

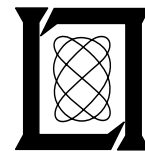
**Project Report
ATC-346
Volume 2**

**Evaluation of TCAS II Version 7.1
Using the FAA Fast-Time Encounter
Generator Model-Appendix**

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29 April 2009

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Appendix A SCENARIO DEFINITIONS FOR TCAS II TESTING

ENCOUNTER CLASS	PARAMETER VARIED	RANGE	STEP SIZE	MULTIPLICATION FACTOR
0,10	alt sep @ CPA	-750, 750 ft	250	7
	Vertical rate AC1	-400, 400 fpm	400	3
	Vertical rate AC2	0, 400 fpm	400	2
	AC1 alt @ CPA	3700, 7500 ft	3800	2
				84
1,11	alt sep @ CPA	-750, 750 ft	250	7
	Vertical rate AC1	-400, 400 fpm	400	3
	Vertical rate AC2	1000, 5000 fpm	2000	3
	Alt bins	-20, 20 ft	40	2
	AC1 alt @ CPA	3700, 7500 ft	3800	2
				252
2,12	alt sep @ CPA	-750, 750 ft	250	7
	Vertical rate AC1	-400, 400 fpm	400	3
	Vertical rate AC2	1000, 5000 fpm	2000	3
	Vertical accel AC2	0.05, 0.35 g	0.1	4
	Time accel AC2	20, 30 sec	5	3
	Alt bins	-20, 20 ft	40	2
	AC1 alt @ CPA	3700, 7500 ft	3800	2
				3024
3,13	alt sep @ CPA	-1000, 1000 ft	250	9
	Vertical rate AC1	-400, 400 fpm	400	3
	Vertical rate AC2	1000, 5000 fpm	2000	3
	Vertical accel AC2	-0.35, -0.05 g	0.1	4
	Time accel AC2	20, 30 sec	5	3
	Alt bins	-20, 20 ft	40	2
	AC1 alt @ CPA	3700, 7500 ft	3800	2
				3888
4,14	alt sep @ CPA	-750, 750 ft	250	7
	Vertical rate AC1	-5000, 5000 fpm	2000	6
	Vertical rate AC2	1000, 5000 fpm	2000	3
	Alt bins	-20, 20 ft	40	2
	AC1 alt @ CPA	3700, 7500 ft	3800	2
				504
5,15	alt sep @ CPA	-750, 750 ft	250	7
	Vertical rate AC1	-5000, 5000 fpm	2000	6
	Vertical rate AC2	1000, 5000 fpm	2000	3
	Vertical accel AC2	0.05, 0.35 g	0.1	4
	Time accel AC2	20, 30 sec	5	3
	Alt bins	-20, 20 ft	40	2
	AC1 alt @ CPA	3700, 7500 ft	3800	2
				6048

ENCOUNTER CLASS	PARAMETER VARIED	RANGE	STEP SIZE	MULTIPLICATION FACTOR
6,16	alt sep @ CPA	-750, 750 ft	250	7
	Vertical rate AC1	-5000, 5000 fpm	2000	6
	Vertical rate AC2	-5000, 1000 fpm	2000	3
	Vertical accel AC2	0.05, 0.35 g	0.1	4
	Time accel AC2	20, 30 sec	5	3
	Alt bins	-20, 20 ft	40	2
	AC1 alt @ CPA	3700, 7500 ft	3800	2
				6048
7,17	alt sep @ CPA	-750, 750 ft	250	7
	Vertical rate AC1	1000, 5000 fpm	2000	3
	Vertical rate AC2	-5000, 5000 fpm	2000	6
	Vertical accel AC1	0.05, 0.25 g	0.1	3
	Vertical accel AC2	+/-0.05, 0.35g	0.1	4
	Sign same as vertical rate			
	Time accel AC1	25 sec		1
	Time accel AC2	20, 30 sec	5	3
	AC1 alt @ CPA	3700, 7500 ft	3800	2
				9072
8,18	alt sep @ CPA	-750, 750 ft	250	7
	Vertical rate AC1	-5000, -1000 fpm	2000	3
	Vertical rate AC2	-5000, 5000 fpm	2000	6
	Vertical accel AC1	0.05, 0.25 g	0.1	3
	Vertical accel AC2	+/-0.05, 0.35g	0.1	4
	Sign same as vertical rate			
	Time accel AC1	25 sec		1
	Time accel AC2	20, 30 sec	5	3
	AC1 alt @ CPA	3700, 7500 ft	3800	2
				9072
9,19	alt sep @ CPA	-1000, 1000 ft	250	9
	Vertical rate AC1	1000, 5000 fpm	2000	3
	Vertical rate AC2	-5000, 5000 fpm	2000	6
	Vertical accel AC1	-0.15, -0.05 g	0.1	2
	Vertical accel AC2	+/-0.05 to 0.35g	0.1	4
	Sign opposite of vertical rate			
	Time accel AC1	25 sec		1
	Time accel AC2	20, 30 sec	5	3
	AC1 alt @ CPA	3700, 7500 ft	3800	2
				7776

Appendix B NUMBER OF ENCOUNTERS RUN

Number of Encounters Run Breakdown by Encounter Class and Equipage Baseline and Logic Under Test (Datasets 1 – 4)

Class	Parameter Variations	Both Pilots Respond (26 equip. pairs)	One Pilot Non-responding (30 equip. pairs)
0/10	84	2184	2520
1/11	252	6552	7560
2/12	3024	78624	90720
3/13	3888	101088	116640
4/14	504	13104	15120
5/15	6048	157248	181440
6/16	6048	157248	181440
7/17	9072	235872	272160
8/18	9072	235872	272160
9/19	7776	202176	233280

Total = 1,189,968 1,373,040

Number of Encounters Run Breakdown by Encounter Class and Equipage Interoperability collections (Datasets 5 and 6)

Class	Parameter Variations	Both Pilots Respond (42 equip. pairs)	One Pilot Non-responding (30 equip. pairs)
0/10	84	3528	2520
1/11	252	10584	7560
2/12	3024	127008	90720
3/13	3888	163296	116640
4/14	504	21168	15120
5/15	6048	254016	181440
6/16	6048	254016	181440
7/17	9072	381024	272160
8/18	9072	381024	272160
9/19	7776	326592	233280

Total = 1,922,256 1,373,040

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Appendix C DEFINITION OF EQUIPAGE PAIRS BY DATA COLLECTION

Dataset 1 - 26 equipage pairs

6.04a, V7-100, V7-25

Pilot Responding

	Data file	AC1	AC2
1.	A	Mode C	non-resp TCAS (planned)
2.	B	Mode C	6.04a
3.	C	Mode C	V7-100
4.	D	Mode C	V7-25
5.	E	6.04a low ID	6.04a high ID
6.	F	6.04a low ID	V7-100 high ID
7.	G	6.04a high ID	V7-100 low ID
8.	H	6.04a low ID	V7-25 high ID
9.	I	6.04a high ID	V7-25 low ID
10.	J	V7-100 low ID	V7-100 high ID
11.	K	V7-100 low ID	V7-25 high ID
12.	L	V7-100 high ID	V7-25 low ID
13.	M	V7-25 low ID	V7-25 high ID
14.	N	non-resp TCAS	Mode C (planned)
15.	O	6.04a	Mode C
17.	P	V7-25	Mode C
16.	Q	V7-100	Mode C
18.	R	6.04a high ID	6.04a low ID
19.	S	V7-100 high ID	6.04a low ID
20.	T	V7-100 low ID	6.04a high ID
21.	U	V7-25 high ID	6.04a low ID
22.	V	V7-25 low ID	6.04a high ID
23.	W	V7-100 high ID	V7-100 low ID
24.	X	V7-25 high ID	V7-100 low ID
25.	Y	V7-25 low ID	V7-100 high ID
26.	Z	V7-25 high ID	V7-25 low ID

Dataset 2 - 30 equipage pairs
6.04a, V7-25
Pilot Responding and Pilot Non-responding (PNR)

	Data file	AC1	AC2
1.	A	Mode C	non-resp TCAS (planned)
2.	B	Mode C	6.04a
3.	C	Mode C	V7-25
4.	D	6.04a low ID	6.04a high ID
5.	E	6.04a low ID	V7-25 high ID
6.	F	6.04a high ID	V7-25 low ID
7.	G	6.04a low ID	6.04a PNR high ID
8.	H	6.04a high ID	6.04a PNR low ID
9.	I	6.04a low ID	V7-25 PNR high ID
10.	J	6.04a high ID	V7-25 PNR low ID
11.	K	V7-25 low ID	V7-25 high ID
12.	L	V7-25 low ID	6.04a PNR high ID
13.	M	V7-25 high ID	6.04a PNR low ID
14.	N	V7-25 low ID	V7-25 PNR high ID
15.	O	V7-25 high ID	V7-25 PNR low ID
16.	P	non-resp TCAS	Mode C (planned)
17.	Q	6.04a	Mode C
18.	R	V7-25	Mode C
19.	S	6.04a high ID	6.04a low ID
20.	T	V7-25 high ID	6.04a low ID
21.	U	V7-25 low ID	6.04a high ID
22.	V	6.04a PNR high ID	6.04a low ID
23.	W	6.04a PNR low ID	6.04a high ID
24.	X	V7-25 PNR high ID	6.04a low ID
25.	Y	V7-25 PNR low ID	6.04a high ID
26.	Z	V7-25 high ID	V7-25 low ID
27.	AA	6.04a PNR high ID	V7-25 low ID
28.	BB	6.04a PNR low ID	V7-25 high ID
29.	CC	V7-25 PNR high ID	V7-25 low ID
30.	DD	V7-25 PNR low ID	V7-25 high ID

Dataset 3 - 26 equipage pairs
6.04a, V7.1-100, V7.1-25
Pilot Responding

	Data file	AC1	AC2
1.	A	Mode C	non-resp TCAS (planned)
2.	B	Mode C	6.04a
3.	C	Mode C	V7.1-100
4.	D	Mode C	V7.1-25
5.	E	6.04a low ID	6.04a high ID
6.	F	6.04a low ID	V7.1-100 high ID
7.	G	6.04a high ID	V7.1-100 low ID
8.	H	6.04a low ID	V7.1-25 high ID
9.	I	6.04a high ID	V7.1-25 low ID
10.	J	V7.1-100 low ID	V7.1-100 high ID
11.	K	V7.1-100 low ID	V7.1-25 high ID
12.	L	V7.1-100 high ID	V7.1-25 low ID
13.	M	V7.1-25 low ID	V7.1-25 high ID
14.	N	non-resp TCAS	Mode C (planned)
15.	O	6.04a	Mode C
17.	P	V7-25	Mode C
16.	Q	V7-100	Mode C
18.	R	6.04a high ID	6.04a low ID
19.	S	V7.1-100 high ID	6.04a low ID
20.	T	V7.1-100 low ID	6.04a high ID
21.	U	V7.1-25 high ID	6.04a low ID
22.	V	V7.1-25 low ID	6.04a high ID
23.	W	V7.1-100 high ID	V7.1-100 low ID
24.	X	V7.1-25 high ID	V7.1-100 low ID
25.	Y	V7.1-25 low ID	V7.1-100 high ID
26.	Z	V7.1-25 high ID	V7.1-25 low ID

Dataset 4 - 30 equipage pairs
6.04a, V7.1-25
Pilot Responding and Pilot Non-responding (PNR)

	Data file	AC1	AC2
1.	A	Mode C	non-resp TCAS (planned)
2.	B	Mode C	6.04a
3.	C	Mode C	V7-25
4.	D	6.04a low ID	6.04a high ID
5.	E	6.04a low ID	V7.1-25 high ID
6.	F	6.04a high ID	V7.1-25 low ID
7.	G	6.04a low ID	6.04a PNR high ID
8.	H	6.04a high ID	6.04a PNR low ID
9.	I	6.04a low ID	V7.1-25 PNR high ID
10.	J	6.04a high ID	V7.1-25 PNR low ID
11.	K	V7.1-25 low ID	V7.1-25 high ID
12.	L	V7.1-25 low ID	6.04a PNR high ID
13.	M	V7.1-25 high ID	6.04a PNR low ID
14.	N	V7.1-25 low ID	V7.1-25 PNR high ID
15.	O	V7.1-25 high ID	V7.1-25 PNR low ID
16.	P	non-resp TCAS	Mode C (planned)
17.	Q	6.04a	Mode C
18.	R	V7-25	Mode C
19.	S	6.04a high ID	6.04a low ID
20.	T	V7-25 high ID	6.04a low ID
21.	U	V7-25 low ID	6.04a high ID
22.	V	6.04a PNR high ID	6.04a low ID
23.	W	6.04a PNR low ID	6.04a high ID
24.	X	V7.1-25 PNR high ID	6.04a low ID
25.	Y	V7.1-25 PNR low ID	6.04a high ID
26.	Z	V7.1-25 high ID	V7.1-25 low ID
27.	AA	6.04a PNR high ID	V7.1-25 low ID
28.	BB	6.04a PNR low ID	V7.1-25 high ID
29.	CC	V7.1-25 PNR high ID	V7.1-25 low ID
30.	DD	V7.1-25 PNR low ID	V7.1-25 high ID

Dataset 5 - 42 equipage pairs
Interoperability V7-100, V7-25, V7.1-100, V7.1-25
Pilot Responding

	Data file	AC1	AC2
1.	A	V7-100 non-resp	Mode C (planned)
2.	B	Mode C	V7-100 non-resp (planned)
3.	C	V7-100	Mode C
4.	D	Mode C	V7-100
5.	E	V7-100 low ID	V7-100 high ID
6.	F	V7-100 high ID	V7-100 low ID
7.	G	V7-100 low ID	V7-25 high ID
8.	H	V7-100 high ID	V7-25 low ID
9.	I	V7-25	Mode C
10.	J	Mode C	V7-25
11.	K	V7-25 low ID	V7-100 high ID
12.	L	V7-25 high ID	V7-100 low ID
13.	M	V7-25 low ID	V7-25 high ID
14.	N	V7-25 high ID	V7-25 low ID
15.	O	V7.1-100	Mode S
17.	P	V7.1-100 low ID	V7-100 high ID
16.	Q	V7.1-100 high ID	V7-100 low ID
18.	R	V7.1-100 low ID	V7-25 high ID
19.	S	V7.1-100 high ID	V7-25 low ID
20.	T	V7.1-100 low ID	V7.1-100 high ID
21.	U	V7.1-100 high ID	V7.1-100 low ID
22.	V	V7-25 low ID	V7.1-100 high ID
23.	W	V7-25 high ID	V7.1-100 low ID
24.	X	V7-100 low ID	V7.1-100 high ID
25.	Y	V7-100 high ID	V7.1-100 low ID
26.	Z	Mode S	V7.1-100
27.	AA	Mode S	V7.1-25
28.	BB	V7.1-25	Mode S
29.	CC	V7.1-25 low ID	V7-100 high ID
30.	DD	V7.1-25 high ID	V7-100 low ID
31.	EE	V7.1-25 low ID	V7-25 high ID
32.	FF	V7.1-25 high ID	V7-25 low ID
33.	GG	V7.1-25 low ID	V7.1-100 high ID
34.	HH	V7.1-25 high ID	V7.1-100 low ID
35.	II	V7.1-25 low ID	V7.1-25 high ID
36.	JJ	V7.1-25 high ID	V7.1-25 low ID
37.	KK	V7.1-100 low ID	V7.1-25 high ID
38.	LL	V7.1-100 high ID	V7.1-25 low ID
39.	MM	V7-25 low ID	V7.1-25 high ID
40.	NN	V7-25 high ID	V7.1-25 low ID
41.	OO	V7-100 low ID	V7.1-25 high ID
42.	PP	V7-100 high ID	V7.1-25 low ID

