

23:06:02 UT Totality Run Waypoint Tables for Lan Chile/Sky & Telescope Eclipse Flight

Glenn Schneider, Steward Observatory, University of Arizona, 13 August 2003

The following tables detail a two parameter (aircraft altitude and *ground* speed) family of possible "Totality Runs", for a mid-eclipse intercept of 23:06:02 U.T. (closest centerline distance to South Pole).

Flight altitudes from 32,000 ft to 38,000 ft above MSL in increments of 1,000 ft, and ground speeds of 420 nM/hr to 520 nM/hr in increments of 10 nM/hr are considered.

The totality run is flown as 4 discrete but contiguous flight segments defined by five waypoints to be loaded into the Airbus A340 FMS.

Each possible totality run spans 20 minutes in time, beginning 15 minutes before mid-eclipse (waypoint A), and ending 5 minutes after mid-eclipse (waypoint B). Alternatively, using the same tables, one could begin the totality run 10 minutes before mid-eclipse (waypoint B), though this leave less time and margin for initial on-track course corrections.

The waypoints along the totality run very closely *approximate* a linear track, but in detail deviate from a true geodesic curve by a very small amount. (necessarily to optimize the line-of-site angle to the Sun at mid-eclipse and throughout the totality run)

The waypoints are uniformly spaced in time with a temporal spacing of 5 minutes (300 seconds). Hence, for a fixed ground speed, the distance between successive waypoints is constant (e.g., 39.2 nM @ 470 nM/hour).

Geographical coordinates are referenced to the WGS84 datum and expressed as degrees, arcminutes, and fractional arcminutes; DDMM.fff

The five waypoints are defined (and were chosen) as follows:

A: Totality Run Track Insertion Point. Mid-eclipse minus 15 minutes (22:51:02 UT). The aircraft should complete any heading alignment maneuvers prior to intercepting this point as close to 22:51:02 UT as possible. Any residual errors from initial approach in both heading and position should be nulled out (or minimized) in segment AB.

B: Totality Run Critical Start Point. Mid-eclipse minus 10 minutes (22:56:02 UT). Aircraft flight vector, as defined by waypoints, should be stable at and after crossing this point. Necessary Course and speed corrections due to windage only during segment BC.

C: Final Ingress Target Point. Mid-eclipse minus 5 minutes (23:01:02 UT). Last waypoint before lunar shadow overtakes aircraft. Contact II ~ 3m 43s after crossing waypoint C. Differential course and speed corrections due to windage only during segment CD.

D: Mid-Eclipse. (23:06:02 UT) Aircraft coincident with the instantaneous position of the center of the lunar shadow. Heading = instantaneous solar azimuth + 90 degrees. Contact III ~ 1m 17s after crossing waypoint D.

E: Totality Run Termination. Mid-eclipse plus 5 minutes (23:11:02 UT). Contact III plus 3m 43s.

Following crossing of waypoint E, at the discretion of the pilot in command, the aircraft may continue on a heading of 197° to allow additional viewing of the early phases of egress, the recession of the umbral shadow, and atmospheric color/brightness gradient effects.

This discrete parametric grid of waypoint tables were generated with EFLIGHT 2003 X version 2.0.0*, and is expected to sufficiently tile the parameter space in flight altitude and ground speed required for the LanChile/Sky & Telescope eclipse flight.

* http://nicmosis.as.arizona.edu:8000/ECLIPSE_WEB/EFLIGHT/EFLIGHT.html

GROUND SPEED = 520 nM/hr ALTITUDE = 38,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8744.861E	7344.167S	488.7	111.1	15.2	5923.947E	7712.100S	-900s	130.0nm	+6.1	223.00	134.3	11.7
B 225602	8031.293E	7605.036S	483.1	116.1	14.7	5705.213E	7743.154S	-600s	-86.7nm	+4.2	225.26	136.1	11.7
C 230102	6854.536E	7754.340S	481.1	125.5	13.6	5434.726E	7812.944S	-300s	-43.3nm	+2.2	227.71	138.1	11.8
D 230602	5151.524E	7841.306S	483.3	140.4	11.8	5151.524E	7841.308S	+0s	+0.0nm	-0.0	230.01	140.4	11.8
E 231102	3150.303E	7730.796S	490.8	158.3	8.9	4908.322E	7909.668S	+300s	+43.3nm	-2.2	224.97	142.6	11.9

GROUND SPEED = 520 nM/hr ALTITUDE = 37,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8742.860E	7343.950S	489.0	111.1	15.2	5921.378E	7711.568S	-900s	130.0nm	+6.1	223.04	134.3	11.7
B 225602	8028.973E	7604.762S	483.4	116.1	14.7	5702.638E	7742.600S	-600s	-86.7nm	+4.2	225.30	136.2	11.7
C 230102	6851.925E	7753.949S	481.4	125.6	13.6	5432.160E	7812.368S	-300s	-43.3nm	+2.2	227.75	138.2	11.8
D 230602	5148.992E	7840.706S	483.7	140.4	11.8	5148.992E	7840.708S	+0s	+0.0nm	-0.0	230.05	140.4	11.8
E 231102	3148.511E	7729.822S	491.2	158.3	8.8	4905.824E	7909.043S	+300s	+43.3nm	-2.2	225.02	142.7	11.9

GROUND SPEED = 520 nM/hr ALTITUDE = 36,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8740.858E	7343.733S	489.2	111.1	15.2	5918.808E	7711.033S	-900s	130.0nm	+6.1	223.07	134.4	11.6
B 225602	8026.653E	7604.488S	483.7	116.2	14.7	5700.062E	7742.045S	-600s	-86.7nm	+4.2	225.34	136.2	11.7
C 230102	6849.315E	7753.557S	481.7	125.6	13.6	5429.596E	7811.789S	-300s	-43.3nm	+2.2	227.80	138.2	11.7
D 230602	5146.462E	7840.103S	484.0	140.5	11.8	5146.462E	7840.106S	+0s	+0.0nm	-0.0	230.09	140.5	11.8
E 231102	3146.719E	7728.847S	491.5	158.3	8.8	4903.328E	7908.418S	+300s	+43.3nm	-2.2	225.07	142.7	11.9

GROUND SPEED = 520 nM/hr ALTITUDE = 35,000 ft

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A 225102	8738.856E	7343.516S	489.5	111.2	15.2	5916.241E	7710.501S	-900s	130.0nm	+6.1	223.13	134.4	11.6
B 225602	8024.333E	7604.213S	484.0	116.2	14.7	5657.487E	7741.489S	-600s	-86.7nm	+4.2	225.39	136.3	11.7
C 230102	6846.705E	7753.164S	482.0	125.6	13.6	5427.033E	7811.210S	-300s	-43.3nm	+2.2	227.84	138.3	11.7
D 230602	5143.934E	7839.501S	484.3	140.5	11.8	5143.934E	7839.503S	+0s	+0.0nm	-0.0	230.13	140.5	11.8
E 231102	3144.929E	7727.869S	491.9	158.3	8.8	4900.834E	7907.791S	+300s	+43.3nm	-2.2	225.11	142.7	11.9

GROUND SPEED = 520 nM/hr ALTITUDE = 34,000 ft

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A 225102	8736.853E	7343.297S	489.8	111.2	15.1	5913.673E	7709.967S	-900s	130.0nm	+6.1	223.17	134.5	11.6
B 225602	8022.012E	7603.937S	484.3	116.3	14.7	5654.913E	7740.932S	-600s	-86.7nm	+4.2	225.43	136.3	11.7
C 230102	6844.095E	7752.771S	482.3	125.7	13.6	5424.471E	7810.630S	-300s	-43.3nm	+2.2	227.88	138.3	11.7
D 230602	5141.407E	7838.897S	484.6	140.5	11.8	5141.407E	7838.899S	+0s	+0.0nm	-0.0	230.17	140.5	11.8
E 231102	3143.139E	7726.889S	492.2	158.4	8.8	4858.342E	7907.163S	+300s	+43.3nm	-2.2	225.16	142.8	11.8

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A 225102	8734.850E	7343.079S	490.1	111.2	15.1	5911.105E	7709.431S	-900s	130.0nm	+6.1	223.21	134.5	11.6
B 225602	8019.691E	7603.661S	484.6	116.3	14.6	5652.340E	7740.373S	-600s	-86.7nm	+4.2	225.47	136.3	11.7
C 230102	6841.486E	7752.376S	482.6	125.7	13.6	5421.910E	7810.049S	-300s	-43.3nm	+2.2	227.92	138.4	11.7
D 230602	5138.881E	7838.292S	484.9	140.6	11.8	5138.881E	7838.294S	+0s	+0.0nm	-0.0	230.21	140.6	11.8
E 231102	3141.350E	7725.907S	492.6	158.4	8.8	4855.851E	7906.535S	+300s	+43.3nm	-2.2	225.21	142.8	11.8

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A 225102	8732.845E	7342.860S	490.4	111.3	15.1	5908.539E	7708.894S	-900s	130.0nm	+6.1	223.25	134.6	11.6
B 225602	8017.370E	7603.383S	484.9	116.3	14.6	5649.768E	7739.814S	-600s	-86.7nm	+4.2	225.51	136.4	11.6
C 230102	6838.878E	7751.982S	482.9	125.8	13.6	5419.351E	7809.467S	-300s	-43.3nm	+2.2	227.96	138.4	11.7
D 230602	5136.356E	7837.685S	485.2	140.6	11.7	5136.356E	7837.688S	+0s	+0.0nm	-0.0	230.26	140.6	11.7
E 231102	3139.562E	7724.922S	492.9	158.4	8.7	4853.362E	7905.905S	+300s	+43.3nm	-2.2	225.25	142.9	11.8

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A 225102	8732.845E	7342.860S	490.4	111.3	15.1	5908.539E	7708.894S	-900s	130.0nm	+6.1	223.25	134.6	11.6
B 225602	8017.370E	7603.383S	484.9	116.3	14.6	5649.768E	7739.814S	-600s	-86.7nm	+4.2	225.51	136.4	11.6
C 230102	6838.878E	7751.982S	482.9	125.8	13.6	5419.351E	7809.467S	-300s	-43.3nm	+2.2	227.96	138.4	11.7
D 230602	5136.356E	7837.685S	485.2	140.6	11.7	5136.356E	7837.688S	+0s	+0.0nm	-0.0	230.26	140.6	11.7
E 231102	3139.562E	7724.922S	492.9	158.4	8.7	4853.362E	7905.905S	+300s	+43.3nm	-2.2	225.25	142.9	11.8

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A 225102	8742.860E	7343.950S	489.0	111.1	15.2	5913.676E	7713.390S	-900s	127.5nm	+6.0	223.17	134.4	11.7
B 225602	8028.973E	7604.762S	483.4	116.1	14.7	5657.073E	7743.769S	-600s	-85.0nm	+4.2	225.39	136.2	11.7
C 230102	6851.925E	7753.949S	481.4	125.6	13.6	5429.145E	7812.927S	-300s	-42.5nm	+2.2	227.80	138.2	11.8
D 230602	5148.992E	7840.706S	483.7	140.4	11.8	5148.992E	7840.708S	+0s	+0.0nm	-0.0	230.06	140.4	11.8
E 231102	3148.511E	7729.822S	491.2	158.3	8.8	4908.840E	7908.485S	+300s	+42.5nm	-2.2	225.12	142.6	11.9

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A 225102	8740.858E	7343.733S	489.2	111.1	15.2	5911.106E	7712.856S	-900s	127.5nm	+6.0	223.21	134.5	11.6
B 225602	8026.653E	7604.488S	483.7	116.2	14.7	5654.497E	7743.213S	-600s	-85.0nm	+4.2	225.43	136.3	11.7
C 230102	6849.315E	7753.557S	481.7	125.6	13.6	5426.581E	7812.348S	-300s	-42.5nm	+2.2	227.84	138.3	11.7
D 230602	5146.462E	7840.103S	484.0	140.5	11.8	5146.462E	7840.106S	+0s	+0.0nm	-0.0	230.10	140.5	11.8
E 231102	3146.719E	7728.847S	491.5	158.3	8.8	4906.343E	7907.859S	+300s	+42.5nm	-2.2	225.17	142.7	11.9

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A 225102	8738.856E	7343.516S	489.5	111.2	15.2	5908.537E	7712.321S	-900s	127.5nm	+6.0	223.25	134.5	11.6
B 225602	8024.333E	7604.213S	484.0	116.2	14.7	5651.923E	7742.656S	-600s	-85.0nm	+4.2	225.48	136.3	11.7
C 230102	6846.705E	7753.164S	482.0	125.6	13.6	5424.019E	7811.768S	-300s	-42.5nm	+2.2	227.89	138.3	11.7
D 230602	5143.934E	7839.501S	484.3	140.5	11.8	5143.934E	7839.503S	+0s	+0.0nm	-0.0	230.14	140.5	11.8
E 231102	3144.929E	7727.869S	491.9	158.3	8.8	4903.848E	7907.233S	+300s	+42.5nm	-2.2	225.22	142.7	11.9

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A 225102	8736.853E	7343.297S	489.8	111.2	15.1	5905.968E	7711.785S	-900s	127.5nm	+6.0	223.30	134.6	11.6
B 225602	8022.012E	7603.937S	484.3	116.3	14.7	5649.349E	7742.098S	-600s	-85.0nm	+4.2	225.52	136.4	11.7
C 230102	6844.095E	7752.771S	482.3	125.7	13.6	5421.457E	7811.188S	-300s	-42.5nm	+2.2	227.93	138.4	11.7
D 230602	5141.407E	7838.897S	484.6	140.5	11.8	5141.407E	7838.899S	+0s	+0.0nm	-0.0	230.18	140.5	11.8
E 231102	3143.139E	7726.889S	492.2	158.4	8.8	4901.355E	7906.605S	+300s	+42.5nm	-2.2	225.26	142.7	11.8

GROUND SPEED = 510 nM/hr ALTITUDE = 33,000 ft

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A 225102	8734.850E	7343.079S	490.1	111.2	15.1	5903.400E	7711.248S	-900s	127.5nm	+6.0	223.34	134.6	11.6
B 225602	8019.691E	7603.661S	484.6	116.3	14.6	5646.776E	7741.539S	-600s	-85.0nm	+4.2	225.56	136.4	11.7
C 230102	6841.486E	7752.376S	482.6	125.7	13.6	5418.897E	7810.606S	-300s	-42.5nm	+2.2	227.97	138.4	11.7
D 230602	5138.881E	7838.292S	484.9	140.6	11.8	5138.881E	7838.294S	+0s	+0.0nm	-0.0	230.22	140.6	11.8
E 231102	3141.350E	7725.907S	492.6	158.4	8.8	4858.865E	7905.977S	+300s	+42.5nm	-2.2	225.31	142.8	11.8

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A 225102	8732.845E	7342.860S	490.4	111.3	15.1	5900.833E	7710.709S	-900s	127.5nm	+6.0	223.38	134.7	11.6
B 225602	8017.370E	7603.383S	484.9	116.3	14.6	5644.204E	7740.979S	-600s	-85.0nm	+4.2	225.60	136.5	11.6
C 230102	6838.878E	7751.982S	482.9	125.8	13.6	5416.337E	7810.024S	-300s	-42.5nm	+2.2	228.01	138.4	11.7
D 230602	5136.356E	7837.685S	485.2	140.6	11.7	5136.356E	7837.688S	+0s	+0.0nm	-0.0	230.26	140.6	11.7
E 231102	3139.562E	7724.922S	492.9	158.4	8.7	4856.375E	7905.348S	+300s	+42.5nm	-2.2	225.36	142.8	11.8

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A 225102	8744.861E	7344.167S	488.7	111.1	15.2	5908.509E	7715.742S	-900s	125.0nm	+5.9	223.25	134.5	11.7
B 225602	8031.293E	7605.036S	483.1	116.1	14.7	5654.067E	7745.492S	-600s	-83.3nm	+4.1	225.44	136.3	11.7
C 230102	6854.536E	7754.340S	481.1	125.5	13.6	5428.690E	7814.063S	-300s	-41.7nm	+2.1	227.81	138.2	11.8
D 230602	5151.524E	7841.306S	483.3	140.4	11.8	5151.524E	7841.308S	+0s	+0.0nm	-0.0	230.02	140.4	11.8
E 231102	3150.303E	7730.796S	490.8	158.3	8.9	4914.358E	7908.549S	+300s	+41.7nm	-2.2	225.18	142.5	11.9

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A 225102	8742.860E	7343.950S	489.0	111.1	15.2	5905.938E	7715.208S	-900s	125.0nm	+5.9	223.29	134.5	11.7
B 225602	8028.973E	7604.762S	483.4	116.1	14.7	5651.491E	7744.936S	-600s	-83.3nm	+4.1	225.48	136.3	11.7
C 230102	6851.925E	7753.949S	481.4	125.6	13.6	5426.125E	7813.485S	-300s	-41.7nm	+2.1	227.85	138.3	11.8
D 230602	5148.992E	7840.706S	483.7	140.4	11.8	5148.992E	7840.708S	+0s	+0.0nm	-0.0	230.06	140.4	11.8
E 231102	3148.511E	7729.822S	491.2	158.3	8.8	4911.860E	7907.926S	+300s	+41.7nm	-2.2	225.23	142.6	11.9

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B 225602	8026.653E	7604.488S	483.7	116.2	14.7	5648.916E	7744.380S	-600s	-83.3nm	+4.1	225.52	136.4	11.7
C 230102	6849.315E	7753.557S	481.7	125.6	13.6	5423.562E	7812.906S	-300s	-41.7nm	+2.1	227.89	138.3	11.8
D 230602	5146.462E	7840.103S	484.0	140.5	11.8	5146.462E	7840.106S	+0s	+0.0nm	-0.0	230.11	140.5	11.8
E 231102	3146.719E	7728.847S	491.5	158.3	8.8	4909.362E	7907.301S	+300s	+41.7nm	-2.2	225.27	142.6	11.9

