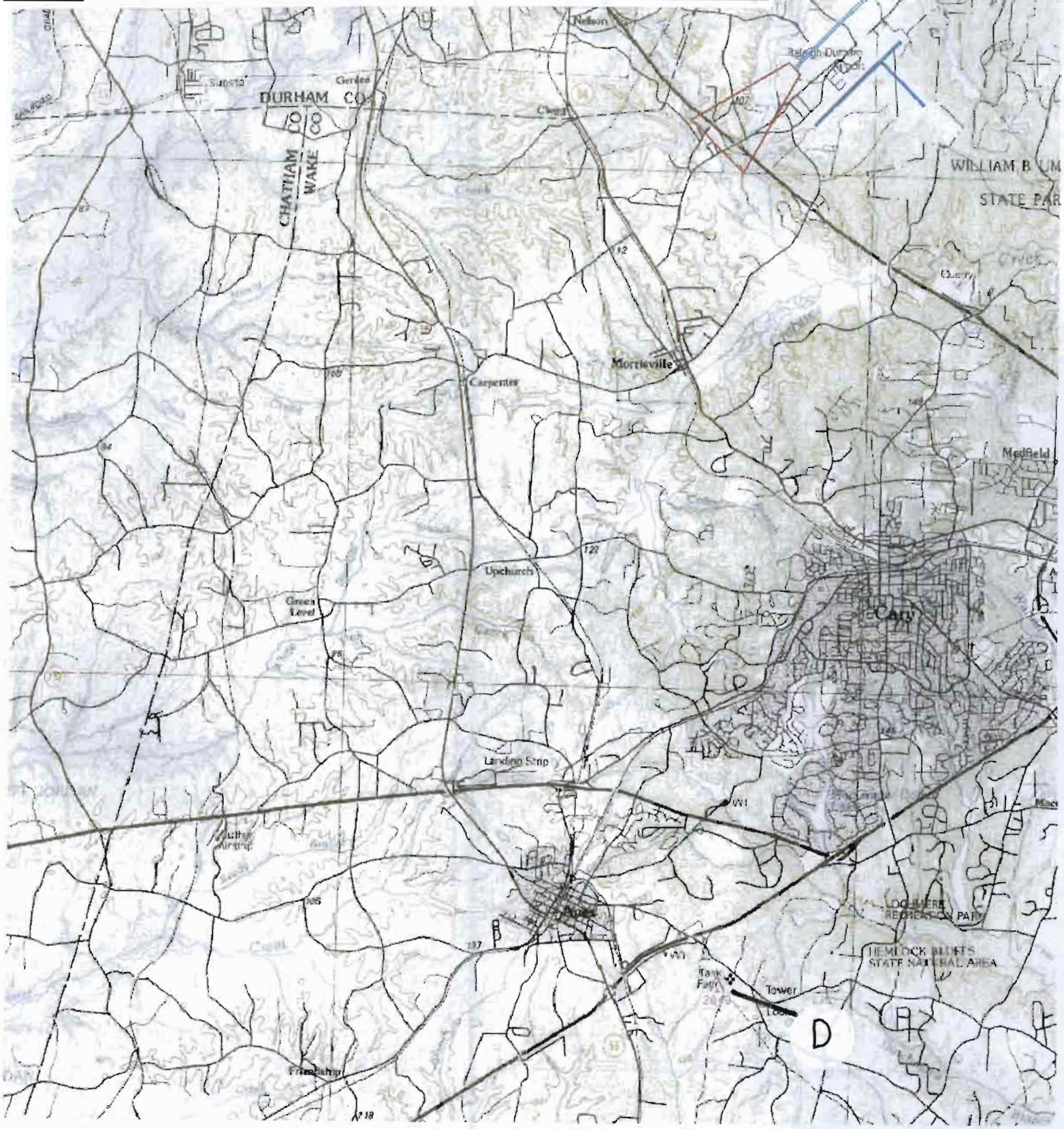
R23R

NM 1 2 3 4 5 6 7 8 9 10

FT 8000 16000 24000 32000 40000 48000 56000 64000

*fpodws | rdu_ica (PROD) | 17 Jul 2012 14:51:55 | 1" = 8333.3 feet (MAP)*

| | | | | | |
|---|---|---|---|---|---|
| Airport ID: | KRDU | | | | |
| Apt Name: | RALEIGH-DURHAM INTL | No. | SEGMENT | OBSTRUCTION | ELEV |
| City: | RALEIGH/DURHAM | | RWY 23R ICA | | ASC |
| State: | NORTH CAROLINA | D | RWY 23R PEN | TOWER | 2049 |
| Proc ID: | SHPRD (RNAV) | | | | |
| Amdt #: | ONE | | | | |
| Scale: | 1: 100,000 | | | | |