Dataset 6 - 30 equipage pairs
Interoperability V7-25,V7.1-25
Pilot Responding and Pilot Non-responding (PNR)

	Data file	AC1	AC2
1.	A	V7 non-resp	Mode C (planned)
2.	B	Mode C	V7.0 (planned)
3.	C	V7-25	Mode C
4.	D	Mode C	V7-25
5.	E	V7-25 low ID	V7-25 high ID
6.	F	V7-25 high ID	V7-25 low ID
7.	G	V7-25 low ID	V7.1-25 high ID
8.	H	V7-25 high ID	V7.1-25 low ID
9.	I	V7.1-25	Mode S
10.	J	Mode S	V7.1-25
11.	K	V7.1-25 low ID	V7-25 high ID
12.	L	V7.1-25 high ID	V7-25 low ID
13.	M	V7.1-25 low ID	V7.1-25 high ID
14.	N	V7.1-25 high ID	V7.1-25 low ID
15.	O	V7-25 PNR low ID	V7-25 high ID
16.	P	V7-25 PNR high ID	V7-25 low ID
17.	Q	V7.1-25 PNR low ID	V7-25 high ID
18.	R	V7.1-25 PNR high ID	V7-25 low ID
19.	S	V7-25 PNR low ID	V7.1-25 high ID
20.	T	V7-25 PNR high ID	V7.1-25 low ID
21.	U	V7.1-25 PNR low ID	V7.1-25 high ID
22.	V	V7.1-25 PNR high ID	V7.1-25 low ID
23.	W	V7-25 low ID	V7-25 PNR high ID
24.	X	V7-25 high ID	V7-25 PNR low ID
25.	Y	V7.1-25 low ID	V7-25 PNR high ID
26.	Z	V7.1-25 high ID	V7-25 PNR low ID
27.	AA	V7-25 low ID	V7.1-25 PNR high ID
28.	BB	V7-25 high ID	V7.1-25 PNR low ID
29.	CC	V7.1-25 low ID	V7.1-25 PNR high ID
30.	DD	V7.1-25 high ID	V7.1-25 PNR low ID

Appendix D CAS LOGIC PARAMETER VALUES

Thresholds for Logic Versions 6.04a, 7 and 7.1

Own Altitude (ft) (Note 1)	Radio Altitude or Pressure Altitude						
	Up to 1,000	1,000 – 2,350	2,350 – 5,000	5,000 – 10,000	10,000 – 20,000	20,000 – 42,000	Above 42,000
Sensitivity Level	2	3	4	5	6	7	7
Alarm Time [TAU] (sec)		15	20	25	30	35	35
Incremental Protected Volume [DMOD] (nmi) (Note 2)		0.20	0.35	0.55	0.80	1.10	1.10
Alarm Time for TA [TAUTA] (sec)	20	25	30	40	45	48	48
Vertical Threshold for TA [ZTHRTA] (ft)	850	850	850	850	850	850	1200
Vertical Threshold for RA [ZTHR] (ft)		600	600	600	600	700	800
Vertical Threshold for Positive RA [ALIM] (ft)		300	300	350	400	600	700

Note 1: Pressure altitude is referenced to 1013.25 millibars (29.92 inches of mercury). When radio altitude and pressure altitude imply different SLs, TCAS selects the lower SL.

Note 2: Alarm times (TAU and TAUTA) and Incremental Protection Volume (DMOD) are selected according to the higher of own and threat SL, unless own SL is ≤ 2 .

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Appendix E CLASS WEIGHTS

CLASS WEIGHTS¹

Class	Weight
1	0.0197
2	0.0004
3	0.0033
4	0.0145
5	0.0025
6	0.0029
7	0.0002
8	0.0005
9	0.0001
10 + 0	0.3973
11	0.1929
12	0.0759
13	0.1081
14	0.1167
15	0.0205
16	0.0256
17	0.0019
18	0.0094
19	0.0074
Total:	1.0000

¹ McLaughlin, M.P., and Zeitlin, A.D., “Safety Study of TCAS II for Logic Version 6.04a.”, The MITRE Corporation, McLean Va, MTR 93W0000234, November 1993.

¹ McLaughlin, M.P., and Zeitlin, A.D., “Safety Study of TCAS II for Logic Version 6.04a.”, The MITRE Corporation, McLean Va, MTR 93W0000234, November 1993.

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Appendix F PERFORMANCE STATISTICS

MITRE encounter classes: 0,10 Date processed: 5/ 9/ 8
Based on FAA Technical Center data of July 2007 DATASET 7
Total TCAS-TCAS runs for single point of view: 1512

	Class	0	TCAS - TCAS	Both Responding			
	6.04A only	V7.1-100 ft only	V7.1-25 ft only	6.04A/ V7.1-100	6.04A/ V7.1-25	V7.1-25/ V7.1-100	
RAS/ runs (%)	90.00	90.00	90.00	90.00	90.00	90.00	
Crossing RAS/ RAS (%)	0.00	0.00	0.00	0.00	0.00	0.00	
Crossing RAS/ runs (%)	0.00	0.00	0.00	0.00	0.00	0.00	
Cr. RA NMACs/ cross RAS (%)	0.00	0.00	0.00	0.00	0.00	0.00	
Cr. RA NMACs/ NMACs* (%)	0.00	0.00	0.00	0.00	0.00	0.00	
NMACs*/ runs (%)	0.00	0.00	0.00	0.00	0.00	0.00	
Avg warning time** (sec)	22.50	23.00	23.00	23.00	23.00	23.00	
Avg alt sep at CPA* (ft)	671.03	688.55	614.90	674.63	648.67	657.05	
	Class	10	TCAS - TCAS	Both Responding			
	6.04A only	V7.1-100 ft only	V7.1-25 ft only	6.04A/ V7.1-100	6.04A/ V7.1-25	V7.1-25/ V7.1-100	
RAS/ runs (%)	65.63	65.63	65.63	65.63	65.63	65.63	
Crossing RAS/ RAS (%)	0.00	0.00	0.00	0.00	0.00	0.00	
Crossing RAS/ runs (%)	0.00	0.00	0.00	0.00	0.00	0.00	
Cr. RA NMACs/ cross RAS (%)	0.00	0.00	0.00	0.00	0.00	0.00	
Cr. RA NMACs/ NMACs* (%)	0.00	0.00	0.00	0.00	0.00	0.00	
NMACs*/ runs (%)	0.00	0.00	0.00	0.00	0.00	0.00	
Avg warning time** (sec)	20.52	21.02	20.99	21.02	20.99	21.01	
Avg alt sep at CPA* (ft)	669.68	640.41	627.69	654.05	656.62	637.56	

* NMACs and average alt. sep. at CPA are based on simulation truth

** Average warning time includes negative times (ie, RA occurs after CPA)

MITRE encounter classes: 0,10 Date processed: 5/ 9/ 8
Based on FAA Technical Center data of: July 2007 DATASET 7
Total TCAS-TCAS runs for single point of view: 1512
Total incorrectly labeled RAs: 0

	Class	0	TCAS - TCAS	Both Responding			
	6.04A	V7.1-100	V7.1-25	6.04A/	6.04A/	V7.1-25/	
	only	ft only	ft only	V7.1-100	V7.1-25	V7.1-100	
RAs/ runs (%)	90.00	90.00	90.00	90.00	90.00	90.00	
Crossing RAs/ RAS (%)	0.00	0.00	0.00	0.00	0.00	0.00	
Crossing RAs/ runs (%)	0.00	0.00	0.00	0.00	0.00	0.00	
Cr. RA NMACs/ cross RAs (%)	0.00	0.00	0.00	0.00	0.00	0.00	
Cr. RA NMACs/ NMACs* (%)	0.00	0.00	0.00	0.00	0.00	0.00	
NMACs*/ runs (%)	0.00	0.00	0.00	0.00	0.00	0.00	
Avg warning time** (sec)	22.50	23.00	23.00	23.00	23.00	23.00	
Avg alt sep at CPA* (ft)	671.03	688.55	614.90	674.63	648.67	657.05	

	Class	10	TCAS - TCAS	Both Responding			
	6.04A	V7.1-100	V7.1-25	6.04A/	6.04A/	V7.1-25/	
	only	ft only	ft only	V7.1-100	V7.1-25	V7.1-100	
RAs/ runs (%)	65.63	65.63	65.63	65.63	65.63	65.63	
Crossing RAs/ RAS (%)	0.00	0.00	0.00	0.00	0.00	0.00	
Crossing RAs/ runs (%)	0.00	0.00	0.00	0.00	0.00	0.00	
Cr. RA NMACs/ cross RAs (%)	0.00	0.00	0.00	0.00	0.00	0.00	
Cr. RA NMACs/ NMACs* (%)	0.00	0.00	0.00	0.00	0.00	0.00	
NMACs*/ runs (%)	0.00	0.00	0.00	0.00	0.00	0.00	
Avg warning time** (sec)	20.52	21.02	20.99	21.02	20.99	21.01	
Avg alt sep at CPA* (ft)	669.68	640.41	627.69	654.05	656.62	637.56	

* NMACs and average alt. sep. at CPA are based on simulation truth

** Average warning time includes negative times (ie, RA occurs after CPA)

MITRE encounter classes: 2,12 Date processed: 5/ 9/ 8
Based on FAA Technical Center data of: July 2007 DATASET 7
Total TCAS-TCAS runs for single point of view: 54424
Total incorrectly labeled RAs: 8

	Class	2	TCAS - TCAS	Both Responding			
	6.04A	V7.1-100	V7.1-25	6.04A/	6.04A/	V7.1-25/	
	only	ft only	ft only	V7.1-100	V7.1-25	V7.1-100	
RAs/ runs (%)	99.60	99.14	98.94	99.32	99.07	99.03	
Crossing RAs/ RAS (%)	2.45	2.39	1.94	2.52	2.15	2.20	
Crossing RAs/ runs (%)	2.44	2.37	1.92	2.51	2.13	2.18	
Cr. RA NMACs/ cross RAs (%)	3.09	0.00	0.00	0.00	0.00	0.00	
Cr. RA NMACs/ NMACs* (%)	5.17	0.00	0.00	0.00	0.00	0.00	
NMACs*/ runs (%)	1.46	0.33	0.35	0.71	0.53	0.35	
Avg warning time** (sec)	15.52	16.43	16.71	16.43	16.73	16.57	
Avg alt sep at CPA* (ft)	610.62	686.49	694.30	649.73	657.23	691.15	

	Class	12	TCAS - TCAS	Both Responding			
	6.04A	V7.1-100	V7.1-25	6.04A/	6.04A/	V7.1-25/	
	only	ft only	ft only	V7.1-100	V7.1-25	V7.1-100	
RAs/ runs (%)	75.10	79.57	80.82	79.62	80.87	80.19	
Crossing RAs/ RAS (%)	0.00	0.00	0.00	0.09	0.00	0.00	
Crossing RAs/ runs (%)	0.00	0.00	0.00	0.07	0.00	0.00	
Cr. RA NMACs/ cross RAs (%)	0.00	0.00	0.00	0.00	0.00	0.00	
Cr. RA NMACs/ NMACs* (%)	0.00	0.00	0.00	0.00	0.00	0.00	
NMACs*/ runs (%)	0.00	0.00	0.00	0.00	0.00	0.00	
Avg warning time** (sec)	14.53	13.59	13.27	13.60	13.26	13.43	
Avg alt sep at CPA* (ft)	729.76	729.86	733.12	729.60	728.83	731.00	

* NMACs and average alt. sep. at CPA are based on simulation truth

** Average warning time includes negative times (ie, RA occurs after CPA)

MITRE encounter classes: 3,13 Date processed: 5/ 9/ 8
Based on FAA Technical Center data of: July 2007 DATASET 7
Total TCAS-TCAS runs for single point of view: 69984
Total incorrectly labeled RAs: 0

	Class	3	TCAS - TCAS	Both Responding			
	6.04A	V7.1-100	V7.1-25	6.04A/	6.04A/	V7.1-25/	
	only	ft only	ft only	V7.1-100	V7.1-25	V7.1-100	
RAs/ runs (%)	65.69	65.58	65.77	65.58	65.77	65.68	
Crossing RAs/ RAS (%)	7.50	10.60	11.56	11.18	12.11	11.00	
Crossing RAs/ runs (%)	4.92	6.95	7.60	7.33	7.97	7.22	
Cr. RA NMACs/ cross RAs (%)	0.00	0.00	0.00	0.00	0.00	0.00	
Cr. RA NMACs/ NMACs* (%)	0.00	0.00	0.00	0.00	0.00	0.00	
NMACs*/ runs (%)	0.00	0.00	0.00	0.00	0.00	0.00	
Avg warning time** (sec)	16.75	17.85	18.16	17.86	18.17	18.01	
Avg alt sep at CPA* (ft)	737.01	733.94	724.23	737.47	732.48	729.91	

	Class	13	TCAS - TCAS	Both Responding			
	6.04A	V7.1-100	V7.1-25	6.04A/	6.04A/	V7.1-25/	
	only	ft only	ft only	V7.1-100	V7.1-25	V7.1-100	
RAs/ runs (%)	62.06	62.50	60.12	62.52	60.01	61.26	
Crossing RAs/ RAS (%)	14.97	10.39	11.33	11.84	12.78	10.96	
Crossing RAs/ runs (%)	9.29	6.50	6.81	7.40	7.67	6.72	
Cr. RA NMACs/ cross RAs (%)	1.06	0.38	0.00	0.33	0.32	0.18	
Cr. RA NMACs/ NMACs* (%)	100.00	100.00	0.00	100.00	100.00	100.00	
NMACs*/ runs (%)	0.10	0.02	0.00	0.02	0.02	0.01	
Avg warning time** (sec)	19.85	21.08	21.04	21.10	21.10	21.07	
Avg alt sep at CPA* (ft)	878.79	873.19	839.04	880.29	865.22	856.60	

* NMACs and average alt. sep. at CPA are based on simulation truth

** Average warning time includes negative times (ie, RA occurs after CPA)

MITRE encounter classes: 4,14 Date processed: 5/ 9/ 8
Based on FAA Technical Center data of: JULY 2007 DATASET 7
Total TCAS-TCAS runs for single point of view : 9072
Total incorrectly labeled RAS : 0