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≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8738.856E	7343.516S	489.5	111.2	15.2	5900.797E	7714.137S	-900s	125.0nm	+5.9	223.38	134.6	11.6
B 225602	8024.333E	7604.213S	484.0	116.2	14.7	5646.341E	7743.822S	-600s	-83.3nm	+4.1	225.57	136.4	11.7
C 230102	6846.705E	7753.164S	482.0	125.6	13.6	5420.999E	7812.326S	-300s	-41.7nm	+2.1	227.94	138.4	11.7
D 230602	5143.934E	7839.501S	484.3	140.5	11.8	5143.934E	7839.503S	+0s	+0.0nm	-0.0	230.15	140.5	11.8
E 231102	3144.929E	7727.869S	491.9	158.3	8.8	4906.868E	7906.676S	+300s	+41.7nm	-2.2	225.32	142.7	11.9

GROUND SPEED = 500 nM/hr ALTITUDE = 34,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8736.853E	7343.297S	489.8	111.2	15.1	5858.228E	7713.599S	-900s	125.0nm	+5.9	223.42	134.7	11.6
B 225602	8022.012E	7603.937S	484.3	116.3	14.7	5643.768E	7743.263S	-600s	-83.3nm	+4.1	225.61	136.4	11.7
C 230102	6844.095E	7752.771S	482.3	125.7	13.6	5418.439E	7811.745S	-300s	-41.7nm	+2.1	227.98	138.4	11.7
D 230602	5141.407E	7838.897S	484.6	140.5	11.8	5141.407E	7838.899S	+0s	+0.0nm	-0.0	230.19	140.5	11.8
E 231102	3143.139E	7726.889S	492.2	158.4	8.8	4904.374E	7906.049S	+300s	+41.7nm	-2.2	225.37	142.7	11.8

GROUND SPEED = 500 nM/hr ALTITUDE = 33,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8734.850E	7343.079S	490.1	111.2	15.1	5855.659E	7713.061S	-900s	125.0nm	+5.9	223.46	134.7	11.6
B 225602	8019.691E	7603.661S	484.6	116.3	14.6	5641.195E	7742.703S	-600s	-83.3nm	+4.1	225.65	136.5	11.7
C 230102	6841.486E	7752.376S	482.6	125.7	13.6	5415.878E	7811.163S	-300s	-41.7nm	+2.1	228.02	138.4	11.7
D 230602	5138.881E	7838.292S	484.9	140.6	11.8	5138.881E	7838.294S	+0s	+0.0nm	-0.0	230.23	140.6	11.8
E 231102	3141.350E	7725.907S	492.6	158.4	8.8	4901.883E	7905.420S	+300s	+41.7nm	-2.2	225.41	142.7	11.8

GROUND SPEED = 500 nM/hr ALTITUDE = 32,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8732.845E	7342.860S	490.4	111.3	15.1	5853.090E	7712.521S	-900s	125.0nm	+5.9	223.51	134.8	11.6
B 225602	8017.370E	7603.383S	484.9	116.3	14.6	5638.623E	7742.142S	-600s	-83.3nm	+4.1	225.69	136.5	11.6
C 230102	6838.878E	7751.982S	482.9	125.8	13.6	5413.320E	7810.580S	-300s	-41.7nm	+2.1	228.06	138.5	11.7
D 230602	5136.356E	7837.685S	485.2	140.6	11.7	5136.356E	7837.688S	+0s	+0.0nm	-0.0	230.27	140.6	11.7
E 231102	3139.562E	7724.922S	492.9	158.4	8.7	4859.393E	7904.792S	+300s	+41.7nm	-2.2	225.46	142.8	11.8

GROUND SPEED = 490 nM/hr ALTITUDE = 38,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8744.861E	7344.167S	488.7	111.1	15.2	5900.734E	7717.558S	-900s	122.5nm	+5.8	223.38	134.6	11.7
B 225602	8031.293E	7605.036S	483.1	116.1	14.7	5648.468E	7746.658S	-600s	-81.7nm	+4.0	225.53	136.4	11.7
C 230102	6854.536E	7754.340S	481.1	125.5	13.6	5425.664E	7814.621S	-300s	-40.8nm	+2.1	227.86	138.3	11.8
D 230602	5151.524E	7841.306S	483.3	140.4	11.8	5151.524E	7841.308S	+0s	+0.0nm	-0.0	230.03	140.4	11.8
E 231102	3150.303E	7730.796S	490.8	158.3	8.9	4917.383E	7907.991S	+300s	+40.8nm	-2.1	225.28	142.5	11.9

GROUND SPEED = 490 nM/hr ALTITUDE = 37,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8742.860E	7343.950S	489.0	111.1	15.2	5858.163E	7717.023S	-900s	122.5nm	+5.8	223.42	134.6	11.7
B 225602	8028.973E	7604.762S	483.4	116.1	14.7	5645.892E	7746.102S	-600s	-81.7nm	+4.0	225.57	136.4	11.7
C 230102	6851.925E	7753.949S	481.4	125.6	13.6	5423.101E	7814.043S	-300s	-40.8nm	+2.1	227.90	138.3	11.8
D 230602	5148.992E	7840.706S	483.7	140.4	11.8	5148.992E	7840.708S	+0s	+0.0nm	-0.0	230.07	140.4	11.8
E 231102	3148.511E	7729.822S	491.2	158.3	8.8	4914.884E	7907.368S	+300s	+40.8nm	-2.1	225.33	142.5	11.9

GROUND SPEED = 490 nM/hr ALTITUDE = 36,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8740.858E	7343.733S	489.2	111.1	15.2	5855.592E	7716.486S	-900s	122.5nm	+5.8	223.46	134.7	11.6
B 225602	8026.653E	7604.488S	483.7	116.2	14.7	5643.316E	7745.544S	-600s	-81.7nm	+4.0	225.62	136.4	11.7
C 230102	6849.315E	7753.557S	481.7	125.6	13.6	5420.538E	7813.464S	-300s	-40.8nm	+2.1	227.94	138.4	11.8
D 230602	5146.462E	7840.103S	484.0	140.5	11.8	5146.462E	7840.106S	+0s	+0.0nm	-0.0	230.11	140.5	11.8
E 231102	3146.719E	7728.847S	491.5	158.3	8.8	4912.387E	7906.743S	+300s	+40.8nm	-2.1	225.38	142.6	11.9

GROUND SPEED = 490 nM/hr ALTITUDE = 35,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8738.856E	7343.516S	489.5	111.2	15.2	5853.021E	7715.949S	-900s	122.5nm	+5.8	223.51	134.7	11.6
B 225602	8024.333E	7604.213S	484.0	116.2	14.7	5640.742E	7744.986S	-600s	-81.7nm	+4.0	225.66	136.5	11.7
C 230102	6846.705E	7753.164S	482.0	125.6	13.6	5417.976E	7812.883S	-300s	-40.8nm	+2.1	227.99	138.4	11.7
D 230602	5143.934E	7839.501S	484.3	140.5	11.8	5143.934E	7839.503S	+0s	+0.0nm	-0.0	230.15	140.5	11.8
E 231102	3144.929E	7727.869S	491.9	158.3	8.8	4909.891E	7906.118S	+300s	+40.8nm	-2.1	225.42	142.6	11.9

GROUND SPEED = 490 nM/hr ALTITUDE = 34,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8736.853E	7343.297S	489.8	111.2	15.1	5850.452E	7715.410S	-900s	122.5nm	+5.8	223.55	134.8	11.6
B 225602	8022.012E	7603.937S	484.3	116.3	14.7	5638.169E	7744.426S	-600s	-81.7nm	+4.0	225.70	136.5	11.7
C 230102	6844.095E	7752.771S	482.3	125.7	13.6	5415.415E	7812.302S	-300s	-40.8nm	+2.1	228.03	138.4	11.7
D 230602	5141.407E	7838.897S	484.6	140.5	11.8	5141.407E	7838.899S	+0s	+0.0nm	-0.0	230.20	140.5	11.8
E 231102	3143.139E	7726.889S	492.2	158.4	8.8	4907.397E	7905.492S	+300s	+40.8nm	-2.1	225.47	142.7	11.8

GROUND SPEED = 490 nM/hr ALTITUDE = 33,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8734.850E	7343.079S	490.1	111.2	15.1	5847.882E	7714.870S	-900s	122.5nm	+5.8	223.59	134.8	11.6
B 225602	8019.691E	7603.661S	484.6	116.3	14.6	5635.596E	7743.865S	-600s	-81.7nm	+4.0	225.74	136.6	11.7
C 230102	6841.486E	7752.376S	482.6	125.7	13.6	5412.856E	7811.719S	-300s	-40.8nm	+2.1	228.07	138.5	11.7
D 230602	5138.881E	7838.292S	484.9	140.6	11.8	5138.881E	7838.294S	+0s	+0.0nm	-0.0	230.24	140.6	11.8
E 231102	3141.350E	7725.907S	492.6	158.4	8.8	4904.906E	7904.864S	+300s	+40.8nm	-2.1	225.51	142.7	11.8

GROUND SPEED = 490 nM/hr ALTITUDE = 32,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8732.845E	7342.860S	490.4	111.3	15.1	5845.313E	7714.330S	-900s	122.5nm	+5.8	223.63	134.9	11.6
B 225602	8017.370E	7603.383S	484.9	116.3	14.6	5633.024E	7743.304S	-600s	-81.7nm	+4.0	225.78	136.6	11.7
C 230102	6838.878E	7751.982S	482.9	125.8	13.6	5410.298E	7811.135S	-300s	-40.8nm	+2.1	228.11	138.5	11.7
D 230602	5136.356E	7837.685S	485.2	140.6	11.7	5136.356E	7837.688S	+0s	+0.0nm	-0.0	230.28	140.6	11.7
E 231102	3139.562E	7724.922S	492.9	158.4	8.7	4902.415E	7904.236S	+300s	+40.8nm	-2.1	225.56	142.7	11.8

GROUND SPEED = 480 nM/hr ALTITUDE = 38,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8744.861E	7344.167S	488.7	111.1	15.2	5852.924E	7719.370S	-900s	120.0nm	+5.7	223.51	134.7	11.7
B 225602	8031.293E	7605.036S	483.1	116.1	14.7	5642.851E	7747.823S	-600s	-80.0nm	+4.0	225.62	136.4	11.7
C 230102	6854.536E	7754.340S	481.1	125.5	13.6	5422.635E	7815.179S	-300s	-40.0nm	+2.1	227.91	138.3	11.8
D 230602	5151.524E	7841.306S	483.3	140.4	11.8	5151.524E	7841.308S	+0s	+0.0nm	-0.0	230.04	140.4	11.8
E 231102	3150.303E	7730.796S	490.8	158.3	8.9	4920.413E	7907.433S	+300s	+40.0nm	-2.1	225.39	142.5	11.9

GROUND SPEED = 480 nM/hr ALTITUDE = 37,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8742.860E	7343.950S	489.0	111.1	15.2	5850.352E	7718.833S	-900s	120.0nm	+5.7	223.55	134.7	11.7
B 225602	8028.973E	7604.762S	483.4	116.1	14.7	5640.275E	7747.266S	-600s	-80.0nm	+4.0	225.67	136.5	11.7
C 230102	6851.925E	7753.949S	481.4	125.6	13.6	5420.071E	7814.600S	-300s	-40.0nm	+2.1	227.95	138.4	11.8
D 230602	5148.992E	7840.706S	483.7	140.4	11.8	5148.992E	7840.708S	+0s	+0.0nm	-0.0	230.08	140.4	11.8
E 231102	3148.511E	7729.822S	491.2	158.3	8.8	4917.913E	7906.811S	+300s	+40.0nm	-2.1	225.43	142.5	11.9

GROUND SPEED = 480 nM/hr ALTITUDE = 36,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8742.860E	7343.950S	489.0	111.1	15.2	5850.352E	7718.833S	-900s	120.0nm	+5.7	223.55	134.7	11.7
B 225602	8028.973E	7604.762S	483.4	116.1	14.7	5640.275E	7747.266S	-600s	-80.0nm	+4.0	225.67	136.5	11.7
C 230102	6851.925E	7753.949S	481.4	125.6	13.6	5420.071E	7814.600S	-300s	-40.0nm	+2.1	227.95	138.4	11.8
D 230602	5148.992E	7840.706S	483.7	140.4	11.8	5148.992E	7840.708S	+0s	+0.0nm	-0.0	230.08	140.4	11.8
E 231102	3148.511E	7729.822S	491.2	158.3	8.8	4917.913E	7906.811S	+300s	+40.0nm	-2.1	225.43	142.5	11.9

GROUND SPEED = 480 nM/hr ALTITUDE = 35,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8738.856E	7343.516S	489.5	111.2	15.2	5845.209E	7717.756S	-900s	120.0nm	+5.7	223.63	134.8	11.6
B 225602	8024.333E	7604.213S	484.0	116.2	14.7	5635.126E	7746.148S	-600s	-80.0nm	+4.0	225.75	136.6	11.7
C 230102	6846.705E	7753.164S	482.0	125.6	13.6	5414.948E	7813.440S	-300s	-40.0nm	+2.1	228.03	138.4	11.7
D 230602	5143.934E	7839.501S	484.3	140.5	11.8	5143.934E	7839.503S	+0s	+0.0nm	-0.0	230.16	140.5	11.8
E 231102	3144.929E	7727.869S	491.9	158.3	8.8	4912.920E	7905.562S	+300s	+40.0nm	-2.1	225.53	142.6	11.8

GROUND SPEED = 480 nM/hr ALTITUDE = 34,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8736.853E	7343.297S	489.8	111.2	15.1	5842.638E	7717.217S	-900s	120.0nm	+5.7	223.67	134.9	11.6
B 225602	8022.012E	7603.937S	484.3	116.3	14.7	5632.552E	7745.587S	-600s	-80.0nm	+3.9	225.79	136.6	11.7
C 230102	6844.095E	7752.771S	482.3	125.7	13.6	5412.388E	7812.858S	-300s	-40.0nm	+2.1	228.08	138.5	11.7
D 230602	5141.407E	7838.897S	484.6	140.5	11.8	5141.407E	7838.899S	+0s	+0.0nm	-0.0	230.20	140.5	11.8
E 231102	3143.139E	7726.889S	492.2	158.4	8.8	4910.426E	7904.936S	+300s	+40.0nm	-2.1	225.57	142.6	11.8

GROUND SPEED = 480 nM/hr ALTITUDE = 33,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8734.850E	7343.079S	490.1	111.2	15.1	5840.069E	7716.676S	-900s	120.0nm	+5.7	223.72	134.9	11.6
B 225602	8019.691E	7603.661S	484.6	116.3	14.6	5629.980E	7745.025S	-600s	-80.0nm	+3.9	225.83	136.6	11.7
C 230102	6841.486E	7752.376S	482.6	125.7	13.6	5409.829E	7812.275S	-300s	-40.0nm	+2.1	228.12	138.5	11.7
D 230602	5138.881E	7838.292S	484.9	140.6	11.8	5138.881E	7838.294S	+0s	+0.0nm	-0.0	230.25	140.6	11.8
E 231102	3141.350E	7725.907S	492.6	158.4	8.8	4907.933E	7904.309S	+300s	+40.0nm	-2.1	225.62	142.7	11.8

GROUND SPEED = 480 nM/hr ALTITUDE = 32,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8734.850E	7343.079S	490.1	111.2	15.1	5840.069E	7716.676S	-900s	120.0nm	+5.7	223.72	134.9	11.6
B 225602	8019.691E	7603.661S	484.6	116.3	14.6	5629.980E	7745.025S	-600s	-80.0nm	+3.9	225.83	136.6	11.7
C 230102	6841.486E	7752.376S	482.6	125.7	13.6	5409.829E	7812.275S	-300s	-40.0nm	+2.1	228.12	138.5	11.7
D 230602	5138.881E	7838.292S	484.9	140.6	11.8	5138.881E	7838.294S	+0s	+0.0nm	-0.0	230.25	140.6	11.8
E 231102	3141.350E	7725.907S	492.6	158.4	8.8	4907.933E	7904.309S	+300s	+40.0nm	-2.1	225.62	142.7	11.8

GROUND SPEED = 470 nM/hr ALTITUDE = 38,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8744.861E	7344.167S	488.7	111.1	15.2	5845.077E	7721.178S	-900s	117.5nm	+5.6	223.63	134.8	11.7
B 225602	8031.293E	7605.036S	483.1	116.1	14.7	5637.216E	7748.986S	-600s	-78.3nm	+3.9	225.71	136.5	11.7
C 230102	6854.536E	7754.340S	481.1	125.5	13.6	5419.600E	7815.737S	-300s	-39.2nm	+2.0	227.96	138.4	11.8
D 230602	5151.524E	7841.306S	483.3	140.4	11.8	5151.524E	7841.308S	+0s	+0.0nm	-0.0	230.05	140.4	11.8
E 231102	3150.303E	7730.796S	490.8	158.3	8.9	4923.447E	7906.876S	+300s	+39.2nm	-2.0	225.49	142.4	11.9

GROUND SPEED = 470 nM/hr ALTITUDE = 37,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8742.860E	7343.950S	489.0	111.1	15.2	5842.505E	7720.640S	-900s	117.5nm	+5.6	223.68	134.9	11.7
B 225602	8028.973E	7604.762S	483.4	116.1	14.7	5634.640E	7748.427S	-600s	-78.3nm	+3.9	225.76	136.5	11.7
C 230102	6851.925E	7753.949S	481.4	125.6	13.6	5417.037E	7815.157S	-300s	-39.2nm	+2.0	228.00	138.4	11.8
D 230602	5148.992E	7840.706S	483.7	140.4	11.8	5148.992E	7840.708S	+0s	+0.0nm	-0.0	230.09	140.4	11.8
E 231102	3148.511E	7729.822S	491.2	158.3	8.8	4920.947E	7906.254S	+300s	+39.2nm	-2.0	225.54	142.5	11.9

