

DME DME Assessment Results for MUSCL4 path CEWDA_FSCOT_

Results Summary

Flyability:	Completed
DME/DME:	Completed - No Critical DMEs
Name:	Lisa A-CTR Thrysoe
Project File:	C:\Users\Lisa A-CTR Thrysoe\OneDrive - Federal Aviation Administration\Desktop\DME DME Screening\KMSP\STARS\KMSP MUSCL FOUR STAR\KMSP STAR MUSCL FOUR DME 20241202.tgs
Output File:	C:\Users\Lisa A-CTR Thrysoe\OneDrive - Federal Aviation Administration\Desktop\DME DME Screening\KMSP\STARS\KMSP MUSCL FOUR STAR\KMSP [IFPA] MUSCL4 20250401_0740 EDT\CEWDA_FSCOT_\KMSP MUSCL4 RNAV STAR CEWDA FSCOT 20250401_0740 EDT.pdf
Procedure Name:	MUSCL4
Software: DmeDmePlugin:	7.4.1
Date/Time:	04/01/2025 07:40 EDT
Databases:	MITRE 3DEP 3 arcsec

Failures

No Failures

Warnings

No Warnings

Informational

No Informational

Notes For Flight Check

None

Flight Plan

Name	Type	Lat/Lon	Altitude (ft)	VNAV Mode	Ground Speed (kts)	Turn Type	Leg Type
CEWDA	WP	N44° 48' 32.0000", W088° 33' 00.0000"	12000	VNAV	280	FLY_BY	TF
SHEAY	WP	N44° 53' 23.4300", W090° 04' 41.4100"	12000	VNAV	280	FLY_BY	TF
CMARO	WP	N44° 56' 34.7900", W090° 41' 35.7800"	10000	VNAV	280	FLY_BY	TF
JERMN	WP	N45° 00' 17.4500", W091° 27' 35.2300"	8000	VNAV	280	FLY_BY	TF
MUSCL	WP	N45° 01' 43.7500", W091° 46' 36.6000"	6000	VNAV	280	FLY_BY	TF
BAYKS	WP	N45° 03' 37.6700", W092° 12' 53.6500"	6000	VNAV	280	FLY_BY	TF
WOLVS	WP	N45° 00' 14.7300", W092° 34' 22.9100"	6000	VNAV	280	FLY_BY	TF
LOON	WP	N44° 58' 55.3200", W092° 42' 40.7200"	6000	VNAV	280	FLY_BY	TF
WDBRY	WP	N44° 56' 42.4000", W092° 56' 21.7600"	6000	VNAV	250	FLY_BY	TF
ZASKY	WP	N44° 55' 49.0800", W093° 01' 51.1800"	6000	VNAV	250	FLY_BY	TF
CMMOE_	WP	N44° 57' 39.8726", W093° 06' 07.5465"	6000	VNAV	230	FLY_BY	TF
FSCOT_	WP	N44° 58' 55.6505", W093° 09' 06.9438"	6000	VNAV	230	FLY_OVER	TF

DME DME Assessment Results for MUSCL4 path CEWDA_FSCOT_

Flyability	
Flight Type:	RNAV_STAR
Selected Airport:	KMSP [IFPA]
Climb Gradient:	None assigned
Speeds:	200 Ground Speed to 11000 FT
	240 Ground Speed to 18000 FT
	260 Ground Speed to 24000 FT
	340 Ground Speed above 24000 FT
Descent During a Turn:	Allowed
VNAV Mode:	Flight Plan

DME/DME	
RNP:	RNP 2
Flight Mode:	Manual
Line of Sight (DTED Level 0 Max):	Evaluated
Inertial Drift:	Enabled
Initial Drift:	0.558 NM
INS Drift Rate:	8.0 NM/Hour
Range Mode:	OSV
RNP Edges:	Evaluated
Min DME Range:	3.0 NM
DME Types:	DME, VOR-DME, VORTAC, TACAN
DME Include Angles:	30 to 150
Critical DMEs:	Allowed
DoD Facilities:	Not included
Foreign Facilities:	Not included
High DMEs:	Included
Low DMEs:	Included
Terminal DMEs:	Included
Flight Check DMEs:	Not selected
Higher Altitudes:	Not Evaluated
Near Maximum Altitude:	Not Evaluated
Automatic ESVs:	Not enabled
Disabled DMEs:	None

DME/DME (Continued)										
DMEs Used										
#	Name	Lat/Lon	MAGVAR	Range	Type	Source	Critical	Status	Time	Distance
1	LNR	N43° 17' 39.8500", W090° 07' 59.3257"	0.0 E	130	DH		NO	Enabled	33.1 %	33.3 %
2	FCM	N44° 49' 31.2603", W093° 26' 33.6793"	1.0 E	40	L		NO	Enabled	13.6 %	13 %
3	FGT	N44° 37' 51.4303", W093° 10' 55.3911"	6.0 E	130	H		NO	Enabled	34 %	33.5 %
4	GEP	N45° 08' 44.4656", W093° 22' 23.4514"	6.0 E	130	H		NO	Enabled	15.5 %	14.9 %
5	OSH	N43° 59' 25.5488", W088° 33' 21.3572"	2.0 E	130	H		NO	Enabled	1.9 %	1.9 %
6	ODI	N43° 54' 44.3850", W091° 28' 03.0582"	1.0 E	130	H		NO	Enabled	33.9 %	34.2 %
7	GRB	N44° 33' 18.5761", W088° 11' 41.4859"	1.0 E	130	H		NO	Enabled	9.7 %	9.8 %
8	LJT	N43° 06' 35.1886", W088° 02' 14.2133"	0.0 E	130	DH		NO	Enabled	7 %	7 %
9	RZN	N45° 49' 13.6015", W092° 22' 28.2562"	-0.0 E	40	L		NO	Enabled	2 %	2 %
10	EAU	N44° 53' 51.6121", W091° 28' 42.7259"	4.0 E	130	H		NO	Enabled	45.5 %	45.8 %
11	MSP	N44° 53' 47.3958", W093° 14' 11.5137"	2.0 E	130	DH		NO	Enabled	21.4 %	21 %

DME DME Assessment Results for MUSCL4 path CEWDA_FSCOT_

Flight Check DME Selection						
Distance [NM]	Selected DMEs					Alternate
0.0	LNR	GRB	OSH	LJT		
3.8	LNR	GRB	LJT			
14.1	LNR	GRB				
19.5						
45.0	ODI	LNR				
50.2	EAU	LNR	ODI			
91.9						
107.4	ODI	EAU	MSP			
117.5	RZN	EAU	ODI	MSP		
118.9	ODI	MSP				
121.7	ODI	MSP	EAU			
122.0	ODI	MSP	RZN	EAU		
123.1	ODI	MSP	RZN			
124.8	ODI	MSP				
126.2	ODI	MSP	FGT			
126.5	EAU	MSP	ODI	FGT		
128.5	FGT	EAU	MSP			
131.3	FGT	EAU				
163.1						
169.0	FGT	GEP				
172.8	FGT	GEP	FCM			
179.2	FGT	GEP	FCM	MSP		
197.1	FCM	GEP	FGT			

Inertial Drift Segments			
#	Start Location	End Location	Length [NM]
1	N44° 50' 06.6828", W089° 00' 20.2787"	N44° 52' 00.5374", W089° 36' 05.9071"	25.5107
2	N44° 56' 35.3382", W090° 41' 42.2964"	N44° 58' 22.3750", W091° 03' 19.7446"	15.4582
3	N45° 02' 18.3900", W092° 21' 20.6758"	N45° 01' 01.5308", W092° 29' 28.0792"	5.902

Available DMEs by Waypoints			
Waypoint Before	Waypoint After	DME List	Suggested DMEs
CEWDA	SHEAY	LNR, OSH, ODI, GRB, LJ, EAU	
SHEAY	CMARO	LNR, ODI, EAU	
CMARO	JERMN	LNR, ODI, RZN, EAU, MSP	
JERMN	MUSCL	FGT, ODI, RZN, EAU, MSP	
MUSCL	BAYKS	FGT, EAU	
BAYKS	WOLVS	FGT, GEP, EAU	
WOLVS	LOOON	FCM, FGT, GEP	
LOOON	WDBRY	FCM, FGT, GEP, MSP	
WDBRY	ZASKY	FCM, FGT, GEP, MSP	
ZASKY	CMMOE_	FCM, FGT, GEP, MSP	
CMMOE_	FSCOT_	FCM, FGT, GEP, MSP	