	Class	4	TCAS - TCAS	Both Responding			
	6.04A	V7.1-100	V7.1-25	6.04A/	6.04A/	V7.1-25/	
	only	ft only	ft only	V7.1-100	V7.1-25	V7.1-100	
RAS/ runs (%)	96.70	96.98	97.25	96.84	96.84	97.12	
Crossing RAS/ RAS (%)	7.67	5.81	5.79	6.67	6.67	5.80	
Crossing RAS/ runs (%)	7.42	5.63	5.63	6.46	6.46	5.63	
Cr. RA NMACs/ cross RAS (%)	0.00	0.00	0.00	0.00	0.00	0.00	
Cr. RA NMACs/ NMACs* (%)	0.00	0.00	0.00	0.00	0.00	0.00	
NMACs*/ runs (%)	0.00	0.00	0.00	0.00	0.00	0.00	
Avg warning time** (sec)	19.67	20.28	20.13	20.30	20.20	20.21	
Avg alt sep at CPA* (ft)	948.61	1290.23	1269.35	1119.94	1108.84	1279.63	

	Class	14	TCAS - TCAS	Both Responding			
	6.04A	V7.1-100	V7.1-25	6.04A/	6.04A/	V7.1-25/	
	only	ft only	ft only	V7.1-100	V7.1-25	V7.1-100	
RAS/ runs (%)	68.57	68.57	68.57	68.57	68.57	68.57	
Crossing RAS/ RAS (%)	10.42	6.25	5.73	8.85	8.33	5.99	
Crossing RAS/ runs (%)	7.14	4.29	3.93	6.07	5.71	4.11	
Cr. RA NMACs/ cross RAS (%)	0.00	0.00	0.00	0.00	0.00	0.00	
Cr. RA NMACs/ NMACs* (%)	0.00	0.00	0.00	0.00	0.00	0.00	
NMACs*/ runs (%)	0.00	0.00	0.00	0.00	0.00	0.00	
Avg warning time** (sec)	14.14	14.68	14.63	14.68	14.63	14.66	
Avg alt sep at CPA* (ft)	709.93	780.38	783.25	743.59	745.95	781.72	

* NMACs and average alt. sep. at CPA are based on simulation truth

** Average warning time includes negative times (ie, RA occurs after CPA)

MITRE encounter classes: 5,15 Date processed: 5/ 9/ 8
Based on FAA Technical Center data of: July 2007 DATASET 7
Total TCAS-TCAS runs for single point of view: 108864
Total incorrectly labeled RAs: 0

	Class	5	TCAS - TCAS	Both Responding			
	6.04A	V7.1-100	V7.1-25	6.04A/	6.04A/	V7.1-25/	
	only	ft only	ft only	V7.1-100	V7.1-25	V7.1-100	
RAs/ runs (%)	95.77	94.40	94.25	95.15	95.01	94.29	
Crossing RAs/ RAS (%)	4.97	4.88	4.74	5.31	5.23	4.84	
Crossing RAs/ runs (%)	4.76	4.61	4.47	5.05	4.97	4.56	
Cr. RA NMACs/ cross RAs (%)	0.22	0.00	0.00	0.00	0.00	0.00	
Cr. RA NMACs/ NMACs* (%)	3.45	0.00	0.00	0.00	0.00	0.00	
NMACs*/ runs (%)	0.31	0.09	0.03	0.16	0.10	0.06	
Avg warning time** (sec)	16.28	16.89	17.35	16.87	17.25	17.12	
Avg alt sep at CPA* (ft)	752.78	902.71	918.69	828.87	835.88	909.67	

	Class	15	TCAS - TCAS	Both Responding			
	6.04A	V7.1-100	V7.1-25	6.04A/	6.04A/	V7.1-25/	
	only	ft only	ft only	V7.1-100	V7.1-25	V7.1-100	
RAs/ runs (%)	78.07	71.97	72.12	72.64	70.99	72.16	
Crossing RAs/ RAS (%)	8.84	8.95	7.34	9.71	9.02	8.10	
Crossing RAs/ runs (%)	6.90	6.44	5.29	7.06	6.40	5.85	
Cr. RA NMACs/ cross RAs (%)	6.67	1.19	1.45	2.45	2.10	1.31	
Cr. RA NMACs/ NMACs* (%)	66.67	100.00	100.00	100.00	100.00	100.00	
NMACs*/ runs (%)	0.69	0.08	0.08	0.17	0.13	0.08	
Avg warning time** (sec)	14.89	15.17	14.70	15.11	14.95	14.93	
Avg alt sep at CPA* (ft)	839.91	971.05	951.10	908.09	899.64	961.36	

* NMACs and average alt. sep. at CPA are based on simulation truth

** Average warning time includes negative times (ie, RA occurs after CPA)

MITRE encounter classes: 6,16 Date processed: 5/ 9/ 8
Based on FAA Technical Center data of: July 2007 DATASET 7
Total TCAS-TCAS runs for single point of view: 108756
Total incorrectly labeled RAs: 108

	Class	6	TCAS - TCAS	Both Responding			
	6.04A	V7.1-100	V7.1-25	6.04A/	6.04A/	V7.1-25/	
	only	ft only	ft only	V7.1-100	V7.1-25	V7.1-100	
RAs/ runs (%)	94.53	93.95	94.11	94.27	94.22	93.97	
Crossing RAs/ RAS (%)	16.41	16.07	14.75	16.79	16.09	15.41	
Crossing RAs/ runs (%)	15.51	15.10	13.88	15.83	15.16	14.48	
Cr. RA NMACs/ cross RAs (%)	0.61	0.14	0.15	0.30	0.14	0.14	
Cr. RA NMACs/ NMACs* (%)	34.62	12.50	33.33	24.32	14.29	22.22	
NMACs*/ runs (%)	0.27	0.17	0.06	0.19	0.15	0.09	
Avg warning time** (sec)	18.07	18.65	18.79	18.65	18.75	18.72	
Avg alt sep at CPA* (ft)	838.85	971.73	971.80	909.65	911.20	972.31	

	Class	16	TCAS - TCAS	Both Responding			
	6.04A	V7.1-100	V7.1-25	6.04A/	6.04A/	V7.1-25/	
	only	ft only	ft only	V7.1-100	V7.1-25	V7.1-100	
RAs/ runs (%)	78.57	84.75	84.87	85.14	84.65	84.85	
Crossing RAs/ RAS (%)	15.44	8.35	8.99	10.69	11.33	8.69	
Crossing RAs/ runs (%)	12.13	7.08	7.63	9.10	9.59	7.37	
Cr. RA NMACs/ cross RAs (%)	0.33	0.00	0.00	0.00	0.00	0.00	
Cr. RA NMACs/ NMACs* (%)	100.00	0.00	0.00	0.00	0.00	0.00	
NMACs*/ runs (%)	0.04	0.04	0.00	0.02	0.00	0.04	
Avg warning time** (sec)	20.01	18.28	17.83	18.27	17.97	18.06	
Avg alt sep at CPA* (ft)	905.29	953.51	929.78	931.34	920.83	942.57	

* NMACs and average alt. sep. at CPA are based on simulation truth

** Average warning time includes negative times (ie, RA occurs after CPA)

MITRE encounter classes: 7,17 Date processed: 5/ 9/ 8
Based on FAA Technical Center data of: July 2007 DATASET 7
Total TCAS-TCAS runs for single point of view: 163240
Total incorrectly labeled RAs: 56

	Class	7	TCAS - TCAS	Both Responding			
	6.04A	V7.1-100	V7.1-25	6.04A/	6.04A/	V7.1-25/	
	only	ft only	ft only	V7.1-100	V7.1-25	V7.1-100	
RAs/ runs (%)	99.36	99.06	99.15	99.30	99.18	99.08	
Crossing RAs/ RAS (%)	3.32	3.27	2.29	3.34	2.81	2.70	
Crossing RAs/ runs (%)	3.30	3.24	2.27	3.32	2.78	2.68	
Cr. RA NMACs/ cross RAs (%)	0.00	0.00	0.00	0.00	0.00	0.00	
Cr. RA NMACs/ NMACs* (%)	0.00	0.00	0.00	0.00	0.00	0.00	
NMACs*/ runs (%)	1.60	0.65	0.22	1.05	0.48	0.32	
Avg warning time** (sec)	14.60	15.10	15.67	15.13	15.65	15.40	
Avg alt sep at CPA* (ft)	618.23	696.53	744.37	658.32	684.77	721.27	

	Class	17	TCAS - TCAS	Both Responding			
	6.04A	V7.1-100	V7.1-25	6.04A/	6.04A/	V7.1-25/	
	only	ft only	ft only	V7.1-100	V7.1-25	V7.1-100	
RAs/ runs (%)	71.63	72.19	73.44	73.09	71.62	72.84	
Crossing RAs/ RAS (%)	1.89	1.03	1.39	1.41	1.91	1.23	
Crossing RAs/ runs (%)	1.35	0.74	1.02	1.03	1.37	0.90	
Cr. RA NMACs/ cross RAs (%)	17.11	14.29	10.34	11.11	16.77	11.76	
Cr. RA NMACs/ NMACs* (%)	92.86	85.71	100.00	76.47	100.00	80.00	
NMACs*/ runs (%)	0.25	0.12	0.11	0.15	0.23	0.13	
Avg warning time** (sec)	15.76	15.97	15.33	15.87	15.67	15.67	
Avg alt sep at CPA* (ft)	855.58	941.52	909.94	899.05	881.93	924.93	

* NMACs and average alt. sep. at CPA are based on simulation truth

** Average warning time includes negative times (ie, RA occurs after CPA)

MITRE encounter classes: 8,18 Date processed: 5/ 9/ 8
Based on FAA Technical Center data of: July 2007 DATASET 7
Total TCAS-TCAS runs for single point of view: 162900
Total incorrectly labeled RAs: 396

	Class	8	TCAS - TCAS	Both Responding			
	6.04A	V7.1-100	V7.1-25	6.04A/	6.04A/	V7.1-25/	
	only	ft only	ft only	V7.1-100	V7.1-25	V7.1-100	
RAs/ runs (%)	93.02	93.31	94.36	93.56	94.11	93.86	
Crossing RAs/ RAS (%)	8.89	7.22	6.73	7.93	7.73	7.06	
Crossing RAs/ runs (%)	8.27	6.74	6.35	7.42	7.28	6.62	
Cr. RA NMACs/ cross RAs (%)	0.70	0.00	0.00	0.10	0.05	0.11	
Cr. RA NMACs/ NMACs* (%)	3.76	0.00	0.00	0.78	0.54	1.33	
NMACs*/ runs (%)	1.55	0.78	0.39	0.91	0.66	0.54	
Avg warning time** (sec)	15.34	16.16	16.19	16.15	16.24	16.18	
Avg alt sep at CPA* (ft)	719.05	776.20	775.91	753.97	757.84	776.96	

	Class	18	TCAS - TCAS	Both Responding			
	6.04A	V7.1-100	V7.1-25	6.04A/	6.04A/	V7.1-25/	
	only	ft only	ft only	V7.1-100	V7.1-25	V7.1-100	
RAs/ runs (%)	77.24	82.64	86.16	82.81	85.33	84.14	
Crossing RAs/ RAS (%)	14.66	13.04	12.90	13.62	13.41	13.08	
Crossing RAs/ runs (%)	11.33	10.78	11.11	11.28	11.44	11.01	
Cr. RA NMACs/ cross RAs (%)	2.65	2.24	0.22	2.03	0.95	0.55	
Cr. RA NMACs/ NMACs* (%)	70.59	100.00	100.00	70.37	81.82	100.00	
NMACs*/ runs (%)	0.43	0.24	0.02	0.33	0.13	0.06	
Avg warning time** (sec)	18.10	18.04	16.94	18.11	17.21	17.54	
Avg alt sep at CPA* (ft)	893.43	944.15	928.27	935.57	933.20	936.37	

* NMACs and average alt. sep. at CPA are based on simulation truth

** Average warning time includes negative times (ie, RA occurs after CPA)

MITRE encounter classes: 9,19 Date processed: 5/ 9/ 8
Based on FAA Technical Center data of: July 2007 DATASET 7
Total TCAS-TCAS runs for single point of view: 139927
Total incorrectly labeled RAs: 41

	Class	9	TCAS - TCAS	Both Responding			
	6.04A	V7.1-100	V7.1-25	6.04A/	6.04A/	V7.1-25/	
	only	ft only	ft only	V7.1-100	V7.1-25	V7.1-100	
RAs/ runs (%)	69.32	68.76	68.32	68.87	68.30	68.48	
Crossing RAs/ RAS (%)	28.98	27.88	28.26	29.34	29.22	27.98	
Crossing RAs/ runs (%)	20.09	19.17	19.31	20.20	19.96	19.16	
Cr. RA NMACs/ cross RAs (%)	0.86	0.34	0.14	0.69	0.40	0.17	
Cr. RA NMACs/ NMACs* (%)	76.47	55.56	100.00	91.30	85.71	55.56	
NMACs*/ runs (%)	0.22	0.12	0.03	0.15	0.09	0.06	
Avg warning time** (sec)	17.65	18.51	18.70	18.52	18.74	18.60	
Avg alt sep at CPA* (ft)	813.67	812.35	801.34	816.56	813.69	805.99	

	Class	19	TCAS - TCAS	Both Responding			
	6.04A	V7.1-100	V7.1-25	6.04A/	6.04A/	V7.1-25/	
	only	ft only	ft only	V7.1-100	V7.1-25	V7.1-100	
RAs/ runs (%)	74.29	74.15	73.00	74.08	72.13	73.31	
Crossing RAs/ RAS (%)	23.59	18.82	18.71	21.12	20.62	18.78	
Crossing RAs/ runs (%)	17.52	13.96	13.66	15.64	14.87	13.77	
Cr. RA NMACs/ cross RAs (%)	2.51	1.17	0.28	1.68	1.10	0.87	
Cr. RA NMACs/ NMACs* (%)	100.00	100.00	100.00	100.00	100.00	100.00	
NMACs*/ runs (%)	0.44	0.16	0.04	0.26	0.16	0.12	
Avg warning time** (sec)	20.71	21.36	21.23	21.43	21.43	21.39	
Avg alt sep at CPA* (ft)	979.75	980.57	967.44	986.31	985.10	974.11	

* NMACs and average alt. sep. at CPA are based on simulation truth

** Average warning time includes negative times (ie, RA occurs after CPA)

Appendix G REVERSAL ANALYSIS PROGRAM 1

Encounter classes: 0,10 Date processed: 8/27/ 7 DATA SET NUMBER 7
 Based on FAA Technical Center data of: July 2007 Total Encounters : 2016

Class 0 Planned = CROSSING

		6.04A NonTCAS	V7.1-100 NonTCAS	V7.1-25 NonTCAS	6.04A only	V7.1-100 6.04A	V7.1-25 6.04A	V7.1-100 only	V7.1-25 only	V7.1-25 7.1-100
RAs/ runs	(%)	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
Total NMACS/ runs	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Induced/ NMACS	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reversals/ runs	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reversals/ RAS	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fast Reverse/ Reversals	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1 Reversal/ Reversals	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NMACS/ 1 Rev.	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Induced NMAC/ NMACS	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Class 10 Planned = NON-CROSSING