GROUND SPEED = 470 nM/hr ALTITUDE = 36,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8740.858E	7343.733S	489.2	111.1	15.2	5839.932E	7720.101S	-900s	117.5nm	+5.6	223.72	134.9	11.7
B 225602	8026.653E	7604.488S	483.7	116.2	14.7	5632.066E	7747.868S	-600s	-78.3nm	+3.9	225.80	136.6	11.7
C 230102	6849.315E	7753.557S	481.7	125.6	13.6	5414.476E	7814.577S	-300s	-39.2nm	+2.0	228.04	138.4	11.8
D 230602	5146.462E	7840.103S	484.0	140.5	11.8	5146.462E	7840.106S	+0s	+0.0nm	-0.0	230.13	140.5	11.8
E 231102	3146.719E	7728.847S	491.5	158.3	8.8	4918.449E	7905.630S	+300s	+39.2nm	-2.0	225.58	142.5	11.9

GROUND SPEED = 470 nM/hr ALTITUDE = 35,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8738.856E	7343.516S	489.5	111.2	15.2	5837.360E	7719.561S	-900s	117.5nm	+5.6	223.76	134.9	11.6
B 225602	8024.333E	7604.213S	484.0	116.2	14.7	5629.492E	7747.308S	-600s	-78.3nm	+3.9	225.84	136.6	11.7
C 230102	6846.705E	7753.164S	482.0	125.6	13.6	5411.915E	7813.996S	-300s	-39.2nm	+2.0	228.08	138.5	11.7
D 230602	5143.934E	7839.501S	484.3	140.5	11.8	5143.934E	7839.503S	+0s	+0.0nm	-0.0	230.17	140.5	11.8
E 231102	3144.929E	7727.869S	491.9	158.3	8.8	4915.953E	7905.006S	+300s	+39.2nm	-2.0	225.63	142.5	11.8

GROUND SPEED = 470 nM/hr ALTITUDE = 34,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8736.853E	7343.297S	489.8	111.2	15.1	5834.789E	7719.020S	-900s	117.5nm	+5.6	223.80	135.0	11.6
B 225602	8022.012E	7603.937S	484.3	116.3	14.7	5626.918E	7746.746S	-600s	-78.3nm	+3.9	225.88	136.7	11.7
C 230102	6844.095E	7752.771S	482.3	125.7	13.6	5409.355E	7813.414S	-300s	-39.2nm	+2.0	228.13	138.5	11.7
D 230602	5141.407E	7838.897S	484.6	140.5	11.8	5141.407E	7838.899S	+0s	+0.0nm	-0.0	230.21	140.5	11.8
E 231102	3143.139E	7726.889S	492.2	158.4	8.8	4913.458E	7904.380S	+300s	+39.2nm	-2.0	225.67	142.6	11.8

GROUND SPEED = 470 nM/hr ALTITUDE = 33,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8734.850E	7343.079S	490.1	111.2	15.1	5832.219E	7718.478S	-900s	117.5nm	+5.6	223.84	135.0	11.6
B 225602	8019.691E	7603.661S	484.6	116.3	14.6	5624.346E	7746.184S	-600s	-78.3nm	+3.9	225.93	136.7	11.7
C 230102	6841.486E	7752.376S	482.6	125.7	13.6	5406.796E	7812.830S	-300s	-39.2nm	+2.0	228.17	138.6	11.7
D 230602	5138.881E	7838.292S	484.9	140.6	11.8	5138.881E	7838.294S	+0s	+0.0nm	-0.0	230.25	140.6	11.8
E 231102	3141.350E	7725.907S	492.6	158.4	8.8	4910.965E	7903.754S	+300s	+39.2nm	-2.0	225.72	142.6	11.8

GROUND SPEED = 470 nM/hr ALTITUDE = 32,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8732.845E	7342.860S	490.4	111.3	15.1	5829.648E	7717.935S	-900s	117.5nm	+5.6	223.89	135.1	11.6
B 225602	8017.370E	7603.383S	484.9	116.3	14.6	5621.775E	7745.620S	-600s	-78.3nm	+3.9	225.97	136.8	11.7
C 230102	6838.878E	7751.982S	482.9	125.8	13.6	5404.239E	7812.245S	-300s	-39.2nm	+2.0	228.21	138.6	11.7
D 230602	5136.356E	7837.685S	485.2	140.6	11.7	5136.356E	7837.688S	+0s	+0.0nm	-0.0	230.30	140.6	11.7
E 231102	3139.562E	7724.922S	492.9	158.4	8.7	4908.474E	7903.126S	+300s	+39.2nm	-2.0	225.77	142.7	11.8

GROUND SPEED = 460 nM/hr ALTITUDE = 38,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8744.861E	7344.167S	488.7	111.1	15.2	5837.194E	7722.982S	-900s	115.0nm	+5.5	223.76	134.9	11.7
B 225602	8031.293E	7605.036S	483.1	116.1	14.7	5631.564E	7750.146S	-600s	-76.7nm	+3.8	225.81	136.6	11.7
C 230102	6854.536E	7754.340S	481.1	125.5	13.6	5416.561E	7816.294S	-300s	-38.3nm	+2.0	228.01	138.4	11.8
D 230602	5151.524E	7841.306S	483.3	140.4	11.8	5151.524E	7841.308S	+0s	+0.0nm	-0.0	230.05	140.4	11.8
E 231102	3150.303E	7730.796S	490.8	158.3	8.9	4926.486E	7906.319S	+300s	+38.3nm	-2.0	225.59	142.4	11.9

GROUND SPEED = 460 nM/hr ALTITUDE = 37,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8742.860E	7343.950S	489.0	111.1	15.2	5834.621E	7722.443S	-900s	115.0nm	+5.5	223.80	135.0	11.7
B 225602	8028.973E	7604.762S	483.4	116.1	14.7	5628.988E	7749.587S	-600s	-76.7nm	+3.8	225.85	136.6	11.7
C 230102	6851.925E	7753.949S	481.4	125.6	13.6	5413.999E	7815.714S	-300s	-38.3nm	+2.0	228.05	138.4	11.8
D 230602	5148.992E	7840.706S	483.7	140.4	11.8	5148.992E	7840.708S	+0s	+0.0nm	-0.0	230.10	140.4	11.8
E 231102	3148.511E	7729.822S	491.2	158.3	8.8	4923.986E	7905.697S	+300s	+38.3nm	-2.0	225.64	142.4	11.9

GROUND SPEED = 460 nM/hr ALTITUDE = 36,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8740.858E	7343.733S	489.2	111.1	15.2	5832.047E	7721.903S	-900s	115.0nm	+5.5	223.85	135.0	11.7
B 225602	8026.653E	7604.488S	483.7	116.2	14.7	5626.414E	7749.027S	-600s	-76.7nm	+3.8	225.89	136.7	11.7
C 230102	6849.315E	7753.557S	481.7	125.6	13.6	5411.437E	7815.133S	-300s	-38.3nm	+2.0	228.09	138.5	11.8
D 230602	5146.462E	7840.103S	484.0	140.5	11.8	5146.462E	7840.106S	+0s	+0.0nm	-0.0	230.14	140.5	11.8
E 231102	3146.719E	7728.847S	491.5	158.3	8.8	4921.487E	7905.074S	+300s	+38.3nm	-2.0	225.69	142.5	11.9

GROUND SPEED = 460 nM/hr ALTITUDE = 35,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8738.856E	7343.516S	489.5	111.2	15.2	5829.475E	7721.361S	-900s	115.0nm	+5.5	223.89	135.0	11.6
B 225602	8024.333E	7604.213S	484.0	116.2	14.7	5623.840E	7748.466S	-600s	-76.7nm	+3.8	225.93	136.7	11.7
C 230102	6846.705E	7753.164S	482.0	125.6	13.6	5408.877E	7814.551S	-300s	-38.3nm	+2.0	228.13	138.5	11.7
D 230602	5143.934E	7839.501S	484.3	140.5	11.8	5143.934E	7839.503S	+0s	+0.0nm	-0.0	230.18	140.5	11.8
E 231102	3144.929E	7727.869S	491.9	158.3	8.8	4918.991E	7904.450S	+300s	+38.3nm	-2.0	225.73	142.5	11.8

GROUND SPEED = 460 nM/hr ALTITUDE = 34,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8736.853E	7343.297S	489.8	111.2	15.1	5826.903E	7720.819S	-900s	115.0nm	+5.5	223.93	135.1	11.6
B 225602	8022.012E	7603.937S	484.3	116.3	14.7	5621.267E	7747.903S	-600s	-76.7nm	+3.8	225.98	136.7	11.7
C 230102	6844.095E	7752.771S	482.3	125.7	13.6	5406.317E	7813.969S	-300s	-38.3nm	+2.0	228.18	138.6	11.7
D 230602	5141.407E	7838.897S	484.6	140.5	11.8	5141.407E	7838.899S	+0s	+0.0nm	-0.0	230.22	140.5	11.8
E 231102	3143.139E	7726.889S	492.2	158.4	8.8	4916.495E	7903.826S	+300s	+38.3nm	-2.0	225.78	142.5	11.8

GROUND SPEED = 460 nM/hr ALTITUDE = 33,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8734.850E	7343.079S	490.1	111.2	15.1	5824.332E	7720.276S	-900s	115.0nm	+5.5	223.97	135.1	11.6
B 225602	8019.691E	7603.661S	484.6	116.3	14.6	5618.695E	7747.340S	-600s	-76.7nm	+3.8	226.02	136.8	11.7
C 230102	6841.486E	7752.376S	482.6	125.7	13.6	5403.760E	7813.384S	-300s	-38.3nm	+2.0	228.22	138.6	11.7
D 230602	5138.881E	7838.292S	484.9	140.6	11.8	5138.881E	7838.294S	+0s	+0.0nm	-0.0	230.26	140.6	11.8
E 231102	3141.350E	7725.907S	492.6	158.4	8.8	4914.002E	7903.199S	+300s	+38.3nm	-2.0	225.82	142.6	11.8

GROUND SPEED = 460 nM/hr ALTITUDE = 32,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8732.845E	7342.860S	490.4	111.3	15.1	5821.761E	7719.731S	-900s	115.0nm	+5.5	224.02	135.2	11.6
B 225602	8017.370E	7603.383S	484.9	116.3	14.6	5616.124E	7746.775S	-600s	-76.7nm	+3.8	226.06	136.8	11.7
C 230102	6838.878E	7751.982S	482.9	125.8	13.6	5401.202E	7812.799S	-300s	-38.3nm	+2.0	228.26	138.6	11.7
D 230602	5136.356E	7837.685S	485.2	140.6	11.7	5136.356E	7837.688S	+0s	+0.0nm	-0.0	230.30	140.6	11.7
E 231102	3139.562E	7724.922S	492.9	158.4	8.7	4911.510E	7902.572S	+300s	+38.3nm	-2.0	225.87	142.6	11.8

GROUND SPEED = 450 nM/hr ALTITUDE = 38,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8744.861E	7344.167S	488.7	111.1	15.2	5829.273E	7724.783S	-900s	112.5nm	+5.4	223.89	135.0	11.7
B 225602	8031.293E	7605.036S	483.1	116.1	14.7	5625.894E	7751.305S	-600s	-75.0nm	+3.7	225.90	136.7	11.7
C 230102	6854.536E	7754.340S	481.1	125.5	13.6	5413.517E	7816.850S	-300s	-37.5nm	+1.9	228.06	138.4	11.8
D 230602	5151.524E	7841.306S	483.3	140.4	11.8	5151.524E	7841.308S	+0s	+0.0nm	-0.0	230.06	140.4	11.8
E 231102	3150.303E	7730.796S	490.8	158.3	8.9	4929.530E	7905.763S	+300s	+37.5nm	-2.0	225.70	142.3	11.9

GROUND SPEED = 450 nM/hr ALTITUDE = 37,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8742.860E	7343.950S	489.0	111.1	15.2	5826.699E	7724.242S	-900s	112.5nm	+5.4	223.93	135.1	11.7
B 225602	8028.973E	7604.762S	483.4	116.1	14.7	5623.319E	7750.745S	-600s	-75.0nm	+3.7	225.94	136.7	11.7
C 230102	6851.925E	7753.949S	481.4	125.6	13.6	5410.955E	7816.270S	-300s	-37.5nm	+1.9	228.10	138.5	11.8
D 230602	5148.992E	7840.706S	483.7	140.4	11.8	5148.992E	7840.708S	+0s	+0.0nm	-0.0	230.10	140.4	11.8
E 231102	3148.511E	7729.822S	491.2	158.3	8.8	4927.029E	7905.141S	+300s	+37.5nm	-2.0	225.74	142.4	11.9

GROUND SPEED = 450 nM/hr ALTITUDE = 36,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8740.858E	7343.733S	489.2	111.1	15.2	5824.125E	7723.701S	-900s	112.5nm	+5.4	223.98	135.1	11.7
B 225602	8026.653E	7604.488S	483.7	116.2	14.7	5620.744E	7750.184S	-600s	-75.0nm	+3.7	225.98	136.7	11.7
C 230102	6849.315E	7753.557S	481.7	125.6	13.6	5408.394E	7815.688S	-300s	-37.5nm	+1.9	228.14	138.5	11.8
D 230602	5146.462E	7840.103S	484.0	140.5	11.8	5146.462E	7840.106S	+0s	+0.0nm	-0.0	230.15	140.5	11.8
E 231102	3146.719E	7728.847S	491.5	158.3	8.8	4924.530E	7904.519S	+300s	+37.5nm	-2.0	225.79	142.4	11.9

GROUND SPEED = 450 nM/hr ALTITUDE = 35,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8738.856E	7343.516S	489.5	111.2	15.2	5821.553E	7723.158S	-900s	112.5nm	+5.4	224.02	135.1	11.6
B 225602	8024.333E	7604.213S	484.0	116.2	14.7	5618.171E	7749.622S	-600s	-75.0nm	+3.7	226.03	136.8	11.7
C 230102	6846.705E	7753.164S	482.0	125.6	13.6	5405.834E	7815.106S	-300s	-37.5nm	+1.9	228.18	138.6	11.7
D 230602	5143.934E	7839.501S	484.3	140.5	11.8	5143.934E	7839.503S	+0s	+0.0nm	-0.0	230.19	140.5	11.8
E 231102	3144.929E	7727.869S	491.9	158.3	8.8	4922.033E	7903.895S	+300s	+37.5nm	-2.0	225.83	142.5	11.8

GROUND SPEED = 450 nM/hr ALTITUDE = 34,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8736.853E	7343.297S	489.8	111.2	15.1	5818.980E	7722.615S	-900s	112.5nm	+5.4	224.06	135.2	11.6
B 225602	8022.012E	7603.937S	484.3	116.3	14.7	5615.598E	7749.058S	-600s	-75.0nm	+3.7	226.07	136.8	11.7
C 230102	6844.095E	7752.771S	482.3	125.7	13.6	5403.275E	7814.523S	-300s	-37.5nm	+1.9	228.23	138.6	11.7
D 230602	5141.407E	7838.897S	484.6	140.5	11.8	5141.407E	7838.899S	+0s	+0.0nm	-0.0	230.23	140.5	11.8
E 231102	3143.139E	7726.889S	492.2	158.4	8.8	4919.537E	7903.271S	+300s	+37.5nm	-2.0	225.88	142.5	11.8

GROUND SPEED = 450 nM/hr ALTITUDE = 33,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8734.850E	7343.079S	490.1	111.2	15.1	5816.409E	7722.070S	-900s	112.5nm	+5.4	224.10	135.2	11.6
B 225602	8019.691E	7603.661S	484.6	116.3	14.6	5613.027E	7748.494S	-600s	-75.0nm	+3.7	226.11	136.9	11.7
C 230102	6841.486E	7752.376S	482.6	125.7	13.6	5400.718E	7813.939S	-300s	-37.5nm	+1.9	228.27	138.6	11.7
D 230602	5138.881E	7838.292S	484.9	140.6	11.8	5138.881E	7838.294S	+0s	+0.0nm	-0.0	230.27	140.6	11.8
E 231102	3141.350E	7725.907S	492.6	158.4	8.8	4917.043E	7902.645S	+300s	+37.5nm	-2.0	225.93	142.5	11.8

GROUND SPEED = 450 nM/hr ALTITUDE = 32,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8732.845E	7342.860S	490.4	111.3	15.1	5813.838E	7721.524S	-900s	112.5nm	+5.4	224.14	135.3	11.6
B 225602	8017.370E	7603.383S	484.9	116.3	14.6	5610.456E	7747.929S	-600s	-75.0nm	+3.7	226.15	136.9	11.7
C 230102	6838.878E	7751.982S	482.9	125.8	13.6	5358.162E	7813.353S	-300s	-37.5nm	+1.9	228.31	138.7	11.7
D 230602	5136.356E	7837.685S	485.2	140.6	11.7	5136.356E	7837.688S	+0s	+0.0nm	-0.0	230.31	140.6	11.7
E 231102	3139.562E	7724.922S	492.9	158.4	8.7	4914.551E	7902.018S	+300s	+37.5nm	-2.0	225.97	142.6	11.8

GROUND SPEED = 440 nM/hr ALTITUDE = 38,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8744.861E	7344.167S	488.7	111.1	15.2	5821.315E	7726.579S	-900s	110.0nm	+5.3	224.02	135.1	11.7
B 225602	8031.293E	7605.036S	483.1	116.1	14.7	5620.206E	7752.462S	-600s	-73.3nm	+3.6	225.99	136.7	11.7
C 230102	6854.536E	7754.340S	481.1	125.5	13.6	5410.468E	7817.405S	-300s	-36.7nm	+1.9	228.11	138.5	11.8
D 230602	5151.524E	7841.306S	483.3	140.4	11.8	5151.524E	7841.308S	+0s	+0.0nm	-0.0	230.07	140.4	11.8
E 231102	3150.303E	7730.796S	490.8	158.3	8.9	4932.579E	7905.207S	+300s	+36.7nm	-1.9	225.80	142.3	11.9

GROUND SPEED = 440 nM/hr ALTITUDE = 37,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8742.860E	7343.950S	489.0	111.1	15.2	5818.741E	7726.038S	-900s	110.0nm	+5.3	224.06	135.2	11.7
B 225602	8028.973E	7604.762S	483.4	116.1	14.7	5617.632E	7751.901S	-600s	-73.3nm	+3.6	226.03	136.8	11.7
C 230102	6851.925E	7753.949S	481.4	125.6	13.6	5407.907E	7816.825S	-300s	-36.7nm	+1.9	228.15	138.5	11.8
D 230602	5148.992E	7840.706S	483.7	140.4	11.8	5148.992E	7840.708S	+0s	+0.0nm	-0.0	230.11	140.4	11.8
E 231102	3148.511E	7729.822S	491.2	158.3	8.8	4930.077E	7904.586S	+300s	+36.7nm	-1.9	225.85	142.3	11.9