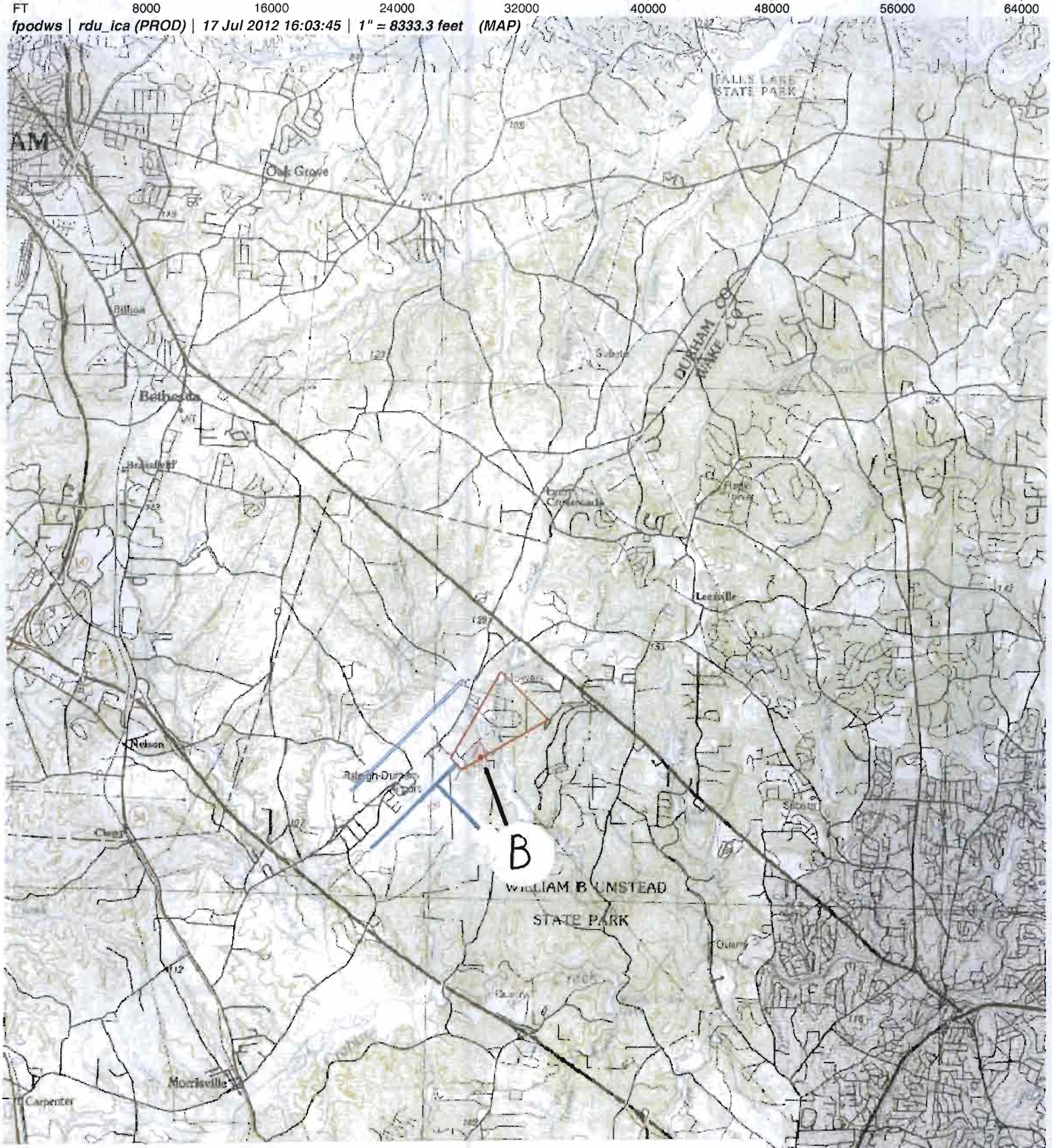


05R

NM 1 2 3 4 5 6 7 8 9 10

FT 8000 16000 24000 32000 40000 48000 56000 64000

*fpodws | rdu_ica (PROD) | 17 Jul 2012 16:03:45 | 1" = 8333.3 feet (MAP)*




| Airport ID: | KRDU | | | | |
|---|---|---|---|---|---|
| Apt Name: | RALEIGH-DURHAM INTL | No. | SEGMENT | OBSTRUCTION | ELEV |
| City: | RALEIGH/DURHAM | B | RWY 05R ICA | TREE | 469 |
| State: | NORTH CAROLINA | | | | |
| Proc ID: | SHPRD (RNAV) | | | | |
| Amdt #: | ONE | | | | |
| Scale: | 1: 100,000 | | | | |

RG5L

| Airport ID: | KRDU | | | | |
|---|---|---|---|---|---|
| Apt Name: | RALEIGH-DURHAM INTL | No. | SEGMENT | OBSTRUCTION | ELEV |
| City: | RALEIGH/DURHAM | A | RWY 05L ICA | OL ON TANK | 547 |
| State: | NORTH CAROLINA | | | | |
| Proc ID: | SHPRD (RNAV) | | | | |
| Amdt #: | ONE | | | | |
| Scale: | 1: 100,000 | | | | |

U.S. DEPARTMENT of TRANSPORTATION – FEDERAL AVIATION ADMINISTRATION

# GRAPHIC DEPARTURE PROCEDURE (DP)

Bearings, headings, courses, tracks, and radials are magnetic. Elevation and altitudes are in feet MSL. Altitudes are minimum altitudes unless otherwise indicated. Ceilings are in feet above airport elevation. Distances are in nautical miles. Visibilities are in statue miles or feet RVR unless otherwise indicated. Graphic depictions attached.

| DP Name | Number | DP Computer Code | Superseded Number | Dated | Effective Date |
|---|---|---|---|---|---|
| SHPRD (RNAV) | ONE | SHPRD1.SHPRD | NONE | | |

**TYPE:** RNAV SID

**DP ROUTE DESCRIPTION:**

TAKEOFF RWY 05L, 05R: CLIMB HEADING 052.14 OR AS ASSIGNED BY ATC, EXPECT RADAR VECTORS TO CATAR THENCE...
TAKEOFF RWY 23L: CLIMB HEADING 232.15 OR AS ASSIGNED BY ATC, EXPECT RADAR VECTORS TO CATAR THENCE...
TAKEOFF RWY 23R: CLIMB HEADING 232.16 OR AS ASSIGNED BY ATC, EXPECT RADAR VECTORS TO CATAR THENCE...

...ON DEPICTED ROUTE TO SHPRD, MAINTAIN 7000 OR ALTITUDE ASSIGNED BY ATC. EXPECT CLEARANCE TO FILED ALTITUDE WITHIN TEN MINUTES AFTER DEPARTURE.

**TRANSITION ROUTES (GRAPHIC DEPICTION ONLY):**

| Transition Name | Transition Computer Codes | From FIX/NAVAID | To FIX/NAVAID | Course | Distance | MEA | MOCA | Crossing Altitudes/Fixes |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | | | | | | | | |

**PROCEDURAL DATA NOTES/TAKEOFF MINIMUMS:**

NOTE: TRANSPONDER CODE WILL BE ASSIGNED VIA PDC OR RALEIGH CLEARANCE DELIVERY.
NOTE: IF UNABLE TO ACCEPT CLIMB RATE, ADVISE ATC ON INITIAL CONTACT.
NOTE: RNAV-1.
NOTE: DME/DME/IRU OR GPS REQUIRED.
NOTE: RADAR REQUIRED.
NOTE: FOR TURBOJET AIRCRAFT ONLY.

TAKEOFF MINIMUMS:
RWY 14, 32, NA – RUNWAY TOO SHORT FOR TURBOJETS.
RWY 05L, 05R, 23R, STANDARD WITH MINIMUM CLIMB OF 500 FT PER NM TO 940.
RWY 23L, STANDARD WITH MINIMUM CLIMB OF 500 FT PER NM TO 1100.

**TAKEOFF OBSTACLES NOTES:**

RWY 05L, TREES BEGINNING 3802 FT FROM DER, 1237 FT LEFT OF CENTERLINE, UP TO 77 FT AGL/506 FT MSL. TANK AND TREES BEGINNING 2011 FT FROM DER, 948 FT RIGHT OF CENTERLINE, UP TO 138 FT AGL/547 FT MSL.
RWY 05R, TREES BEGINNING 1436 FT FROM DER, 803 FT RIGHT OF CENTERLINE, UP TO 80 FT AGL/469 FT MSL.
RWY 23L, TREES BEGINNING 1495 FT FROM DER, 797 FT LEFT OF CENTERLINE, UP TO 58 FT AGL/447 FT MSL. LIGHT POLE 1457 FT FROM DER, 878 FT RIGHT OF CENTERLINE, 93 FT AGL/452 FT MSL.

# GRAPHIC DEPARTURE PROCEDURE (DP)

Bearings, headings, courses, tracks, and radials are magnetic. Elevation and altitudes are in feet MSL. Altitudes are minimum altitudes unless otherwise indicated. Ceilings are in feet above airport elevation. Distances are in nautical miles. Visibilities are in statue miles or feet RVR unless otherwise indicated. Graphic depictions attached.

| DP Name | Number | DP Computer Code | Superseded Number | Dated | Effective Date |
|---|---|---|---|---|---|
| SHPRD (RNAV) | ONE | SHPRD1.SHPRD | NONE | | |

**CONTROLLING OBSTACLES:**

RWY 23L, 23R, 2049 FT MSL TOWER (37-001064) 354251.00N/0784903.00W.

**LOST COMMUNICATIONS PROCEDURES:**

**ADDITIONAL FLIGHT DATA:**

REFERENCE MAG VAR: KRDU 7W EPOCH YEAR: 1985.
DME/DME ASSESSMENT: SAT (RNP 2.0).

