

**FEDERAL AVIATION ADMINISTRATION
FLIGHT STANDARDS SERVICE
VOR OR TACAN STANDARD INSTRUMENT APPROACH PROCEDURE
TITLE 14 CFR PART 97.23**

Bearings, headings, courses, tracks and radials are magnetic. Elevations and altitudes are in feet, MSL, except HAT, HAA, TCH, and RA. Altitudes are minimum altitudes unless otherwise indicated.
Ceilings are in feet above airport elevation. Distances are in nautical miles unless otherwise indicated, except visibilities which are in statute miles or feet RVR.

<u>AIRPORT ID</u>	<u>PROCEDURE NAME</u>	<u>ORIGINAL/AMENDMENT</u>	<u>CITY</u>	<u>STATE</u>		
DLH	VOR OR TACAN RWY 3	21C	DULUTH	MN		
<u>AIRPORT ELEVATION</u>	<u>TDZE</u>	<u>SUPERSEDED</u>	<u>ORIGINAL/AMENDMENT</u>	<u>DATED</u>	<u>MAG VAR</u>	<u>EPOCH YEAR</u>
1428	1420	VOR OR TACAN RWY 3	21B	12/07/2017	5E	1965
<u>FACILITY</u>	<u>COORDINATES OF FACILITIES</u>	<u>ACTUAL EFFECTIVE DATE</u>	<u>REQUIRED EFFECTIVE DATE</u>	<u>CANCEL/SUSPEND</u>		
DLH			ROUTINE			

TERMINAL ROUTES

<u>FROM</u>	<u>FIX TYPE</u>	<u>TO</u>	<u>FIX TYPE</u>	<u>LEG TYPE</u>	<u>FO/FB</u>	<u>RNP</u>	<u>COURSE</u>	<u>DISTANCE</u>	<u>ALTITUDE</u>
MATEC/DLH 7.00 DME CCW	IAF	MIZOU/DLH 7.00 DME	NOPT				7.00 DME ARC		3800
MASWE/DLH 7.00 DME CW	IAF	MIZOU/DLH 7.00 DME	NOPT				7.00 DME ARC		3800
MIZOU/DLH 7.00 DME	IF	DLH VORTAC					012.00	7.00	2200

MISSED APPROACH

MAP:

2.10 NM AFTER DLH VORTAC OR AT DLH 2.10 DME

MISSED APPROACH INSTRUCTIONS:

CLIMB TO 4500 ON DLH VORTAC R-017 TO CHERL INT/DLH 15.00 DME AND HOLD, CONTINUE CLIMB-IN-HOLD TO 4500.

ALTERNATE MISSED APPROACH INSTRUCTIONS:

PROFILE:

- PT L SIDE OF COURSE 191.96 OUTBOUND 3100 FT WITHIN 15 MILES OF DLH VORTAC (IAF)
-
- FAC: 011.61 FAF: DLH VORTAC DIST FAF TO MAP: 2.10 DIST FAF TO THLD: 2.10
- MIN ALT: DLH VORTAC 2200
- MSA FROM: DLH VORTAC 3100

NOTES:

CHART NOTE: RWY 3 HELICOPTER VISIBILITY REDUCTION BELOW 3/4 SM NOT AUTHORIZED.
CHART PROFILE NOTE: VGSI AND DESCENT ANGLES NOT COINCIDENT (VGSI ANGLE {ANGLE}/TCH {FEET}).

ADDITIONAL FLIGHT DATA:

HOLD N, RT, 197.00 INBOUND.
CHART FAS OBST: 1569 TOWER (27-022622) 465000N/0921236W.
CHART VDP AT 0.95 DME.
DISTANCE VDP TO THLD 1.15 NM.
CHART DLH R-288 AT MATEC.
CHART DLH R-095 AT MASWE.
DLH VORTAC TO RW03: 3.32/45.