DME DME Assessment Results for MUSCL4 path CEWDA_FSCOT_

User Data Files

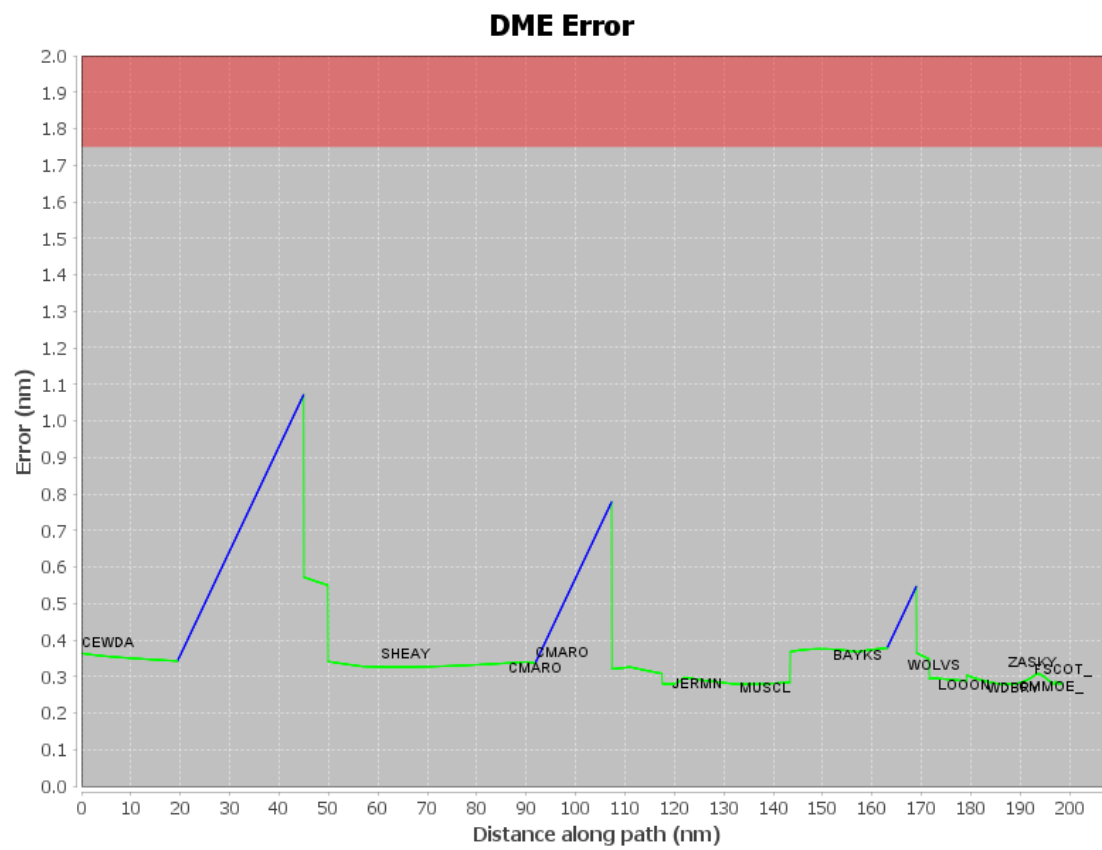
File Name

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User DMEs

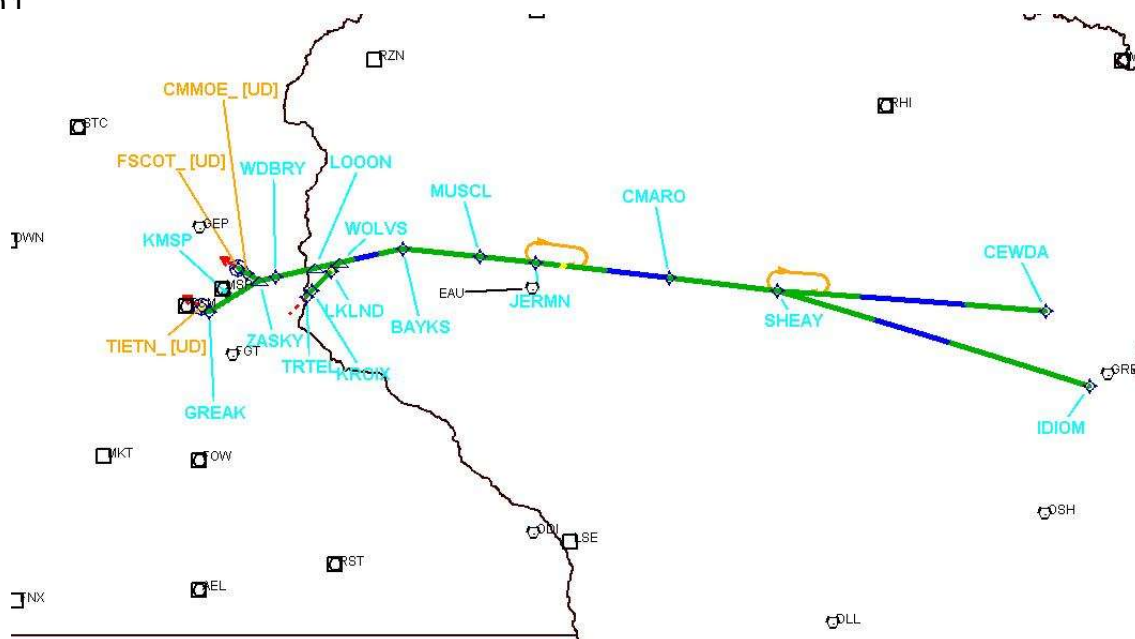
#	Name	Lat/Lon	MAGVAR	Range	Elevation [ft]	Frequency	Replaces	Status
1	BAE FAA 704236-26 BAE	N43° 07' 00.6717", W088° 17' 03.6386"	2.0 E	130	1069.9	116.4	BAE FAA 704236-26	
ESV:		Bearing [True]: 266.0° to 352.0° Bearing [Mag]: 264.0° to 350.0°				Arc Distance: Out to 99.0 NM Altitude: 10000.0 to 15600.0 ft		
2	FGT FAA 702546-22 FGT	N44° 37' 51.4303", W093° 10' 55.3911"	6.0 E	130	926.4	115.7	FGT FAA 702546-22	
ESV:		Bearing [True]: 48.0° to 80.0° Bearing [Mag]: 42.0° to 74.0°				Arc Distance: Out to 77.0 NM Altitude: 4000.0 to 15500.0 ft		
3	ODI FAA 704283-28 ODI	N43° 54' 44.3850", W091° 28' 03.0582"	1.0 E	130	1281.6	117.9	ODI FAA 704283-28	
ESV:		Bearing [True]: 4.0° to 102.0° Bearing [Mag]: 3.0° to 101.0°				Arc Distance: Out to 101.0 NM Altitude: 10000.0 to 19300.0 ft		
4	OSH FAA 190505-7 OSH	N43° 59' 25.5488", W088° 33' 21.3572"	2.0 E	130	781.5	116.75	OSH FAA 190505-7	
ESV:		Bearing [True]: 348.0° to 3.0° Bearing [Mag]: 346.0° to 1.0°				Arc Distance: Out to 55.0 NM Altitude: 10000.0 to 15300.0 ft		
5	RZN FAA 840205-13 RZN	N45° 49' 13.6015", W092° 22' 28.2562"	-0.0 E	40	986.6	109.4	RZN FAA 840205-13	
ESV:		Bearing [True]: 137.0° to 178.0° Bearing [Mag]: 137.0° to 178.0°				Arc Distance: Out to 88.0 NM Altitude: 8000.0 to 13000.0 ft		
6	ODI FAA 704283-29 ODI	N43° 54' 44.3850", W091° 28' 03.0582"	1.0 E	130	1281.6	117.9	ODI FAA 704283-29	
ESV:		Bearing [True]: 325.0° to 49.0° Bearing [Mag]: 324.0° to 48.0°				Arc Distance: Out to 70.0 NM Altitude: 4000.0 to 15800.0 ft		
7	EAU FAA 190507-29 EAU	N44° 53' 51.6121", W091° 28' 42.7259"	4.0 E	130	904.3	113.65	EAU FAA 190507-29	
ESV:		Bearing [True]: 67.0° to 115.0° Bearing [Mag]: 63.0° to 111.0°				Arc Distance: Out to 75.0 NM Altitude: 8000.0 to 15500.0 ft		

DME DME Assessment Results for MUSCL4 path CEWDA_FSCOT_



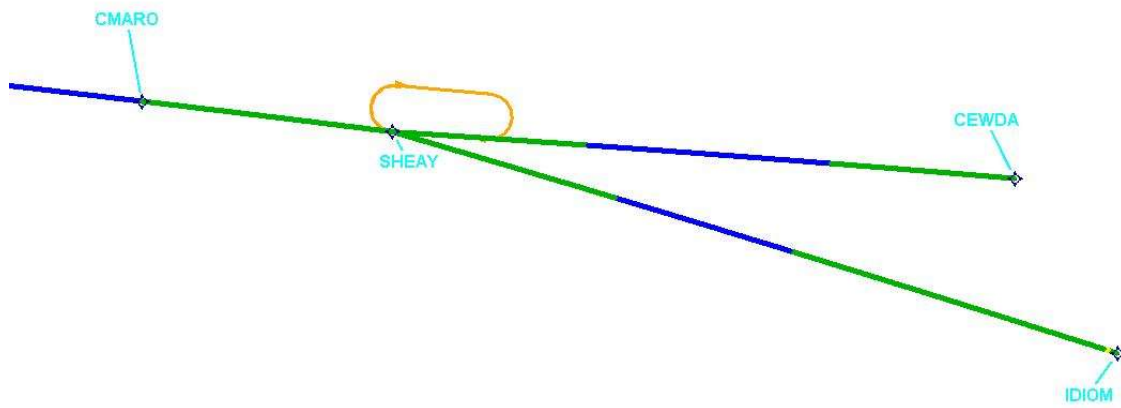
DME DME Assessment Results for MUSCL4 path CEWDA_FSCOT_

Graphic Depiction 1



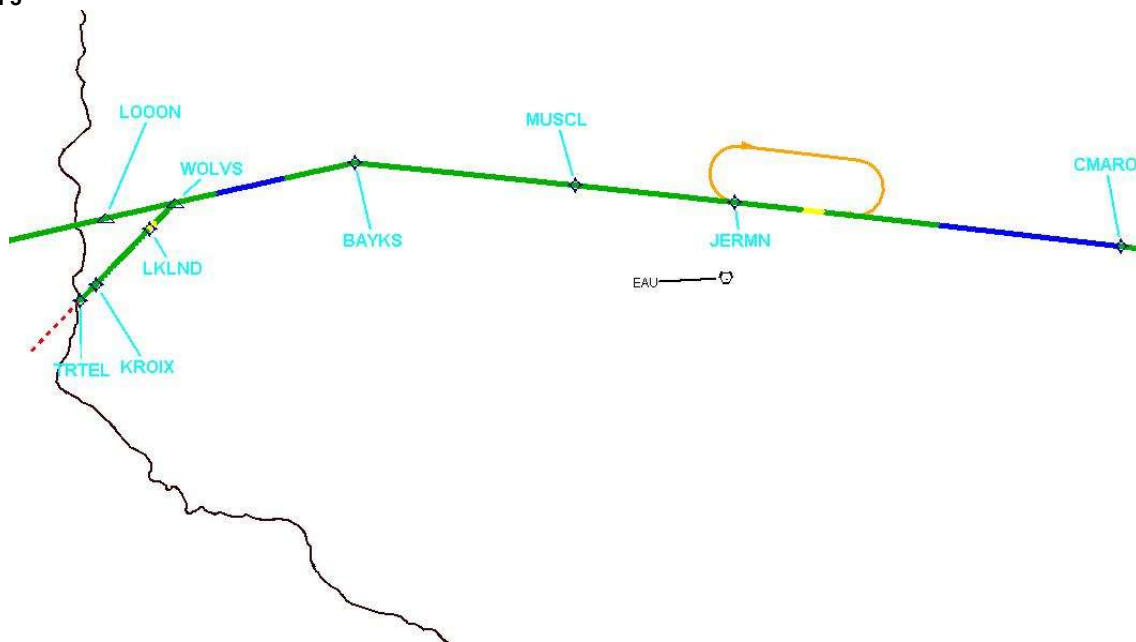
DME DME Assessment Results for MUSCL4 path CEWDA_FSCOT_