CHART: MEA/MOCA FROM CATAR TO WLFFF, 6300/3100.
CHART: MEA/MOCA FROM WLFFF TO SHPRD, 15800/3100.

PILOT NAVIGATION AREA:
7NM ARC CENTERED ON CATAR (IF), CW
FROM: POINT A (BEARING 226.75 TO CATAR)
TO: POINT B (BEARING 316.75 TO CATAR)
MINIMUM ALTITUDE - 4000

**AIRPORTS SERVED:**

RALEIGH-DURHAM INTL – RALEIGH/DURHAM, NC.

**COMMUNICATIONS:**

ATIS, CLEARANCE DELIVERY, GROUND CONTROL, TOWER, DEPARTURE CONTROL: 132.35/256.9

**FIXES AND/OR NAVAIDS:**

U.S. DEPARTMENT of TRANSPORTATION – FEDERAL AVIATION ADMINISTRATION

# GRAPHIC DEPARTURE PROCEDURE (DP)

Bearings, headings, courses, tracks, and radials are magnetic. Elevation and altitudes are in feet MSL. Altitudes are minimum altitudes unless otherwise indicated. Ceilings are in feet above airport elevation. Distances are in nautical miles. Visibilities are in statue miles or feet RVR unless otherwise indicated. Graphic depictions attached.

| DP Name | Number | DP Computer Code | Superseded Number | Dated | Effective Date |
|---|---|---|---|---|---|
| SHPRD (RNAV) | ONE | SHPRD1.SHPRD | NONE | | |

**REMARKS:**

**FLIGHT INSPECTED BY:**

**REQUIRED EFFECTIVE DATE:**
ROUTINE

**DEVELOPED BY:**
DAVID SAUER AJV-352 7/16/12

**APPROVED BY:**
DARRYEL ADAMS AJV-352

**COORDINATED WITH:**
APA, ALPA, AOPA, ATA, NBAA, ZDC, RDU ATCT, RDU APP CON, RDU AMGR.

**CHANGES:**

**REASONS:**

# DEPARTURE (DATA RECORD)

| DP Name | Number | DP Computer Code | Superseded Number | Dated | Effective Date |
|---|---|---|---|---|---|
| SHPRD (RNAV) | ONE | SHPRD1.SHPRD | NONE | | |

| FIX/NAVAID | LAT/LONG | C | FO/FB | LEG TYPE | TC | DIST (NM) | ALTITUDE | SPEED | REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| RW05L (AER) | 355228.02N/0784807.07W | N | - | - | - | - | | | CG 500 FT/NM TO 940 |
| | | - | - | VM | 045.14 | - | | | |
| CATAR | 355007.45N/0791800.65W | Y | FB | DF | - | - | | | |
| | | | | | | | | | |
| RW05R (AER) | 355152.67N/0784750.42W | N | - | - | - | - | | | CG 500 FT/NM TO 940 |
| | | - | - | VM | 045.14 | - | | | |
| CATAR | 355007.45N/0791800.65W | Y | FB | DF | - | - | | | |
| | | | | | | | | | |
| RW23L (AER) | 355244.98N/0784645.82W | N | - | - | - | - | | | CG 500 FT/NM TO 1100 |
| | | - | - | VM | 225.15 | - | | | |
| CATAR | 355007.45N/0791800.65W | Y | FB | DF | - | - | | | |
| | | | | | | | | | |
| RW23R (AER) | 355337.76N/0784640.92W | N | - | - | - | - | | | CG 500 FT/NM TO 940 |
| | | - | - | VM | 225.16 | - | | | |
| CATAR | 355007.45N/0791800.65W | Y | FB | DF | - | - | | | |
| | | | | | | | | | |
| CATAR | 355007.45N/0791800.65W | Y | FB | IF | - | - | | | |
| WLFFF | 354903.42N/0793205.51W | Y | FB | TF | 264.75 | 11.50 | | | |
| SHPRD | 353915.56N/0802836.36W | Y | FB | TF | 258.27 | 47.04 | | | |

# DEPARTURE (DATA RECORD)

| DP Name | Number | DP Computer Code | Superseded Number | Dated | Effective Date |
|---|---|---|---|---|---|
| SHPRD (RNAV) | ONE | SHPRD1.SHPRD | NONE | | |

ARINC PACKET - 424-18 - SID

```
                 1         2         3         4         5         6         7         8         9         0         1         2         3
WP      123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
        ------------------------------------------------------------------------------------------------------------------------------------
        SUSAEAENRT   CATAR K70    W     N35500745W079180065                      W0087     NAR           CATAR
        SUSAEAENRT   SHPRD K70    W     N35391556W080283636                      W0078     NAR           SHPRD
        SUSAEAENRT   WLFFF K70    W     N35490342W079320551                      W0085     NAR           WLFFF

                 1         2         3         4         5         6         7         8         9         0         1         2         3
AIRPORT 123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
        ------------------------------------------------------------------------------------------------------------------------------------
        SUSAP KRDUK7ARDU     0     100YHN35523950W078471490W007000435         1800018000C    MNAR    RALEIGH-DURHAM INTL

                 1         2         3         4         5         6         7         8         9         0         1         2         3
SEGMENT 123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
        ------------------------------------------------------------------------------------------------------------------------------------
        SUSAP KRDUK7DSHPRD14RW05B 010         0        VM                     0521                    18000
        SUSAP KRDUK7DSHPRD14RW05B 020CATARK7EA0EE   010DF
        SUSAP KRDUK7DSHPRD14RW23B 010         0        VM                     2322                    18000
        SUSAP KRDUK7DSHPRD14RW23B 020CATARK7EA0EE   010DF
        SUSAP KRDUK7DSHPRD15      010CATARK7EA0E       IF                                             18000
        SUSAP KRDUK7DSHPRD15      020WLFFFK7EA0E    010TF                     27180115
        SUSAP KRDUK7DSHPRD15      030SHPRDK7EA0EE   010TF                     26530470

                 1         2         3         4         5         6         7         8         9         0         1         2         3
RUNWAY  123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
        ------------------------------------------------------------------------------------------------------------------------------------
        SUSAP KRDUK7GRW05L   0100000521 N35522802W078480707+0400    +0079800367000057150IIGKK1
        SUSAP KRDUK7GRW05R   0075000521 N35515267W078475042+0400    +0089100397000059150IIRDU1
        SUSAP KRDUK7GRW23L   0075002322 N35524498W078464582-0400    +0099200431000056150IILEI1
        SUSAP KRDUK7GRW23R   0100002322 N35533776W078464092-0400    +0092500409000056150IIDMP3
```

# DEPARTURE (DATA RECORD)

| DP Name | Number | DP Computer Code | Superseded Number | Dated | Effective Date |
|---|---|---|---|---|---|
| SHPRD (RNAV) | ONE | SHPRD1.SHPRD | NONE | | |

ARINC SUMMARY - 424-18 - SID

| ROUTES | TRANSITION | FIX | SEQ | USE | PATH | TURN | FO/FB | RNP | MAG(TRUE) | DISTANCE | ALTITUDE | SPEED |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | RW05B | | 010 | | VM | | FB | | 052.1() | | | |
| | RW05B | CATAR | 020 | | DF | | FB | 1.0 | | | | |
| | RW23B | | 010 | | VM | | FB | | 232.2() | | | |
| | RW23B | CATAR | 020 | | DF | | FB | 1.0 | | | | |
| | | CATAR | 010 | | IF | | FB | | | | | |
| | | WLFFF | 020 | | TF | | FB | 1.0 | 271.8() | 011.5 | | |
| | | SHPRD | 030 | | TF | | FB | 1.0 | 265.3() | 047.0 | | |