		6.04A NonTCAS	V7.1-100 NonTCAS	V7.1-25 NonTCAS	6.04A only	V7.1-100 6.04A	V7.1-25 6.04A	V7.1-100 only	V7.1-25 only	V7.1-25 7.1-100
RAs/ runs	(%)	65.63	65.63	65.63	65.63	65.63	65.63	65.63	65.63	65.63
Total NMACS/ runs	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Induced/ NMACS	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reversals/ runs	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reversals/ RAS	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fast Reverse/ Reversals	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1 Reversal/ Reversals	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NMACS/ 1 Rev.	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Induced NMAC/ NMACS	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

* NMACS and average alt. sep. at CPA are based on simulation truth

Encounter classes: 1,11 Date processed: 8/27/ 7 DATA SET NUMBER 7
Based on FAA Technical Center data of: July 2007
Total Encounters : 6048 Total incorrectly labeled RAs : 0

Class 1 Planned = CROSSING										
		6.04A NonTCAS	V7.1-100 NonTCAS	V7.1-25 NonTCAS	6.04A only	V7.1-100 6.04A	V7.1-25 6.04A	V7.1-100 only	V7.1-25 only	V7.1-25 7.1-100
RAS/ runs (%)		94.39	94.39	94.39	94.39	94.39	94.39	94.39	94.39	94.39
Total NMACS/ runs (%)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Induced/ NMACS (%)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reversals/ runs (%)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reversals/ RAS (%)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fast Reverse/ Reversals (%)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1 Reversal/ Reversals (%)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NMACS/ 1 Rev. (%)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Induced NMAC/ NMACS (%)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Class 11 Planned = NON-CROSSING										
		6.04A NonTCAS	V7.1-100 NonTCAS	V7.1-25 NonTCAS	6.04A only	V7.1-100 6.04A	V7.1-25 6.04A	V7.1-100 only	V7.1-25 only	V7.1-25 7.1-100
RAS/ runs (%)		60.71	71.43	71.43	60.71	71.43	71.43	71.43	71.43	71.43
Total NMACS/ runs (%)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Induced/ NMACS (%)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reversals/ runs (%)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reversals/ RAS (%)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fast Reverse/ Reversals (%)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1 Reversal/ Reversals (%)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NMACS/ 1 Rev. (%)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Induced NMAC/ NMACS (%)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

* NMACS and average alt. sep. at CPA are based on simulation truth

Encounter classes: 2,12 Date processed: 8/27/ 7 DATA SET NUMBER 7
Based on FAA Technical Center data of: July 2007
Total Encounters : 72568 Total incorrectly labeled RAs : 8

Class		2 Planned = CROSSING								
		6.04A NonTCAS	V7.1-100 NonTCAS	V7.1-25 NonTCAS	6.04A only	V7.1-100 6.04A	V7.1-25 6.04A	V7.1-100 only	V7.1-25 only	V7.1-25 7.1-100
RAS/ runs	(%)	99.14	99.19	98.97	99.60	99.32	99.07	99.14	98.94	99.03
Total NMACS/ runs	(%)	6.45	4.44	2.77	1.46	0.71	0.53	0.33	0.35	0.35
Induced/ NMACS	(%)	94.53	84.66	85.45	91.38	89.29	100.00	100.00	100.00	100.00
Reversals/ runs	(%)	2.04	8.72	7.89	0.00	0.48	0.28	0.66	0.33	0.48
Reversals/ RAS	(%)	2.06	8.79	7.97	0.00	0.48	0.28	0.66	0.33	0.48
Fast Reverse/ Reversals	(%)	6.17	0.00	0.32	0.00	0.00	4.55	0.00	0.00	0.00
1 Reversal/ Reversals	(%)	100.00	100.00	100.00	0.00	100.00	100.00	100.00	100.00	100.00
NMACS/ 1 Rev.	(%)	0.00	11.56	10.22	0.00	18.42	4.55	11.54	0.00	10.53
Induced NMAC/ NMACS	(%)	0.00	85.00	100.00	0.00	100.00	100.00	100.00	0.00	100.00

Class		12 Planned = NON-CROSSING								
		6.04A NonTCAS	V7.1-100 NonTCAS	V7.1-25 NonTCAS	6.04A only	V7.1-100 6.04A	V7.1-25 6.04A	V7.1-100 only	V7.1-25 only	V7.1-25 7.1-100
RAS/ runs	(%)	73.27	79.62	80.87	75.10	79.62	80.87	79.57	80.82	80.19
Total NMACS/ runs	(%)	0.19	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Induced/ NMACS	(%)	100.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reversals/ runs	(%)	0.91	0.58	0.53	0.00	0.22	0.17	0.43	0.14	0.26
Reversals/ RAS	(%)	1.25	0.72	0.65	0.00	0.27	0.21	0.54	0.18	0.33
Fast Reverse/ Reversals	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1 Reversal/ Reversals	(%)	100.00	100.00	100.00	0.00	100.00	100.00	100.00	100.00	100.00
NMACS/ 1 Rev.	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Induced NMAC/ NMACS	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

* NMACS and average alt. sep. at CPA are based on simulation truth

Encounter classes: 3,13 Date processed: 8/27/ 7 DATA SET NUMBER 7
Based on FAA Technical Center data of: July 2007
Total Encounters : 93312 Total incorrectly labeled RAs : 0

Class 3 Planned = CROSSING										
		6.04A NonTCAS	V7.1-100 NonTCAS	V7.1-25 NonTCAS	6.04A only	V7.1-100 6.04A	V7.1-25 6.04A	V7.1-100 only	V7.1-25 only	V7.1-25 7.1-100
RAs/ runs (%)		65.75	65.58	65.77	65.69	65.58	65.77	65.58	65.77	65.68
Total NMACS/ runs (%)		0.89	0.70	0.08	0.00	0.00	0.00	0.00	0.00	0.00
Induced/ NMACS (%)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reversals/ runs (%)		1.06	0.81	0.54	0.00	0.38	0.27	0.73	0.54	0.64
Reversals/ RAS (%)		1.60	1.24	0.82	0.00	0.58	0.41	1.11	0.82	0.97
Fast Reverse/ Reversals (%)		30.77	33.33	55.00	0.00	14.29	20.00	14.81	20.00	17.02
1 Reversal/ Reversals (%)		100.00	100.00	100.00	0.00	100.00	100.00	100.00	100.00	100.00
NMACS/ 1 Rev. (%)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Induced NMAC/ NMACS (%)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Class 13 Planned = NON-CROSSING										
		6.04A NonTCAS	V7.1-100 NonTCAS	V7.1-25 NonTCAS	6.04A only	V7.1-100 6.04A	V7.1-25 6.04A	V7.1-100 only	V7.1-25 only	V7.1-25 7.1-100
RAs/ runs (%)		59.29	59.17	58.33	62.06	62.52	60.01	62.50	60.12	61.26
Total NMACS/ runs (%)		0.76	0.37	0.22	0.10	0.02	0.02	0.02	0.00	0.01
Induced/ NMACS (%)		96.77	100.00	100.00	100.00	100.00	100.00	100.00	0.00	100.00
Reversals/ runs (%)		6.89	7.92	9.39	0.00	2.66	2.86	5.20	5.34	5.25
Reversals/ RAS (%)		11.62	13.38	16.09	0.00	4.25	4.76	8.31	8.89	8.56
Fast Reverse/ Reversals (%)		38.43	39.01	43.34	0.00	31.80	32.62	35.38	36.70	35.98
1 Reversal/ Reversals (%)		100.00	100.00	100.00	0.00	100.00	100.00	100.00	100.00	100.00
NMACS/ 1 Rev. (%)		0.00	0.00	0.00	0.00	0.00	0.43	0.47	0.00	0.23
Induced NMAC/ NMACS (%)		0.00	0.00	0.00	0.00	0.00	100.00	100.00	0.00	100.00

* NMACS and average alt. sep. at CPA are based on simulation truth

Encounter classes: 4,14 Date processed: 8/27/ 7 DATA SET NUMBER 7
Based on FAA Technical Center data of: July 2007
Total Encounters : 12096 Total incorrectly labeled RAS : 0

Class		4 Planned = CROSSING								
		6.04A NonTCAS	V7.1-100 NonTCAS	V7.1-25 NonTCAS	6.04A only	V7.1-100 6.04A	V7.1-25 6.04A	V7.1-100 only	V7.1-25 only	V7.1-25 7.1-100
RAS/ runs	(%)	97.25	97.25	97.25	96.70	96.84	96.84	96.98	97.25	97.12
Total NMACS/ runs	(%)	0.00	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Induced/ NMACS	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reversals/ runs	(%)	0.00	0.00	0.00	0.00	0.14	0.14	0.14	0.00	0.07
Reversals/ RAS	(%)	0.00	0.00	0.00	0.00	0.14	0.14	0.14	0.00	0.07
Fast Reverse/ Reversals	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1 Reversal/ Reversals	(%)	0.00	0.00	0.00	0.00	100.00	100.00	100.00	0.00	100.00
NMACS/ 1 Rev.	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Induced NMAC/ NMACS	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Class		14 Planned = NON-CROSSING								
		6.04A NonTCAS	V7.1-100 NonTCAS	V7.1-25 NonTCAS	6.04A only	V7.1-100 6.04A	V7.1-25 6.04A	V7.1-100 only	V7.1-25 only	V7.1-25 7.1-100
RAS/ runs	(%)	68.57	68.57	68.57	68.57	68.57	68.57	68.57	68.57	68.57
Total NMACS/ runs	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Induced/ NMACS	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reversals/ runs	(%)	0.00	0.00	0.00	0.00	0.36	0.00	0.71	0.00	0.36
Reversals/ RAS	(%)	0.00	0.00	0.00	0.00	0.52	0.00	1.04	0.00	0.52
Fast Reverse/ Reversals	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1 Reversal/ Reversals	(%)	0.00	0.00	0.00	0.00	100.00	0.00	100.00	0.00	100.00
NMACS/ 1 Rev.	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Induced NMAC/ NMACS	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

* NMACS and average alt. sep. at CPA are based on simulation truth

Encounter classes: 5,15 Date processed: 8/27/ 7 DATA SET NUMBER 7
Based on FAA Technical Center data of: July 2007
Total Encounters : 145152 Total incorrectly labeled RAs : 0

Class 5 Planned = CROSSING										
		6.04A NonTCAS	V7.1-100 NonTCAS	V7.1-25 NonTCAS	6.04A only	V7.1-100 6.04A	V7.1-25 6.04A	V7.1-100 only	V7.1-25 only	V7.1-25 7.1-100
RAs/ runs	(%)	95.76	95.60	95.70	95.77	95.15	95.01	94.40	94.25	94.29
Total NMAs/ runs	(%)	3.93	3.00	1.56	0.31	0.16	0.10	0.09	0.03	0.06
Induced/ NMAs	(%)	73.19	61.40	67.57	100.00	93.55	100.00	100.00	100.00	100.00
Reversals/ runs	(%)	0.81	4.01	3.36	0.00	0.25	0.23	0.30	0.34	0.32
Reversals/ RAs	(%)	0.85	4.19	3.51	0.00	0.26	0.24	0.31	0.36	0.34
Fast Reverse/ Reversals	(%)	0.00	6.05	4.39	0.00	6.38	18.60	7.14	28.13	18.03
1 Reversal/ Reversals	(%)	100.00	100.00	100.00	0.00	100.00	100.00	100.00	100.00	100.00
NMAs/ 1 Rev.	(%)	0.00	15.53	10.03	0.00	14.89	4.65	32.14	6.25	16.39
Induced NMA/ NMAs	(%)	0.00	81.36	93.75	0.00	100.00	100.00	100.00	100.00	100.00

Class 15 Planned = NON-CROSSING										
		6.04A NonTCAS	V7.1-100 NonTCAS	V7.1-25 NonTCAS	6.04A only	V7.1-100 6.04A	V7.1-25 6.04A	V7.1-100 only	V7.1-25 only	V7.1-25 7.1-100
RAs/ runs	(%)	73.85	74.77	73.27	78.07	72.64	70.99	71.97	72.12	72.16
Total NMAs/ runs	(%)	1.19	1.07	0.81	0.69	0.17	0.13	0.08	0.08	0.08
Induced/ NMAs	(%)	29.03	17.86	19.05	100.00	100.00	100.00	100.00	100.00	100.00
Reversals/ runs	(%)	1.88	3.72	2.91	0.00	1.42	1.11	2.68	2.15	2.40
Reversals/ RAs	(%)	2.54	4.97	3.98	0.00	1.95	1.57	3.73	2.98	3.32
Fast Reverse/ Reversals	(%)	12.24	22.68	15.79	0.00	32.43	39.66	38.57	44.64	41.60
1 Reversal/ Reversals	(%)	100.00	100.00	100.00	0.00	100.00	100.00	100.00	100.00	100.00
NMAs/ 1 Rev.	(%)	0.00	3.09	2.63	0.00	4.05	3.45	1.43	3.57	2.40
Induced NMA/ NMAs	(%)	0.00	100.00	0.00	0.00	100.00	100.00	100.00	100.00	100.00

* NMAs and average alt. sep. at CPA are based on simulation truth

Encounter classes: 6,16 Date processed: 8/27/ 7 DATA SET NUMBER 7
Based on FAA Technical Center data of: July 2007
Total Encounters : 145044 Total incorrectly labeled RAs : 108

Class 6 Planned = CROSSING										
		6.04A	V7.1-100	V7.1-25	6.04A	V7.1-100	V7.1-25	V7.1-100	V7.1-25	V7.1-25
		NonTCAS	NonTCAS	NonTCAS	only	6.04A	6.04A	only	only	7.1-100
RAS/ runs	(%)	94.43	94.58	94.68	94.53	94.27	94.22	93.95	94.11	93.97
Total NMACS/ runs	(%)	1.77	1.20	0.71	0.27	0.19	0.15	0.17	0.06	0.09
Induced/ NMACS	(%)	43.79	39.13	55.88	46.15	64.86	85.71	87.50	66.67	77.78
Reversals/ runs	(%)	1.32	2.78	2.56	0.00	0.59	0.42	0.90	0.70	0.79
Reversals/ RAS	(%)	1.40	2.94	2.71	0.00	0.62	0.45	0.96	0.75	0.84
Fast Reverse/ Reversals	(%)	42.06	24.06	28.57	0.00	16.96	39.51	18.60	38.81	29.33
1 Reversal/ Reversals	(%)	100.00	100.00	100.00	0.00	100.00	100.00	100.00	100.00	100.00
NMACS/ 1 Rev.	(%)	3.17	19.55	8.57	0.00	8.04	7.41	4.65	2.99	4.00
Induced NMAC/ NMACS	(%)	100.00	25.00	42.86	0.00	66.67	66.67	50.00	0.00	33.33