Graphic Depiction 2



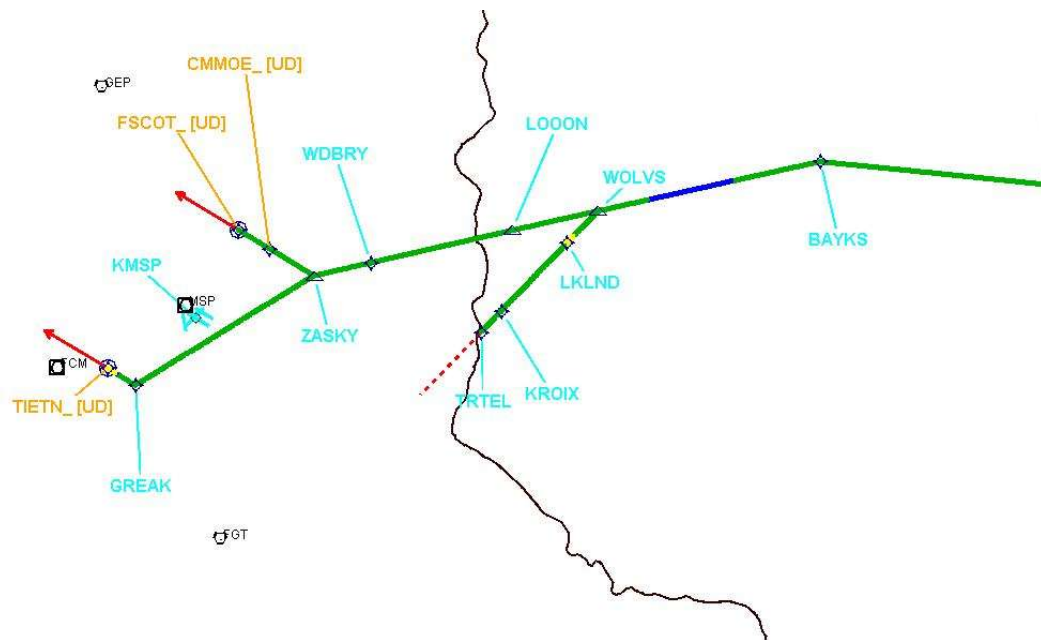
DME DME Assessment Results for MUSCL4 path CEWDA_FSCOT_

Graphic Depiction 3



DME DME Assessment Results for MUSCL4 path CEWDA_FSCOT_

Graphic Depiction 4



DME DME Assessment Results for MUSCL4 path IDIOM_SHEAY

Results Summary

Flyability:	Completed
DME/DME:	Completed - No Critical DMEs
Name:	Lisa A-CTR Thrysoe
Project File:	C:\Users\Lisa A-CTR Thrysoe\OneDrive - Federal Aviation Administration\Desktop\DME DME Screening\KMSP\STARS\KMSP MUSCL FOUR STAR\KMSP STAR MUSCL FOUR DME 20241202.tgs
Output File:	C:\Users\Lisa A-CTR Thrysoe\OneDrive - Federal Aviation Administration\Desktop\DME DME Screening\KMSP\STARS\KMSP MUSCL FOUR STAR\KMSP [IFPA] MUSCL4 20250401_0740 EDT\IDIOM_SHEAY\KMSP MUSCL4 RNAV STAR IDIOM SHEAY 20250401_0740 EDT.pdf
Procedure Name:	MUSCL4
Software: DmeDmePlugin:	7.4.1
Date/Time:	04/01/2025 07:40 EDT
Databases:	MITRE 3DEP 3 arcsec

Failures

No Failures

Warnings

No Warnings

Informational

No Informational

Notes For Flight Check

None

Flight Plan

Name	Type	Lat/Lon	Altitude (ft)	VNAV Mode	Ground Speed (kts)	Turn Type	Leg Type
IDIOM	WP	N44° 30' 18.0000", W088° 17' 57.0000"	12000	VNAV	280	FLY_BY	TF
SHEAY	WP	N44° 53' 23.4300", W090° 04' 41.4100"	12000	VNAV	280	FLY_BY	TF

Flyability

Flight Type:	RNAV_STAR
Selected Airport:	KMSP [IFPA]
Climb Gradient:	None assigned
Speeds:	200 Ground Speed to 11000 FT
	240 Ground Speed to 18000 FT
	260 Ground Speed to 24000 FT
	340 Ground Speed above 24000 FT
Descent During a Turn:	Allowed
VNAV Mode:	Flight Plan

DME DME Assessment Results for MUSCL4 path IDIOM_SHEAY

DME/DME	
RNP:	RNP 2
Flight Mode:	Manual
Line of Sight (DTED Level 0 Max):	Evaluated
Inertial Drift:	Enabled
Initial Drift:	0.558 NM
INS Drift Rate:	8.0 NM/Hour
Range Mode:	OSV
RNP Edges:	Evaluated
Min DME Range:	3.0 NM
DME Types:	DME, VOR-DME, VORTAC, TACAN
DME Include Angles:	30 to 150
Critical DMEs:	Allowed
DoD Facilities:	Not included
Foreign Facilities:	Not included
High DMEs:	Included
Low DMEs:	Included
Terminal DMEs:	Included
Flight Check DMEs:	Not selected
Higher Altitudes:	Not Evaluated
Near Maximum Altitude:	Not Evaluated
Automatic ESVs:	Not enabled
Disabled DMEs:	None

DME/DME (Continued)										
DMEs Used										
#	Name	Lat/Lon	MAGVAR	Range	Type	Source	Critical	Status	Time	Distance
1	TVC	N44° 40' 04.4971", W085° 33' 00.0403"	2.0 W	130	DH		NO	Enabled	0.7 %	0.7 %
2	LNR	N43° 17' 39.8500", W090° 07' 59.3257"	0.0 E	130	DH		NO	Enabled	75.9 %	75.9 %
3	OSH	N43° 59' 25.5488", W088° 33' 21.3572"	2.0 E	130	H		NO	Enabled	20.4 %	20.4 %
4	ODI	N43° 54' 44.3850", W091° 28' 03.0582"	1.0 E	130	H		NO	Enabled	30.8 %	30.8 %
5	GRB	N44° 33' 18.5761", W088° 11' 41.4859"	1.0 E	130	H		NO	Enabled	45.1 %	45.1 %
6	BAE	N43° 07' 00.6717", W088° 17' 03.6386"	2.0 E	130	H		NO	Enabled	10.1 %	10.1 %
7	LJT	N43° 06' 35.1886", W088° 02' 14.2133"	0.0 E	130	DH		NO	Enabled	24.9 %	24.9 %
8	EAU	N44° 53' 51.6121", W091° 28' 42.7259"	4.0 E	130	H		NO	Enabled	18.8 %	18.8 %

Flight Check DME Selection						
Distance [NM]	Selected DMEs					Alternate
0.0	LJT	GRB	TVC	OSH	LNR	
0.2	LJT	GRB	LNR			
0.9	LJT	GRB	TVC	OSH	LNR	
1.4	LJT	GRB	OSH	LNR		
17.1	LJT	GRB	LNR			
19.9	BAE	GRB	LNR			
28.0	LNR	GRB				
35.9						
55.1	ODI	LNR				
64.6	EAU	LNR	ODI			

DME DME Assessment Results for MUSCL4 path IDIOM_SHEAY

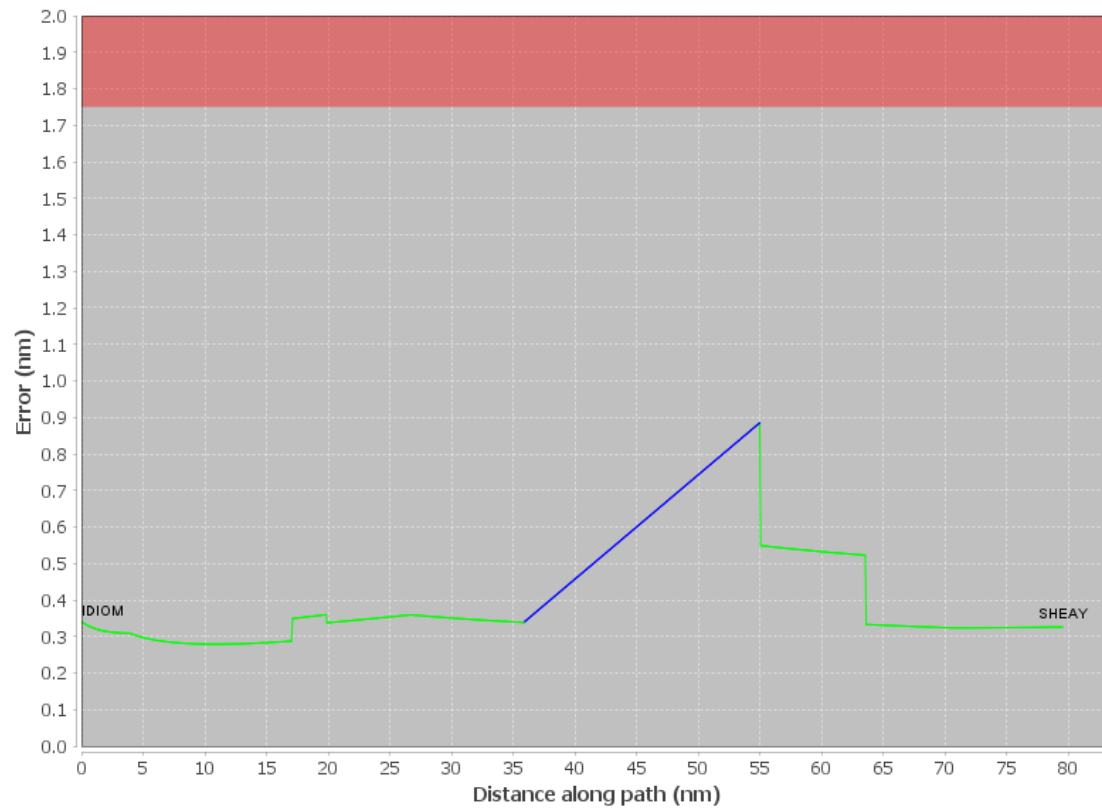
Inertial Drift Segments			
#	Start Location	End Location	Length [NM]
1	N44° 40' 56.0379", W089° 05' 58.7998"	N44° 46' 27.4892", W089° 31' 40.3633"	19.1316