POINT DATA

| WAYPOINT | LAT IN SECS | LONG IN SECS | LAT IN MINS | LONG IN MINS |
|---|---|---|---|---|
| CATAR | N355007.45 | W0791800.65 | N3550.124 | W07918.011 |
| SHPRD | N353915.56 | W0802836.36 | N3539.259 | W08028.606 |
| WLFFF | N354903.42 | W0793205.51 | N3549.057 | W07932.092 |
| RW05L | N355228.02 | W0784807.07 | N3552.467 | W07848.118 |
| RW05R | N355152.67 | W0784750.42 | N3551.878 | W07847.840 |
| RW23L | N355244.98 | W0784645.82 | N3552.750 | W07846.764 |
| RW23R | N355337.76 | W0784640.92 | N3553.629 | W07846.682 |

RUNWAY DATA

| RWY | THRESHOLD ELEVATION | TCH |
|---|---|---|
| RW05L | 00367 | 57 |
| RW05R | 00397 | 59 |
| RW23L | 00431 | 56 |
| RW23R | 00409 | 56 |

# RADIO FIX AND HOLDING DATA RECORD

**NAME:** CATAR **STATE:** NC **COUNTRY:** US

**LATITUDE/LONGITUDE:** 355007.45N/0791800.65W **TYPE:** WP

**AIRSPACE DOCKET:** **FIX TYPE OF ACTION:** ESTABLISH

**FIX USE:**

| USE TYPE | USE TITLE | FAC | PAT | AIRPORT IDENT | CITY | STATE |
|---|---|---|---|---|---|---|
| DP | SHPRD (RNAV) | | | KRDU | RALEIGH/DURHAM | NC (US) |

**REQUIRED CHARTING:** DP

**COMPULSORY REPORTING POINT:** NO

**RECORD REVISION NUMBER:** ORIG **DATE OF REVISION:** 01/10/2013

**DEVELOPED BY:** **DATE:** 07/12/2012 **OFFICE:** AJV-352 **NAME:** DAVID SAUER

**APPROVED BY:** **DATE:** **OFFICE:** AJV-352 **NAME:** DARRYEL ADAMS

**SIGNATURE:**

**DISTRIBUTION:**
**NFDC**
**FPO:** EST
**ARTCC:** ZDC
**ATC FACILITY:** RDU APP CON
**OTHER:**

# RADIO FIX AND HOLDING DATA RECORD

**NAME:** SHPRD **STATE:** NC **COUNTRY:** US

**LATITUDE/LONGITUDE:** 353915.56N/0802836.36W **TYPE:** WP

**AIRSPACE DOCKET:** **FIX TYPE OF ACTION:** ESTABLISH

**FIX USE:**

| USE TYPE | USE TITLE | FAC | PAT | AIRPORT IDENT | CITY | STATE |
|---|---|---|---|---|---|---|
| DP | SHPRD (RNAV) | | | KRDU | RALEIGH/DURHAM | NC (US) |

**REQUIRED CHARTING:** DP

**COMPULSORY REPORTING POINT:** NO

**RECORD REVISION NUMBER:** ORIG **DATE OF REVISION:** 01/10/2013

**DEVELOPED BY:** **DATE:** 07/11/2012 **OFFICE:** AJV-352 **NAME:** DAVID SAUER

**APPROVED BY:** **DATE:** **OFFICE:** AJV-352 **NAME:** DARRYEL ADAMS

**SIGNATURE:**

**DISTRIBUTION:**
**NFDC**
**FPO:** EST
**ARTCC:** ZDC
**ATC FACILITY:** RDU APP CON
**OTHER:**

# RADIO FIX AND HOLDING DATA RECORD

**NAME:** WLFFF **STATE:** NC **COUNTRY:** US

**LATITUDE/LONGITUDE:** 354903.42N/0793205.51W **TYPE:** WP

**AIRSPACE DOCKET:** **FIX TYPE OF ACTION:** ESTABLISH

**FIX USE:**

| USE TYPE | USE TITLE | FAC | PAT | AIRPORT IDENT | CITY | STATE |
|---|---|---|---|---|---|---|
| DP | SHPRD (RNAV) | | | KRDU | RALEIGH/DURHAM | NC (US) |

**REQUIRED CHARTING:** DP

**COMPULSORY REPORTING POINT:** NO

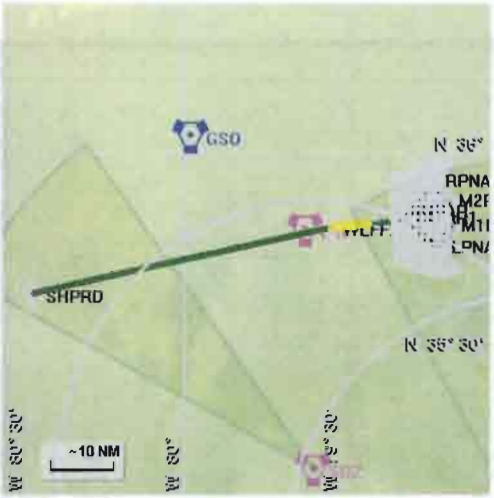
**RECORD REVISION NUMBER:** ORIG **DATE OF REVISION:** 01/10/2013