Class 16 Planned = NON-CROSSING										
		6.04A	V7.1-100	V7.1-25	6.04A	V7.1-100	V7.1-25	V7.1-100	V7.1-25	V7.1-25
		NonTCAS	NonTCAS	NonTCAS	only	6.04A	6.04A	only	only	7.1-100
RAS/ runs	(%)	78.73	85.85	85.73	78.57	85.14	84.65	84.75	84.87	84.85
Total NMACS/ runs	(%)	0.79	0.24	0.08	0.04	0.02	0.00	0.04	0.00	0.04
Induced/ NMACS	(%)	100.00	100.00	100.00	100.00	100.00	0.00	100.00	0.00	100.00
Reversals/ runs	(%)	9.87	8.96	9.24	0.00	2.42	2.61	4.72	5.03	4.93
Reversals/ RAS	(%)	12.53	10.44	10.77	0.00	2.84	3.09	5.57	5.93	5.81
Fast Reverse/ Reversals	(%)	30.68	32.02	29.79	0.00	24.39	27.82	25.00	28.13	27.49
1 Reversal/ Reversals	(%)	100.00	100.00	100.00	0.00	100.00	100.00	100.00	100.00	100.00
NMACS/ 1 Rev.	(%)	0.00	0.00	0.43	0.00	0.81	0.00	0.83	0.00	0.80
Induced NMAC/ NMACS	(%)	0.00	0.00	100.00	0.00	100.00	0.00	100.00	0.00	100.00

* NMACS and average alt. sep. at CPA are based on simulation truth

Encounter classes: 7,17 Date processed: 8/27/ 7 DATA SET NUMBER 7
Based on FAA Technical Center data of: July 2007
Total Encounters : 217672 Total incorrectly labeled RAs : 56

Class 7 Planned = CROSSING										
		6.04A NonTCAS	V7.1-100 NonTCAS	V7.1-25 NonTCAS	6.04A only	V7.1-100 6.04A	V7.1-25 6.04A	V7.1-100 only	V7.1-25 only	V7.1-25 7.1-100
RAs/ runs	(%)	99.60	99.58	99.40	99.36	99.30	99.18	99.06	99.15	99.08
Total NMAs/ runs	(%)	9.63	7.79	4.66	1.60	1.05	0.48	0.65	0.22	0.32
Induced/ NMAs	(%)	81.93	74.56	85.54	98.00	96.17	100.00	100.00	100.00	100.00
Reversals/ runs	(%)	2.66	13.23	12.48	0.00	0.84	0.38	1.21	0.43	0.57
Reversals/ RAs	(%)	2.67	13.29	12.55	0.00	0.84	0.38	1.22	0.44	0.58
Fast Reverse/ Reversals	(%)	5.72	3.33	3.92	0.00	5.74	4.21	3.97	0.00	3.50
1 Reversal/ Reversals	(%)	99.40	100.00	100.00	0.00	100.00	100.00	100.00	100.00	100.00
NMAs/ 1 Rev.	(%)	2.73	17.21	13.50	0.00	22.97	12.63	25.83	22.22	21.68
Induced NMA/ NMAs	(%)	22.22	83.45	97.62	0.00	95.83	100.00	100.00	100.00	100.00

Class 17 Planned = NON-CROSSING										
		6.04A NonTCAS	V7.1-100 NonTCAS	V7.1-25 NonTCAS	6.04A only	V7.1-100 6.04A	V7.1-25 6.04A	V7.1-100 only	V7.1-25 only	V7.1-25 7.1-100
RAs/ runs	(%)	74.32	75.89	74.71	71.63	73.09	71.62	72.19	73.44	72.84
Total NMAs/ runs	(%)	0.95	0.41	0.76	0.25	0.15	0.23	0.12	0.11	0.13
Induced/ NMAs	(%)	57.41	30.43	69.77	100.00	100.00	100.00	100.00	100.00	100.00
Reversals/ runs	(%)	0.56	2.15	2.13	0.00	0.15	0.12	0.23	0.25	0.25
Reversals/ RAs	(%)	0.76	2.83	2.85	0.00	0.20	0.17	0.32	0.34	0.34
Fast Reverse/ Reversals	(%)	18.75	12.30	12.40	0.00	23.53	21.43	30.77	35.71	32.14
1 Reversal/ Reversals	(%)	100.00	100.00	100.00	0.00	100.00	100.00	100.00	100.00	100.00
NMAs/ 1 Rev.	(%)	12.50	6.56	14.05	0.00	5.88	50.00	30.77	35.71	35.71
Induced NMA/ NMAs	(%)	100.00	87.50	70.59	0.00	100.00	100.00	100.00	100.00	100.00

* NMAs and average alt. sep. at CPA are based on simulation truth

Encounter classes: 8,18 Date processed: 8/27/ 7 DATA SET NUMBER 7
Based on FAA Technical Center data of: July 2007
Total Encounters : 21733 Total incorrectly labeled RAs : 396

Class 8 Planned = CROSSING										
		6.04A NonTCAS	V7.1-100 NonTCAS	V7.1-25 NonTCAS	6.04A only	V7.1-100 6.04A	V7.1-25 6.04A	V7.1-100 only	V7.1-25 only	V7.1-25 7.1-100
RAs/ runs (%)		93.39	94.06	94.64	93.02	93.56	94.11	93.31	94.36	93.86
Total NMACs/ runs (%)		5.95	4.68	2.74	1.55	0.91	0.66	0.78	0.39	0.54
Induced/ NMACS (%)		80.55	71.76	78.07	85.92	85.16	93.51	94.50	88.89	93.33
Reversals/ runs (%)		3.89	9.65	8.27	0.00	1.33	0.93	2.29	1.47	1.82
Reversals/ RAs (%)		4.16	10.26	8.74	0.00	1.42	0.99	2.45	1.56	1.94
Fast Reverse/ Reversals (%)		37.32	18.89	14.08	0.00	13.14	13.46	15.31	11.17	14.90
1 Reversal/ Reversals (%)		99.63	100.00	100.00	0.00	100.00	100.00	100.00	100.00	100.00
NMACS/ 1 Rev. (%)		3.69	12.22	7.08	0.00	10.46	3.08	14.06	4.37	9.41
Induced NMAC/ NMACs (%)		90.00	78.79	97.56	0.00	100.00	87.50	100.00	77.78	100.00

Class 18 Planned = NON-CROSSING										
		6.04A NonTCAS	V7.1-100 NonTCAS	V7.1-25 NonTCAS	6.04A only	V7.1-100 6.04A	V7.1-25 6.04A	V7.1-100 only	V7.1-25 only	V7.1-25 7.1-100
RAs/ runs (%)		81.87	83.94	86.45	77.24	82.81	85.33	82.64	86.16	84.14
Total NMACs/ runs (%)		1.98	1.18	0.51	0.43	0.33	0.13	0.24	0.02	0.06
Induced/ NMACS (%)		100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Reversals/ runs (%)		15.02	17.09	14.85	0.00	4.11	4.04	7.74	7.62	7.53
Reversals/ RAs (%)		18.35	20.36	17.18	0.00	4.96	4.73	9.36	8.84	8.95
Fast Reverse/ Reversals (%)		41.41	43.16	38.31	0.00	22.87	22.69	25.86	24.37	23.04
1 Reversal/ Reversals (%)		100.00	100.00	100.00	0.00	100.00	100.00	100.00	100.00	100.00
NMACS/ 1 Rev. (%)		0.16	1.97	0.65	0.00	5.28	1.19	3.12	0.32	0.80
Induced NMAC/ NMACs (%)		100.00	100.00	100.00	0.00	100.00	100.00	100.00	100.00	100.00

* NMACs and average alt. sep. at CPA are based on simulation truth

Encounter classes: 9,19 Date processed: 8/27/ 7 DATA SET NUMBER 7
Based on FAA Technical Center data of: July 2007
Total Encounters : 186583 Total incorrectly labeled RAs : 41

Class 9 Planned = CROSSING										
		6.04A NonTCAS	V7.1-100 NonTCAS	V7.1-25 NonTCAS	6.04A only	V7.1-100 6.04A	V7.1-25 6.04A	V7.1-100 only	V7.1-25 only	V7.1-25 7.1-100
RAs/ runs (%)		68.90	68.51	68.05	69.32	68.87	68.30	68.76	68.32	68.48
Total NMAs/ runs (%)		1.13	0.40	0.41	0.22	0.15	0.09	0.12	0.03	0.06
Induced/ NMAs (%)		8.14	23.33	9.68	100.00	100.00	100.00	100.00	100.00	100.00
Reversals/ runs (%)		1.60	2.84	1.90	0.00	0.79	0.53	1.11	0.44	0.72
Reversals/ RAs (%)		2.32	4.14	2.79	0.00	1.15	0.78	1.61	0.64	1.05
Fast Reverse/ Reversals (%)		23.14	23.26	21.53	0.00	21.67	24.69	16.67	9.09	8.26
1 Reversal/ Reversals (%)		100.00	100.00	100.00	0.00	100.00	100.00	100.00	100.00	100.00
NMAs/ 1 Rev. (%)		0.00	6.51	4.86	0.00	5.00	3.70	9.52	3.03	6.42
Induced NMA/ NMAs (%)		0.00	42.86	42.86	0.00	100.00	100.00	100.00	100.00	100.00

Class 19 Planned = NON-CROSSING										
		6.04A NonTCAS	V7.1-100 NonTCAS	V7.1-25 NonTCAS	6.04A only	V7.1-100 6.04A	V7.1-25 6.04A	V7.1-100 only	V7.1-25 only	V7.1-25 7.1-100
RAs/ runs (%)		72.76	71.77	71.22	74.29	74.08	72.13	74.15	73.00	73.31
Total NMAs/ runs (%)		2.35	0.90	0.49	0.44	0.26	0.16	0.16	0.04	0.12
Induced/ NMAs (%)		80.21	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Reversals/ runs (%)		13.52	13.13	10.94	0.00	2.88	2.98	5.33	5.74	5.49
Reversals/ RAs (%)		18.58	18.29	15.35	0.00	3.88	4.13	7.19	7.87	7.48
Fast Reverse/ Reversals (%)		30.71	29.42	29.01	0.00	25.93	27.16	28.00	27.51	27.66
1 Reversal/ Reversals (%)		100.00	100.00	100.00	0.00	100.00	100.00	100.00	100.00	100.00
NMAs/ 1 Rev. (%)		0.00	0.57	0.46	0.00	1.96	2.32	3.06	0.66	1.94
Induced NMA/ NMAs (%)		0.00	100.00	100.00	0.00	100.00	100.00	100.00	100.00	100.00

* NMAs and average alt. sep. at CPA are based on simulation truth

Appendix H REVERSAL ANALYSIS PROGRAM 2

Separation Differences

SEP. DIFF. = ABS(ACH. SEP.) - ABS(PLANNED SEP.) DATASET 7 CLASSES 0,10 VERSION 7.1 ONLY
 PLANNED CROSSING 160 PLANNED NON-CROSSING 512 JULY 2007 data BOTH PILOTS RESP
 -----NON REVERSED RAs -- GAINS : 336 LOSSES : 0 NO CHANGE : 144

PLANNED CROSSING		RA COUNT = 144	NMAC COUNT = 0					
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000	
0 FT		0	0	0	64	0	0	
250 FT		0	0	50	14	0	0	
500 FT		8	0	6	2	0	0	
750 FT		0	0	0	0	0	0	
1000 FT		0	0	0	0	0	0	

LOSSES (FT)		PLAN SEP	>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT			0	0	0	0	0
250 FT			0	0	0	0	0
500 FT			0	0	0	0	0
750 FT			0	0	0	0	0
1000 FT			0	0	0	0	0

PLANNED NON-CROSSING		RA COUNT = 336	NMAC COUNT = 0					
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000	
0 FT		0	0	8	24	0	0	
250 FT		0	12	100	14	2	0	
500 FT		136	40	0	0	0	0	
750 FT		0	0	0	0	0	0	
1000 FT		0	0	0	0	0	0	

LOSSES (FT)		PLAN SEP	>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT			0	0	0	0	0
250 FT			0	0	0	0	0
500 FT			0	0	0	0	0
750 FT			0	0	0	0	0
1000 FT			0	0	0	0	0

-----REVERSED RAs - GAINS : 0 LOSSES : 0 NO CHANGE : 0

PLANNED CROSSING		RA COUNT = 0	NMAC COUNT = 0					
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000	
0 FT		0	0	0	0	0	0	
250 FT		0	0	0	0	0	0	
500 FT		0	0	0	0	0	0	
750 FT		0	0	0	0	0	0	
1000 FT		0	0	0	0	0	0	

LOSSES (FT)		PLAN SEP	>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT			0	0	0	0	0
250 FT			0	0	0	0	0
500 FT			0	0	0	0	0
750 FT			0	0	0	0	0
1000 FT			0	0	0	0	0

PLANNED NON-CROSSING		RA COUNT = 0	NMAC COUNT = 0					
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000	
0 FT		0	0	0	0	0	0	
250 FT		0	0	0	0	0	0	
500 FT		0	0	0	0	0	0	
750 FT		0	0	0	0	0	0	
1000 FT		0	0	0	0	0	0	

LOSSES (FT)		PLAN SEP	>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT			0	0	0	0	0
250 FT			0	0	0	0	0
500 FT			0	0	0	0	0
750 FT			0	0	0	0	0
1000 FT			0	0	0	0	0

SEP. DIFF. = ABS(ACH. SEP.) - ABS(PLANNED SEP.) DATASET 7 CLASSES 1,11 VERSION 7.1 ONLY
 PLANNED CROSSING 1568 PLANNED NON-CROSSING 448 JULY 2007 data BOTH PILOTS RESP
 -----NON REVERSED RAS -- GAINS : 1380 LOSSES : 0 NO CHANGE : 420

PLANNED CROSSING		RA COUNT = 1480	NMAC COUNT = 0				
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT		0	0	0	80	110	98
250 FT		0	0	138	142	108	92
500 FT		48	122	164	58	40	16
750 FT		200	8	40	16	0	0
1000 FT		0	0	0	0	0	0

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT			0	0	0	0	0
250 FT			0	0	0	0	0
500 FT			0	0	0	0	0
750 FT			0	0	0	0	0
1000 FT			0	0	0	0	0

PLANNED NON-CROSSING		RA COUNT = 320	NMAC COUNT = 0				
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT		0	0	0	0	0	0
250 FT		0	0	88	8	0	0
500 FT		76	48	4	0	0	0
750 FT		96	0	0	0	0	0
1000 FT		0	0	0	0	0	0

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT			0	0	0	0	0
250 FT			0	0	0	0	0
500 FT			0	0	0	0	0
750 FT			0	0	0	0	0
1000 FT			0	0	0	0	0

-----REVERSED RAS - GAINS : 0 LOSSES : 0 NO CHANGE : 0

PLANNED CROSSING		RA COUNT = 0	NMAC COUNT = 0				
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT		0	0	0	0	0	0
250 FT		0	0	0	0	0	0
500 FT		0	0	0	0	0	0
750 FT		0	0	0	0	0	0
1000 FT		0	0	0	0	0	0

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT			0	0	0	0	0
250 FT			0	0	0	0	0
500 FT			0	0	0	0	0
750 FT			0	0	0	0	0
1000 FT			0	0	0	0	0