GROUND SPEED = 440 nM/hr ALTITUDE = 36,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8740.858E	7343.733S	489.2	111.1	15.2	5816.167E	7725.495S	-900s	110.0nm	+5.3	224.10	135.2	11.7
B 225602	8026.653E	7604.488S	483.7	116.2	14.7	5615.058E	7751.339S	-600s	-73.3nm	+3.6	226.08	136.8	11.7
C 230102	6849.315E	7753.557S	481.7	125.6	13.6	5405.347E	7816.243S	-300s	-36.7nm	+1.9	228.19	138.6	11.8
D 230602	5146.462E	7840.103S	484.0	140.5	11.8	5146.462E	7840.106S	+0s	+0.0nm	-0.0	230.15	140.5	11.8
E 231102	3146.719E	7728.847S	491.5	158.3	8.8	4927.578E	7903.964S	+300s	+36.7nm	-1.9	225.89	142.4	11.9

GROUND SPEED = 440 nM/hr ALTITUDE = 35,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8738.856E	7343.516S	489.5	111.2	15.2	5813.594E	7724.951S	-900s	110.0nm	+5.3	224.15	135.2	11.7
B 225602	8024.333E	7604.213S	484.0	116.2	14.7	5612.484E	7750.776S	-600s	-73.3nm	+3.6	226.12	136.9	11.7
C 230102	6846.705E	7753.164S	482.0	125.6	13.6	5402.787E	7815.661S	-300s	-36.7nm	+1.9	228.23	138.6	11.7
D 230602	5143.934E	7839.501S	484.3	140.5	11.8	5143.934E	7839.503S	+0s	+0.0nm	-0.0	230.19	140.5	11.8
E 231102	3144.929E	7727.869S	491.9	158.3	8.8	4925.080E	7903.341S	+300s	+36.7nm	-1.9	225.94	142.4	11.8

GROUND SPEED = 440 nM/hr ALTITUDE = 34,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8736.853E	7343.297S	489.8	111.2	15.1	5811.021E	7724.406S	-900s	110.0nm	+5.3	224.19	135.3	11.6
B 225602	8022.012E	7603.937S	484.3	116.3	14.7	5609.912E	7750.212S	-600s	-73.3nm	+3.6	226.16	136.9	11.7
C 230102	6844.095E	7752.771S	482.3	125.7	13.6	5400.229E	7815.077S	-300s	-36.7nm	+1.9	228.28	138.6	11.7
D 230602	5141.407E	7838.897S	484.6	140.5	11.8	5141.407E	7838.899S	+0s	+0.0nm	-0.0	230.24	140.5	11.8
E 231102	3143.139E	7726.889S	492.2	158.4	8.8	4922.584E	7902.717S	+300s	+36.7nm	-1.9	225.98	142.5	11.8

GROUND SPEED = 440 nM/hr ALTITUDE = 33,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8734.850E	7343.079S	490.1	111.2	15.1	5808.449E	7723.860S	-900s	110.0nm	+5.3	224.23	135.3	11.6
B 225602	8019.691E	7603.661S	484.6	116.3	14.6	5607.340E	7749.647S	-600s	-73.3nm	+3.6	226.20	136.9	11.7
C 230102	6841.486E	7752.376S	482.6	125.7	13.6	5357.672E	7814.492S	-300s	-36.7nm	+1.9	228.32	138.7	11.7
D 230602	5138.881E	7838.292S	484.9	140.6	11.8	5138.881E	7838.294S	+0s	+0.0nm	-0.0	230.28	140.6	11.8
E 231102	3141.350E	7725.907S	492.6	158.4	8.8	4920.089E	7902.092S	+300s	+36.7nm	-1.9	226.03	142.5	11.8

GROUND SPEED = 440 nM/hr ALTITUDE = 32,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8732.845E	7342.860S	490.4	111.3	15.1	5805.878E	7723.312S	-900s	110.0nm	+5.3	224.27	135.4	11.6
B 225602	8017.370E	7603.383S	484.9	116.3	14.6	5604.769E	7749.081S	-600s	-73.3nm	+3.6	226.24	137.0	11.7
C 230102	6838.878E	7751.982S	482.9	125.8	13.6	5355.116E	7813.906S	-300s	-36.7nm	+1.9	228.36	138.7	11.7
D 230602	5136.356E	7837.685S	485.2	140.6	11.7	5136.356E	7837.688S	+0s	+0.0nm	-0.0	230.32	140.6	11.7
E 231102	3139.562E	7724.922S	492.9	158.4	8.7	4917.597E	7901.465S	+300s	+36.7nm	-1.9	226.07	142.5	11.8

GROUND SPEED = 430 nM/hr ALTITUDE = 38,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8744.861E	7344.167S	488.7	111.1	15.2	5813.320E	7728.372S	-900s	107.5nm	+5.1	224.15	135.2	11.7
B 225602	8031.293E	7605.036S	483.1	116.1	14.7	5614.501E	7753.617S	-600s	-71.7nm	+3.6	226.08	136.8	11.7
C 230102	6854.536E	7754.340S	481.1	125.5	13.6	5407.415E	7817.960S	-300s	-35.8nm	+1.9	228.16	138.5	11.8
D 230602	5151.524E	7841.306S	483.3	140.4	11.8	5151.524E	7841.308S	+0s	+0.0nm	-0.0	230.08	140.4	11.8
E 231102	3150.303E	7730.796S	490.8	158.3	8.9	4935.632E	7904.652S	+300s	+35.8nm	-1.9	225.90	142.2	11.9

GROUND SPEED = 430 nM/hr ALTITUDE = 37,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8742.860E	7343.950S	489.0	111.1	15.2	5810.745E	7727.829S	-900s	107.5nm	+5.1	224.19	135.3	11.7
B 225602	8028.973E	7604.762S	483.4	116.1	14.7	5611.926E	7753.055S	-600s	-71.7nm	+3.6	226.13	136.8	11.7
C 230102	6851.925E	7753.949S	481.4	125.6	13.6	5404.854E	7817.380S	-300s	-35.8nm	+1.9	228.20	138.6	11.8
D 230602	5148.992E	7840.706S	483.7	140.4	11.8	5148.992E	7840.708S	+0s	+0.0nm	-0.0	230.12	140.4	11.8
E 231102	3148.511E	7729.822S	491.2	158.3	8.8	4933.131E	7904.031S	+300s	+35.8nm	-1.9	225.95	142.3	11.9

GROUND SPEED = 430 nM/hr ALTITUDE = 36,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8740.858E	7343.733S	489.2	111.1	15.2	5808.171E	7727.284S	-900s	107.5nm	+5.1	224.23	135.3	11.7
B 225602	8026.653E	7604.488S	483.7	116.2	14.7	5609.352E	7752.492S	-600s	-71.7nm	+3.6	226.17	136.9	11.7
C 230102	6849.315E	7753.557S	481.7	125.6	13.6	5402.294E	7816.798S	-300s	-35.8nm	+1.9	228.24	138.6	11.8
D 230602	5146.462E	7840.103S	484.0	140.5	11.8	5146.462E	7840.106S	+0s	+0.0nm	-0.0	230.16	140.5	11.8
E 231102	3146.719E	7728.847S	491.5	158.3	8.8	4930.631E	7903.410S	+300s	+35.8nm	-1.9	225.99	142.3	11.9

GROUND SPEED = 430 nM/hr ALTITUDE = 35,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8738.856E	7343.516S	489.5	111.2	15.2	5805.597E	7726.740S	-900s	107.5nm	+5.1	224.28	135.4	11.7
B 225602	8024.333E	7604.213S	484.0	116.2	14.7	5606.779E	7751.928S	-600s	-71.7nm	+3.6	226.21	136.9	11.7
C 230102	6846.705E	7753.164S	482.0	125.6	13.6	5359.735E	7816.214S	-300s	-35.8nm	+1.9	228.28	138.6	11.7
D 230602	5143.934E	7839.501S	484.3	140.5	11.8	5143.934E	7839.503S	+0s	+0.0nm	-0.0	230.20	140.5	11.8
E 231102	3144.929E	7727.869S	491.9	158.3	8.8	4928.132E	7902.787S	+300s	+35.8nm	-1.9	226.04	142.4	11.8

GROUND SPEED = 430 nM/hr ALTITUDE = 34,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8736.853E	7343.297S	489.8	111.2	15.1	5803.024E	7726.193S	-900s	107.5nm	+5.1	224.32	135.4	11.6
B 225602	8022.012E	7603.937S	484.3	116.3	14.7	5604.207E	7751.364S	-600s	-71.7nm	+3.6	226.25	137.0	11.7
C 230102	6844.095E	7752.771S	482.3	125.7	13.6	5357.178E	7815.630S	-300s	-35.8nm	+1.9	228.32	138.7	11.7
D 230602	5141.407E	7838.897S	484.6	140.5	11.8	5141.407E	7838.899S	+0s	+0.0nm	-0.0	230.24	140.5	11.8
E 231102	3143.139E	7726.889S	492.2	158.4	8.8	4925.636E	7902.164S	+300s	+35.8nm	-1.9	226.09	142.4	11.8

GROUND SPEED = 430 nM/hr ALTITUDE = 33,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8734.850E	7343.079S	490.1	111.2	15.1	5800.452E	7725.646S	-900s	107.5nm	+5.1	224.36	135.4	11.6
B 225602	8019.691E	7603.661S	484.6	116.3	14.6	5601.636E	7750.797S	-600s	-71.7nm	+3.6	226.30	137.0	11.7
C 230102	6841.486E	7752.376S	482.6	125.7	13.6	5354.621E	7815.045S	-300s	-35.8nm	+1.9	228.37	138.7	11.7
D 230602	5138.881E	7838.292S	484.9	140.6	11.8	5138.881E	7838.294S	+0s	+0.0nm	-0.0	230.29	140.6	11.8
E 231102	3141.350E	7725.907S	492.6	158.4	8.8	4923.140E	7901.539S	+300s	+35.8nm	-1.9	226.13	142.5	11.8

GROUND SPEED = 430 nM/hr ALTITUDE = 32,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8732.845E	7342.860S	490.4	111.3	15.1	5757.880E	7725.097S	-900s	107.5nm	+5.1	224.40	135.5	11.6
B 225602	8017.370E	7603.383S	484.9	116.3	14.6	5559.066E	7750.230S	-600s	-71.7nm	+3.6	226.34	137.1	11.7
C 230102	6838.878E	7751.982S	482.9	125.8	13.6	5352.066E	7814.458S	-300s	-35.8nm	+1.9	228.41	138.8	11.7
D 230602	5136.356E	7837.685S	485.2	140.6	11.7	5136.356E	7837.688S	+0s	+0.0nm	-0.0	230.33	140.6	11.7
E 231102	3139.562E	7724.922S	492.9	158.4	8.7	4920.647E	7900.913S	+300s	+35.8nm	-1.9	226.18	142.5	11.8

GROUND SPEED = 420 nM/hr ALTITUDE = 38,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8744.861E	7344.167S	488.7	111.1	15.2	5805.287E	7730.161S	-900s	105.0nm	+5.0	224.28	135.3	11.7
B 225602	8031.293E	7605.036S	483.1	116.1	14.7	5608.777E	7754.770S	-600s	-70.0nm	+3.5	226.18	136.9	11.7
C 230102	6854.536E	7754.340S	481.1	125.5	13.6	5404.357E	7818.515S	-300s	-35.0nm	+1.8	228.21	138.6	11.8
D 230602	5151.524E	7841.306S	483.3	140.4	11.8	5151.524E	7841.308S	+0s	+0.0nm	-0.0	230.09	140.4	11.8
E 231102	3150.303E	7730.796S	490.8	158.3	8.9	4938.690E	7904.097S	+300s	+35.0nm	-1.8	226.01	142.2	11.9

GROUND SPEED = 420 nM/hr ALTITUDE = 37,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8742.860E	7343.950S	489.0	111.1	15.2	5802.712E	7729.616S	-900s	105.0nm	+5.0	224.32	135.4	11.7
B 225602	8028.973E	7604.762S	483.4	116.1	14.7	5606.203E	7754.207S	-600s	-70.0nm	+3.5	226.22	136.9	11.7
C 230102	6851.925E	7753.949S	481.4	125.6	13.6	5401.796E	7817.934S	-300s	-35.0nm	+1.8	228.25	138.6	11.8
D 230602	5148.992E	7840.706S	483.7	140.4	11.8	5148.992E	7840.708S	+0s	+0.0nm	-0.0	230.13	140.4	11.8
E 231102	3148.511E	7729.822S	491.2	158.3	8.8	4936.188E	7903.477S	+300s	+35.0nm	-1.8	226.05	142.2	11.9

GROUND SPEED = 420 nM/hr ALTITUDE = 36,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8740.858E	7343.733S	489.2	111.1	15.2	5800.137E	7729.071S	-900s	105.0nm	+5.0	224.37	135.4	11.7
B 225602	8026.653E	7604.488S	483.7	116.2	14.7	5603.629E	7753.644S	-600s	-70.0nm	+3.5	226.26	137.0	11.7
C 230102	6849.315E	7753.557S	481.7	125.6	13.6	5359.237E	7817.351S	-300s	-35.0nm	+1.8	228.29	138.6	11.8
D 230602	5146.462E	7840.103S	484.0	140.5	11.8	5146.462E	7840.106S	+0s	+0.0nm	-0.0	230.17	140.5	11.8
E 231102	3146.719E	7728.847S	491.5	158.3	8.8	4933.688E	7902.856S	+300s	+35.0nm	-1.8	226.10	142.3	11.8

GROUND SPEED = 420 nM/hr ALTITUDE = 35,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8738.856E	7343.516S	489.5	111.2	15.2	5757.563E	7728.524S	-900s	105.0nm	+5.0	224.41	135.5	11.7
B 225602	8024.333E	7604.213S	484.0	116.2	14.7	5601.057E	7753.078S	-600s	-70.0nm	+3.5	226.30	137.0	11.7
C 230102	6846.705E	7753.164S	482.0	125.6	13.6	5356.678E	7816.768S	-300s	-35.0nm	+1.8	228.33	138.7	11.7
D 230602	5143.934E	7839.501S	484.3	140.5	11.8	5143.934E	7839.503S	+0s	+0.0nm	-0.0	230.21	140.5	11.8
E 231102	3144.929E	7727.869S	491.9	158.3	8.8	4931.189E	7902.234S	+300s	+35.0nm	-1.8	226.14	142.3	11.8

GROUND SPEED = 420 nM/hr ALTITUDE = 34,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8736.853E	7343.297S	489.8	111.2	15.1	5754.990E	7727.977S	-900s	105.0nm	+5.0	224.45	135.5	11.6
B 225602	8022.012E	7603.937S	484.3	116.3	14.7	5558.485E	7752.513S	-600s	-70.0nm	+3.5	226.35	137.0	11.7
C 230102	6844.095E	7752.771S	482.3	125.7	13.6	5354.121E	7816.183S	-300s	-35.0nm	+1.8	228.37	138.7	11.7
D 230602	5141.407E	7838.897S	484.6	140.5	11.8	5141.407E	7838.899S	+0s	+0.0nm	-0.0	230.25	140.5	11.8
E 231102	3143.139E	7726.889S	492.2	158.4	8.8	4928.691E	7901.611S	+300s	+35.0nm	-1.8	226.19	142.4	11.8

GROUND SPEED = 420 nM/hr ALTITUDE = 33,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8734.850E	7343.079S	490.1	111.2	15.1	5752.417E	7727.428S	-900s	105.0nm	+5.0	224.49	135.5	11.6
B 225602	8019.691E	7603.661S	484.6	116.3	14.6	5555.915E	7751.946S	-600s	-70.0nm	+3.5	226.39	137.1	11.7
C 230102	6841.486E	7752.376S	482.6	125.7	13.6	5351.565E	7815.597S	-300s	-35.0nm	+1.8	228.42	138.8	11.7
D 230602	5138.881E	7838.292S	484.9	140.6	11.8	5138.881E	7838.294S	+0s	+0.0nm	-0.0	230.29	140.6	11.8
E 231102	3141.350E	7725.907S	492.6	158.4	8.8	4926.196E	7900.986S	+300s	+35.0nm	-1.8	226.23	142.4	11.8

GROUND SPEED = 420 nM/hr ALTITUDE = 32,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225102	8732.845E	7342.860S	490.4	111.3	15.1	5749.845E	7726.878S	-900s	105.0nm	+5.0	224.53	135.6	11.6
B 225602	8017.370E	7603.383S	484.9	116.3	14.6	5553.345E	7751.378S	-600s	-70.0nm	+3.5	226.43	137.1	11.7
C 230102	6838.878E	7751.982S	482.9	125.8	13.6	5349.010E	7815.010S	-300s	-35.0nm	+1.8	228.46	138.8	11.7
D 230602	5136.356E	7837.685S	485.2	140.6	11.7	5136.356E	7837.688S	+0s	+0.0nm	-0.0	230.34	140.6	11.7
E 231102	3139.562E	7724.922S	492.9	158.4	8.7	4923.702E	7900.361S	+300s	+35.0nm	-1.8	226.28	142.4	11.8

23:13:00 UT Totality Run Waypoint Tables for Lan Chile/Sky & Telescope Eclipse Flight

Glenn Schneider, Steward Observatory, University of Arizona, 13 August 2003

The following tables detail a two parameter (aircraft altitude and *ground* speed) family of possible "Totality Runs", for a near-sunset mid-eclipse intercept of 23:13:00 U.T. (alternate "shorter distance" from Punta Arenas in the even of an outbound delay).

Flight altitudes from 32,000 ft to 38,000 ft above MSL in increments of 1,000 ft, and ground speeds of 420 nM/hr to 520 nM/hr in increments of 10 nM/hr are considered.