**DEVELOPED BY:** **DATE:** 07/12/2012 **OFFICE:** AJV-352 **NAME:** DAVID SAUER

**APPROVED BY:** **DATE:** **OFFICE:** AJV-352 **NAME:** DARRYEL ADAMS

**SIGNATURE:**

**DISTRIBUTION:**
**NFDC**
**FPO:** EST
**ARTCC:** ZDC
**ATC FACILITY:** RDU APP CON
**OTHER:**

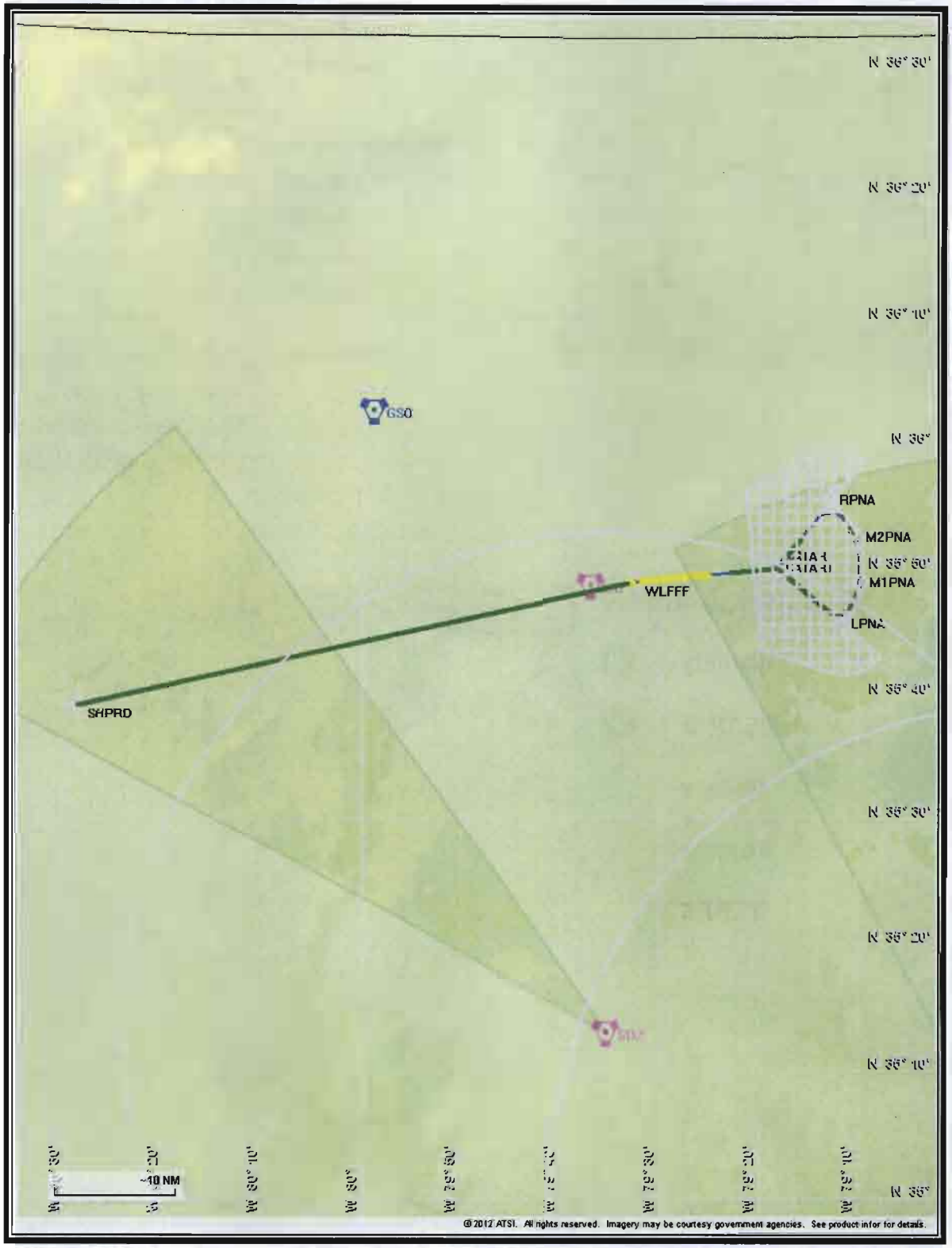



| | |
|---|---|
| **Name:** | Dennis Osterhage |
| **Project Name:** | KRDU RNAV SIDS |
| **Output File:** | KRDU SHPRD1 SID CATAR SHPRD 20120507_1718 |
| **Procedure Name:** | SHPRD1 |
| **Software:** | RNAV-Pro™ |
| **Version:** | 2.36 |
| **Date/Time:** | 5/7/2012 5:18:53 PM |
| **Input File:** | KRDU_PNA_CATAR_WLFFF_CCW.txt |
| **Databases:** | AVNIS Date: 02/07/2012 |
| | Obstacle Date: 08/26/2011 |
| | NFD Date: 09/30/2010 |
| | DTED® (MAX) Date: 2002 |

## Results Summary:

| | |
|---|---|
| **Flyability** | ✔ |
| **DME/DME** | ✔ |
| **Radars** | ? |
| **Comms** | ? |
| **TERPS** | ? |

© 1996-2012 Air Traffic Simulation, Inc. All rights reserved. RNAV-Pro, DrawSpace and the ATSI logo are trademarks of Air Traffic Simulation, Inc. DTED® courtesy U.S. Geological Survey. DTED is a registered trademark of the National Geospatial-Intelligence Agency. Blue Marble imagery in this program produced by NASA and the Earth Observatory (http://earthobservatory.nasa.gov.) This product has not been endorsed or otherwise approved by the National Geospatial-Intelligence Agency, United States Department of Defense, or the United States Federal Aviation Administration. Portions of this product sponsored by the United States Federal Aviation Administration, DTFA-02-01-D-12906, DTFAAC-05-D-00013. Sectional charts should not be used for actual flight navigation.


N 36° 30'
N 36° 20'
N 36° 10'
N 36°
N 35° 50'
N 35° 40'
N 35° 30'
N 35° 20'
N 35° 10'
N 35°
GSO
RPNA
M2PNA
M1PNA
LPNA
WLFFF
SHPRD
10 NM
© 2012 ATSI. All rights reserved. Imagery may be courtesy government agencies. See product infor for details.

## Flight Plan

Return To Summary

| Name | Type | Lat/Lon | Alt [Ft] | VNAV Mode | IAS [Kts] | Turn Type | Leg Type |
|---|---|---|---|---|---|---|---|
| CATAR | WP | N 35° 50' 7.45"<br>W 79° 18' 0.65" | 4000.0 | VNAV | 180.0 | Fly Over | TF |
| LPNA | WP | N 35° 45' 39.07"<br>W 79° 11' 23.10" | 4000.0 | VNAV | 180.0 | Fly By | TF |
| M1PNA | WP | N 35° 48' 56.90"<br>W 79° 9' 31.48" | 4000.0 | VNAV | 180.0 | Fly By | TF |
| M2PNA | WP | N 35° 52' 33.69"<br>W 79° 9' 56.21" | 4000.0 | VNAV | 180.0 | Fly By | TF |
| RPNA | WP | N 35° 55' 31.35"<br>W 79° 12' 30.92" | 4000.0 | VNAV | 180.0 | Fly By | TF |
| CATAR1 | WP | N 35° 50' 7.45"<br>W 79° 18' 0.65" | 4000.0 | VNAV | 180.0 | Fly By | TF |
| WLFFF | WP | N 35° 49' 3.42"<br>W 79° 32' 5.51" | 6300.0 | VNAV | 180.0 | Fly By | TF |
| SHPRD | WP | N 35° 39' 15.56"<br>W 80° 28' 36.36" | 15707.4 | VNAV | 210.0 | Fly Over | TF |

## Flyability

Return To Summary

**Settings:**

**Flight Type:** Departure with PNA
**Selected Airport:** KRDU
**Aircraft Category:** Cat D
**Climb Gradient:** *None assigned*
**Ground Speeds:**

Table:

**200.0 Kts** up to **11000.0 Ft.**
**240.0 Kts** up to **18000.0 Ft.**
**260.0 Kts** up to **24000.0 Ft.**
**340.0 Kts** up to **99900.0 Ft.**