Available DMEs by Waypoints			
Waypoint Before	Waypoint After	DME List	Suggested DMEs
IDIOM	SHEAY	TVC, LNR, OSH, ODI, GRB, BAE, LJT, EAU	

User Data Files								
#	File Name							
None								
User DMEs								
#	Name	Lat/Lon	MAGVAR	Range	Elevation [ft]	Frequency	Replaces	Status
1	BAE FAA 704236-26 BAE	N43° 07' 00.6717", W088° 17' 03.6386"	2.0 E	130	1069.9	116.4	BAE FAA 704236-26	
ESV:		Bearing [True]: 266.0° to 352.0° Bearing [Mag]: 264.0° to 350.0°				Arc Distance: Out to 99.0 NM Altitude: 10000.0 to 15600.0 ft		
2	FGT FAA 702546-22 FGT	N44° 37' 51.4303", W093° 10' 55.3911"	6.0 E	130	926.4	115.7	FGT FAA 702546-22	
ESV:		Bearing [True]: 48.0° to 80.0° Bearing [Mag]: 42.0° to 74.0°				Arc Distance: Out to 77.0 NM Altitude: 4000.0 to 15500.0 ft		
3	ODI FAA 704283-28 ODI	N43° 54' 44.3850", W091° 28' 03.0582"	1.0 E	130	1281.6	117.9	ODI FAA 704283-28	
ESV:		Bearing [True]: 4.0° to 102.0° Bearing [Mag]: 3.0° to 101.0°				Arc Distance: Out to 101.0 NM Altitude: 10000.0 to 19300.0 ft		
4	OSH FAA 190505-7 OSH	N43° 59' 25.5488", W088° 33' 21.3572"	2.0 E	130	781.5	116.75	OSH FAA 190505-7	
ESV:		Bearing [True]: 348.0° to 3.0° Bearing [Mag]: 346.0° to 1.0°				Arc Distance: Out to 55.0 NM Altitude: 10000.0 to 15300.0 ft		
5	RZN FAA 840205-13 RZN	N45° 49' 13.6015", W092° 22' 28.2562"	-0.0 E	40	986.6	109.4	RZN FAA 840205-13	
ESV:		Bearing [True]: 137.0° to 178.0° Bearing [Mag]: 137.0° to 178.0°				Arc Distance: Out to 88.0 NM Altitude: 8000.0 to 13000.0 ft		
6	ODI FAA 704283-29 ODI	N43° 54' 44.3850", W091° 28' 03.0582"	1.0 E	130	1281.6	117.9	ODI FAA 704283-29	
ESV:		Bearing [True]: 325.0° to 49.0° Bearing [Mag]: 324.0° to 48.0°				Arc Distance: Out to 70.0 NM Altitude: 4000.0 to 15800.0 ft		
7	EAU FAA 190507-29 EAU	N44° 53' 51.6121", W091° 28' 42.7259"	4.0 E	130	904.3	113.65	EAU FAA 190507-29	
ESV:		Bearing [True]: 67.0° to 115.0° Bearing [Mag]: 63.0° to 111.0°				Arc Distance: Out to 75.0 NM Altitude: 8000.0 to 15500.0 ft		

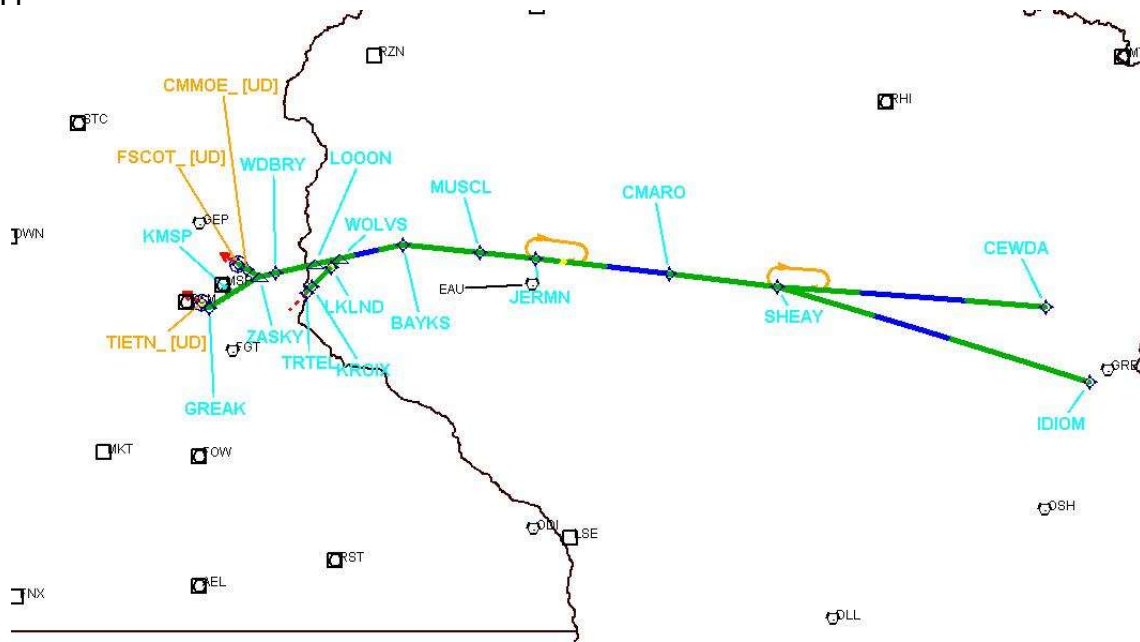
DME DME Assessment Results for MUSCL4 path IDIOM_SHEAY

DME Error



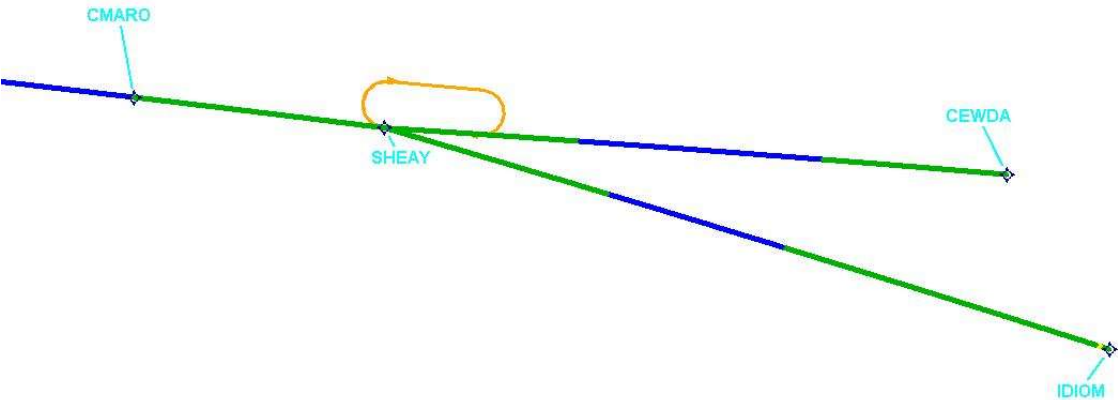
Graphic Depiction 1

DME DME Assessment Results for MUSCL4 path IDIOM_SHEAY



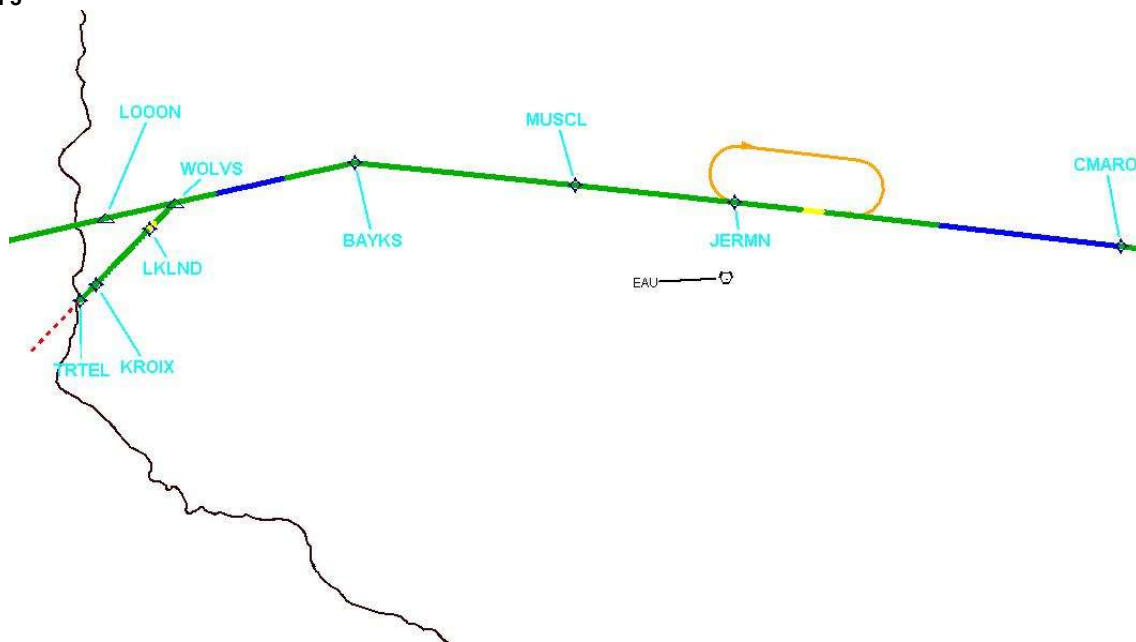
DME DME Assessment Results for MUSCL4 path IDIOM_SHEAY