MINIMUMS:

TAKEOFF: SEE FAA FORM 8260-15A FOR THIS AIRPORT

ALTERNATE: NA STANDARD

CATEGORY:	A			B			C			D			E			
	FINAL TYPE	DA/MDA	VIS	HAT/HAA	DA/MDA	VIS	HAT/HAA	DA/MDA	VIS	HAT/HAA	DA/MDA	VIS	HAT/HAA	DA/MDA	VIS	HAT/HAA
S-03	1820	1	400	1820	1	400	1820	1 1/8	400	1820	1 1/8	400	1820	1 1/8	400	
CIRCLING	1880	1	452	1900	1	472	1940	1 1/2	512		NA			NA		

CHANGES - REASONS

1. INCORPORATED P-NOTAMS 4/0969 AMDT 21A AND 7/2934 AMDT 21B.
2. DELETED "FIX" FROM MAP DESCRIPTION -- UPDATED IAW 8260.19K, 8-6-6.C(2).
3. ADDED "CONTINUE CLIMB-IN-HOLD TO 4500" TO MISSED APPROACH INSTRUCTIONS -- LOWEST ALTITUDE AT CLEARANCE LIMIT 4401; CLIMB IN HOLD REQUIRED.
4. ADDED VDP IN ADDITIONAL FLIGHT DATA -- FINAL FACILITY WITH DME NO LONGER REQUIRED.
5. DELETED "CHART CIRCLING ICON" IN ADDITIONAL FLIGHT DATA -- UPDATED IAW FAA MEMO, SUBJECT: REMOVAL OF CIRCLING ICONS, 5/15/2025.
6. CHANGED CHART FAS OBSTACLE FROM "1569 ANT 465000N/0921236W" TO "1569 TOWER (27-022622) 465000N/0921236W" -- UPDATED SURVEY DATA.
7. DELETED "CHART: ASR" IN ADDITIONAL FLIGHT DATA -- ASR APPROACHES NO LONGER PUBLISHED AT DLH.

COORDINATED WITH:

A4A **ALPA** **AOPA** **APA** **HAI** **NBAA**

OTHER: ZMP, DLH APP CON, DLH ATCT, AMGR, CITY OF DULUTH

FLIGHT CHECKED BY

SCOTT WIEBE

Digitally signed by
CASIMIR L TABAKA
Mar 03, 2026

OFFICE

AJF

DATE

02/27/2026

DEVELOPED BY

CASIMIR L. TABAKA (DANIEL C JOHNSEN)

Digitally signed by
CASIMIR L TABAKA
Feb 02, 2026

OFFICE

AJV-A432

DATE

10/16/2025

APPROVED BY

CASIMIR L. TABAKA

Digitally signed by
CASIMIR L TABAKA
Feb 02, 2026

OFFICE

AJV-A432

DATE

TITLE
MANAGER



**FEDERAL AVIATION ADMINISTRATION
FLIGHT STANDARDS SERVICE
STANDARD INSTRUMENT APPROACH PROCEDURE DATA RECORD**

<u>AIRPORT ID</u> DLH	<u>PROCEDURE NAME</u> VOR OR TACAN RWY 3	<u>AMDT NO.</u> 21C	<u>CITY</u> DULUTH	<u>STATE</u> MN	<u>AIRPORT ELEVATION</u> 1428	<u>FACILITY</u> DLH
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PART A: OBSTRUCTION DATA SEGMENTS

INITIAL: ARC

FROM
MATEC/DLH 7.00 DME CCW

TO
MIZOU/DLH 7.00 DME

<u>RNP</u>	<u>DISTANCE</u>	<u>PAT</u>	<u>MAP</u>		<u>HAT</u>	<u>HMAS</u>					
OBSTRUCTION	COORDINATES	ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
AAO	464827.00N/0922015.00W	1713	215	8	4B	1000				AT1087	3800
TERRAIN	464827.00N/0922015.00W	1512 (1500)								AS1500	3000

COMPUTATIONS

ALT KIAS KTAS HAA VKTW TR BA DTA COURSE CHANGE DVEB VEB OCS RF CENTER FIX/DISTANCE

SEGMENT REMARKS:

INITIAL: ARC

FROM
MASWE/DLH 7.00 DME CW

TO
MIZOU/DLH 7.00 DME

<u>RNP</u>	<u>DISTANCE</u>	<u>PAT</u>	<u>MAP</u>		<u>HAT</u>	<u>HMAS</u>					
OBSTRUCTION	COORDINATES	ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
TOWER (27-000624)	464721.10N/0920651.10W	2049	250	50	4D	1000				AT751	3800
TERRAIN	464124.00N/0921527.00W	1351 (1400)								AS1500	2900

COMPUTATIONS

ALT KIAS KTAS HAA VKTW TR BA DTA COURSE CHANGE DVEB VEB OCS RF CENTER FIX/DISTANCE

SEGMENT REMARKS:



AIRPORT ID
DLH

PROCEDURE NAME
VOR OR TACAN RWY 3

AMDT NO.
21C

CITY
DULUTH

STATE
MN

AIRPORT ELEVATION
1428

FACILITY
DLH

INTERMEDIATE

FROM
MIZOU/DLH 7.00 DME

TO
DLH VORTAC

RNP **DISTANCE** **PAT** **MAP** **HAT** **HMAS**
7.00

OBSTRUCTION	COORDINATES	ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
AAO	464312.00N/0921615.00W	1683	215	8	4B	500					2200
TERRAIN	464312.00N/0921615.00W	1482 (1500)								AS300	1800

COMPUTATIONS

ALT **KIAS** **KTAS** **HAA** **VKTW** **TR** **BA** **DTA** **COURSE CHANGE** **DVEB** **VEB OCS** **RF CENTER FIX/DISTANCE**

SEGMENT REMARKS:

INTERMEDIATE: PT

FROM
15 NM

TO
DLH VORTAC

RNP **DISTANCE** **PAT** **MAP** **HAT** **HMAS**
15.00

OBSTRUCTION	COORDINATES	ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
AAO	464312.00N/0921615.00W	1683	215	8	4B	500					2200
TERRAIN	464312.00N/0921615.00W	1482 (1500)								AS300	1800

COMPUTATIONS

ALT **KIAS** **KTAS** **HAA** **VKTW** **TR** **BA** **DTA** **COURSE CHANGE** **DVEB** **VEB OCS** **RF CENTER FIX/DISTANCE**

SEGMENT REMARKS:



AIRPORT ID
DLH

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VOR OR TACAN RWY 3

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21C

CITY
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STATE
MN

AIRPORT ELEVATION
1428

FACILITY
DLH

FINAL

FROM
DLH VORTAC

TO
2.10 NM AFTER DLH VORTAC OR AT DLH 2.10 DME

<u>RNP</u>	<u>DISTANCE</u>	<u>PAT</u>	<u>MAP</u>	<u>HAT</u>	<u>HMAS</u>
	2.10		2.10 NM AFTER DLH VORTAC OR AT DLH 2.10 DME	400	

<u>OBSTRUCTION</u>	<u>COORDINATES</u>	<u>ELEV MSL</u>	<u>HORZ</u>	<u>VERT</u>	<u>AC</u>	<u>ROC</u>	<u>OCS</u>	<u>CG</u>	<u>CGTA</u>	<u>ADJUSTMENTS</u>	<u>MIN ALT</u>
TOWER (27-022622)	464959.66N/0921236.45W	1569	20	3	1A	250					1820

COMPUTATIONS

ALT KIAS KTAS HAA VKTW TR BA DTA COURSE CHANGE DVEB VEB OCS RF CENTER FIX/DISTANCE

SEGMENT REMARKS:

PROCEDURE TURN

FROM
DLH VORTAC

TO
15 NM

<u>RNP</u>	<u>DISTANCE</u>	<u>PAT</u>	<u>MAP</u>	<u>HAT</u>	<u>HMAS</u>
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<u>OBSTRUCTION</u>	<u>COORDINATES</u>	<u>ELEV MSL</u>	<u>HORZ</u>	<u>VERT</u>	<u>AC</u>	<u>ROC</u>	<u>OCS</u>	<u>CG</u>	<u>CGTA</u>	<u>ADJUSTMENTS</u>	<u>MIN ALT</u>
TOWER (27-000624)	464721.10N/0920651.10W	2049	250	50	4D	1000					3100
TERRAIN	464827.00N/0922015.00W	1512 (1500)								AS1500	3000

COMPUTATIONS

ALT KIAS KTAS HAA VKTW TR BA DTA COURSE CHANGE DVEB VEB OCS RF CENTER FIX/DISTANCE

SEGMENT REMARKS:



AIRPORT ID
DLH

PROCEDURE NAME
VOR OR TACAN RWY 3

AMDT NO.
21C

CITY
DULUTH

STATE
MN

AIRPORT ELEVATION
1428

FACILITY
DLH

MISSED APPROACH

FROM
2.10 NM AFTER DLH VORTAC OR AT DLH 2.10 DME

TO
CHERL INT/DLH 15.00 DME

RNP **DISTANCE** **PAT** **MAP** **HAT** **HMAS**
1570

OBSTRUCTION	COORDINATES	ELEV MSL	HORZ	VERT	AC	ROC	OCS	CG	CGTA	ADJUSTMENTS	MIN ALT
							ASC				4500
AAO	465818.00N/0921006.00W	1706	215	8	4B	1000					2800
TERRAIN	465818.00N/0921006.00W	1505 (1500)								AS1500	3000

COMPUTATIONS

ALT **KIAS** **KTAS** **HAA** **VKTW** **TR** **BA** **DTA** **COURSE CHANGE** **DVEB** **VEB OCS** **RF CENTER FIX/DISTANCE**

SEGMENT REMARKS:

CIRCLING ALL CATS CAT A CAT B CAT C CAT D CAT E NOT AUTHORIZED

OBSTRUCTION	COORDINATES	RADIUS	HAA	ELEV MSL	HORZ	VERT	AC	ROC	OCS	ADJUSTMENTS	MIN ALT
CATEGORY A											
TOWER (27-022662)	465132.68N/0920917.23W	1.31	452	1576	20	3	1A	300			1880
CATEGORY B											
TREE	485127.00N/0920854.00W	1.86	472	1593	215	8	4B	300			1900
CATEGORY C											
TOWER (27-020166)	465116.82N/0921654.92W	2.92	512	1625	20	3	1A	300			1940

CIRCLING REMARKS:

MSA

CENTER **RADIUS**
DLH VORTAC 25

SECTOR	OBSTRUCTION	COORDINATES	BEARING	DISTANCE	ELEV MSL	HORZ	VERT	AC	ROC	OCS	ADJUSTMENTS	MIN ALT
360-360	AAO	470918.00N/0914724.00W	034	27.1	2061	215	8	4B	1000			3100

MSA REMARKS:

NOTES/EXPLANATIONS FROM PROCEDURE SEGMENTS:

PART B: SUPPLEMENTAL DATA



AIRPORT ID
DLH

PROCEDURE NAME
VOR OR TACAN RWY 3

AMDT NO.
21C

CITY
DULUTH

STATE
MN

AIRPORT ELEVATION
1428

FACILITY
DLH

COMMUNICATIONS WITH

DLH APP CON, DLH TOWER, ZMP ARTCC

WX SERVICE
ASOS

LOCATION
DLH

HRS OPERATION
24

ALTIMETER SOURCE
DLH

DISTANCE

WMSCR
Y

ADJUSTMENTS
0

BACK-UP WX SERVICE

LOCATION

HRS OPERATION

ALTIMETER SOURCE

DISTANCE

WMSCR

ADJUSTMENTS

WX REMARKS:

SECONDARY ALTIMETER NOT REQUIRED; AIRPORT HAS REDUNDANT WEATHER SOURCE.