**Wind Settings:** *None assigned*
**Descent During a Turn:** Allowed
**VNAV Mode:** Flight Plan

Entire track is fly-able

## DME/DME

Return To Summary

**Settings:**

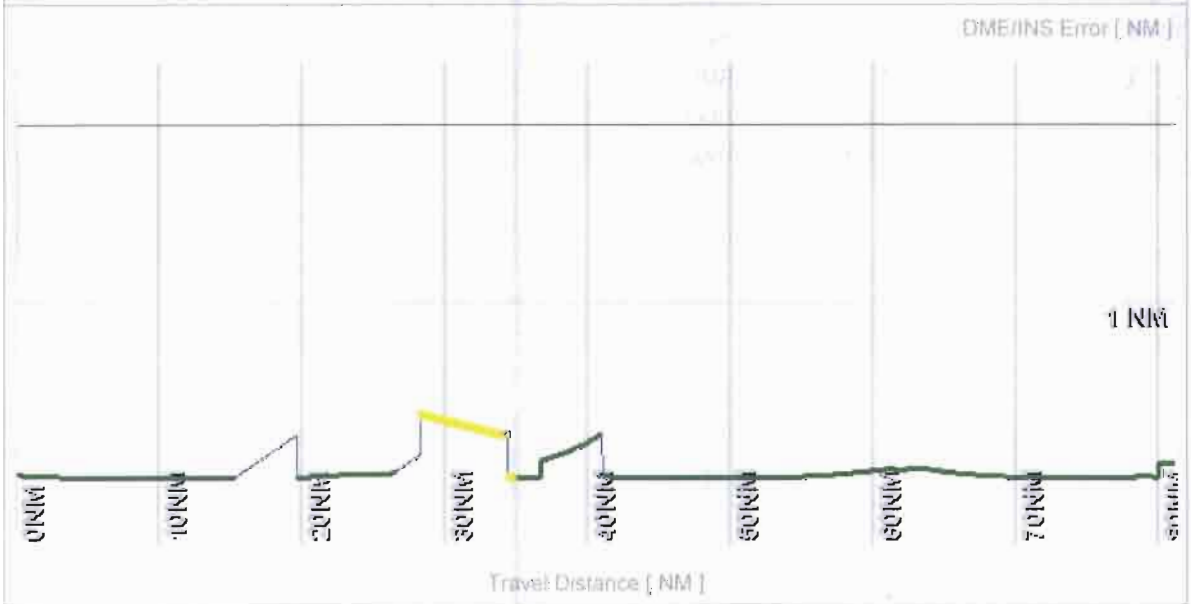
**RNP:** 2.0
**Flight Mode:** Manual
**Line of Sight (DTED Level 0 Max):** Evaluated
**DME Restrictions:** Evaluated
**Inertial Drift:** Enabled
**Initial Drift:** 0.558 NM
**INS Drift Rate:** 8.000 NM/Hour
**Range Mode:** OSV
**Co-Frequencies:** Evaluated
**RNP Edges:** Evaluated
**Min DME Range:** 3.0 NM
**Allowed Gap Length:** 4.0 NM
**DME Types:** VOR/DME , VORTAC , TACAN , and User
**DME Include Angles:** 30 to 150
**Critical DMEs:** Allowed
**DoD Facilities:** Not included
**Foreign Facilities:** Not included
**Low & Terminal DMEs:** Included
**Flight Check DMEs:** Selected
**Higher Altitudes:** Evaluated
**Near Maximum Altitude:** Evaluated
**PNA Import from RDVA-Pro:** KRDU PNA CATAR WLFFF

**Total Number of DMEs Used:** 8

Maximum DME Error: 0.538 NM.

No Critical DMEs were found.

**Available DMEs:** FAY, GSO, LIB, RDU, SDZ, FLO, CLT, SPA



## DME/DME (Continued.)

Return To Summary

### *DMEs Used*

| # | Name | Lat/Lon/MAGVAR | Range | Source | Critical | Err. [NM] | Status | Time | Distance |
|---|---|---|---|---|---|---|---|---|---|
| 1 | FAY | N 34° 59' 7.98" W 78° 52' 30.23" W 4 | L + ESV | User | NO | 1.689 | Enabled | 28.5 % | 27.1 % |
| 2 | LIB | N 35° 48' 41.84" W 79° 36' 45.35" W 3 | L | Database | NO | 1.261 | Enabled | 50.0 % | 48.6 % |
| 3 | RDU | N 35° 52' 21.08" W 78° 47' 0.03" W 4 | H | Database | NO | 0.618 | Enabled | 16.9 % | 16.1 % |
| 4 | GSO | N 36° 2' 44.49" W 79° 58' 34.95" W 3 | H | Database | NO | 0.618 | Enabled | 44.8 % | 46.7 % |
| 5 | SDZ | N 35° 12' 55.70" W 79° 35' 16.60" W 3 | L + ESV | User | NO | 0.865 | Enabled | 39.4 % | 41.4 % |
| 6 | CLT | N 35° 11' 25.04" W 80° 57' 6.31" W 5 | L | Database | NO | 0.538 | Enabled | 0.5 % | 0.6 % |
| 7 | FLO | N 34° 13' 58.69" W 79° 39' 25.78" W 3 | H | Database | NO | 0.538 | Enabled | 1.1 % | 1.3 % |
| 8 | SPA | N 35° 2' 1.05" W 81° 55' 37.24" W 2 | H | Database | NO | 0.538 | Enabled | 1.1 % | 1.3 % |

### *Flight Check DME Selection*

| Distance [NM] | Selected DMEs | | | | | Alternate |
|---|---|---|---|---|---|---|
| 0.0 | FAY | RDU | LIB | GSO | | |
| 5.1 | FAY | RDU | LIB | | | |
| 8.9 | FAY | RDU | LIB | | | |
| 12.6 | FAY | RDU | LIB | | | |
| 14.8 | FAY | RDU | LIB | GSO | | |
| 21.9 | FAY | RDU | LIB | GSO | | |
| 33.8 | SDZ | RDU | LIB | GSO | | |
| 71.0 | SDZ | SPA | FLO | GSO | CLT | LIB |

## DME/DME (Continued.)

Return To Summary

### *Inertial Drift Segments*

| # | Start Location | End Location | Length [NM] |
|---|---|---|---|
| 1 | N 35° 54' 17.82" W 79° 11' 31.37" | N 35° 52' 30.96" W 79° 15' 35.21" | 4.3 |
| | VOR: GSO | Available from N 35° 54' 17.82" W 79° 11' 31.37" to N 35° 52' 30.96" W 79° 15' 35.21" | |
| | VOR: LIB | Available from N 35° 54' 17.82" W 79° 11' 31.37" to N 35° 52' 30.96" W 79° 15' 35.21" | |
| | VOR: RDU | Available from N 35° 54' 17.82" W 79° 11' 31.37" to N 35° 52' 30.96" W 79° 15' 35.21" | |
| | VOR: DAN | Available from N 35° 54' 35.91" W 79° 12' 19.21" to N 35° 54' 27.17" W 79° 13' 26.92" | |
| 2 | N 35° 49' 46.32" W 79° 22' 39.85" | N 35° 49' 35.87" W 79° 24' 58.63" | 1.9 |
| | VOR: GSO | Available from N 35° 49' 46.32" W 79° 22' 39.85" to N 35° 49' 35.87" W 79° 24' 58.63" | |
| | VOR: LIB | Available from N 35° 49' 46.32" W 79° 22' 39.85" to N 35° 49' 35.87" W 79° 24' 58.63" | |
| | VOR: RDU | Available from N 35° 49' 46.32" W 79° 22' 39.85" to N 35° 49' 35.87" W 79° 24' 58.63" | |
| | VOR: SDZ | Available from N 35° 49' 46.32" W 79° 22' 39.85" to N 35° 49' 35.87" W 79° 24' 58.63" | |
| 3 | N 35° 49' 3.74" W 79° 31' 58.97" | N 35° 49' 0.63" W 79° 32' 23.26" | 0.3 |
| | VOR: GSO | Available from N 35° 49' 3.74" W 79° 31' 58.97" to N 35° 49' 0.63" W 79° 32' 23.26" | |
| | VOR: LIB | Available from N 35° 49' 3.74" W 79° 31' 58.97" to N 35° 49' 0.63" W 79° 32' 23.26" | |
| | VOR: RDU | Available from N 35° 49' 3.74" W 79° 31' 58.97" to N 35° 49' 0.63" W 79° 32' 23.26" | |
| | VOR: SDZ | Available from N 35° 49' 3.74" W 79° 31' 58.97" to N 35° 49' 0.63" W 79° 32' 23.26" | |