Graphic Depiction 2

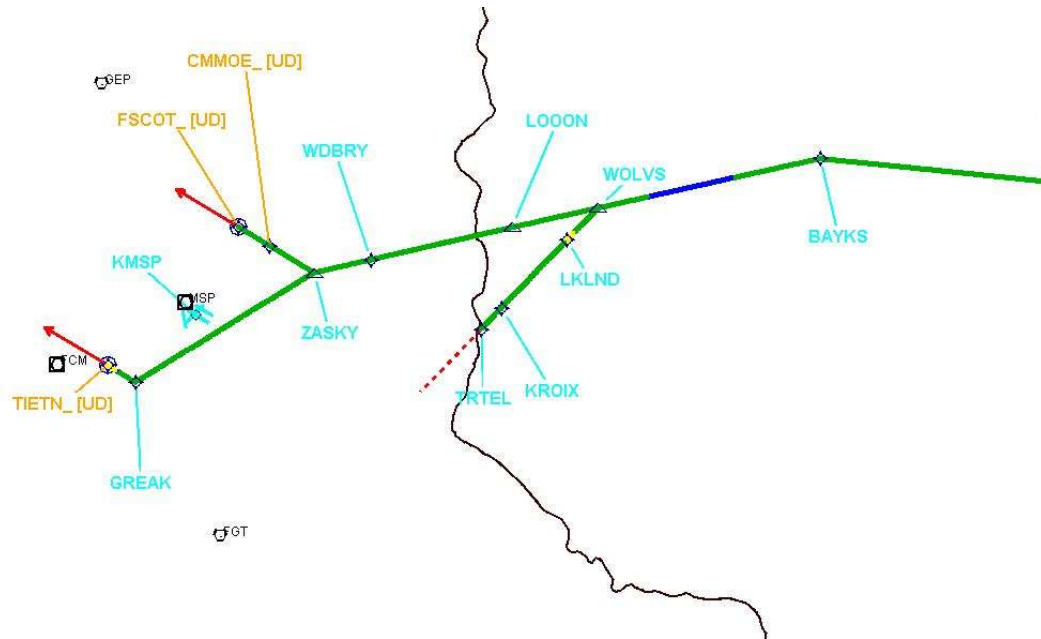


DME DME Assessment Results for MUSCL4 path IDIOM_SHEAY

Graphic Depiction 3



Graphic Depiction 4



DME DME Assessment Results for MUSCL4 path WOLVS_TRTEL

Results Summary

Flyability:	Completed
DME/DME:	Completed - No Critical DMEs
Name:	Lisa A-CTR Thrysoe
Project File:	C:\Users\Lisa A-CTR Thrysoe\OneDrive - Federal Aviation Administration\Desktop\DME DME Screening\KMSP\STARS\KMSP MUSCL FOUR STAR\KMSP STAR MUSCL FOUR DME 20241202.tgs
Output File:	C:\Users\Lisa A-CTR Thrysoe\OneDrive - Federal Aviation Administration\Desktop\DME DME Screening\KMSP\STARS\KMSP MUSCL FOUR STAR\KMSP [IFPA] MUSCL4 20250401_0740 EDT\WOLVS_TRTEL\KMSP MUSCL4 RNAV STAR WOLVS TRTEL 20250401_0740 EDT.pdf
Procedure Name:	MUSCL4
Software: DmeDmePlugin:	7.4.1
Date/Time:	04/01/2025 07:40 EDT
Databases:	MITRE 3DEP 3 arcsec

Failures

No Failures

Warnings

No Warnings

Informational

No Informational

Notes For Flight Check

None

Flight Plan

Name	Type	Lat/Lon	Altitude (ft)	VNAV Mode	Ground Speed (kts)	Turn Type	Leg Type
WOLVS	WP	N45° 00' 14.7300", W092° 34' 22.9100"	6000	VNAV	280	FLY_BY	TF
LKLND	WP	N44° 58' 02.5300", W092° 37' 24.0300"	6000	VNAV	280	FLY_BY	TF
KROIX	WP	N44° 53' 23.7000", W092° 43' 45.4300"	6000	VNAV	230	FLY_BY	TF
TRTEL	WP	N44° 51' 57.4600", W092° 45' 43.0900"	6000	VNAV	210	FLY_BY	TF

Flyability

Flight Type:	RNAV_STAR
Selected Airport:	KMSP [IFPA]
Climb Gradient:	None assigned
Speeds:	200 Ground Speed to 11000 FT
	240 Ground Speed to 18000 FT
	260 Ground Speed to 24000 FT
	340 Ground Speed above 24000 FT
Descent During a Turn:	Allowed
VNAV Mode:	Flight Plan

DME DME Assessment Results for MUSCL4 path WOLVS_TRTEL

DME/DME	
RNP:	RNP 2
Flight Mode:	Manual
Line of Sight (DTED Level 0 Max):	Evaluated
Inertial Drift:	Enabled
Initial Drift:	0.558 NM
INS Drift Rate:	8.0 NM/Hour
Range Mode:	OSV
RNP Edges:	Evaluated
Min DME Range:	3.0 NM
DME Types:	DME, VOR-DME, VORTAC, TACAN
DME Include Angles:	30 to 150
Critical DMEs:	Allowed
DoD Facilities:	Not included
Foreign Facilities:	Not included
High DMEs:	Included
Low DMEs:	Included
Terminal DMEs:	Included
Flight Check DMEs:	Not selected
Higher Altitudes:	Not Evaluated
Near Maximum Altitude:	Not Evaluated
Automatic ESVs:	Not enabled
Disabled DMEs:	None

DME/DME (Continued)										
DMEs Used										
#	Name	Lat/Lon	MAGVAR	Range	Type	Source	Critical	Status	Time	Distance
1	FCM	N44° 49' 31.2603", W093° 26' 33.6793"	1.0 E	40	L		NO	Enabled	79.5 %	78.7 %
2	FGT	N44° 37' 51.4303", W093° 10' 55.3911"	6.0 E	130	H		NO	Enabled	100 %	100 %
3	RST	N43° 46' 58.4501", W092° 35' 49.0560"	5.0 E	130	DH		NO	Enabled	75 %	74.1 %
4	GEP	N45° 08' 44.4656", W093° 22' 23.4514"	6.0 E	130	H		NO	Enabled	100 %	100 %
5	MSP	N44° 53' 47.3958", W093° 14' 11.5137"	2.0 E	130	DH		NO	Enabled	79.5 %	78.7 %

Flight Check DME Selection						
Distance [NM]	Selected DMEs					Alternate
0.0	FGT	GEP				
2.5	RST	MSP	FCM	GEP	FGT	
3.3	FGT	GEP	FCM	MSP		
3.8	RST	MSP	FCM	GEP	FGT	

Inertial Drift Segments			
#	Start Location	End Location	Length [NM]

Available DMEs by Waypoints			
Waypoint Before	Waypoint After	DME List	Suggested DMEs
WOLVS	LKLND	FCM, FGT, RST, GEP, MSP	
LKLND	KROIX	FCM, RST, FGT, GEP, MSP	
KROIX	TRTEL	FCM, RST, FGT, GEP, MSP	