PLANNED NON-CROSSING		RA COUNT = 0	NMAC COUNT = 0				
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT		0	0	0	0	0	0
250 FT		0	0	0	0	0	0
500 FT		0	0	0	0	0	0
750 FT		0	0	0	0	0	0
1000 FT		0	0	0	0	0	0

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT			0	0	0	0	0
250 FT			0	0	0	0	0
500 FT			0	0	0	0	0
750 FT			0	0	0	0	0
1000 FT			0	0	0	0	0

SEP. DIFF. = ABS(ACH. SEP.) - ABS(PLANNED SEP.) DATASET 7 CLASSES 2,12 VERSION 7.1 ONLY
 PLANNED CROSSING 15872 PLANNED NON-CROSSING 8320 JULY 2007 data BOTH PILOTS RESP
 -----NON REVERSED RAS -- GAINS : 17317 LOSSES : 1198 NO CHANGE : 3776

PLANNED CROSSING		RA COUNT = 15642	NMAC COUNT = 48				
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000
	0 FT	0	58	536	1834	906	122
	250 FT	0	1062	2586	1310	304	52
	500 FT	204	2220	1221	236	42	24
	750 FT	1018	460	188	56	4	16
	1000 FT	0	0	0	0	0	0

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000
	0 FT		0	0	0	0	0
	250 FT		54	0	0	0	0
	500 FT		114	128	0	0	0
	750 FT		755	121	11	0	0
	1000 FT		0	0	0	0	0

PLANNED NON-CROSSING		RA COUNT = 6649	NMAC COUNT = 0				
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000
	0 FT	0	0	0	0	0	0
	250 FT	0	220	1242	32	16	14
	500 FT	976	988	568	52	88	48
	750 FT	1578	466	150	120	16	60
	1000 FT	0	0	0	0	0	0

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000
	0 FT		0	0	0	0	0
	250 FT		0	0	0	0	0
	500 FT		0	0	0	0	0
	750 FT		10	5	0	0	0
	1000 FT		0	0	0	0	0

-----REVERSED RAS - GAINS : 38 LOSSES : 62 NO CHANGE : 0

PLANNED CROSSING		RA COUNT = 77	NMAC COUNT = 7				
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000
	0 FT	0	0	0	0	0	0
	250 FT	0	0	0	0	0	0
	500 FT	0	1	1	0	0	0
	750 FT	0	18	0	0	0	0
	1000 FT	0	0	0	0	0	0

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000
	0 FT		0	0	0	0	0
	250 FT		0	0	0	0	0
	500 FT		0	0	0	0	0
	750 FT		23	9	25	0	0
	1000 FT		0	0	0	0	0

PLANNED NON-CROSSING		RA COUNT = 23	NMAC COUNT = 0				
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000
	0 FT	0	0	0	0	0	0
	250 FT	0	1	9	0	0	0
	500 FT	0	0	0	0	0	0
	750 FT	0	8	0	0	0	0
	1000 FT	0	0	0	0	0	0

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000
	0 FT		0	0	0	0	0
	250 FT		0	0	0	0	0
	500 FT		0	0	0	0	0
	750 FT		1	3	1	0	0
	1000 FT		0	0	0	0	0

SEP. DIFF. = ABS(ACH. SEP.) - ABS(PLANNED SEP.) DATASET 7 CLASSES 3,13 VERSION 7.1 ONLY
 PLANNED CROSSING 14784 PLANNED NON-CROSSING 16320 JULY 2007 data BOTH PILOTS RESP
 -----NON REVERSED RAs -- GAINS : 15214 LOSSES : 10 NO CHANGE : 3536

PLANNED CROSSING		RA COUNT = 9616	NMAC COUNT = 0				
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT		0	0	170	2092	288	300
250 FT		0	210	2448	424	206	200
500 FT		2306	632	46	90	14	16
750 FT		106	48	14	2	0	0
1000 FT		0	0	0	0	0	0

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT			0	0	0	0	0
250 FT			0	0	0	0	0
500 FT			0	0	0	0	0
750 FT			4	0	0	0	0
1000 FT			0	0	0	0	0

PLANNED NON-CROSSING		RA COUNT = 9144	NMAC COUNT = 0				
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT		0	0	52	448	12	0
250 FT		0	37	1583	882	184	50
500 FT		864	1078	878	526	145	54
750 FT		140	632	491	270	44	0
1000 FT		120	261	299	88	0	0

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT			0	0	0	0	0
250 FT			6	0	0	0	0
500 FT			0	0	0	0	0
750 FT			0	0	0	0	0
1000 FT			0	0	0	0	0

-----REVERSED RAs - GAINS : 915 LOSSES : 37 NO CHANGE : 0

PLANNED CROSSING		RA COUNT = 94	NMAC COUNT = 0				
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT		0	0	0	89	5	0
250 FT		0	0	0	0	0	0
500 FT		0	0	0	0	0	0
750 FT		0	0	0	0	0	0
1000 FT		0	0	0	0	0	0

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT			0	0	0	0	0
250 FT			0	0	0	0	0
500 FT			0	0	0	0	0
750 FT			0	0	0	0	0
1000 FT			0	0	0	0	0

PLANNED NON-CROSSING		RA COUNT = 858	NMAC COUNT = 2				
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT		0	0	0	0	0	0
250 FT		0	122	459	74	0	0
500 FT		0	104	62	0	0	0
750 FT		0	0	0	0	0	0
1000 FT		0	0	0	0	0	0

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT			0	0	0	0	0
250 FT			27	0	0	0	0
500 FT			10	0	0	0	0
750 FT			0	0	0	0	0
1000 FT			0	0	0	0	0

SEP. DIFF. = ABS(ACH. SEP.) - ABS(PLANNED SEP.) DATASET 7 CLASSES 4,14 VERSION 7.1 ONLY
 PLANNED CROSSING 2912 PLANNED NON-CROSSING 1120 JULY 2007 data BOTH PILOTS RESP
 -----NON REVERSED RAs -- GAINS : 3066 LOSSES : 4 NO CHANGE : 520

PLANNED CROSSING		RA COUNT = 2826	NMAC COUNT = 0				
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT		0	0	0	20	110	350
250 FT		0	112	100	180	184	384
500 FT		0	170	158	116	84	266
750 FT		296	80	52	40	56	64
1000 FT		0	0	0	0	0	0

LOSSES (FT)		PLAN SEP	>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT			0	0	0	0	0
250 FT			0	0	0	0	0
500 FT			4	0	0	0	0
750 FT			0	0	0	0	0
1000 FT			0	0	0	0	0

PLANNED NON-CROSSING		RA COUNT = 764	NMAC COUNT = 0				
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT		0	0	16	38	24	14
250 FT		0	14	98	32	32	16
500 FT		96	98	54	46	36	22
750 FT		128	0	0	0	0	0
1000 FT		0	0	0	0	0	0

LOSSES (FT)		PLAN SEP	>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT			0	0	0	0	0
250 FT			0	0	0	0	0
500 FT			0	0	0	0	0
750 FT			0	0	0	0	0
1000 FT			0	0	0	0	0

-----REVERSED RAs - GAINS : 6 LOSSES : 0 NO CHANGE : 0

PLANNED CROSSING		RA COUNT = 2	NMAC COUNT = 0				
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT		0	0	0	0	0	0
250 FT		0	0	0	0	0	0
500 FT		0	2	0	0	0	0
750 FT		0	0	0	0	0	0
1000 FT		0	0	0	0	0	0

LOSSES (FT)		PLAN SEP	>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT			0	0	0	0	0
250 FT			0	0	0	0	0
500 FT			0	0	0	0	0
750 FT			0	0	0	0	0
1000 FT			0	0	0	0	0

PLANNED NON-CROSSING		RA COUNT = 4	NMAC COUNT = 0				
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT		0	2	2	0	0	0
250 FT		0	0	0	0	0	0
500 FT		0	0	0	0	0	0
750 FT		0	0	0	0	0	0
1000 FT		0	0	0	0	0	0

LOSSES (FT)		PLAN SEP	>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT			0	0	0	0	0
250 FT			0	0	0	0	0
500 FT			0	0	0	0	0
750 FT			0	0	0	0	0
1000 FT			0	0	0	0	0

SEP. DIFF. = ABS(ACH. SEP.) - ABS(PLANNED SEP.) DATASET 7 CLASSES 5,15 VERSION 7.1 ONLY
 PLANNED CROSSING 37952 PLANNED NON-CROSSING 10432 JULY 2007 data BOTH PILOTS RESP
 -----NON REVERSED RAS -- GAINS : 36841 LOSSES : 1155 NO CHANGE : 4946

PLANNED CROSSING		RA COUNT = 35671	NMAC COUNT = 2					
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT	0	10	570	1706	1528	2500	
	250 FT	0	1718	3407	2842	1972	2253	
	500 FT	372	3985	2615	1535	852	804	
	750 FT	2572	1536	865	532	476	16	
	1000 FT	0	0	0	0	0	0	

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT		0	0	0	0	0	
	250 FT		104	0	0	0	0	
	500 FT		246	26	0	0	0	
	750 FT		536	66	27	0	0	
	1000 FT		0	0	0	0	0	

PLANNED NON-CROSSING		RA COUNT = 7271	NMAC COUNT = 2					
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT	0	0	68	356	87	32	
	250 FT	0	91	374	311	114	318	
	500 FT	640	477	433	418	392	407	
	750 FT	1362	64	190	330	308	349	
	1000 FT	0	0	0	0	0	0	

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT		0	0	0	0	0	
	250 FT		15	0	0	0	0	
	500 FT		31	24	0	0	0	
	750 FT		39	41	0	0	0	
	1000 FT		0	0	0	0	0	

-----REVERSED RAS - GAINS : 294 LOSSES : 78 NO CHANGE : 0

PLANNED CROSSING		RA COUNT = 121	NMAC COUNT = 21					
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT	0	0	5	9	0	0	
	250 FT	0	0	0	1	0	0	
	500 FT	0	4	0	0	0	0	
	750 FT	0	12	18	8	2	0	
	1000 FT	0	0	0	0	0	0	

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT		0	0	0	0	0	
	250 FT		0	0	0	0	0	
	500 FT		23	11	0	0	0	
	750 FT		5	0	23	0	0	
	1000 FT		0	0	0	0	0	

PLANNED NON-CROSSING		RA COUNT = 251	NMAC COUNT = 6					
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT	0	0	1	0	0	0	
	250 FT	0	6	21	33	22	1	
	500 FT	0	6	47	20	5	1	
	750 FT	0	12	16	38	6	0	
	1000 FT	0	0	0	0	0	0	

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT		0	0	0	0	0	
	250 FT		6	0	0	0	0	
	500 FT		0	8	0	0	0	
	750 FT		1	1	0	0	0	
	1000 FT		0	0	0	0	0	

SEP. DIFF. = ABS(ACH. SEP.) - ABS(PLANNED SEP.) DATASET 7 CLASSES 6,16 VERSION 7.1 ONLY
 PLANNED CROSSING 38208 PLANNED NON-CROSSING 10176 JULY 2007 data BOTH PILOTS RESP
 -----NON REVERSED RAs -- GAINS : 37128 LOSSES : 579 NO CHANGE : 6038

PLANNED CROSSING		RA COUNT = 35612	NMAC COUNT = 28				
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT		0	67	668	2019	1701	2201
250 FT		0	946	3420	2725	1748	2888
500 FT		1342	3351	2179	1295	937	1586
750 FT		2584	1223	784	407	251	808
1000 FT		0	0	0	0	0	0

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT			0	0	0	0	0
250 FT			28	0	0	0	0
500 FT			28	56	0	0	0
750 FT			370	0	0	0	0
1000 FT			0	0	0	0	0

PLANNED NON-CROSSING		RA COUNT = 8133	NMAC COUNT = 0				
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT		0	0	0	0	0	0
250 FT		0	12	588	692	299	128
500 FT		744	653	409	363	268	122
750 FT		1368	641	445	374	584	346
1000 FT		0	0	0	0	0	0

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT			0	0	0	0	0
250 FT			0	0	0	0	0
500 FT			0	0	0	0	0
750 FT			97	0	0	0	0
1000 FT			0	0	0	0	0

-----REVERSED RAs - GAINS : 756 LOSSES : 46 NO CHANGE : 0

PLANNED CROSSING		RA COUNT = 303	NMAC COUNT = 12				
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT		0	18	21	139	44	3
250 FT		0	10	21	16	5	0
500 FT		0	4	3	7	0	0
750 FT		0	0	0	0	0	0
1000 FT		0	0	0	0	0	0

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT			0	0	0	0	0
250 FT			0	0	0	0	0
500 FT			4	2	0	0	0
750 FT			0	2	4	0	0
1000 FT			0	0	0	0	0

PLANNED NON-CROSSING		RA COUNT = 499	NMAC COUNT = 3				
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT		0	0	0	0	0	0
250 FT		0	8	73	104	3	0
500 FT		0	143	77	8	0	0
750 FT		0	35	8	6	0	0
1000 FT		0	0	0	0	0	0

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000
0 FT			0	0	0	0	0
250 FT			3	0	0	0	0
500 FT			12	0	0	0	0
750 FT			13	6	0	0	0
1000 FT			0	0	0	0	0

SEP. DIFF. = ABS(ACH. SEP.) - ABS(PLANNED SEP.) DATASET 7 CLASSES 7,17 VERSION 7.1 ONLY
 PLANNED CROSSING 49880 PLANNED NON-CROSSING 22696 JULY 2007 data BOTH PILOTS RESP
 -----NON REVERSED RAS -- GAINS : 53552 LOSSES : 4808 NO CHANGE : 7194

PLANNED CROSSING		RA COUNT = 49080	NMAC COUNT = 106					
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT	0	66	1551	4079	2602	1365	
	250 FT	0	3663	6750	4444	1163	812	
	500 FT	266	6696	3498	1056	236	148	
	750 FT	3322	1755	550	230	76	20	
	1000 FT	0	0	0	0	0	0	

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT		0	0	0	0	0	
	250 FT		262	0	0	0	0	
	500 FT		1021	244	0	0	0	
	750 FT		2276	715	214	0	0	
	1000 FT		0	0	0	0	0	

PLANNED NON-CROSSING		RA COUNT = 16474	NMAC COUNT = 9					
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT	0	0	70	359	53	190	
	250 FT	0	33	842	1110	538	918	
	500 FT	1268	1609	1888	867	650	604	
	750 FT	2338	656	1047	826	254	278	
	1000 FT	0	0	0	0	0	0	

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT		0	0	0	0	0	
	250 FT		7	0	0	0	0	
	500 FT		18	10	0	0	0	
	750 FT		28	12	1	0	0	
	1000 FT		0	0	0	0	0	

-----REVERSED RAS - GAINS : 155 LOSSES : 248 NO CHANGE : 0

PLANNED CROSSING		RA COUNT = 348	NMAC COUNT = 82					
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT	0	0	0	0	0	0	
	250 FT	0	0	9	0	0	9	
	500 FT	0	17	3	2	0	13	
	750 FT	0	35	4	18	6	3	
	1000 FT	0	0	0	0	0	0	