## DME/DME (Continued.)

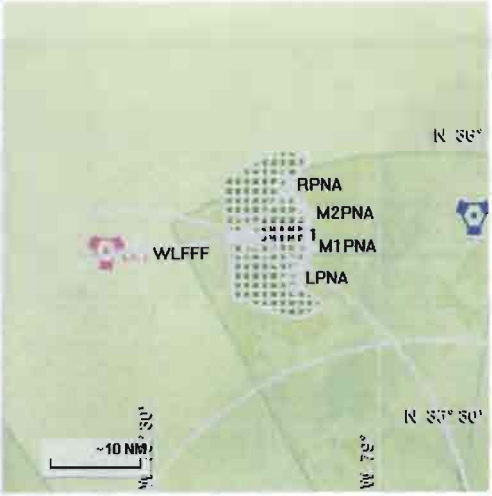
Return To Summary

### *Inertial Drift Segments (Continued.)*

| # | Start Location | End Location | Length [NM] |
|---|---|---|---|
| 4 | N 35° 47' 40.48" W 79° 40' 16.71" | N 35° 47' 39.11" W 79° 40' 24.73" | 0.1 |
| VOR: GSO | Available from N 35° 47' 40.48" W 79° 40' 16.71" to N 35° 47' 39.11" W 79° 40' 24.73" | | |
| VOR: LIB | Available from N 35° 47' 40.48" W 79° 40' 16.71" to N 35° 47' 39.11" W 79° 40' 24.73" | | |
| VOR: SDZ | Available from N 35° 47' 40.48" W 79° 40' 16.71" to N 35° 47' 39.11" W 79° 40' 24.73" | | |

### *User DMEs*

| # | Name | Lat/Lon/MAGVAR | Range | Elevation [Ft] | Frequency | Replaces: | Status |
|---|---|---|---|---|---|---|---|
| 1 | FAY | N 34° 59' 7.98"<br>W 78° 52' 30.23"<br>W 4 | L | 179.2 | 108.80 | FAY | Used |
| ESV: | Bearing [True]: 331.0° to 8.0°<br>Bearing [Mag]: 335.0° to 12.0° | | | Arc Distance: Out to 60.0 NM<br>Altitude: 4000.0 to 18000.0 Ft. | | | |
| 2 | SDZ | N 35° 12' 55.70"<br>W 79° 35' 16.60"<br>W 3 | L | 590.0 | 111.80 | SDZ | Used |
| ESV: | Bearing [True]: 298.0° to 324.0°<br>Bearing [Mag]: 301.0° to 327.0° | | | Arc Distance: Out to 60.0 NM<br>Altitude: 11000.0 to 24000.0 Ft. | | | |

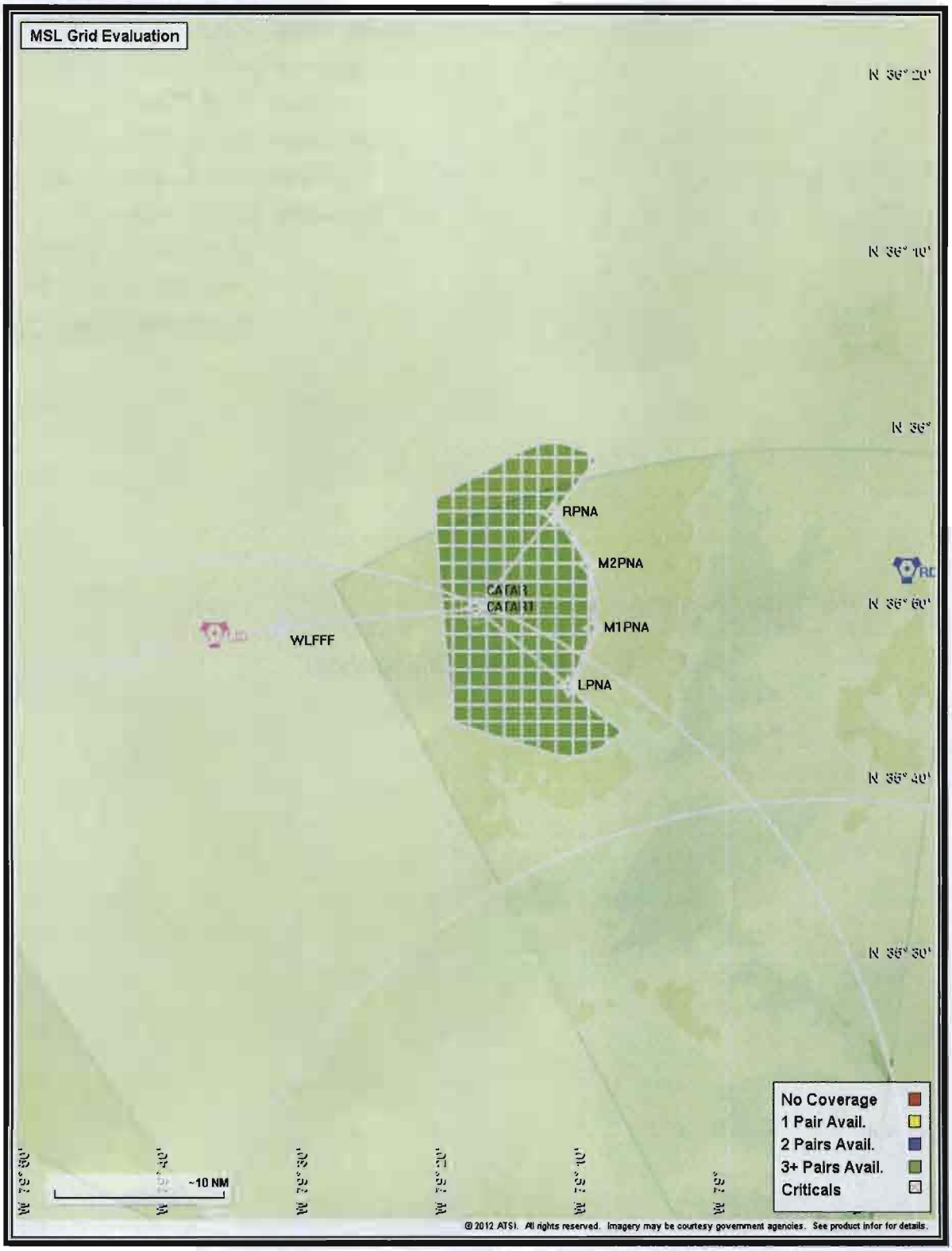



| | |
|---|---|
| **Name:** | Dennis Osterhage |
| **Project Name:** | KRDU RNAV SIDS |
| **Software:** | RNAV-Pro™ |
| **Version:** | 2.36 |
| **Date/Time:** | 5/7/2012 5:11:41 PM |
| **Input File:** | Grid Area Assessment |
| **Databases:** | AVNIS Date: 02/07/2012 |
| | Obstacle Date: 08/26/2011 |
| | NFD Date: 09/30/2010 |
| | DTED® (MAX) Date: 2002 |

## Results Summary:

| | | |
|---|---|---|
| **Grid** | ✔ | DME/DME Grid Analysis |

© 1996-2012 Air Traffic Simulation, Inc. All rights reserved. RNAV-Pro, DrawSpace and the ATSI logo are trademarks of Air Traffic Simulation, Inc. DTED® courtesy U.S. Geological Survey. DTED is a registered trademark of the National Geospatial-Intelligence Agency. Blue Marble imagery in this program produced by NASA and the Earth Observatory (http://earthobservatory.nasa.gov.) This product has not been endorsed or otherwise approved by the National Geospatial-Intelligence Agency, United States Department of Defense, or the United States Federal Aviation Administration. Portions of this product sponsored by the United States Federal Aviation Administration, DTFA-02-01-D-12906, DTFAAC-05-D-00013. Sectional charts should not be used for actual flight navigation.