DME DME Assessment Results for MUSCL4 path WOLVS_TRTEL

User Data Files

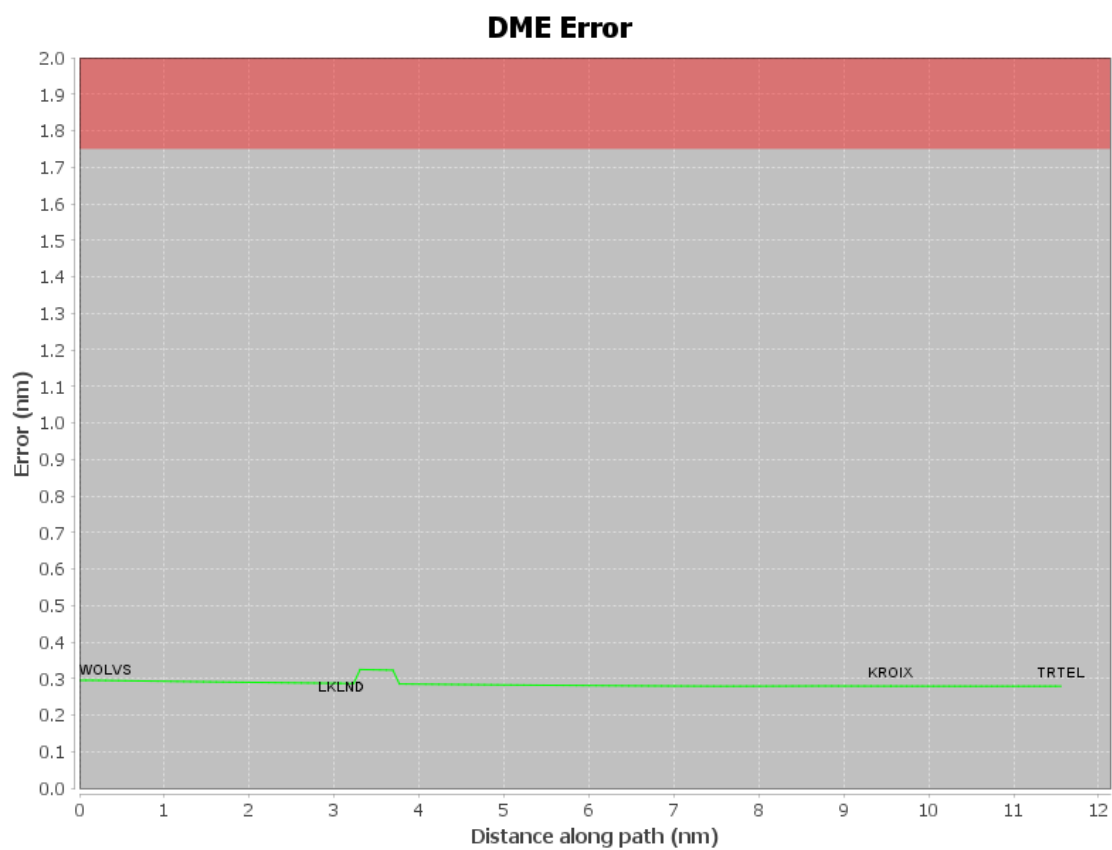
File Name

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User DMEs

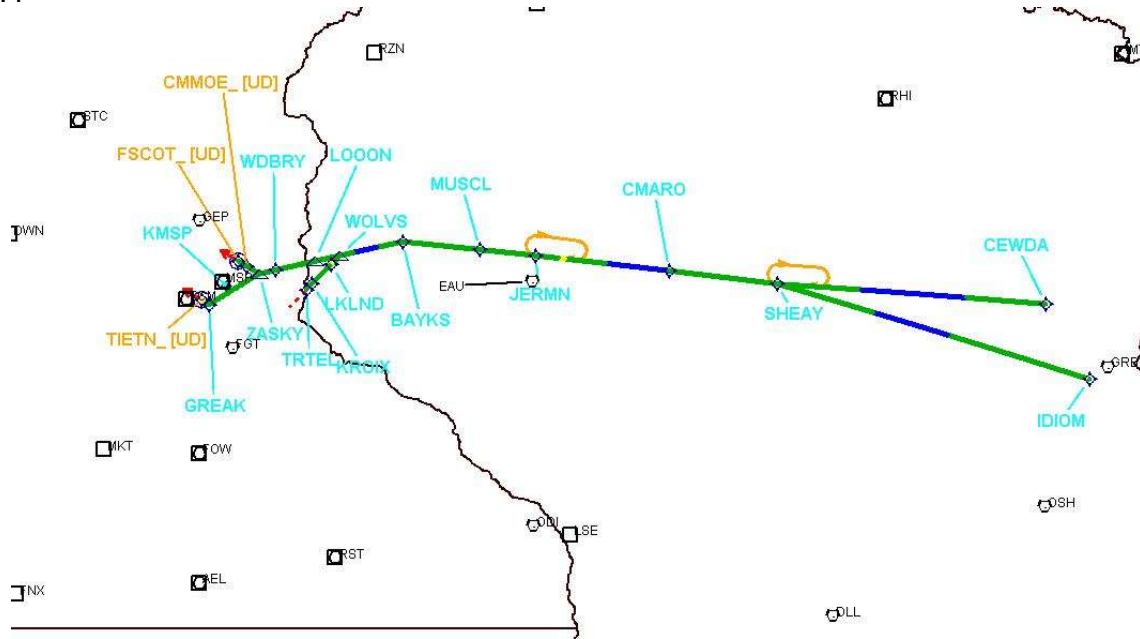
#	Name	Lat/Lon	MAGVAR	Range	Elevation [ft]	Frequency	Replaces	Status
1	BAE FAA 704236-26 BAE	N43° 07' 00.6717", W088° 17' 03.6386"	2.0 E	130	1069.9	116.4	BAE FAA 704236-26	
ESV:		Bearing [True]: 266.0° to 352.0° Bearing [Mag]: 264.0° to 350.0°				Arc Distance: Out to 99.0 NM Altitude: 10000.0 to 15600.0 ft		
2	FGT FAA 702546-22 FGT	N44° 37' 51.4303", W093° 10' 55.3911"	6.0 E	130	926.4	115.7	FGT FAA 702546-22	
ESV:		Bearing [True]: 48.0° to 80.0° Bearing [Mag]: 42.0° to 74.0°				Arc Distance: Out to 77.0 NM Altitude: 4000.0 to 15500.0 ft		
3	ODI FAA 704283-28 ODI	N43° 54' 44.3850", W091° 28' 03.0582"	1.0 E	130	1281.6	117.9	ODI FAA 704283-28	
ESV:		Bearing [True]: 4.0° to 102.0° Bearing [Mag]: 3.0° to 101.0°				Arc Distance: Out to 101.0 NM Altitude: 10000.0 to 19300.0 ft		
4	OSH FAA 190505-7 OSH	N43° 59' 25.5488", W088° 33' 21.3572"	2.0 E	130	781.5	116.75	OSH FAA 190505-7	
ESV:		Bearing [True]: 348.0° to 3.0° Bearing [Mag]: 346.0° to 1.0°				Arc Distance: Out to 55.0 NM Altitude: 10000.0 to 15300.0 ft		
5	RZN FAA 840205-13 RZN	N45° 49' 13.6015", W092° 22' 28.2562"	-0.0 E	40	986.6	109.4	RZN FAA 840205-13	
ESV:		Bearing [True]: 137.0° to 178.0° Bearing [Mag]: 137.0° to 178.0°				Arc Distance: Out to 88.0 NM Altitude: 8000.0 to 13000.0 ft		
6	ODI FAA 704283-29 ODI	N43° 54' 44.3850", W091° 28' 03.0582"	1.0 E	130	1281.6	117.9	ODI FAA 704283-29	
ESV:		Bearing [True]: 325.0° to 49.0° Bearing [Mag]: 324.0° to 48.0°				Arc Distance: Out to 70.0 NM Altitude: 4000.0 to 15800.0 ft		
7	EAU FAA 190507-29 EAU	N44° 53' 51.6121", W091° 28' 42.7259"	4.0 E	130	904.3	113.65	EAU FAA 190507-29	
ESV:		Bearing [True]: 67.0° to 115.0° Bearing [Mag]: 63.0° to 111.0°				Arc Distance: Out to 75.0 NM Altitude: 8000.0 to 15500.0 ft		

DME DME Assessment Results for MUSCL4 path WOLVS_TRTEL



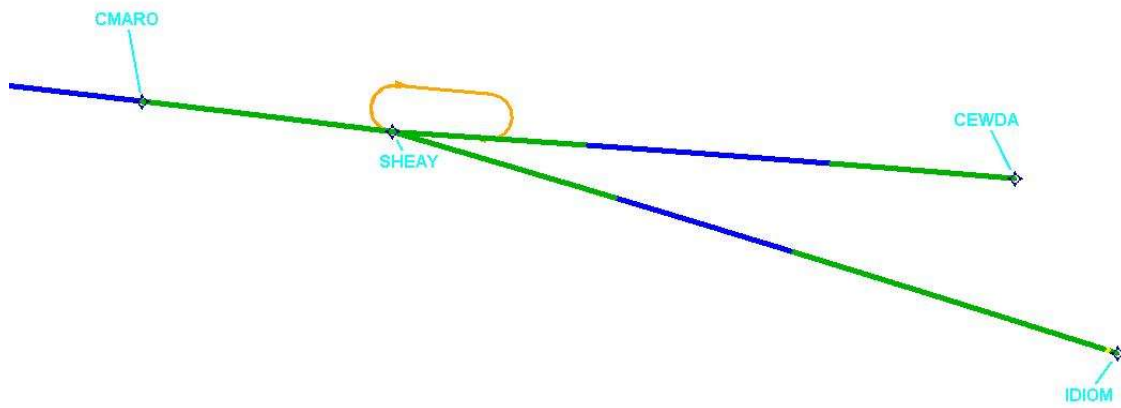
DME DME Assessment Results for MUSCL4 path WOLVS_TRTEL

Graphic Depiction 1



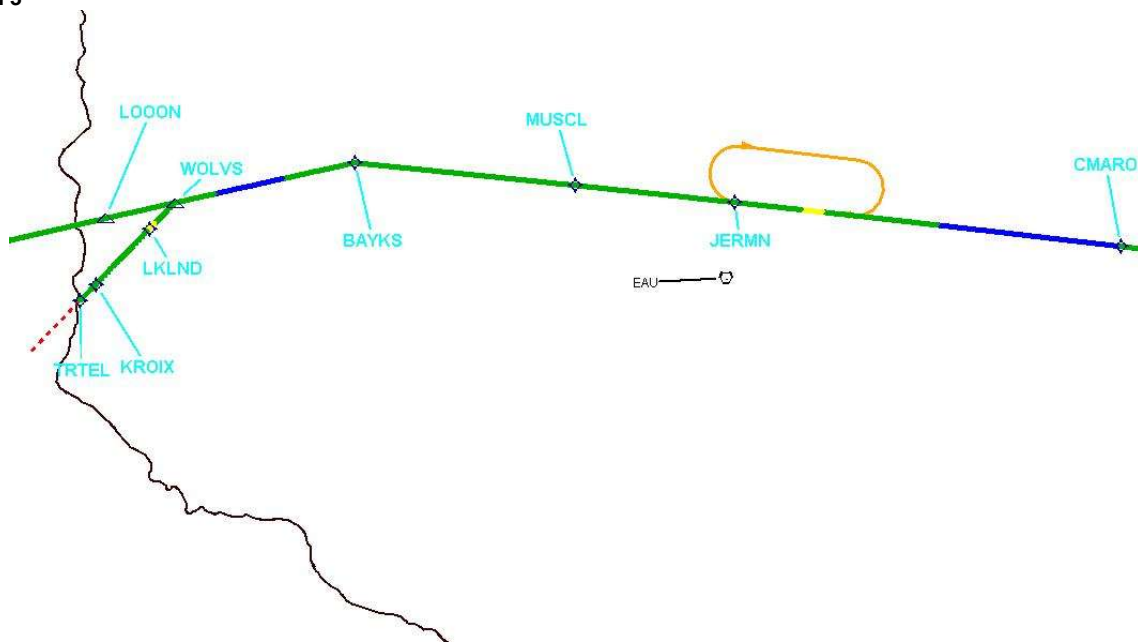
DME DME Assessment Results for MUSCL4 path WOLVS_TRTEL