PRIMARY NAVAID
DLH VORTAC

MONITOR POINT
MOCC

HRS OPERATION
24

CAT
1

APPROACH AND RUNWAY LIGHTING SYSTEM	RUNWAY MARKINGS	RUNWAY VISUAL RANGE
RW03 - MIRL, REIL, PAPI-4L	NPI-G	
RW21 - MIRL, REIL, PAPI-4L	NPI-G	
RW09 - ALSF-2, C/LINE, TDZ, HIRL, PAPI-4L	PIR-G	APPROACH, MIDPOINT, ROLL OUT
RW27 - MALSR, HIRL, C/LINE, PAPI-4L	PIR-G	APPROACH, MIDPOINT, ROLL OUT

GLIDESLOPE ANGLE

ELEV RWY THRESHOLD

TCH

ELEV GS ANTENNA

DISTANCE FROM RWY

VGSI ANGLE
3.00

TCH
39.0

FINAL APPROACH COURSE AIMING

RUNWAY THRESHOLD

FT FROM THRESHOLD

DISPLACED THRESHOLD DISTANCE

ON CENTERLINE

FT FROM CENTERLINE

CRITICAL TEMPERATURES

CRITICAL LOW

CRITICAL HIGH

ACT

APT ISA

CRITICAL TEMPERATURE REMARKS:

"VISUAL PORTION OF FINAL" PENETRATIONS

FINAL TYPE	S-3
34:1	
1523 TOWER (27-021413) 464932.4000N/0921123.2400W (17.24)	1522 TOWER (27-000335) 464935.0000N/0921141.0000W (3.84)
1426 GENERAL UTILITY (27-022574) 465003.9100N/0921122.0100W (1.57)	1426 ELECTRICAL SYSTEM (27-022661) 465003.9000N/0921122.0300W (1.53)

PENETRATIONS REMARKS:

QUALITY
10
CHECKED

HELICOPTER 'VISUAL PORTION OF FINAL' PENETRATIONS

and/or

5280-FT "PROCEED VFR" SEGMENT LEVEL SURFACE AREA PENETRATIONS

PENETRATIONS REMARKS:

PART C: GENERAL REMARKS:

PRECIPITOUS TERRAIN EVALUATION COMPLETED.

VEGETATION HEIGHT 100 FEET PER FPT.

ORDER 8260.3, CHAPTER 2, NEW CIRCLING CRITERIA APPLIED.

PART D: AIRSPACE

DOCKET #

ALL DISTANCES TO 1/100NM; ELEVATION TO NEAREST 100 FEET; COORDINATES TO 1/100 SECOND; DEG TO 1/100 DEGREE

DISTANCE FROM	THLD	TO 1000FT POINT	7.90
WIDTH OF	INTERMEDIATE	SEGMENT AT 1000FT POINT	6.97
TRUE COURSE OF	INTERMEDIATE	SEGMENT CONTAINING 1000FT POINT	017.00
HIGH TERRAIN IN	INTERMEDIATE	SEGMENT CONTAINING 1000FT POINT	1500
DISTANCE FROM	THLD	TO 1500FT POINT	8.90
WIDTH OF	INTERMEDIATE	SEGMENT AT 1500FT POINT	7.83
TRUE COURSE OF	INTERMEDIATE	SEGMENT CONTAINING 1500FT POINT	017.00
HIGH TERRAIN IN	INTERMEDIATE	SEGMENT CONTAINING 1500FT POINT	1500

THRESHOLD COORDINATES (IF STR-IN)

465008.67N/0921117.77W

ARP COORDINATES

465031.45N/0921135.65W

RUNWAY APCH END AND DIST FURTHEST FROM ARP

RUNWAY 9 DISTANCE 1.11 NM

FAF COORDINATES

464807.79N/0921210.33W

FIX NAME COORDINATES

IF MIZOU 464126.27N/0921508.67W

REMARKS

PART E: PREPARED BY

NAME
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OFFICE
AJV-A432

DATE
10/16/2025

TITLE
AERONAUTICAL INFORMATION SPECIALIST