MSL Grid Evaluation
N 36° 20'
N 36° 10'
N 36°
N 35° 50'
N 35° 40'
N 35° 30'
RPNA
M2PNA
CATAIR
CATAIR
M1PNA
LPNA
WLFFF
~10 NM
No Coverage
1 Pair Avail.
2 Pairs Avail.
3+ Pairs Avail.
Criticals
© 2012 ATSI. All rights reserved. Imagery may be courtesy government agencies. See product infor for details.

## DME/DME Grid Analysis

Return To Summary

### Coverage Exists

**Settings:**

**Polygon Grid Definition:**

| | | | |
|---|---|---|---|
| 1 | Lat: N 35° 45' 39.20"<br>Lon: W 79° 11' 22.96" | 21 | Lat: N 35° 59' 24.57"<br>Lon: W 79° 11' 19.08" |
| 2 | Lat: N 35° 43' 5.96"<br>Lon: W 79° 7' 35.83" | 22 | Lat: N 35° 59' 15.70"<br>Lon: W 79° 10' 44.66" |
| 3 | Lat: N 35° 42' 44.55"<br>Lon: W 79° 8' 0.43" | 23 | Lat: N 35° 59' 3.47"<br>Lon: W 79° 10' 11.84" |
| 4 | Lat: N 35° 42' 25.73"<br>Lon: W 79° 8' 28.05" | 24 | Lat: N 35° 58' 48.09"<br>Lon: W 79° 9' 41.09" |
| 5 | Lat: N 35° 42' 9.80"<br>Lon: W 79° 8' 58.26" | 25 | Lat: N 35° 58' 36.64"<br>Lon: W 79° 9' 22.64" |
| 6 | Lat: N 35° 41' 56.98"<br>Lon: W 79° 9' 30.63" | 26 | Lat: N 35° 55' 31.46"<br>Lon: W 79° 12' 31.08" |
| 7 | Lat: N 35° 41' 47.48"<br>Lon: W 79° 10' 4.67" | 27 | Lat: N 35° 55' 31.46"<br>Lon: W 79° 12' 31.08" |
| 8 | Lat: N 35° 41' 41.43"<br>Lon: W 79° 10' 39.87" | 28 | Lat: N 35° 54' 56.34"<br>Lon: W 79° 11' 45.02" |
| 9 | Lat: N 35° 41' 38.92"<br>Lon: W 79° 11' 15.72" | 29 | Lat: N 35° 54' 16.91"<br>Lon: W 79° 11' 4.57" |
| 10 | Lat: N 35° 41' 39.99"<br>Lon: W 79° 11' 51.67" | 30 | Lat: N 35° 53' 33.76"<br>Lon: W 79° 10' 30.35" |
| 11 | Lat: N 35° 41' 44.62"<br>Lon: W 79° 12' 27.19" | 31 | Lat: N 35° 52' 47.53"<br>Lon: W 79° 10' 2.84" |
| 12 | Lat: N 35° 41' 49.45"<br>Lon: W 79° 12' 49.56" | 32 | Lat: N 35° 51' 58.93"<br>Lon: W 79° 9' 42.48" |
| 13 | Lat: N 35° 43' 34.34"<br>Lon: W 79° 19' 44.57" | 33 | Lat: N 35° 51' 8.66"<br>Lon: W 79° 9' 29.55" |
| 14 | Lat: N 35° 56' 20.46"<br>Lon: W 79° 21' 10.98" | 34 | Lat: N 35° 50' 17.49"<br>Lon: W 79° 9' 24.24" |
| 15 | Lat: N 35° 59' 3.83"<br>Lon: W 79° 14' 49.50" | 35 | Lat: N 35° 49' 26.17"<br>Lon: W 79° 9' 26.64" |
| 16 | Lat: N 35° 59' 15.97"<br>Lon: W 79° 14' 16.63" | 36 | Lat: N 35° 48' 35.47"<br>Lon: W 79° 9' 36.69" |
| 17 | Lat: N 35° 59' 24.76"<br>Lon: W 79° 13' 42.17" | 37 | Lat: N 35° 47' 46.14"<br>Lon: W 79° 9' 54.25" |

## DME/DME Grid Analysis (Continued.)

Return To Summary

### Coverage Exists

**Settings:**

**Polygon Grid Definition:**

| | | | |
|---|---|---|---|
| **18** | Lat: N 35° 59' 30.06"<br>Lon: W 79° 13' 6.66" | **38** | Lat: N 35° 46' 58.93"<br>Lon: W 79° 10' 19.04" |
| **19** | Lat: N 35° 59' 31.81"<br>Lon: W 79° 12' 30.61" | **39** | Lat: N 35° 46' 14.52"<br>Lon: W 79° 10' 50.71" |
| **20** | Lat: N 35° 59' 29.97"<br>Lon: W 79° 11' 54.57" | **40** | Lat: N 35° 45' 39.20"<br>Lon: W 79° 11' 22.96" |

**Lat Step:** 1 NM
**Lon Step:** 1 NM
**Line of Sight (DTED Level 0 Max):** Evaluated
**DME Restrictions:** Evaluated
**Co-Frequencies:** Evaluated
**Min DME Range:** 3.0 NM
**Allowed Gap Length:** 4.0 NM
**DME Types:** VOR/DME and VORTAC
**DME Include Angles:** 30 to 150
**DoD Facilities:** Not included
**Foreign Facilities:** Not included
**Low & Terminal DMEs:** Included
**Maximum Possible ESVs Used**
**Altitude:** 4000.0 Ft. MSL
**PNA Import from RDVA-Pro:** KRDU PNA CATAR WLFFF

## DME/DME Grid Analysis (Continued.)

Return To Summary

**Maximum Gap:** 0.0 NM

**Maximum Critical Gap:** 0.0 NM

| | **AGL Altitudes** |
|---|---|
| Min Cell Altitude | 3,202.8 Ft. |
| Max Cell Altitude | 3,540.7 Ft. |
| Mean Cell Altitude | 3,374.6 Ft. |
| Std. Dev. Cell Altitude | 67.2 Ft. |

*Statistics based only on passing cells.*

**Most Used DMEs:** SDZ (169), SBV (169), RDU (169), LIB (169), GSO (169), FAY (169), BZM (169), ROA (159), CTF (85), and TYI (31).