The totality run is flown as 4 discrete but contiguous flight segments defined by five waypoints to be loaded into the Airbus A340 FMS.

Each possible totality run spans 17.5 minutes in time, beginning 15 minutes before mid-eclipse (waypoint A), and ending 2.5 minutes after mid-eclipse (waypoint B). Alternatively, using the same tables, one could begin the totality run 10 minutes before mid-eclipse (waypoint B), though this leave less time and margin for initial on-track course corrections.

The waypoints along the totality run very closely *approximate* a linear track, but in detail deviate from a true geodesic curve by a very small amount. (necessarily to optimize the line-of-site angle to the Sun at mid-eclipse and throughout the totality run)

The waypoints are uniformly spaced in time with a temporal spacing of 5 minutes (300 seconds). Hence, for a fixed ground speed, the distance between successive waypoints is constant (e.g., 39.2 nM @ 470 nM/hour).

Geographical coordinates are referenced to the WGS84 datum and expressed as degrees, arcminutes, and fractional arcminutes; DDMM.fff

The five waypoints, with the first four equally spaced in, are defined (and were chosen) as follows:

A: Totality Run Track Insertion Point. Mid-eclipse minus 15 minutes (22:58:00 UT). The aircraft should complete any heading alignment maneuvers prior to intercepting this point as close to 23:51:02 UT as possible. Any residual errors from initial approach in both heading and position should be nulled out (or minimized) in segment AB.

B: Totality Run Critical Start Point. Mid-eclipse minus 10 minutes (23:03:00 UT). Aircraft flight vector, as defined by waypoints, should be stable at and after crossing this point. Necessary Course and speed corrections due to windage only during segment BC.

C: Final Ingress Target Point. Mid-eclipse minus 5 minutes (23:08:00 UT). Last waypoint before lunar shadow overtakes aircraft. Contact II ~ 3m 43s after crossing waypoint C. Differential course and speed corrections due to windage only during segment CD.

D: Mid-Eclipse. (23:13:00 UT) Aircraft coincident with the instantaneous position of the center of the lunar shadow. Heading = instantaneous solar azimuth + 90 degrees. Contact III ~ 1m 17s after crossing waypoint D.

E: Totality Run Termination. Mid-eclipse plus 2.5 minutes (23:15:30 UT). Contact III plus 3m 43s. Point E is more closely spaced in time due to the rapid acceleration of the projection of the lunar shadow as it approaches geometric tangency to the Earth's surface.

Following crossing of waypoint E, at the discretion of the pilot in command, the aircraft may continue on a heading of 197° to allow additional viewing of the early phases of egress, the recession of the umbral shadow, and atmospheric color/brightness gradient effects.

This discrete parametric grid of waypoint tables were generated with EFLIGHT 2003 X version 2.0.0*, and is expected to sufficiently tile the parameter space in flight altitude and ground speed required for the LanChile/Sky & Telescope eclipse flight. Other tables can (and will) be generated as needed in future planning, or in situ during the flight.

* http://nicmosis.as.arizona.edu:8000/ECLIPSE_WEB/EFLIGHT/EFLIGHT.html

GROUND SPEED = 520 nM/hr ALTITUDE = 38,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7633.076E	7653.156S	481.9	119.2	14.4	3247.864E	7527.500S	-900s	130.0nm	+7.0	246.73	157.8	7.0
B 230300	6249.583E	7822.789S	481.5	130.7	13.0	3006.619E	7543.688S	-600s	-86.7nm	+4.8	249.33	160.1	7.0
C 230800	4401.979E	7831.516S	485.6	147.4	10.8	2719.651E	7558.004S	-300s	-43.3nm	+2.4	252.03	162.4	7.1
D 231300	2427.424E	7610.350S	495.6	164.8	7.1	2427.424E	7610.352S	+0s	+0.0nm	-0.0	254.54	164.8	7.1
E 231530	1606.992E	7246.398S	503.4	172.1	3.4	2300.686E	7616.271S	+150s	+21.7nm	-1.2	252.89	166.0	7.1

GROUND SPEED = 520 nM/hr ALTITUDE = 37,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7630.626E	7652.844S	482.2	119.3	14.3	3245.802E	7526.294S	-900s	130.0nm	+7.0	246.76	157.8	7.0
B 230300	6246.932E	7822.328S	481.8	130.8	13.0	3004.742E	7542.460S	-600s	-86.7nm	+4.8	249.36	160.1	7.0
C 230800	4359.670E	7830.798S	485.9	147.4	10.8	2717.983E	7556.755S	-300s	-43.3nm	+2.4	252.06	162.4	7.0
D 231300	2425.987E	7609.082S	496.0	164.8	7.1	2425.987E	7609.084S	+0s	+0.0nm	-0.0	254.56	164.8	7.1
E 231530	1605.699E	7243.619S	503.8	172.2	3.3	2259.368E	7614.994S	+150s	+21.7nm	-1.2	252.91	166.1	7.1

GROUND SPEED = 520 nM/hr ALTITUDE = 36,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7628.175E	7652.532S	482.5	119.3	14.3	3243.739E	7525.084S	-900s	130.0nm	+7.0	246.80	157.9	7.0
B 230300	6244.282E	7821.866S	482.1	130.8	13.0	3002.864E	7541.227S	-600s	-86.7nm	+4.7	249.39	160.1	7.0
C 230800	4357.363E	7830.079S	486.2	147.4	10.8	2716.315E	7555.501S	-300s	-43.3nm	+2.4	252.08	162.4	7.0
D 231300	2424.550E	7607.810S	496.4	164.9	7.0	2424.550E	7607.812S	+0s	+0.0nm	-0.0	254.58	164.9	7.0
E 231530	1604.395E	7240.801S	504.2	172.2	3.3	2258.049E	7613.714S	+150s	+21.7nm	-1.2	252.94	166.1	7.1

GROUND SPEED = 520 nM/hr ALTITUDE = 35,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7625.725E	7652.219S	482.8	119.3	14.3	3241.675E	7523.870S	-900s	130.0nm	+7.0	246.83	157.9	6.9
B 230300	6241.632E	7821.404S	482.4	130.9	13.0	3000.986E	7539.990S	-600s	-86.7nm	+4.7	249.42	160.1	7.0
C 230800	4355.057E	7829.358S	486.5	147.5	10.8	2714.646E	7554.243S	-300s	-43.3nm	+2.4	252.11	162.5	7.0
D 231300	2423.113E	7606.534S	496.7	164.9	7.0	2423.113E	7606.536S	+0s	+0.0nm	-0.0	254.61	164.9	7.0
E 231530	1603.078E	7237.940S	504.6	172.2	3.2	2256.731E	7612.428S	+150s	+21.7nm	-1.2	252.97	166.1	7.0

GROUND SPEED = 520 nM/hr ALTITUDE = 34,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7623.274E	7651.905S	483.1	119.4	14.3	3239.611E	7522.651S	-900s	130.0nm	+7.0	246.86	157.9	6.9
B 230300	6238.984E	7820.940S	482.7	130.9	13.0	2959.108E	7538.749S	-600s	-86.7nm	+4.7	249.45	160.2	6.9
C 230800	4352.753E	7828.636S	486.9	147.5	10.8	2712.977E	7552.981S	-300s	-43.3nm	+2.4	252.14	162.5	7.0
D 231300	2421.675E	7605.254S	497.1	164.9	7.0	2421.675E	7605.255S	+0s	+0.0nm	-0.0	254.63	164.9	7.0
E 231530	1601.748E	7235.035S	505.0	172.2	3.2	2255.412E	7611.139S	+150s	+21.7nm	-1.2	252.99	166.1	7.0

GROUND SPEED = 520 nM/hr ALTITUDE = 33,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7620.824E	7651.592S	483.4	119.4	14.3	3237.545E	7521.428S	-900s	130.0nm	+7.0	246.90	158.0	6.9
B 230300	6236.336E	7820.476S	483.0	131.0	13.0	2957.229E	7537.503S	-600s	-86.7nm	+4.7	249.49	160.2	6.9
C 230800	4350.450E	7827.913S	487.2	147.5	10.8	2711.307E	7551.715S	-300s	-43.3nm	+2.4	252.17	162.5	7.0
D 231300	2420.237E	7603.969S	497.5	164.9	7.0	2420.237E	7603.971S	+0s	+0.0nm	-0.0	254.66	164.9	7.0
E 231530	1600.405E	7232.084S	505.4	172.2	3.1	2254.092E	7609.845S	+150s	+21.7nm	-1.2	253.02	166.1	7.0

GROUND SPEED = 520 nM/hr ALTITUDE = 32,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7618.373E	7651.277S	483.7	119.5	14.3	3235.478E	7520.201S	-900s	130.0nm	+6.9	246.93	158.0	6.9
B 230300	6233.689E	7820.011S	483.3	131.0	12.9	2955.348E	7536.253S	-600s	-86.7nm	+4.7	249.52	160.2	6.9
C 230800	4348.149E	7827.188S	487.5	147.6	10.7	2709.637E	7550.444S	-300s	-43.3nm	+2.4	252.19	162.6	6.9
D 231300	2418.799E	7602.680S	497.9	165.0	7.0	2418.799E	7602.681S	+0s	+0.0nm	-0.0	254.68	165.0	7.0
E 231530	1559.047E	7229.085S	505.8	172.3	3.1	2252.773E	7608.548S	+150s	+21.7nm	-1.2	253.05	166.2	7.0

GROUND SPEED = 510 nM/hr ALTITUDE = 38,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7633.076E	7653.156S	481.9	119.2	14.4	3238.723E	7528.484S	-900s	127.5nm	+6.9	246.88	157.9	7.0
B 230300	6249.583E	7822.789S	481.5	130.7	13.0	3000.300E	7544.275S	-600s	-85.0nm	+4.7	249.43	160.1	7.0
C 230800	4401.979E	7831.516S	485.6	147.4	10.8	2716.387E	7558.261S	-300s	-42.5nm	+2.4	252.08	162.4	7.1
D 231300	2427.424E	7610.350S	495.6	164.8	7.1	2427.424E	7610.352S	+0s	+0.0nm	-0.0	254.54	164.8	7.1
E 231530	1606.992E	7246.398S	503.4	172.1	3.4	2302.342E	7616.152S	+150s	+21.3nm	-1.2	252.92	166.0	7.1

GROUND SPEED = 510 nM/hr ALTITUDE = 37,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7630.626E	7652.844S	482.2	119.3	14.3	3236.671E	7527.276S	-900s	127.5nm	+6.9	246.91	158.0	7.0
B 230300	6246.932E	7822.328S	481.8	130.8	13.0	2958.431E	7543.045S	-600s	-85.0nm	+4.7	249.46	160.2	7.0
C 230800	4359.670E	7830.798S	485.9	147.4	10.8	2714.723E	7557.011S	-300s	-42.5nm	+2.4	252.11	162.5	7.0
D 231300	2425.987E	7609.082S	496.0	164.8	7.1	2425.987E	7609.084S	+0s	+0.0nm	-0.0	254.57	164.8	7.1
E 231530	1605.699E	7243.619S	503.8	172.2	3.3	2301.022E	7614.876S	+150s	+21.3nm	-1.2	252.95	166.0	7.1

GROUND SPEED = 510 nM/hr ALTITUDE = 36,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7628.175E	7652.532S	482.5	119.3	14.3	3234.619E	7526.065S	-900s	127.5nm	+6.9	246.94	158.0	7.0
B 230300	6244.282E	7821.866S	482.1	130.8	13.0	2956.561E	7541.811S	-600s	-85.0nm	+4.7	249.49	160.2	7.0
C 230800	4357.363E	7830.079S	486.2	147.4	10.8	2713.059E	7555.757S	-300s	-42.5nm	+2.4	252.14	162.5	7.0
D 231300	2424.550E	7607.810S	496.4	164.9	7.0	2424.550E	7607.812S	+0s	+0.0nm	-0.0	254.59	164.9	7.0
E 231530	1604.395E	7240.801S	504.2	172.2	3.3	2259.701E	7613.595S	+150s	+21.3nm	-1.2	252.98	166.1	7.1

GROUND SPEED = 510 nM/hr ALTITUDE = 35,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7625.725E	7652.219S	482.8	119.3	14.3	3232.565E	7524.849S	-900s	127.5nm	+6.8	246.98	158.0	6.9
B 230300	6241.632E	7821.404S	482.4	130.9	13.0	2954.691E	7540.573S	-600s	-85.0nm	+4.7	249.52	160.2	7.0
C 230800	4355.057E	7829.358S	486.5	147.5	10.8	2711.395E	7554.498S	-300s	-42.5nm	+2.4	252.16	162.5	7.0
D 231300	2423.113E	7606.534S	496.7	164.9	7.0	2423.113E	7606.536S	+0s	+0.0nm	-0.0	254.61	164.9	7.0
E 231530	1603.078E	7237.940S	504.6	172.2	3.2	2258.381E	7612.310S	+150s	+21.3nm	-1.2	253.01	166.1	7.0

GROUND SPEED = 510 nM/hr ALTITUDE = 34,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7623.274E	7651.905S	483.1	119.4	14.3	3230.511E	7523.629S	-900s	127.5nm	+6.8	247.01	158.1	6.9
B 230300	6238.984E	7820.940S	482.7	130.9	13.0	2952.820E	7539.331S	-600s	-85.0nm	+4.6	249.56	160.3	6.9
C 230800	4352.753E	7828.636S	486.9	147.5	10.8	2709.730E	7553.236S	-300s	-42.5nm	+2.4	252.19	162.5	7.0
D 231300	2421.675E	7605.254S	497.1	164.9	7.0	2421.675E	7605.255S	+0s	+0.0nm	-0.0	254.64	164.9	7.0
E 231530	1601.748E	7235.035S	505.0	172.2	3.2	2257.059E	7611.021S	+150s	+21.3nm	-1.2	253.03	166.1	7.0

GROUND SPEED = 510 nM/hr ALTITUDE = 33,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7620.824E	7651.592S	483.4	119.4	14.3	3228.455E	7522.405S	-900s	127.5nm	+6.8	247.04	158.1	6.9
B 230300	6236.336E	7820.476S	483.0	131.0	13.0	2950.948E	7538.084S	-600s	-85.0nm	+4.6	249.59	160.3	6.9
C 230800	4350.450E	7827.913S	487.2	147.5	10.8	2708.064E	7551.969S	-300s	-42.5nm	+2.4	252.22	162.6	7.0
D 231300	2420.237E	7603.969S	497.5	164.9	7.0	2420.237E	7603.971S	+0s	+0.0nm	-0.0	254.66	164.9	7.0
E 231530	1600.405E	7232.084S	505.4	172.2	3.1	2255.738E	7609.728S	+150s	+21.3nm	-1.2	253.06	166.1	7.0

GROUND SPEED = 510 nM/hr ALTITUDE = 32,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7618.373E	7651.277S	483.7	119.5	14.3	3226.398E	7521.176S	-900s	127.5nm	+6.8	247.08	158.1	6.9
B 230300	6233.689E	7820.011S	483.3	131.0	12.9	2949.075E	7536.833S	-600s	-85.0nm	+4.6	249.62	160.3	6.9
C 230800	4348.149E	7827.188S	487.5	147.6	10.7	2706.398E	7550.698S	-300s	-42.5nm	+2.4	252.24	162.6	6.9
D 231300	2418.799E	7602.680S	497.9	165.0	7.0	2418.799E	7602.681S	+0s	+0.0nm	-0.0	254.69	165.0	7.0
E 231530	1559.047E	7229.085S	505.8	172.3	3.1	2254.416E	7608.430S	+150s	+21.3nm	-1.2	253.09	166.1	7.0

GROUND SPEED = 500 nM/hr ALTITUDE = 38,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7633.076E	7653.156S	481.9	119.2	14.4	3229.563E	7529.461S	-900s	125.0nm	+6.8	247.02	158.1	7.0
B 230300	6249.583E	7822.789S	481.5	130.7	13.0	2953.973E	7544.858S	-600s	-83.3nm	+4.6	249.53	160.2	7.0
C 230800	4401.979E	7831.516S	485.6	147.4	10.8	2713.121E	7558.516S	-300s	-41.7nm	+2.3	252.13	162.5	7.1
D 231300	2427.424E	7610.350S	495.6	164.8	7.1	2427.424E	7610.352S	+0s	+0.0nm	-0.0	254.55	164.8	7.1
E 231530	1606.992E	7246.398S	503.4	172.1	3.4	2304.000E	7616.034S	+150s	+20.8nm	-1.2	252.96	166.0	7.1

GROUND SPEED = 500 nM/hr ALTITUDE = 37,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7630.626E	7652.844S	482.2	119.3	14.3	3227.521E	7528.252S	-900s	125.0nm	+6.7	247.06	158.1	7.0
B 230300	6246.932E	7822.328S	481.8	130.8	13.0	2952.112E	7543.627S	-600s	-83.3nm	+4.6	249.57	160.3	7.0
C 230800	4359.670E	7830.798S	485.9	147.4	10.8	2711.461E	7557.266S	-300s	-41.7nm	+2.3	252.16	162.5	7.0
D 231300	2425.987E	7609.082S	496.0	164.8	7.1	2425.987E	7609.084S	+0s	+0.0nm	-0.0	254.57	164.8	7.1
E 231530	1605.699E	7243.619S	503.8	172.2	3.3	2302.677E	7614.758S	+150s	+20.8nm	-1.2	252.99	166.0	7.1

GROUND SPEED = 500 nM/hr ALTITUDE = 36,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7628.175E	7652.532S	482.5	119.3	14.3	3225.478E	7527.039S	-900s	125.0nm	+6.7	247.09	158.1	7.0
B 230300	6244.282E	7821.866S	482.1	130.8	13.0	2950.249E	7542.392S	-600s	-83.3nm	+4.6	249.60	160.3	7.0
C 230800	4357.363E	7830.079S	486.2	147.4	10.8	2709.802E	7556.011S	-300s	-41.7nm	+2.3	252.19	162.5	7.0
D 231300	2424.550E	7607.810S	496.4	164.9	7.0	2424.550E	7607.812S	+0s	+0.0nm	-0.0	254.60	164.9	7.0
E 231530	1604.395E	7240.801S	504.2	172.2	3.3	2301.354E	7613.477S	+150s	+20.8nm	-1.2	253.02	166.0	7.1