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT		0	0	0	0	0	
	250 FT		2	0	0	0	0	
	500 FT		6	50	0	0	0	
	750 FT		33	35	103	0	0	
	1000 FT		0	0	0	0	0	

PLANNED NON-CROSSING		RA COUNT = 55	NMAC COUNT = 19					
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT	0	0	0	0	0	0	
	250 FT	0	0	6	14	0	4	
	500 FT	0	0	4	0	0	0	
	750 FT	0	5	3	0	0	0	
	1000 FT	0	0	0	0	0	0	

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT		0	0	0	0	0	
	250 FT		0	0	0	0	0	
	500 FT		0	19	0	0	0	
	750 FT		0	0	0	0	0	
	1000 FT		0	0	0	0	0	

SEP. DIFF. = ABS(ACH. SEP.) - ABS(PLANNED SEP.) DATASET 7 CLASSES 8,18 VERSION 7.1 ONLY
 PLANNED CROSSING 55984 PLANNED NON-CROSSING 16592 JULY 2007 data BOTH PILOTS RESP
 -----NON REVERSED RAS -- GAINS : 52655 LOSSES : 2635 NO CHANGE : 8932

PLANNED CROSSING		RA COUNT = 51502	NMAC COUNT = 211					
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT	0	221	1424	4282	2006	2044	
	250 FT	0	3394	7321	3145	1829	1811	
	500 FT	1984	6073	2871	1689	1019	582	
	750 FT	3930	1574	901	538	267	172	
	1000 FT	0	0	0	0	0	0	

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT		0	0	0	0	0	
	250 FT		197	0	0	0	0	
	500 FT		483	377	0	0	0	
	750 FT		929	341	98	0	0	
	1000 FT		0	0	0	0	0	

PLANNED NON-CROSSING		RA COUNT = 12720	NMAC COUNT = 0					
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT	0	0	0	0	0	0	
	250 FT	0	138	1072	734	288	494	
	500 FT	1408	952	906	614	372	348	
	750 FT	1610	899	937	900	430	408	
	1000 FT	0	0	0	0	0	0	

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT		0	0	0	0	0	
	250 FT		0	0	0	0	0	
	500 FT		19	8	0	0	0	
	750 FT		138	45	0	0	0	
	1000 FT		0	0	0	0	0	

-----REVERSED RAS - GAINS : 1638 LOSSES : 660 NO CHANGE : 0

PLANNED CROSSING		RA COUNT = 1036	NMAC COUNT = 102					
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT	0	5	62	241	50	0	
	250 FT	0	26	36	12	2	0	
	500 FT	0	29	6	0	0	0	
	750 FT	0	56	0	0	0	0	
	1000 FT	0	0	0	0	0	0	

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT		0	0	0	0	0	
	250 FT		26	0	0	0	0	
	500 FT		6	63	0	0	0	
	750 FT		181	157	78	0	0	
	1000 FT		0	0	0	0	0	

PLANNED NON-CROSSING		RA COUNT = 1262	NMAC COUNT = 16					
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT	0	0	0	0	0	0	
	250 FT	0	3	93	31	0	0	
	500 FT	0	474	120	21	8	0	
	750 FT	0	228	81	41	11	2	
	1000 FT	0	0	0	0	0	0	

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT		0	0	0	0	0	
	250 FT		0	0	0	0	0	
	500 FT		50	8	0	0	0	
	750 FT		63	7	21	0	0	
	1000 FT		0	0	0	0	0	

SEP. DIFF. = ABS(ACH. SEP.) - ABS(PLANNED SEP.) DATASET 7 CLASSES 9,19 VERSION 7.1 ONLY
 PLANNED CROSSING 30312 PLANNED NON-CROSSING 31896 JULY 2007 data BOTH PILOTS RESP
 -----NON REVERSED RAS -- GAINS : 37202 LOSSES : 652 NO CHANGE : 4355

PLANNED CROSSING		RA COUNT = 20541	NMAC COUNT = 4					
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT	0	62	535	1565	1353	1106	
	250 FT	0	870	3614	1950	745	683	
	500 FT	2930	1982	819	206	34	48	
	750 FT	253	702	105	28	0	16	
	1000 FT	198	210	15	0	0	0	

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT		0	0	0	0	0	
	250 FT		6	0	0	0	0	
	500 FT		4	0	0	0	0	
	750 FT		182	0	0	0	0	
	1000 FT		287	33	0	0	0	

PLANNED NON-CROSSING		RA COUNT = 21668	NMAC COUNT = 2					
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT	0	0	274	1463	485	56	
	250 FT	2	303	2552	1702	421	120	
	500 FT	510	2089	1943	1193	572	518	
	750 FT	442	700	1489	579	375	632	
	1000 FT	20	703	1137	354	302	592	

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT		0	0	0	0	0	
	250 FT		4	0	0	0	0	
	500 FT		25	4	0	0	0	
	750 FT		31	0	0	0	0	
	1000 FT		68	4	4	0	0	

-----REVERSED RAS - GAINS : 1707 LOSSES : 277 NO CHANGE : 0

PLANNED CROSSING		RA COUNT = 226	NMAC COUNT = 16					
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT	0	0	2	3	4	2	
	250 FT	0	26	32	20	3	0	
	500 FT	0	9	14	8	6	0	
	750 FT	0	10	6	0	0	0	
	1000 FT	0	4	0	0	0	0	

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT		0	0	0	0	0	
	250 FT		12	0	0	0	0	
	500 FT		7	6	0	0	0	
	750 FT		4	5	4	0	0	
	1000 FT		5	7	21	6	0	

PLANNED NON-CROSSING		RA COUNT = 1758	NMAC COUNT = 33					
GAINS (FT)	PLAN SEP	NO GAIN	>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT	0	2	0	0	0	0	
	250 FT	0	76	519	127	3	0	
	500 FT	0	363	223	13	4	0	
	750 FT	0	91	131	0	0	0	
	1000 FT	0	4	2	0	0	0	

LOSSES (FT)	PLAN SEP		>0..250	>250..500	>500..750	>750..1000	> 1000	
	0 FT		0	0	0	0	0	
	250 FT		25	0	0	0	0	
	500 FT		89	53	0	0	0	
	750 FT		13	7	0	0	0	
	1000 FT		9	0	2	2	0	

Appendix I NMAC TABLES (Both Pilots Responding)

MITRE encounter class: 0 "planned = CROSSING" Date processed: 8/16/ 7
 Based on FAA Technical Center data of July 2007
 Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
 Failure : CPA <= 100.0 ft based on simulation truth

Table 0.1

Number of unresolved Failures with neither aircraft having an RA
 (based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
 Normalizing number for cells in first row and column
 (number of planned encounters that resulted in an
 NMAC, based on simulation truth): 8
 Normalizing number for TCAS-TCAS cells: 16

		A i r c r a f t 2				
			V7.1-100 R	V7.1-25 R		---
A		---	0	0	0	---
i		0	0	0	0	---
r						
c	V7.1-100 R	0	0	0	0	---
r	V7.1-25 R	0	0	0	0	---
a						
f						
t						
1	---	---	---	---	---	---

Table 0.2

Number of unresolved Failures with at least one aircraft having an RA
 (based on simulation truth).

Normalizing Number = number of planned encounters resulting in failure
 Normalizing number for cells in first row and column
 (number of planned encounters that resulted in an
 NMAC, based on simulation truth): 8
 Normalizing number for TCAS-TCAS cells: 16

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A	Non-TCAS	---	0	0	0	---
i						
r	V6.04A R	0	0	0	0	---
c	V7.1-100 R	0	0	0	0	---
r	V7.1-25 R	0	0	0	0	---
a						
f						
t						
1	---	---	---	---	---	---

MITRE encounter class: 0 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 0.3

Total number of unresolved Failures
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 8
Normalizing number for TCAS-TCAS cells: 16

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	0	0	0	---	
	V6.04A R	0	0	0	0	---	
	V7.1-100 R	0	0	0	0	---	
	V7.1-25 R	0	0	0	0	---	
1	---	---	---	---	---	---	

Table 0.4

Number of induced Failures
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 12
Normalizing number for TCAS-TCAS cells: 24

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	0	0	0	---	
	V6.04A R	0	0	0	0	---	
	V7.1-100 R	0	0	0	0	---	
	V7.1-25 R	0	0	0	0	---	
1	---	---	---	---	---	---	

MITRE encounter class: 0 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 0.5

Number of nonNMAC RAs with Reduced Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 12
Normalizing number for TCAS-TCAS cells: 24

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	0	0	0	---
	V6.04A R	0	0	0	0	---
	V7.1-100 R	0	0	0	0	---
	V7.1-25 R	0	0	0	0	---
1	---	---	---	---	---	---

Table 0.6

Number of nonNMAC RAs with Increased Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 12
Normalizing number for TCAS-TCAS cells: 24

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	10	10	10	---
	V6.04A R	10	20	20	20	---
	V7.1-100 R	10	20	20	20	---
	V7.1-25 R	10	20	20	20	---
1	---	---	---	---	---	---

MITRE encounter class: 0 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 0.7

Number of encounters without an RA
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 12
Normalizing number for TCAS-TCAS cells: 24

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	2	2	2	---
	V6.04A R	2	4	4	4	---
	V7.1-100 R	2	4	4	4	---
	V7.1-25 R	2	4	4	4	---
1	---	---	---	---	---	---

Table 0.8

Number of RAs Resolving NMACs
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 12
Normalizing number for TCAS-TCAS cells: 24

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	8	8	8	---
	V6.04A R	8	16	16	16	---
	V7.1-100 R	8	16	16	16	---
	V7.1-25 R	8	16	16	16	---
1	---	---	---	---	---	---

MITRE encounter class: 10 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 10.1

Number of unresolved Failures with neither aircraft having an RA
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 4
Normalizing number for TCAS-TCAS cells: 8

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	0	0	0	---
	V6.04A R	0	0	0	0	---
	V7.1-100 R	0	0	0	0	---
	V7.1-25 R	0	0	0	0	---
1	---	---	---	---	---	---

Table 10.2

Number of unresolved Failures with at least one aircraft having an RA
(based on simulation truth).

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 4
Normalizing number for TCAS-TCAS cells: 8

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	0	0	0	---
	V6.04A R	0	0	0	0	---
	V7.1-100 R	0	0	0	0	---
	V7.1-25 R	0	0	0	0	---
1	---	---	---	---	---	---

MITRE encounter class: 10 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 10.3

Total number of unresolved Failures
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 4
Normalizing number for TCAS-TCAS cells: 8

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	0	0	0	---	
	V6.04A R	0	0	0	0	---	
	V7.1-100 R	0	0	0	0	---	
	V7.1-25 R	0	0	0	0	---	
1	---	---	---	---	---	---	

Table 10.4

Number of induced Failures
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 60
Normalizing number for TCAS-TCAS cells: 120

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	0	0	0	---	
	V6.04A R	0	0	0	0	---	
	V7.1-100 R	0	0	0	0	---	
	V7.1-25 R	0	0	0	0	---	
1	---	---	---	---	---	---	

MITRE encounter class: 10 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 10.5

Number of nonNMAC RAs with Reduced Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 60
Normalizing number for TCAS-TCAS cells: 120

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	0	0	0	---
	V6.04A R	0	0	0	0	---
	V7.1-100 R	0	0	0	0	---
	V7.1-25 R	0	0	0	0	---
1	---	---	---	---	---	---

Table 10.6

Number of nonNMAC RAs with Increased Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 60
Normalizing number for TCAS-TCAS cells: 120

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	38	38	38	---
	V6.04A R	38	76	76	76	---
	V7.1-100 R	38	76	76	76	---
	V7.1-25 R	38	76	76	76	---
1	---	---	---	---	---	---

MITRE encounter class: 10 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 10.7

Number of encounters without an RA
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 60
Normalizing number for TCAS-TCAS cells: 120

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	22	22	22	---	
	V6.04A R	22	44	44	44	---	
	V7.1-100 R	22	44	44	44	---	
	V7.1-25 R	22	44	44	44	---	
1	---	---	---	---	---	---	

Table 10.8

Number of RAs Resolving NMACs
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 60
Normalizing number for TCAS-TCAS cells: 120

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	4	4	4	---	
	V6.04A R	4	8	8	8	---	
	V7.1-100 R	4	8	8	8	---	
	V7.1-25 R	4	8	8	8	---	
1	---	---	---	---	---	---	

MITRE encounter class: 10 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Classes: 0, 10 SUMMARY				
	TOTAL	CROSSING	NON CROSSING	
# ENCOUNTERS	2184	520	1664	
PLANNED	168	40	128	
NMAC's	288	192	96	
NMAC's resolved	288	192	96	
NMAC's undetected	0	0	0	
NMAC's unresolved	0	0	0	
NON NMAC's	1728	288	1440	
NON NMAC's NO RA	576	48	528	
NON NMAC's induced	0	0	0	
NON NMAC nuisance	0	0	0	

Altitude Separation at CPA for Classes: 0, 10								
Version 7.1 Logic								
	<= 100	<= 200	<= 300	<= 400	<= 500	<= 600	> 600	
PLANNED	336	0	168	504	672	0	672	
NMAC's resolved	0	0	0	15	51	157	65	
NMAC's undetected	0	0	0	0	0	0	0	
NMAC's unresolved	0	0	0	0	0	0	0	
NON NMAC's NO RA	0	0	0	0	0	0	576	
NON NMAC's induced	0	0	0	0	0	0	0	
NON NMAC nuisance	0	0	0	0	0	0	0	

MITRE encounter class: 1 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 1.1

Number of unresolved Failures with neither aircraft having an RA
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 36
Normalizing number for TCAS-TCAS cells: 72

		A i r c r a f t 2				
			V7.1-100 R	V7.1-25 R		---
A i r c r a f t 1		---	0	0	0	---
		0	0	0	0	---
	V7.1-100 R	0	0	0	0	---
	V7.1-25 R	0	0	0	0	---
	---	---	---	---	---	---

Table 1.2

Number of unresolved Failures with at least one aircraft having an RA
(based on simulation truth).