Graphic Depiction 2

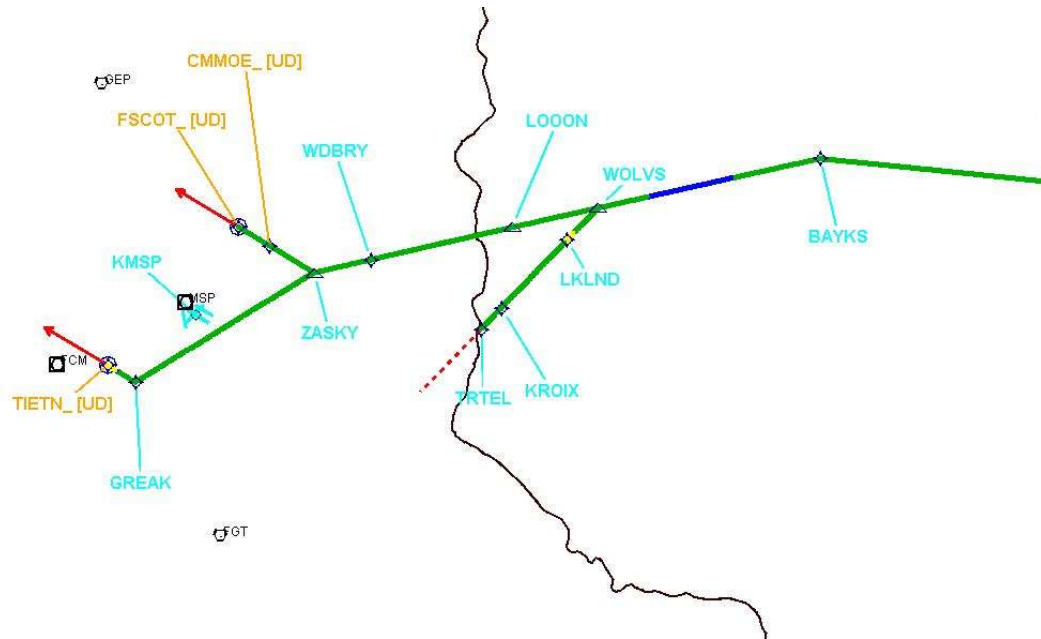


DME DME Assessment Results for MUSCL4 path WOLVS_TRTEL

Graphic Depiction 3



Graphic Depiction 4



DME DME Assessment Results for MUSCL4 path ZASKY_TIETN_

Results Summary

Flyability:	Completed
DME/DME:	Completed - No Critical DMEs
Name:	Lisa A-CTR Thrysoe
Project File:	C:\Users\Lisa A-CTR Thrysoe\OneDrive - Federal Aviation Administration\Desktop\DME DME Screening\KMSP\STARS\KMSP MUSCL FOUR STAR\KMSP STAR MUSCL FOUR DME 20241202.tgs
Output File:	C:\Users\Lisa A-CTR Thrysoe\OneDrive - Federal Aviation Administration\Desktop\DME DME Screening\KMSP\STARS\KMSP MUSCL FOUR STAR\KMSP [IFPA] MUSCL4 20250401_0740 EDT\ZASKY_TIETN_ \KMSP MUSCL4 RNAV STAR ZASKY TIETN_ 20250401_0740 EDT_.pdf
Procedure Name:	MUSCL4
Software: DmeDmePlugin:	7.4.1
Date/Time:	04/01/2025 07:40 EDT
Databases:	MITRE 3DEP 3 arcsec

Failures

No Failures

Warnings

No Warnings

Informational

No Informational

Notes For Flight Check

None

Flight Plan

Name	Type	Lat/Lon	Altitude (ft)	VNAV Mode	Ground Speed (kts)	Turn Type	Leg Type
ZASKY	WP	N44° 55' 49.0800", W093° 01' 51.1800"	6000	VNAV	250	FLY_BY	TF
GREAK	WP	N44° 48' 19.4000", W093° 19' 04.5700"	6000	VNAV	230	FLY_BY	TF
TIETN_	WP	N44° 49' 29.6249", W093° 21' 46.7914"	6000	VNAV	230	FLY_OVER	TF

Flyability

Flight Type:	RNAV_STAR
Selected Airport:	KMSP [IFPA]
Climb Gradient:	None assigned
Speeds:	200 Ground Speed to 11000 FT
	240 Ground Speed to 18000 FT
	260 Ground Speed to 24000 FT
	340 Ground Speed above 24000 FT
Descent During a Turn:	Allowed
VNAV Mode:	Flight Plan

DME DME Assessment Results for MUSCL4 path ZASKY_TIETN_

DME/DME	
RNP:	RNP 2
Flight Mode:	Manual
Line of Sight (DTED Level 0 Max):	Evaluated
Inertial Drift:	Enabled
Initial Drift:	0.558 NM
INS Drift Rate:	8.0 NM/Hour
Range Mode:	OSV
RNP Edges:	Evaluated
Min DME Range:	3.0 NM
DME Types:	DME, VOR-DME, VORTAC, TACAN
DME Include Angles:	30 to 150
Critical DMEs:	Allowed
DoD Facilities:	Not included
Foreign Facilities:	Not included
High DMEs:	Included
Low DMEs:	Included
Terminal DMEs:	Included
Flight Check DMEs:	Not selected
Higher Altitudes:	Not Evaluated
Near Maximum Altitude:	Not Evaluated
Automatic ESVs:	Not enabled
Disabled DMEs:	None

DME/DME (Continued)										
DMEs Used										
#	Name	Lat/Lon	MAGVAR	Range	Type	Source	Critical	Status	Time	Distance
1	FCM	N44° 49' 31.2603", W093° 26' 33.6793"	1.0 E	40	L		NO	Enabled	98.4 %	98.5 %
2	FGT	N44° 37' 51.4303", W093° 10' 55.3911"	6.0 E	130	H		NO	Enabled	89.5 %	90.2 %
3	RST	N43° 46' 58.4501", W092° 35' 49.0560"	5.0 E	130	DH		NO	Enabled	44.5 %	44.7 %
4	GEP	N45° 08' 44.4656", W093° 22' 23.4514"	6.0 E	130	H		NO	Enabled	98.4 %	98.5 %
5	MSP	N44° 53' 47.3958", W093° 14' 11.5137"	2.0 E	130	DH		NO	Enabled	43.3 %	43.4 %

Flight Check DME Selection						
Distance [NM]	Selected DMEs					Alternate
0.0	FGT	GEP	FCM	MSP		
5.8	FCM	GEP	FGT			
7.6	FCM	RST	FGT	GEP		
13.5	FCM	GEP	FGT	RST	MSP	
14.4	FCM	GEP				
15.8						
16.0	FCM	GEP	FGT	MSP	RST	

Inertial Drift Segments			
#	Start Location	End Location	Length [NM]
1	N44° 49' 04.2733", W093° 20' 48.1988"	N44° 49' 10.1244", W093° 21' 01.7189"	0.1877

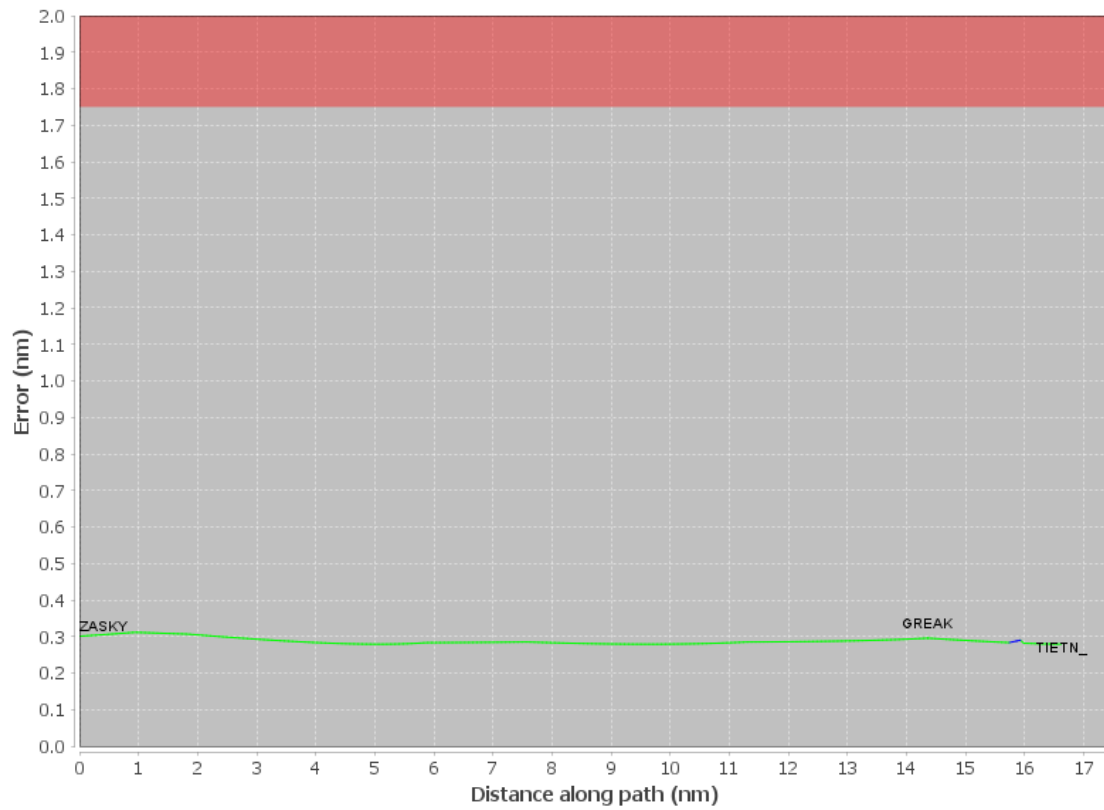
Available DMEs by Waypoints			
Waypoint Before	Waypoint After	DME List	Suggested DMEs
ZASKY	GREAK	FCM, FGT, RST, GEP, MSP	
GREAK	TIETN_	FCM, FGT, RST, GEP, MSP	