GROUND SPEED = 500 nM/hr ALTITUDE = 35,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7625.725E	7652.219S	482.8	119.3	14.3	3223.435E	7525.822S	-900s	125.0nm	+6.7	247.12	158.2	6.9
B 230300	6241.632E	7821.404S	482.4	130.9	13.0	2948.387E	7541.154S	-600s	-83.3nm	+4.6	249.63	160.3	7.0
C 230800	4355.057E	7829.358S	486.5	147.5	10.8	2708.141E	7554.753S	-300s	-41.7nm	+2.3	252.22	162.6	7.0
D 231300	2423.113E	7606.534S	496.7	164.9	7.0	2423.113E	7606.536S	+0s	+0.0nm	-0.0	254.62	164.9	7.0
E 231530	1603.078E	7237.940S	504.6	172.2	3.2	2300.031E	7612.193S	+150s	+20.8nm	-1.2	253.04	166.1	7.0

GROUND SPEED = 500 nM/hr ALTITUDE = 34,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7623.274E	7651.905S	483.1	119.4	14.3	3221.390E	7524.601S	-900s	125.0nm	+6.7	247.16	158.2	6.9
B 230300	6238.984E	7820.940S	482.7	130.9	13.0	2946.523E	7539.911S	-600s	-83.3nm	+4.6	249.66	160.3	6.9
C 230800	4352.753E	7828.636S	486.9	147.5	10.8	2706.481E	7553.490S	-300s	-41.7nm	+2.3	252.24	162.6	7.0
D 231300	2421.675E	7605.254S	497.1	164.9	7.0	2421.675E	7605.255S	+0s	+0.0nm	-0.0	254.64	164.9	7.0
E 231530	1601.748E	7235.035S	505.0	172.2	3.2	2258.708E	7610.903S	+150s	+20.8nm	-1.2	253.07	166.1	7.0

GROUND SPEED = 500 nM/hr ALTITUDE = 33,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7620.824E	7651.592S	483.4	119.4	14.3	3219.345E	7523.375S	-900s	125.0nm	+6.7	247.19	158.2	6.9
B 230300	6236.336E	7820.476S	483.0	131.0	13.0	2944.659E	7538.663S	-600s	-83.3nm	+4.6	249.69	160.4	6.9
C 230800	4350.450E	7827.913S	487.2	147.5	10.8	2704.819E	7552.223S	-300s	-41.7nm	+2.3	252.27	162.6	7.0
D 231300	2420.237E	7603.969S	497.5	164.9	7.0	2420.237E	7603.971S	+0s	+0.0nm	-0.0	254.67	164.9	7.0
E 231530	1600.405E	7232.084S	505.4	172.2	3.1	2257.384E	7609.610S	+150s	+20.8nm	-1.2	253.10	166.1	7.0

GROUND SPEED = 500 nM/hr ALTITUDE = 32,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7618.373E	7651.277S	483.7	119.5	14.3	3217.299E	7522.145S	-900s	125.0nm	+6.7	247.23	158.3	6.9
B 230300	6233.689E	7820.011S	483.3	131.0	12.9	2942.794E	7537.412S	-600s	-83.3nm	+4.5	249.72	160.4	6.9
C 230800	4348.149E	7827.188S	487.5	147.6	10.7	2703.157E	7550.951S	-300s	-41.7nm	+2.3	252.30	162.6	6.9
D 231300	2418.799E	7602.680S	497.9	165.0	7.0	2418.799E	7602.681S	+0s	+0.0nm	-0.0	254.69	165.0	7.0
E 231530	1559.047E	7229.085S	505.8	172.3	3.1	2256.060E	7608.312S	+150s	+20.8nm	-1.2	253.12	166.1	7.0

GROUND SPEED = 490 nM/hr ALTITUDE = 38,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7633.076E	7653.156S	481.9	119.2	14.4	3220.382E	7530.432S	-900s	122.5nm	+6.6	247.17	158.2	7.0
B 230300	6249.583E	7822.789S	481.5	130.7	13.0	2947.638E	7545.438S	-600s	-81.7nm	+4.5	249.64	160.3	7.0
C 230800	4401.979E	7831.516S	485.6	147.4	10.8	2709.853E	7558.771S	-300s	-40.8nm	+2.3	252.19	162.5	7.1
D 231300	2427.424E	7610.350S	495.6	164.8	7.1	2427.424E	7610.352S	+0s	+0.0nm	-0.0	254.56	164.8	7.1
E 231530	1606.992E	7246.398S	503.4	172.1	3.4	2305.657E	7615.915S	+150s	+20.4nm	-1.2	253.00	166.0	7.1

GROUND SPEED = 490 nM/hr ALTITUDE = 37,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7630.626E	7652.844S	482.2	119.3	14.3	3218.350E	7529.222S	-900s	122.5nm	+6.6	247.20	158.2	7.0
B 230300	6246.932E	7822.328S	481.8	130.8	13.0	2945.784E	7544.207S	-600s	-81.7nm	+4.5	249.67	160.3	7.0
C 230800	4359.670E	7830.798S	485.9	147.4	10.8	2708.198E	7557.520S	-300s	-40.8nm	+2.3	252.21	162.6	7.0
D 231300	2425.987E	7609.082S	496.0	164.8	7.1	2425.987E	7609.084S	+0s	+0.0nm	-0.0	254.58	164.8	7.1
E 231530	1605.699E	7243.619S	503.8	172.2	3.3	2304.332E	7614.639S	+150s	+20.4nm	-1.2	253.03	166.0	7.1

GROUND SPEED = 490 nM/hr ALTITUDE = 36,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7628.175E	7652.532S	482.5	119.3	14.3	3216.318E	7528.007S	-900s	122.5nm	+6.6	247.24	158.3	7.0
B 230300	6244.282E	7821.866S	482.1	130.8	13.0	2943.930E	7542.971S	-600s	-81.7nm	+4.5	249.70	160.4	7.0
C 230800	4357.363E	7830.079S	486.2	147.4	10.8	2706.542E	7556.266S	-300s	-40.8nm	+2.3	252.24	162.6	7.0
D 231300	2424.550E	7607.810S	496.4	164.9	7.0	2424.550E	7607.812S	+0s	+0.0nm	-0.0	254.60	164.9	7.0
E 231530	1604.395E	7240.801S	504.2	172.2	3.3	2303.007E	7613.359S	+150s	+20.4nm	-1.2	253.05	166.0	7.1

GROUND SPEED = 490 nM/hr ALTITUDE = 35,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7625.725E	7652.219S	482.8	119.3	14.3	3214.285E	7526.789S	-900s	122.5nm	+6.6	247.27	158.3	6.9
B 230300	6241.632E	7821.404S	482.4	130.9	13.0	2942.074E	7541.732S	-600s	-81.7nm	+4.5	249.73	160.4	7.0
C 230800	4355.057E	7829.358S	486.5	147.5	10.8	2704.886E	7555.006S	-300s	-40.8nm	+2.3	252.27	162.6	7.0
D 231300	2423.113E	7606.534S	496.7	164.9	7.0	2423.113E	7606.536S	+0s	+0.0nm	-0.0	254.63	164.9	7.0
E 231530	1603.078E	7237.940S	504.6	172.2	3.2	2301.681E	7612.074S	+150s	+20.4nm	-1.1	253.08	166.0	7.0

GROUND SPEED = 490 nM/hr ALTITUDE = 34,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7623.274E	7651.905S	483.1	119.4	14.3	3212.250E	7525.567S	-900s	122.5nm	+6.6	247.31	158.3	6.9
B 230300	6238.984E	7820.940S	482.7	130.9	13.0	2940.219E	7540.488S	-600s	-81.7nm	+4.5	249.76	160.4	7.0
C 230800	4352.753E	7828.636S	486.9	147.5	10.8	2703.229E	7553.743S	-300s	-40.8nm	+2.3	252.30	162.6	7.0
D 231300	2421.675E	7605.254S	497.1	164.9	7.0	2421.675E	7605.255S	+0s	+0.0nm	-0.0	254.65	164.9	7.0
E 231530	1601.748E	7235.035S	505.0	172.2	3.2	2300.356E	7610.786S	+150s	+20.4nm	-1.1	253.11	166.1	7.0

GROUND SPEED = 490 nM/hr ALTITUDE = 33,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7620.824E	7651.592S	483.4	119.4	14.3	3210.215E	7524.340S	-900s	122.5nm	+6.6	247.34	158.4	6.9
B 230300	6236.336E	7820.476S	483.0	131.0	13.0	2938.362E	7539.239S	-600s	-81.7nm	+4.5	249.79	160.5	6.9
C 230800	4350.450E	7827.913S	487.2	147.5	10.8	2701.572E	7552.475S	-300s	-40.8nm	+2.3	252.32	162.7	7.0
D 231300	2420.237E	7603.969S	497.5	164.9	7.0	2420.237E	7603.971S	+0s	+0.0nm	-0.0	254.67	164.9	7.0
E 231530	1600.405E	7232.084S	505.4	172.2	3.1	2259.030E	7609.493S	+150s	+20.4nm	-1.1	253.13	166.1	7.0

GROUND SPEED = 490 nM/hr ALTITUDE = 32,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7618.373E	7651.277S	483.7	119.5	14.3	3208.179E	7523.108S	-900s	122.5nm	+6.6	247.37	158.4	6.9
B 230300	6233.689E	7820.011S	483.3	131.0	12.9	2936.505E	7537.987S	-600s	-81.7nm	+4.5	249.82	160.5	6.9
C 230800	4348.149E	7827.188S	487.5	147.6	10.7	2659.915E	7551.204S	-300s	-40.8nm	+2.3	252.35	162.7	6.9
D 231300	2418.799E	7602.680S	497.9	165.0	7.0	2418.799E	7602.681S	+0s	+0.0nm	-0.0	254.70	165.0	7.0
E 231530	1559.047E	7229.085S	505.8	172.3	3.1	2257.704E	7608.195S	+150s	+20.4nm	-1.1	253.16	166.1	7.0

GROUND SPEED = 480 nM/hr ALTITUDE = 38,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7633.076E	7653.156S	481.9	119.2	14.4	3211.181E	7531.397S	-900s	120.0nm	+6.5	247.32	158.3	7.0
B 230300	6249.583E	7822.789S	481.5	130.7	13.0	2941.294E	7546.015S	-600s	-80.0nm	+4.4	249.74	160.4	7.0
C 230800	4401.979E	7831.516S	485.6	147.4	10.8	2706.583E	7559.025S	-300s	-40.0nm	+2.2	252.24	162.6	7.1
D 231300	2427.424E	7610.350S	495.6	164.8	7.1	2427.424E	7610.352S	+0s	+0.0nm	-0.0	254.56	164.8	7.1
E 231530	1606.992E	7246.398S	503.4	172.1	3.4	2307.315E	7615.797S	+150s	+20.0nm	-1.1	253.04	165.9	7.1

GROUND SPEED = 480 nM/hr ALTITUDE = 37,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7630.626E	7652.844S	482.2	119.3	14.3	3209.160E	7530.186S	-900s	120.0nm	+6.5	247.35	158.4	7.0
B 230300	6246.932E	7822.328S	481.8	130.8	13.0	2939.448E	7544.783S	-600s	-80.0nm	+4.4	249.77	160.4	7.0
C 230800	4359.670E	7830.798S	485.9	147.4	10.8	2704.932E	7557.774S	-300s	-40.0nm	+2.2	252.27	162.6	7.0
D 231300	2425.987E	7609.082S	496.0	164.8	7.1	2425.987E	7609.084S	+0s	+0.0nm	-0.0	254.59	164.8	7.1
E 231530	1605.699E	7243.619S	503.8	172.2	3.3	2305.987E	7614.521S	+150s	+20.0nm	-1.1	253.06	166.0	7.1

GROUND SPEED = 480 nM/hr ALTITUDE = 36,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7628.175E	7652.532S	482.5	119.3	14.3	3207.138E	7528.970S	-900s	120.0nm	+6.5	247.39	158.4	7.0
B 230300	6244.282E	7821.866S	482.1	130.8	13.0	2937.601E	7543.547S	-600s	-80.0nm	+4.4	249.80	160.5	7.0
C 230800	4357.363E	7830.079S	486.2	147.4	10.8	2703.281E	7556.519S	-300s	-40.0nm	+2.2	252.29	162.6	7.0
D 231300	2424.550E	7607.810S	496.4	164.9	7.0	2424.550E	7607.812S	+0s	+0.0nm	-0.0	254.61	164.9	7.0
E 231530	1604.395E	7240.801S	504.2	172.2	3.3	2304.660E	7613.241S	+150s	+20.0nm	-1.1	253.09	166.0	7.1

GROUND SPEED = 480 nM/hr ALTITUDE = 35,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7625.725E	7652.219S	482.8	119.3	14.3	3205.114E	7527.751S	-900s	120.0nm	+6.5	247.42	158.4	6.9
B 230300	6241.632E	7821.404S	482.4	130.9	13.0	2935.753E	7542.307S	-600s	-80.0nm	+4.4	249.83	160.5	7.0
C 230800	4355.057E	7829.358S	486.5	147.5	10.8	2701.629E	7555.259S	-300s	-40.0nm	+2.2	252.32	162.7	7.0
D 231300	2423.113E	7606.534S	496.7	164.9	7.0	2423.113E	7606.536S	+0s	+0.0nm	-0.0	254.63	164.9	7.0
E 231530	1603.078E	7237.940S	504.6	172.2	3.2	2303.332E	7611.957S	+150s	+20.0nm	-1.1	253.12	166.0	7.0

GROUND SPEED = 480 nM/hr ALTITUDE = 34,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7623.274E	7651.905S	483.1	119.4	14.3	3203.091E	7526.527S	-900s	120.0nm	+6.5	247.45	158.4	6.9
B 230300	6238.984E	7820.940S	482.7	130.9	13.0	2933.905E	7541.062S	-600s	-80.0nm	+4.4	249.86	160.5	7.0
C 230800	4352.753E	7828.636S	486.9	147.5	10.8	2659.977E	7553.996S	-300s	-40.0nm	+2.2	252.35	162.7	7.0
D 231300	2421.675E	7605.254S	497.1	164.9	7.0	2421.675E	7605.255S	+0s	+0.0nm	-0.0	254.66	164.9	7.0
E 231530	1601.748E	7235.035S	505.0	172.2	3.2	2302.005E	7610.669S	+150s	+20.0nm	-1.1	253.14	166.0	7.0

GROUND SPEED = 480 nM/hr ALTITUDE = 33,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7620.824E	7651.592S	483.4	119.4	14.3	3201.066E	7525.298S	-900s	120.0nm	+6.5	247.49	158.5	6.9
B 230300	6236.336E	7820.476S	483.0	131.0	13.0	2932.057E	7539.813S	-600s	-80.0nm	+4.4	249.89	160.6	6.9
C 230800	4350.450E	7827.913S	487.2	147.5	10.8	2658.324E	7552.728S	-300s	-40.0nm	+2.2	252.38	162.7	7.0
D 231300	2420.237E	7603.969S	497.5	164.9	7.0	2420.237E	7603.971S	+0s	+0.0nm	-0.0	254.68	164.9	7.0
E 231530	1600.405E	7232.084S	505.4	172.2	3.1	2300.677E	7609.376S	+150s	+20.0nm	-1.1	253.17	166.1	7.0

GROUND SPEED = 480 nM/hr ALTITUDE = 32,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7618.373E	7651.277S	483.7	119.5	14.3	3159.040E	7524.065S	-900s	120.0nm	+6.4	247.52	158.5	6.9
B 230300	6233.689E	7820.011S	483.3	131.0	12.9	2930.208E	7538.560S	-600s	-80.0nm	+4.4	249.92	160.6	6.9
C 230800	4348.149E	7827.188S	487.5	147.6	10.7	2656.671E	7551.455S	-300s	-40.0nm	+2.2	252.40	162.7	6.9
D 231300	2418.799E	7602.680S	497.9	165.0	7.0	2418.799E	7602.681S	+0s	+0.0nm	-0.0	254.70	165.0	7.0
E 231530	1559.047E	7229.085S	505.8	172.3	3.1	2259.348E	7608.078S	+150s	+20.0nm	-1.1	253.20	166.1	7.0

GROUND SPEED = 470 nM/hr ALTITUDE = 38,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7633.076E	7653.156S	481.9	119.2	14.4	3201.960E	7532.356S	-900s	117.5nm	+6.4	247.47	158.4	7.0
B 230300	6249.583E	7822.789S	481.5	130.7	13.0	2934.942E	7546.590S	-600s	-78.3nm	+4.3	249.84	160.5	7.0
C 230800	4401.979E	7831.516S	485.6	147.4	10.8	2703.311E	7559.278S	-300s	-39.2nm	+2.2	252.29	162.6	7.1
D 231300	2427.424E	7610.350S	495.6	164.8	7.1	2427.424E	7610.352S	+0s	+0.0nm	-0.0	254.57	164.8	7.1
E 231530	1606.992E	7246.398S	503.4	172.1	3.4	2308.973E	7615.679S	+150s	+19.6nm	-1.1	253.07	165.9	7.1

GROUND SPEED = 470 nM/hr ALTITUDE = 37,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7630.626E	7652.844S	482.2	119.3	14.3	3159.949E	7531.144S	-900s	117.5nm	+6.4	247.50	158.5	7.0
B 230300	6246.932E	7822.328S	481.8	130.8	13.0	2933.103E	7545.357S	-600s	-78.3nm	+4.3	249.87	160.5	7.0
C 230800	4359.670E	7830.798S	485.9	147.4	10.8	2701.664E	7558.027S	-300s	-39.2nm	+2.2	252.32	162.6	7.0
D 231300	2425.987E	7609.082S	496.0	164.8	7.1	2425.987E	7609.084S	+0s	+0.0nm	-0.0	254.59	164.8	7.1
E 231530	1605.699E	7243.619S	503.8	172.2	3.3	2307.643E	7614.404S	+150s	+19.6nm	-1.1	253.10	165.9	7.1

GROUND SPEED = 470 nM/hr ALTITUDE = 36,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7628.175E	7652.532S	482.5	119.3	14.3	3157.937E	7529.927S	-900s	117.5nm	+6.4	247.53	158.5	7.0
B 230300	6244.282E	7821.866S	482.1	130.8	13.0	2931.264E	7544.120S	-600s	-78.3nm	+4.3	249.90	160.6	7.0
C 230800	4357.363E	7830.079S	486.2	147.4	10.8	2700.017E	7556.771S	-300s	-39.2nm	+2.2	252.35	162.7	7.0
D 231300	2424.550E	7607.810S	496.4	164.9	7.0	2424.550E	7607.812S	+0s	+0.0nm	-0.0	254.62	164.9	7.0
E 231530	1604.395E	7240.801S	504.2	172.2	3.3	2306.314E	7613.124S	+150s	+19.6nm	-1.1	253.13	166.0	7.1

GROUND SPEED = 470 nM/hr ALTITUDE = 35,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7625.725E	7652.219S	482.8	119.3	14.3	3155.925E	7528.706S	-900s	117.5nm	+6.3	247.57	158.5	6.9
B 230300	6241.632E	7821.404S	482.4	130.9	13.0	2929.425E	7542.879S	-600s	-78.3nm	+4.3	249.93	160.6	7.0
C 230800	4355.057E	7829.358S	486.5	147.5	10.8	2658.370E	7555.511S	-300s	-39.2nm	+2.2	252.37	162.7	7.0
D 231300	2423.113E	7606.534S	496.7	164.9	7.0	2423.113E	7606.536S	+0s	+0.0nm	-0.0	254.64	164.9	7.0
E 231530	1603.078E	7237.940S	504.6	172.2	3.2	2304.984E	7611.840S	+150s	+19.6nm	-1.1	253.15	166.0	7.0

GROUND SPEED = 470 nM/hr ALTITUDE = 34,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7623.274E	7651.905S	483.1	119.4	14.3	3153.911E	7527.481S	-900s	117.5nm	+6.3	247.60	158.6	6.9
B 230300	6238.984E	7820.940S	482.7	130.9	13.0	2927.584E	7541.633S	-600s	-78.3nm	+4.3	249.96	160.6	7.0
C 230800	4352.753E	7828.636S	486.9	147.5	10.8	2656.722E	7554.248S	-300s	-39.2nm	+2.2	252.40	162.7	7.0
D 231300	2421.675E	7605.254S	497.1	164.9	7.0	2421.675E	7605.255S	+0s	+0.0nm	-0.0	254.66	164.9	7.0
E 231530	1601.748E	7235.035S	505.0	172.2	3.2	2303.654E	7610.551S	+150s	+19.6nm	-1.1	253.18	166.0	7.0

GROUND SPEED = 470 nM/hr ALTITUDE = 33,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7620.824E	7651.592S	483.4	119.4	14.3	3151.897E	7526.251S	-900s	117.5nm	+6.3	247.63	158.6	6.9
B 230300	6236.336E	7820.476S	483.0	131.0	13.0	2925.744E	7540.384S	-600s	-78.3nm	+4.3	249.99	160.6	6.9
C 230800	4350.450E	7827.913S	487.2	147.5	10.8	2655.073E	7552.979S	-300s	-39.2nm	+2.2	252.43	162.8	7.0
D 231300	2420.237E	7603.969S	497.5	164.9	7.0	2420.237E	7603.971S	+0s	+0.0nm	-0.0	254.69	164.9	7.0
E 231530	1600.405E	7232.084S	505.4	172.2	3.1	2302.324E	7609.259S	+150s	+19.6nm	-1.1	253.21	166.0	7.0

GROUND SPEED = 470 nM/hr ALTITUDE = 32,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7618.373E	7651.277S	483.7	119.5	14.3	3149.882E	7525.017S	-900s	117.5nm	+6.3	247.67	158.6	6.9
B 230300	6233.689E	7820.011S	483.3	131.0	12.9	2923.902E	7539.130S	-600s	-78.3nm	+4.3	250.02	160.7	6.9
C 230800	4348.149E	7827.188S	487.5	147.6	10.7	2653.424E	7551.707S	-300s	-39.2nm	+2.2	252.45	162.8	6.9
D 231300	2418.799E	7602.680S	497.9	165.0	7.0	2418.799E	7602.681S	+0s	+0.0nm	-0.0	254.71	165.0	7.0
E 231530	1559.047E	7229.085S	505.8	172.3	3.1	2300.994E	7607.961S	+150s	+19.6nm	-1.1	253.23	166.1	7.0

GROUND SPEED = 460 nM/hr ALTITUDE = 38,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7633.076E	7653.156S	481.9	119.2	14.4	3152.720E	7533.310S	-900s	115.0nm	+6.2	247.62	158.6	7.0
B 230300	6249.583E	7822.789S	481.5	130.7	13.0	2928.581E	7547.162S	-600s	-76.7nm	+4.2	249.95	160.6	7.0
C 230800	4401.979E	7831.516S	485.6	147.4	10.8	2700.037E	7559.531S	-300s	-38.3nm	+2.1	252.35	162.7	7.1
D 231300	2427.424E	7610.350S	495.6	164.8	7.1	2427.424E	7610.352S	+0s	+0.0nm	-0.0	254.58	164.8	7.1
E 231530	1606.992E	7246.398S	503.4	172.1	3.4	2310.632E	7615.562S	+150s	+19.2nm	-1.1	253.11	165.9	7.1

GROUND SPEED = 460 nM/hr ALTITUDE = 37,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7630.626E	7652.844S	482.2	119.3	14.3	3150.719E	7532.096S	-900s	115.0nm	+6.2	247.65	158.6	7.0
B 230300	6246.932E	7822.328S	481.8	130.8	13.0	2926.750E	7545.928S	-600s	-76.7nm	+4.2	249.98	160.6	7.0
C 230800	4359.670E	7830.798S	485.9	147.4	10.8	2658.395E	7558.279S	-300s	-38.3nm	+2.1	252.37	162.7	7.0
D 231300	2425.987E	7609.082S	496.0	164.8	7.1	2425.987E	7609.084S	+0s	+0.0nm	-0.0	254.60	164.8	7.1
E 231530	1605.699E	7243.619S	503.8	172.2	3.3	2309.300E	7614.286S	+150s	+19.2nm	-1.1	253.14	165.9	7.1

GROUND SPEED = 460 nM/hr ALTITUDE = 36,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7628.175E	7652.532S	482.5	119.3	14.3	3148.718E	7530.877S	-900s	115.0nm	+6.2	247.68	158.6	7.0
B 230300	6244.282E	7821.866S	482.1	130.8	13.0	2924.919E	7544.690S	-600s	-76.7nm	+4.2	250.01	160.6	7.0
C 230800	4357.363E	7830.079S	486.2	147.4	10.8	2656.752E	7557.023S	-300s	-38.3nm	+2.1	252.40	162.7	7.0
D 231300	2424.550E	7607.810S	496.4	164.9	7.0	2424.550E	7607.812S	+0s	+0.0nm	-0.0	254.62	164.9	7.0
E 231530	1604.395E	7240.801S	504.2	172.2	3.3	2307.969E	7613.006S	+150s	+19.2nm	-1.1	253.16	165.9	7.1

GROUND SPEED = 460 nM/hr ALTITUDE = 35,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7625.725E	7652.219S	482.8	119.3	14.3	3146.715E	7529.655S	-900s	115.0nm	+6.2	247.72	158.7	6.9
B 230300	6241.632E	7821.404S	482.4	130.9	13.0	2923.087E	7543.448S	-600s	-76.7nm	+4.2	250.04	160.7	7.0
C 230800	4355.057E	7829.358S	486.5	147.5	10.8	2655.109E	7555.763S	-300s	-38.3nm	+2.1	252.43	162.7	7.0
D 231300	2423.113E	7606.534S	496.7	164.9	7.0	2423.113E	7606.536S	+0s	+0.0nm	-0.0	254.65	164.9	7.0
E 231530	1603.078E	7237.940S	504.6	172.2	3.2	2306.637E	7611.722S	+150s	+19.2nm	-1.1	253.19	166.0	7.0

GROUND SPEED = 460 nM/hr ALTITUDE = 34,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7623.274E	7651.905S	483.1	119.4	14.3	3144.713E	7528.429S	-900s	115.0nm	+6.2	247.75	158.7	6.9
B 230300	6238.984E	7820.940S	482.7	130.9	13.0	2921.255E	7542.202S	-600s	-76.7nm	+4.2	250.07	160.7	7.0
C 230800	4352.753E	7828.636S	486.9	147.5	10.8	2653.465E	7554.499S	-300s	-38.3nm	+2.1	252.45	162.8	7.0
D 231300	2421.675E	7605.254S	497.1	164.9	7.0	2421.675E	7605.255S	+0s	+0.0nm	-0.0	254.67	164.9	7.0
E 231530	1601.748E	7235.035S	505.0	172.2	3.2	2305.304E	7610.434S	+150s	+19.2nm	-1.1	253.22	166.0	7.0

GROUND SPEED = 460 nM/hr ALTITUDE = 33,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7620.824E	7651.592S	483.4	119.4	14.3	3142.709E	7527.197S	-900s	115.0nm	+6.2	247.78	158.7	6.9
B 230300	6236.336E	7820.476S	483.0	131.0	13.0	2919.421E	7540.951S	-600s	-76.7nm	+4.2	250.10	160.7	6.9
C 230800	4350.450E	7827.913S	487.2	147.5	10.8	2651.821E	7553.230S	-300s	-38.3nm	+2.1	252.48	162.8	7.0
D 231300	2420.237E	7603.969S	497.5	164.9	7.0	2420.237E	7603.971S	+0s	+0.0nm	-0.0	254.69	164.9	7.0
E 231530	1600.405E	7232.084S	505.4	172.2	3.1	2303.971E	7609.142S	+150s	+19.2nm	-1.1	253.24	166.0	7.0

GROUND SPEED = 460 nM/hr ALTITUDE = 32,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7618.373E	7651.277S	483.7	119.5	14.3	3140.703E	7525.962S	-900s	115.0nm	+6.2	247.82	158.8	6.9
B 230300	6233.689E	7820.011S	483.3	131.0	12.9	2917.588E	7539.697S	-600s	-76.7nm	+4.2	250.13	160.8	6.9
C 230800	4348.149E	7827.188S	487.5	147.6	10.7	2650.176E	7551.957S	-300s	-38.3nm	+2.1	252.51	162.8	6.9
D 231300	2418.799E	7602.680S	497.9	165.0	7.0	2418.799E	7602.681S	+0s	+0.0nm	-0.0	254.72	165.0	7.0
E 231530	1559.047E	7229.085S	505.8	172.3	3.1	2302.639E	7607.845S	+150s	+19.2nm	-1.1	253.27	166.0	7.0

GROUND SPEED = 450 nM/hr ALTITUDE = 38,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7633.076E	7653.156S	481.9	119.2	14.4	3143.459E	7534.257S	-900s	112.5nm	+6.1	247.77	158.7	7.0
B 230300	6249.583E	7822.789S	481.5	130.7	13.0	2922.212E	7547.731S	-600s	-75.0nm	+4.1	250.05	160.7	7.0
C 230800	4401.979E	7831.516S	485.6	147.4	10.8	2656.761E	7559.783S	-300s	-37.5nm	+2.1	252.40	162.7	7.1
D 231300	2427.424E	7610.350S	495.6	164.8	7.1	2427.424E	7610.352S	+0s	+0.0nm	-0.0	254.58	164.8	7.1
E 231530	1606.992E	7246.398S	503.4	172.1	3.4	2312.291E	7615.444S	+150s	+18.8nm	-1.1	253.15	165.9	7.1

GROUND SPEED = 450 nM/hr ALTITUDE = 37,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7630.626E	7652.844S	482.2	119.3	14.3	3141.469E	7533.041S	-900s	112.5nm	+6.1	247.80	158.7	7.0
B 230300	6246.932E	7822.328S	481.8	130.8	13.0	2920.389E	7546.496S	-600s	-75.0nm	+4.1	250.08	160.7	7.0
C 230800	4359.670E	7830.798S	485.9	147.4	10.8	2655.123E	7558.531S	-300s	-37.5nm	+2.1	252.43	162.7	7.0
D 231300	2425.987E	7609.082S	496.0	164.8	7.1	2425.987E	7609.084S	+0s	+0.0nm	-0.0	254.61	164.8	7.1
E 231530	1605.699E	7243.619S	503.8	172.2	3.3	2310.957E	7614.168S	+150s	+18.8nm	-1.1	253.18	165.9	7.1

GROUND SPEED = 450 nM/hr ALTITUDE = 36,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7628.175E	7652.532S	482.5	119.3	14.3	3139.478E	7531.822S	-900s	112.5nm	+6.1	247.83	158.8	7.0
B 230300	6244.282E	7821.866S	482.1	130.8	13.0	2918.566E	7545.258S	-600s	-75.0nm	+4.1	250.11	160.7	7.0
C 230800	4357.363E	7830.079S	486.2	147.4	10.8	2653.485E	7557.274S	-300s	-37.5nm	+2.1	252.45	162.8	7.0
D 231300	2424.550E	7607.810S	496.4	164.9	7.0	2424.550E	7607.812S	+0s	+0.0nm	-0.0	254.63	164.9	7.0
E 231530	1604.395E	7240.801S	504.2	172.2	3.3	2309.623E	7612.889S	+150s	+18.8nm	-1.1	253.20	165.9	7.1

GROUND SPEED = 450 nM/hr ALTITUDE = 35,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7625.725E	7652.219S	482.8	119.3	14.3	3137.486E	7530.598S	-900s	112.5nm	+6.1	247.87	158.8	6.9
B 230300	6241.632E	7821.404S	482.4	130.9	13.0	2916.742E	7544.015S	-600s	-75.0nm	+4.1	250.14	160.8	7.0
C 230800	4355.057E	7829.358S	486.5	147.5	10.8	2651.846E	7556.014S	-300s	-37.5nm	+2.1	252.48	162.8	7.0
D 231300	2423.113E	7606.534S	496.7	164.9	7.0	2423.113E	7606.536S	+0s	+0.0nm	-0.0	254.65	164.9	7.0
E 231530	1603.078E	7237.940S	504.6	172.2	3.2	2308.289E	7611.605S	+150s	+18.8nm	-1.1	253.23	165.9	7.0

GROUND SPEED = 450 nM/hr ALTITUDE = 34,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7623.274E	7651.905S	483.1	119.4	14.3	3135.494E	7529.370S	-900s	112.5nm	+6.1	247.90	158.8	6.9
B 230300	6238.984E	7820.940S	482.7	130.9	13.0	2914.917E	7542.768S	-600s	-75.0nm	+4.1	250.17	160.8	7.0
C 230800	4352.753E	7828.636S	486.9	147.5	10.8	2650.206E	7554.749S	-300s	-37.5nm	+2.1	252.51	162.8	7.0
D 231300	2421.675E	7605.254S	497.1	164.9	7.0	2421.675E	7605.255S	+0s	+0.0nm	-0.0	254.68	164.9	7.0
E 231530	1601.748E	7235.035S	505.0	172.2	3.2	2306.955E	7610.318S	+150s	+18.8nm	-1.1	253.25	166.0	7.0

GROUND SPEED = 450 nM/hr ALTITUDE = 33,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7620.824E	7651.592S	483.4	119.4	14.3	3133.500E	7528.138S	-900s	112.5nm	+6.1	247.93	158.9	6.9
B 230300	6236.336E	7820.476S	483.0	131.0	13.0	2913.092E	7541.516S	-600s	-75.0nm	+4.1	250.20	160.8	6.9
C 230800	4350.450E	7827.913S	487.2	147.5	10.8	2648.566E	7553.480S	-300s	-37.5nm	+2.1	252.53	162.8	7.0
D 231300	2420.237E	7603.969S	497.5	164.9	7.0	2420.237E	7603.971S	+0s	+0.0nm	-0.0	254.70	164.9	7.0
E 231530	1600.405E	7232.084S	505.4	172.2	3.1	2305.620E	7609.025S	+150s	+18.8nm	-1.1	253.28	166.0	7.0

GROUND SPEED = 450 nM/hr ALTITUDE = 32,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7618.373E	7651.277S	483.7	119.5	14.3	3131.506E	7526.902S	-900s	112.5nm	+6.1	247.96	158.9	6.9
B 230300	6233.689E	7820.011S	483.3	131.0	12.9	2911.266E	7540.261S	-600s	-75.0nm	+4.1	250.23	160.8	6.9
C 230800	4348.149E	7827.188S	487.5	147.6	10.7	2646.926E	7552.207S	-300s	-37.5nm	+2.1	252.56	162.9	6.9
D 231300	2418.799E	7602.680S	497.9	165.0	7.0	2418.799E	7602.681S	+0s	+0.0nm	-0.0	254.72	165.0	7.0
E 231530	1559.047E	7229.085S	505.8	172.3	3.1	2304.285E	7607.729S	+150s	+18.8nm	-1.1	253.31	166.0	7.0

GROUND SPEED = 440 nM/hr ALTITUDE = 38,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7633.076E	7653.156S	481.9	119.2	14.4	3134.178E	7535.198S	-900s	110.0nm	+6.0	247.92	158.8	7.0
B 230300	6249.583E	7822.789S	481.5	130.7	13.0	2915.835E	7548.298S	-600s	-73.3nm	+4.1	250.15	160.8	7.0
C 230800	4401.979E	7831.516S	485.6	147.4	10.8	2653.483E	7600.034S	-300s	-36.7nm	+2.1	252.45	162.8	7.1
D 231300	2427.424E	7610.350S	495.6	164.8	7.1	2427.424E	7610.352S	+0s	+0.0nm	-0.0	254.59	164.8	7.1
E 231530	1606.992E	7246.398S	503.4	172.1	3.4	2313.951E	7615.326S	+150s	+18.3nm	-1.0	253.19	165.9	7.1