DME DME Assessment Results for MUSCL4 path ZASKY_TIETN_

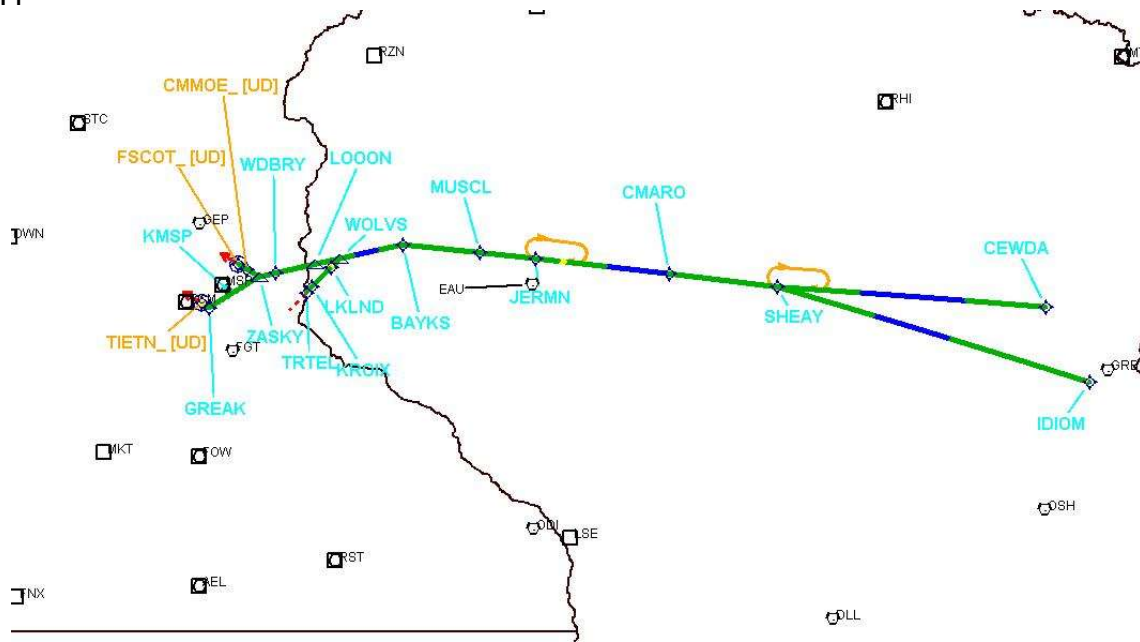
User Data Files								
#	File Name							
None								
User DMEs								
#	Name	Lat/Lon	MAGVAR	Range	Elevation [ft]	Frequency	Replaces	Status
1	BAE FAA 704236-26 BAE	N43° 07' 00.6717", W088° 17' 03.6386"	2.0 E	130	1069.9	116.4	BAE FAA 704236-26	
ESV:		Bearing [True]: 266.0° to 352.0° Bearing [Mag]: 264.0° to 350.0°				Arc Distance: Out to 99.0 NM Altitude: 10000.0 to 15600.0 ft		
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ESV:		Bearing [True]: 48.0° to 80.0° Bearing [Mag]: 42.0° to 74.0°				Arc Distance: Out to 77.0 NM Altitude: 4000.0 to 15500.0 ft		
3	ODI FAA 704283-28 ODI	N43° 54' 44.3850", W091° 28' 03.0582"	1.0 E	130	1281.6	117.9	ODI FAA 704283-28	
ESV:		Bearing [True]: 4.0° to 102.0° Bearing [Mag]: 3.0° to 101.0°				Arc Distance: Out to 101.0 NM Altitude: 10000.0 to 19300.0 ft		
4	OSH FAA 190505-7 OSH	N43° 59' 25.5488", W088° 33' 21.3572"	2.0 E	130	781.5	116.75	OSH FAA 190505-7	
ESV:		Bearing [True]: 348.0° to 3.0° Bearing [Mag]: 346.0° to 1.0°				Arc Distance: Out to 55.0 NM Altitude: 10000.0 to 15300.0 ft		
5	RZN FAA 840205-13 RZN	N45° 49' 13.6015", W092° 22' 28.2562"	-0.0 E	40	986.6	109.4	RZN FAA 840205-13	
ESV:		Bearing [True]: 137.0° to 178.0° Bearing [Mag]: 137.0° to 178.0°				Arc Distance: Out to 88.0 NM Altitude: 8000.0 to 13000.0 ft		
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ESV:		Bearing [True]: 325.0° to 49.0° Bearing [Mag]: 324.0° to 48.0°				Arc Distance: Out to 70.0 NM Altitude: 4000.0 to 15800.0 ft		
7	EAU FAA 190507-29 EAU	N44° 53' 51.6121", W091° 28' 42.7259"	4.0 E	130	904.3	113.65	EAU FAA 190507-29	
ESV:		Bearing [True]: 67.0° to 115.0° Bearing [Mag]: 63.0° to 111.0°				Arc Distance: Out to 75.0 NM Altitude: 8000.0 to 15500.0 ft		

DME DME Assessment Results for MUSCL4 path ZASKY_TIETN_

DME Error

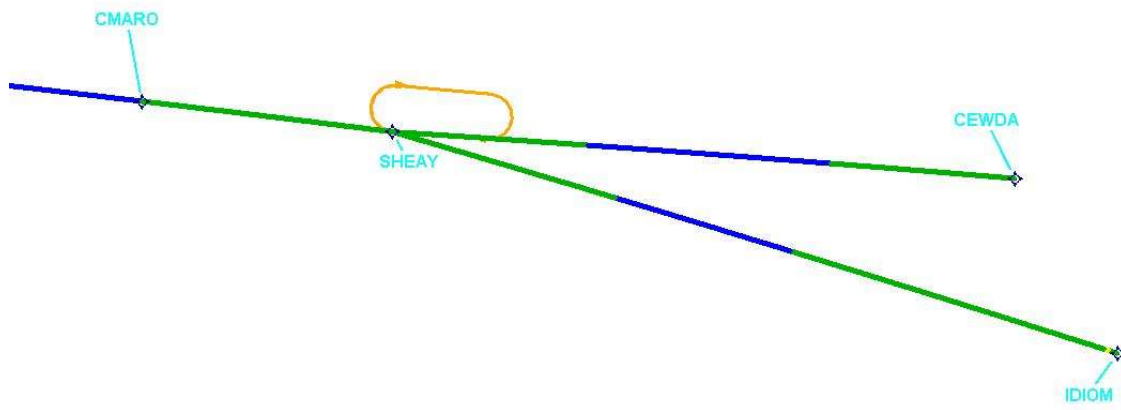


Graphic Depiction 1



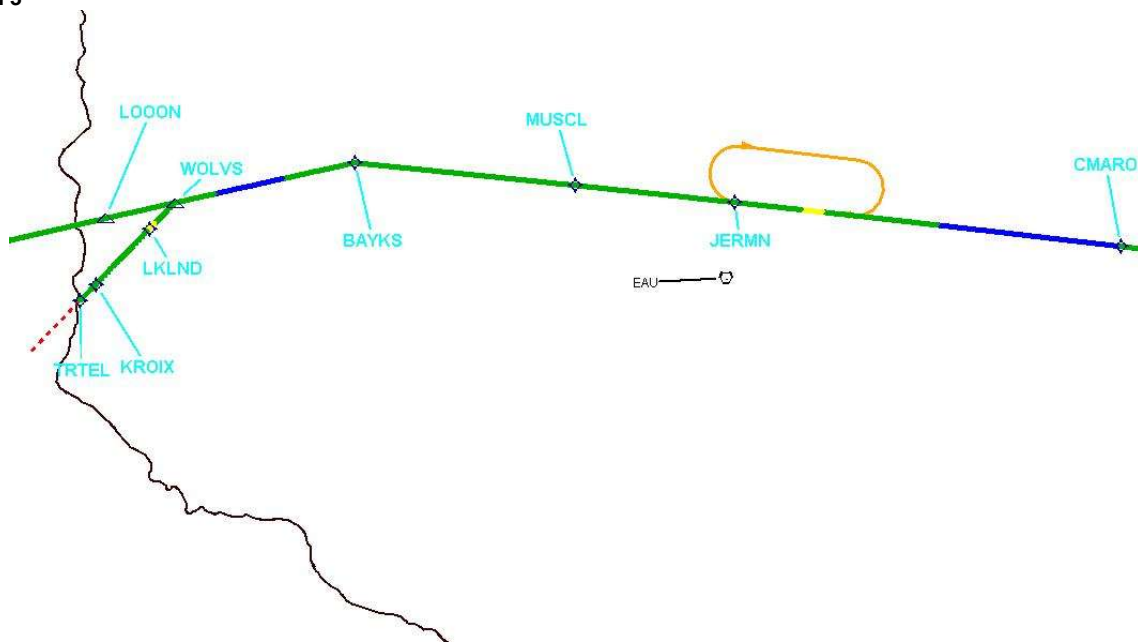
DME DME Assessment Results for MUSCL4 path ZASKY_TIETN_

Graphic Depiction 2



DME DME Assessment Results for MUSCL4 path ZASKY_TIETN_

Graphic Depiction 3



Graphic Depiction 4

DME DME Assessment Results for MUSCL4 path ZASKY_TIETN_