GROUND SPEED = 440 nM/hr ALTITUDE = 37,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7630.626E	7652.844S	482.2	119.3	14.3	3132.199E	7533.982S	-900s	110.0nm	+6.0	247.95	158.9	7.0
B 230300	6246.932E	7822.328S	481.8	130.8	13.0	2914.020E	7547.062S	-600s	-73.3nm	+4.0	250.18	160.8	7.0
C 230800	4359.670E	7830.798S	485.9	147.4	10.8	2651.850E	7558.781S	-300s	-36.7nm	+2.1	252.48	162.8	7.0
D 231300	2425.987E	7609.082S	496.0	164.8	7.1	2425.987E	7609.084S	+0s	+0.0nm	-0.0	254.61	164.8	7.1
E 231530	1605.699E	7243.619S	503.8	172.2	3.3	2312.615E	7614.051S	+150s	+18.3nm	-1.0	253.21	165.9	7.1

GROUND SPEED = 440 nM/hr ALTITUDE = 36,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7628.175E	7652.532S	482.5	119.3	14.3	3130.219E	7532.761S	-900s	110.0nm	+6.0	247.98	158.9	7.0
B 230300	6244.282E	7821.866S	482.1	130.8	13.0	2912.204E	7545.823S	-600s	-73.3nm	+4.0	250.21	160.8	7.0
C 230800	4357.363E	7830.079S	486.2	147.4	10.8	2650.216E	7557.525S	-300s	-36.7nm	+2.1	252.51	162.8	7.0
D 231300	2424.550E	7607.810S	496.4	164.9	7.0	2424.550E	7607.812S	+0s	+0.0nm	-0.0	254.64	164.9	7.0
E 231530	1604.395E	7240.801S	504.2	172.2	3.3	2311.278E	7612.772S	+150s	+18.3nm	-1.0	253.24	165.9	7.1

GROUND SPEED = 440 nM/hr ALTITUDE = 35,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7625.725E	7652.219S	482.8	119.3	14.3	3128.238E	7531.535S	-900s	110.0nm	+6.0	248.01	158.9	7.0
B 230300	6241.632E	7821.404S	482.4	130.9	13.0	2910.388E	7544.579S	-600s	-73.3nm	+4.0	250.24	160.8	7.0
C 230800	4355.057E	7829.358S	486.5	147.5	10.8	2648.581E	7556.264S	-300s	-36.7nm	+2.0	252.53	162.8	7.0
D 231300	2423.113E	7606.534S	496.7	164.9	7.0	2423.113E	7606.536S	+0s	+0.0nm	-0.0	254.66	164.9	7.0
E 231530	1603.078E	7237.940S	504.6	172.2	3.2	2309.942E	7611.489S	+150s	+18.3nm	-1.0	253.27	165.9	7.0

GROUND SPEED = 440 nM/hr ALTITUDE = 34,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7623.274E	7651.905S	483.1	119.4	14.3	3126.256E	7530.306S	-900s	110.0nm	+5.9	248.05	159.0	6.9
B 230300	6238.984E	7820.940S	482.7	130.9	13.0	2908.571E	7543.331S	-600s	-73.3nm	+4.0	250.27	160.9	7.0
C 230800	4352.753E	7828.636S	486.9	147.5	10.8	2646.946E	7554.999S	-300s	-36.7nm	+2.0	252.56	162.9	7.0
D 231300	2421.675E	7605.254S	497.1	164.9	7.0	2421.675E	7605.255S	+0s	+0.0nm	-0.0	254.68	164.9	7.0
E 231530	1601.748E	7235.035S	505.0	172.2	3.2	2308.605E	7610.201S	+150s	+18.3nm	-1.0	253.29	165.9	7.0

GROUND SPEED = 440 nM/hr ALTITUDE = 33,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7620.824E	7651.592S	483.4	119.4	14.3	3124.273E	7529.072S	-900s	110.0nm	+5.9	248.08	159.0	6.9
B 230300	6236.336E	7820.476S	483.0	131.0	13.0	2906.754E	7542.079S	-600s	-73.3nm	+4.0	250.30	160.9	6.9
C 230800	4350.450E	7827.913S	487.2	147.5	10.8	2645.310E	7553.729S	-300s	-36.7nm	+2.0	252.59	162.9	7.0
D 231300	2420.237E	7603.969S	497.5	164.9	7.0	2420.237E	7603.971S	+0s	+0.0nm	-0.0	254.71	164.9	7.0
E 231530	1600.405E	7232.084S	505.4	172.2	3.1	2307.268E	7608.909S	+150s	+18.3nm	-1.0	253.32	166.0	7.0

GROUND SPEED = 440 nM/hr ALTITUDE = 32,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7618.373E	7651.277S	483.7	119.5	14.3	3122.289E	7527.835S	-900s	110.0nm	+5.9	248.11	159.0	6.9
B 230300	6233.689E	7820.011S	483.3	131.0	12.9	2904.936E	7540.822S	-600s	-73.3nm	+4.0	250.33	160.9	6.9
C 230800	4348.149E	7827.188S	487.5	147.6	10.7	2643.674E	7552.456S	-300s	-36.7nm	+2.0	252.61	162.9	6.9
D 231300	2418.799E	7602.680S	497.9	165.0	7.0	2418.799E	7602.681S	+0s	+0.0nm	-0.0	254.73	165.0	7.0
E 231530	1559.047E	7229.085S	505.8	172.3	3.1	2305.931E	7607.612S	+150s	+18.3nm	-1.0	253.34	166.0	7.0

GROUND SPEED = 430 nM/hr ALTITUDE = 38,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7633.076E	7653.156S	481.9	119.2	14.4	3124.878E	7536.133S	-900s	107.5nm	+5.9	248.07	159.0	7.0
B 230300	6249.583E	7822.789S	481.5	130.7	13.0	2909.449E	7548.861S	-600s	-71.7nm	+4.0	250.25	160.9	7.0
C 230800	4401.979E	7831.516S	485.6	147.4	10.8	2650.204E	7600.284S	-300s	-35.8nm	+2.0	252.51	162.8	7.1
D 231300	2427.424E	7610.350S	495.6	164.8	7.1	2427.424E	7610.352S	+0s	+0.0nm	-0.0	254.59	164.8	7.1
E 231530	1606.992E	7246.398S	503.4	172.1	3.4	2315.611E	7615.209S	+150s	+17.9nm	-1.0	253.22	165.8	7.1

GROUND SPEED = 430 nM/hr ALTITUDE = 37,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7630.626E	7652.844S	482.2	119.3	14.3	3122.910E	7534.915S	-900s	107.5nm	+5.8	248.10	159.0	7.0
B 230300	6246.932E	7822.328S	481.8	130.8	13.0	2907.642E	7547.625S	-600s	-71.7nm	+4.0	250.28	160.9	7.0
C 230800	4359.670E	7830.798S	485.9	147.4	10.8	2648.575E	7559.032S	-300s	-35.8nm	+2.0	252.53	162.8	7.0
D 231300	2425.987E	7609.082S	496.0	164.8	7.1	2425.987E	7609.084S	+0s	+0.0nm	-0.0	254.62	164.8	7.1
E 231530	1605.699E	7243.619S	503.8	172.2	3.3	2314.273E	7613.934S	+150s	+17.9nm	-1.0	253.25	165.9	7.1

GROUND SPEED = 430 nM/hr ALTITUDE = 36,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7628.175E	7652.532S	482.5	119.3	14.3	3120.940E	7533.693S	-900s	107.5nm	+5.8	248.13	159.0	7.0
B 230300	6244.282E	7821.866S	482.1	130.8	13.0	2905.834E	7546.384S	-600s	-71.7nm	+4.0	250.31	160.9	7.0
C 230800	4357.363E	7830.079S	486.2	147.4	10.8	2646.945E	7557.775S	-300s	-35.8nm	+2.0	252.56	162.9	7.0
D 231300	2424.550E	7607.810S	496.4	164.9	7.0	2424.550E	7607.812S	+0s	+0.0nm	-0.0	254.64	164.9	7.0
E 231530	1604.395E	7240.801S	504.2	172.2	3.3	2312.934E	7612.655S	+150s	+17.9nm	-1.0	253.28	165.9	7.1

GROUND SPEED = 430 nM/hr ALTITUDE = 35,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7625.725E	7652.219S	482.8	119.3	14.3	3118.970E	7532.467S	-900s	107.5nm	+5.8	248.16	159.1	7.0
B 230300	6241.632E	7821.404S	482.4	130.9	13.0	2904.026E	7545.140S	-600s	-71.7nm	+3.9	250.34	160.9	7.0
C 230800	4355.057E	7829.358S	486.5	147.5	10.8	2645.314E	7556.513S	-300s	-35.8nm	+2.0	252.58	162.9	7.0
D 231300	2423.113E	7606.534S	496.7	164.9	7.0	2423.113E	7606.536S	+0s	+0.0nm	-0.0	254.67	164.9	7.0
E 231530	1603.078E	7237.940S	504.6	172.2	3.2	2311.596E	7611.372S	+150s	+17.9nm	-1.0	253.30	165.9	7.0

GROUND SPEED = 430 nM/hr ALTITUDE = 34,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7623.274E	7651.905S	483.1	119.4	14.3	3116.999E	7531.236S	-900s	107.5nm	+5.8	248.20	159.1	6.9
B 230300	6238.984E	7820.940S	482.7	130.9	13.0	2902.217E	7543.891S	-600s	-71.7nm	+3.9	250.37	161.0	7.0
C 230800	4352.753E	7828.636S	486.9	147.5	10.8	2643.684E	7555.248S	-300s	-35.8nm	+2.0	252.61	162.9	7.0
D 231300	2421.675E	7605.254S	497.1	164.9	7.0	2421.675E	7605.255S	+0s	+0.0nm	-0.0	254.69	164.9	7.0
E 231530	1601.748E	7235.035S	505.0	172.2	3.2	2310.256E	7610.084S	+150s	+17.9nm	-1.0	253.33	165.9	7.0

GROUND SPEED = 430 nM/hr ALTITUDE = 33,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7620.824E	7651.592S	483.4	119.4	14.3	3115.026E	7530.001S	-900s	107.5nm	+5.8	248.23	159.1	6.9
B 230300	6236.336E	7820.476S	483.0	131.0	13.0	2900.408E	7542.638S	-600s	-71.7nm	+3.9	250.40	161.0	6.9
C 230800	4350.450E	7827.913S	487.2	147.5	10.8	2642.052E	7553.978S	-300s	-35.8nm	+2.0	252.64	162.9	7.0
D 231300	2420.237E	7603.969S	497.5	164.9	7.0	2420.237E	7603.971S	+0s	+0.0nm	-0.0	254.71	164.9	7.0
E 231530	1600.405E	7232.084S	505.4	172.2	3.1	2308.917E	7608.792S	+150s	+17.9nm	-1.0	253.35	165.9	7.0

GROUND SPEED = 430 nM/hr ALTITUDE = 32,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7618.373E	7651.277S	483.7	119.5	14.3	3113.054E	7528.762S	-900s	107.5nm	+5.8	248.26	159.2	6.9
B 230300	6233.689E	7820.011S	483.3	131.0	12.9	2858.598E	7541.381S	-600s	-71.7nm	+3.9	250.43	161.0	6.9
C 230800	4348.149E	7827.188S	487.5	147.6	10.7	2640.420E	7552.704S	-300s	-35.8nm	+2.0	252.66	163.0	6.9
D 231300	2418.799E	7602.680S	497.9	165.0	7.0	2418.799E	7602.681S	+0s	+0.0nm	-0.0	254.74	165.0	7.0
E 231530	1559.047E	7229.085S	505.8	172.3	3.1	2307.577E	7607.496S	+150s	+17.9nm	-1.0	253.38	166.0	7.0

GROUND SPEED = 420 nM/hr ALTITUDE = 38,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7633.076E	7653.156S	481.9	119.2	14.4	3115.559E	7537.063S	-900s	105.0nm	+5.7	248.22	159.1	7.0
B 230300	6249.583E	7822.789S	481.5	130.7	13.0	2903.055E	7549.421S	-600s	-70.0nm	+3.9	250.36	160.9	7.0
C 230800	4401.979E	7831.516S	485.6	147.4	10.8	2646.922E	7600.534S	-300s	-35.0nm	+2.0	252.56	162.8	7.1
D 231300	2427.424E	7610.350S	495.6	164.8	7.1	2427.424E	7610.352S	+0s	+0.0nm	-0.0	254.60	164.8	7.1
E 231530	1606.992E	7246.398S	503.4	172.1	3.4	2317.272E	7615.092S	+150s	+17.5nm	-1.0	253.26	165.8	7.1

GROUND SPEED = 420 nM/hr ALTITUDE = 37,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7630.626E	7652.844S	482.2	119.3	14.3	3113.601E	7535.843S	-900s	105.0nm	+5.7	248.25	159.1	7.0
B 230300	6246.932E	7822.328S	481.8	130.8	13.0	2901.256E	7548.185S	-600s	-70.0nm	+3.9	250.39	161.0	7.0
C 230800	4359.670E	7830.798S	485.9	147.4	10.8	2645.298E	7559.281S	-300s	-35.0nm	+2.0	252.58	162.9	7.0
D 231300	2425.987E	7609.082S	496.0	164.8	7.1	2425.987E	7609.084S	+0s	+0.0nm	-0.0	254.62	164.8	7.1
E 231530	1605.699E	7243.619S	503.8	172.2	3.3	2315.931E	7613.818S	+150s	+17.5nm	-1.0	253.29	165.8	7.1

GROUND SPEED = 420 nM/hr ALTITUDE = 36,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7628.175E	7652.532S	482.5	119.3	14.3	3111.642E	7534.620S	-900s	105.0nm	+5.7	248.28	159.2	7.0
B 230300	6244.282E	7821.866S	482.1	130.8	13.0	2859.456E	7546.943S	-600s	-70.0nm	+3.9	250.42	161.0	7.0
C 230800	4357.363E	7830.079S	486.2	147.4	10.8	2643.672E	7558.024S	-300s	-35.0nm	+2.0	252.61	162.9	7.0
D 231300	2424.550E	7607.810S	496.4	164.9	7.0	2424.550E	7607.812S	+0s	+0.0nm	-0.0	254.65	164.9	7.0
E 231530	1604.395E	7240.801S	504.2	172.2	3.3	2314.590E	7612.539S	+150s	+17.5nm	-1.0	253.31	165.8	7.1

GROUND SPEED = 420 nM/hr ALTITUDE = 35,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7625.725E	7652.219S	482.8	119.3	14.3	3109.682E	7533.392S	-900s	105.0nm	+5.7	248.31	159.2	7.0
B 230300	6241.632E	7821.404S	482.4	130.9	13.0	2857.656E	7545.698S	-600s	-70.0nm	+3.9	250.45	161.0	7.0
C 230800	4355.057E	7829.358S	486.5	147.5	10.8	2642.046E	7556.762S	-300s	-35.0nm	+2.0	252.64	162.9	7.0
D 231300	2423.113E	7606.534S	496.7	164.9	7.0	2423.113E	7606.536S	+0s	+0.0nm	-0.0	254.67	164.9	7.0
E 231530	1603.078E	7237.940S	504.6	172.2	3.2	2313.249E	7611.255S	+150s	+17.5nm	-1.0	253.34	165.9	7.0

GROUND SPEED = 420 nM/hr ALTITUDE = 34,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7623.274E	7651.905S	483.1	119.4	14.3	3107.722E	7532.160S	-900s	105.0nm	+5.7	248.35	159.2	6.9
B 230300	6238.984E	7820.940S	482.7	130.9	13.0	2855.855E	7544.449S	-600s	-70.0nm	+3.9	250.48	161.1	7.0
C 230800	4352.753E	7828.636S	486.9	147.5	10.8	2640.419E	7555.496S	-300s	-35.0nm	+2.0	252.66	163.0	7.0
D 231300	2421.675E	7605.254S	497.1	164.9	7.0	2421.675E	7605.255S	+0s	+0.0nm	-0.0	254.70	164.9	7.0
E 231530	1601.748E	7235.035S	505.0	172.2	3.2	2311.908E	7609.968S	+150s	+17.5nm	-1.0	253.37	165.9	7.0

GROUND SPEED = 420 nM/hr ALTITUDE = 33,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7620.824E	7651.592S	483.4	119.4	14.3	3105.761E	7530.924S	-900s	105.0nm	+5.7	248.38	159.2	6.9
B 230300	6236.336E	7820.476S	483.0	131.0	13.0	2854.053E	7543.195S	-600s	-70.0nm	+3.8	250.51	161.1	6.9
C 230800	4350.450E	7827.913S	487.2	147.5	10.8	2638.792E	7554.226S	-300s	-35.0nm	+2.0	252.69	163.0	7.0
D 231300	2420.237E	7603.969S	497.5	164.9	7.0	2420.237E	7603.971S	+0s	+0.0nm	-0.0	254.72	164.9	7.0
E 231530	1600.405E	7232.084S	505.4	172.2	3.1	2310.567E	7608.676S	+150s	+17.5nm	-1.0	253.39	165.9	7.0

GROUND SPEED = 420 nM/hr ALTITUDE = 32,000 ft

≠ HHMMSS	Umbra Long	Umbra Lat	WidKM	Uaz°	Ual°	AirCr Long	AirCr Lat	MidΔT	MidΔD	LOS	Bearng	ACaz	ACal
A 225800	7618.373E	7651.277S	483.7	119.5	14.3	3103.799E	7529.683S	-900s	105.0nm	+5.7	248.41	159.3	6.9
B 230300	6233.689E	7820.011S	483.3	131.0	12.9	2852.251E	7541.936S	-600s	-70.0nm	+3.8	250.53	161.1	6.9
C 230800	4348.149E	7827.188S	487.5	147.6	10.7	2637.165E	7552.952S	-300s	-35.0nm	+1.9	252.72	163.0	6.9
D 231300	2418.799E	7602.680S	497.9	165.0	7.0	2418.799E	7602.681S	+0s	+0.0nm	-0.0	254.74	165.0	7.0
E 231530	1559.047E	7229.085S	505.8	172.3	3.1	2309.224E	7607.380S	+150s	+17.5nm	-1.0	253.42	165.9	7.0