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 36
Normalizing number for TCAS-TCAS cells: 72

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t 1	Non-TCAS	---	0	0	0	---
	V6.04A R	0	0	0	0	---
	V7.1-100 R	0	0	0	0	---
	V7.1-25 R	0	0	0	0	---
	---	---	---	---	---	---

MITRE encounter class: 1 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 1.3

Total number of unresolved Failures
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 36
Normalizing number for TCAS-TCAS cells: 72

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	0	0	0	---
	V6.04A R	0	0	0	0	---
	V7.1-100 R	0	0	0	0	---
	V7.1-25 R	0	0	0	0	---
1	---	---	---	---	---	---

Table 1.4

Number of induced Failures
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 160
Normalizing number for TCAS-TCAS cells: 320

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	0	0	0	---
	V6.04A R	0	0	0	0	---
	V7.1-100 R	0	0	0	0	---
	V7.1-25 R	0	0	0	0	---
1	---	---	---	---	---	---

MITRE encounter class: 1 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 1.5

Number of nonNMAC RAs with Reduced Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 160
Normalizing number for TCAS-TCAS cells: 320

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	22	15	15	---
	V6.04A R	0	8	0	0	---
	V7.1-100 R	0	2	0	0	---
	V7.1-25 R	0	5	0	0	---
1	---	---	---	---	---	---

Table 1.6

Number of nonNMAC RAs with Increased Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 160
Normalizing number for TCAS-TCAS cells: 320

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	127	134	134	---
	V6.04A R	149	290	298	300	---
	V7.1-100 R	149	296	298	300	---
	V7.1-25 R	149	293	298	300	---
1	---	---	---	---	---	---

MITRE encounter class: 1 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 1.7

Number of encounters without an RA
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 160
Normalizing number for TCAS-TCAS cells: 320

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	11	11	11	---	
	V6.04A R	11	22	22	20	---	
	V7.1-100 R	11	22	22	20	---	
	V7.1-25 R	11	22	22	20	---	
1	---	---	---	---	---	---	

Table 1.8

Number of RAs Resolving NMACs
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 160
Normalizing number for TCAS-TCAS cells: 320

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	36	36	36	---	
	V6.04A R	36	72	72	72	---	
	V7.1-100 R	36	72	72	72	---	
	V7.1-25 R	36	72	72	72	---	
1	---	---	---	---	---	---	

MITRE encounter class: 11 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 11.1

Number of unresolved Failures with neither aircraft having an RA
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 0
Normalizing number for TCAS-TCAS cells: 0

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	0	0	0	---
	V6.04A R	0	0	0	0	---
	V7.1-100 R	0	0	0	0	---
	V7.1-25 R	0	0	0	0	---
1	---	---	---	---	---	---

Table 11.2

Number of unresolved Failures with at least one aircraft having an RA
(based on simulation truth).

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 0
Normalizing number for TCAS-TCAS cells: 0

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	0	0	0	---
	V6.04A R	0	0	0	0	---
	V7.1-100 R	0	0	0	0	---
	V7.1-25 R	0	0	0	0	---
1	---	---	---	---	---	---

MITRE encounter class: 11 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 11.3

Total number of unresolved Failures
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 0
Normalizing number for TCAS-TCAS cells: 0

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	0	0	0	---	
	V6.04A R	0	0	0	0	---	
	V7.1-100 R	0	0	0	0	---	
	V7.1-25 R	0	0	0	0	---	
1	---	---	---	---	---	---	

Table 11.4

Number of induced Failures
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 56
Normalizing number for TCAS-TCAS cells: 112

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	0	0	0	---	
	V6.04A R	0	0	0	0	---	
	V7.1-100 R	0	0	0	0	---	
	V7.1-25 R	0	0	0	0	---	
1	---	---	---	---	---	---	

MITRE encounter class: 11 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 11.5

Number of nonNMAC RAs with Reduced Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 56
Normalizing number for TCAS-TCAS cells: 112

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	0	0	0	---	
	V6.04A R	0	0	0	0	---	
	V7.1-100 R	0	0	0	0	---	
	V7.1-25 R	0	0	0	0	---	
1	---	---	---	---	---	---	

Table 11.6

Number of nonNMAC RAs with Increased Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 56
Normalizing number for TCAS-TCAS cells: 112

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	34	40	40	---	
	V6.04A R	34	68	80	80	---	
	V7.1-100 R	40	80	80	80	---	
	V7.1-25 R	40	80	80	80	---	
1	---	---	---	---	---	---	

MITRE encounter class: 11 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 11.7

Number of encounters without an RA
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 56
Normalizing number for TCAS-TCAS cells: 112

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	22	16	16	---	
	V6.04A R	22	44	32	32	---	
	V7.1-100 R	16	32	32	32	---	
	V7.1-25 R	16	32	32	32	---	
1	---	---	---	---	---	---	

Table 11.8

Number of RAs Resolving NMACs
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 56
Normalizing number for TCAS-TCAS cells: 112

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	0	0	0	---	
	V6.04A R	0	0	0	0	---	
	V7.1-100 R	0	0	0	0	---	
	V7.1-25 R	0	0	0	0	---	
1	---	---	---	---	---	---	

MITRE encounter class: 11 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Classes: 1, 11 SUMMARY				
	TOTAL	CROSSING	NON CROSSING	
# ENCOUNTERS	6552	5096	1456	
PLANNED	504	392	112	
NMAC's	864	864	0	
NMAC's resolved	864	864	0	
NMAC's undetected	0	0	0	
NMAC's unresolved	0	0	0	
NON NMAC's	5184	3840	1344	
NON NMAC's NO RA	666	258	408	
NON NMAC's induced	0	0	0	
NON NMAC nuisance	67	67	0	

Altitude Separation at CPA for Classes: 1, 11								
Version 7.1 Logic								
	<= 100	<= 200	<= 300	<= 400	<= 500	<= 600	> 600	
PLANNED	1008	0	672	1344	2016	0	2016	
NMAC's resolved	0	0	24	63	50	73	654	
NMAC's undetected	0	0	0	0	0	0	0	
NMAC's unresolved	0	0	0	0	0	0	0	
NON NMAC's NO RA	0	0	0	0	0	0	666	
NON NMAC's induced	0	0	0	0	0	0	0	
NON NMAC nuisance	0	0	3	19	21	12	12	

MITRE encounter class: 2 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 2.1

Number of unresolved Failures with neither aircraft having an RA
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 432
Normalizing number for TCAS-TCAS cells: 864

		A i r c r a f t 2				
			V7.1-100 R	V7.1-25 R		---
A i r c r a f t 1		---	0	0	0	---
		0	0	0	0	---
	V7.1-100 R	0	0	0	0	---
	V7.1-25 R	0	0	0	0	---
	---	---	---	---	---	---

Table 2.2

Number of unresolved Failures with at least one aircraft having an RA
(based on simulation truth).

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 432
Normalizing number for TCAS-TCAS cells: 864

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t 1	Non-TCAS	---	0	0	1	---
	V6.04A R	14	5	0	0	---
	V7.1-100 R	27	6	0	0	---
	V7.1-25 R	15	0	0	0	---
	---	---	---	---	---	---

MITRE encounter class: 2 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 2.3

Total number of unresolved Failures
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 432
Normalizing number for TCAS-TCAS cells: 864

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	0	0	1	---
	V6.04A R	14	5	0	0	---
	V7.1-100 R	27	6	0	0	---
	V7.1-25 R	15	0	0	0	---
1	---	---	---	---	---	---

Table 2.4

Number of induced Failures
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 1552
Normalizing number for TCAS-TCAS cells: 3104

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	63	18	22	---
	V6.04A R	179	53	18	16	---
	V7.1-100 R	131	32	13	14	---
	V7.1-25 R	72	26	14	14	---
1	---	---	---	---	---	---

MITRE encounter class: 2 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 2.5

Number of nonNMAC RAs with Reduced Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 1552
Normalizing number for TCAS-TCAS cells: 3104

		A i r c r a f t 2				---
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	
A i r c r a f t	Non-TCAS	---	360	382	377	---
	V6.04A R	254	450	305	317	---
	V7.1-100 R	305	455	310	301	---
	V7.1-25 R	257	425	288	288	---
1	---	---	---	---	---	---

Table 2.6

Number of nonNMAC RAs with Increased Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 1552
Normalizing number for TCAS-TCAS cells: 3104

		A i r c r a f t 2				---
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	
A i r c r a f t	Non-TCAS	---	1105	1128	1130	---
	V6.04A R	1109	2591	2771	2763	---
	V7.1-100 R	1108	2607	2771	2781	---
	V7.1-25 R	1205	2623	2772	2776	---
1	---	---	---	---	---	---

MITRE encounter class: 2 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 2.7

Number of encounters without an RA
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 1552
Normalizing number for TCAS-TCAS cells: 3104

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	24	24	23	---	
	V6.04A R	10	10	10	8	---	
	V7.1-100 R	8	10	10	8	---	
	V7.1-25 R	18	30	30	26	---	
1	---	---	---	---	---	---	

Table 2.8

Number of RAs Resolving NMACs
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 1552
Normalizing number for TCAS-TCAS cells: 3104

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	432	432	431	---	
	V6.04A R	418	859	864	864	---	
	V7.1-100 R	405	858	864	864	---	
	V7.1-25 R	417	864	864	864	---	
1	---	---	---	---	---	---	

MITRE encounter class: 12 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 12.1

Number of unresolved Failures with neither aircraft having an RA
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 0
Normalizing number for TCAS-TCAS cells: 0

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	0	0	0	---	
	V6.04A R	0	0	0	0	---	
	V7.1-100 R	0	0	0	0	---	
	V7.1-25 R	0	0	0	0	---	
1	---	---	---	---	---	---	

Table 12.2

Number of unresolved Failures with at least one aircraft having an RA
(based on simulation truth).

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 0
Normalizing number for TCAS-TCAS cells: 0

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	0	0	0	---	
	V6.04A R	0	0	0	0	---	
	V7.1-100 R	0	0	0	0	---	
	V7.1-25 R	0	0	0	0	---	
1	---	---	---	---	---	---	

MITRE encounter class: 12 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 12.3

Total number of unresolved Failures
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 0
Normalizing number for TCAS-TCAS cells: 0

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	0	0	0	---	
	V6.04A R	0	0	0	0	---	
	V7.1-100 R	0	0	0	0	---	
	V7.1-25 R	0	0	0	0	---	
1	---	---	---	---	---	---	

Table 12.4

Number of induced Failures
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 1040
Normalizing number for TCAS-TCAS cells: 2080

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	0	0	0	---	
	V6.04A R	4	0	0	0	---	
	V7.1-100 R	4	0	0	0	---	
	V7.1-25 R	0	0	0	0	---	
1	---	---	---	---	---	---	

MITRE encounter class: 12 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 12.5

Number of nonNMAC RAs with Reduced Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 1040
Normalizing number for TCAS-TCAS cells: 2080

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	6	6	4	---
	V6.04A R	10	10	10	10	---
	V7.1-100 R	9	8	8	8	---
	V7.1-25 R	3	2	2	2	---
1	---	---	---	---	---	---

Table 12.6

Number of nonNMAC RAs with Increased Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 1040
Normalizing number for TCAS-TCAS cells: 2080

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	736	826	828	---
	V6.04A R	768	1562	1726	1726	---
	V7.1-100 R	811	1640	1736	1728	---
	V7.1-25 R	847	1698	1706	1698	---
1	---	---	---	---	---	---

MITRE encounter class: 12 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 12.7

Number of encounters without an RA
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 1040
Normalizing number for TCAS-TCAS cells: 2080

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	298	208	208	---	
	V6.04A R	258	508	344	344	---	
	V7.1-100 R	216	432	336	344	---	
	V7.1-25 R	190	380	372	380	---	
1	---	---	---	---	---	---	

Table 12.8

Number of RAs Resolving NMACs
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 1040
Normalizing number for TCAS-TCAS cells: 2080

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	0	0	0	---	
	V6.04A R	0	0	0	0	---	
	V7.1-100 R	0	0	0	0	---	
	V7.1-25 R	0	0	0	0	---	
1	---	---	---	---	---	---	

MITRE encounter class: 12 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Classes: 2, 12 SUMMARY			
	TOTAL	CROSSING	NON CROSSING
# ENCOUNTERS	78624	51584	27040
PLANNED	6048	3968	2080
NMAC's	10368	10368	0
NMAC's resolved	10300	10300	0
NMAC's undetected	0	0	0
NMAC's unresolved	68	68	0
NON NMAC's	62208	37248	24960
NON NMAC's NO RA	5067	249	4818
NON NMAC's induced	693	685	8
NON NMAC nuisance	5172	5074	98

Altitude Separation at CPA for Classes: 2, 12							
Version 7.1 Logic							
	<= 100	<= 200	<= 300	<= 400	<= 500	<= 600	> 600
PLANNED	12096	0	9184	15008	24192	0	24192
NMAC's resolved	0	348	818	997	1331	1670	5136
NMAC's undetected	0	0	0	0	0	0	0
NMAC's unresolved	68	0	0	0	0	0	0
NON NMAC's NO RA	0	0	0	0	0	0	5067
NON NMAC's induced	693	0	0	0	0	0	0
NON NMAC nuisance	0	801	622	593	1018	831	1307

MITRE encounter class: 3 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 3.1

Number of unresolved Failures with neither aircraft having an RA
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 368
Normalizing number for TCAS-TCAS cells: 736

		A i r c r a f t 2				
			V7.1-100 R	V7.1-25 R		---
A i r c r a f t 1		---	0	0	0	---
		0	0	0	0	---
	V7.1-100 R	0	0	0	0	---
	V7.1-25 R	0	0	0	0	---
	---	---	---	---	---	---

Table 3.2

Number of unresolved Failures with at least one aircraft having an RA
(based on simulation truth).

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 368
Normalizing number for TCAS-TCAS cells: 736

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t 1	Non-TCAS	---	0	0	0	---
	V6.04A R	33	0	0	0	---
	V7.1-100 R	26	0	0	0	---
	V7.1-25 R	3	0	0	0	---
	---	---	---	---	---	---

MITRE encounter class: 3 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 3.3

Total number of unresolved Failures
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 368
Normalizing number for TCAS-TCAS cells: 736

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	0	0	0	---	
	V6.04A R	33	0	0	0	---	
	V7.1-100 R	26	0	0	0	---	
	V7.1-25 R	3	0	0	0	---	
1	---	---	---	---	---	---	

Table 3.4

Number of induced Failures
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 1480
Normalizing number for TCAS-TCAS cells: 2960

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	0	0	0	---	
	V6.04A R	0	0	0	0	---	
	V7.1-100 R	0	0	0	0	---	
	V7.1-25 R	0	0	0	0	---	
1	---	---	---	---	---	---	

MITRE encounter class: 3 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 3.5

Number of nonNMAC RAs with Reduced Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 1480
Normalizing number for TCAS-TCAS cells: 2960

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	9	14	14	---
	V6.04A R	0	2	0	2	---
	V7.1-100 R	0	1	0	2	---
	V7.1-25 R	0	0	0	2	---
1	---	---	---	---	---	---

Table 3.6

Number of nonNMAC RAs with Increased Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 1480
Normalizing number for TCAS-TCAS cells: 2960

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	839	834	834	---
	V6.04A R	846	1694	1696	1696	---
	V7.1-100 R	840	1695	1696	1694	---
	V7.1-25 R	847	1698	1698	1694	---
1	---	---	---	---	---	---

MITRE encounter class: 3 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 3.7

Number of encounters without an RA
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 1480
Normalizing number for TCAS-TCAS cells: 2960

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	632	632	632	---
	V6.04A R	634	1264	1264	1262	---
	V7.1-100 R	640	1264	1264	1264	---
	V7.1-25 R	633	1262	1262	1264	---
1	---	---	---	---	---	---

Table 3.8

Number of RAs Resolving NMACs
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 1480
Normalizing number for TCAS-TCAS cells: 2960

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	368	368	368	---
	V6.04A R	335	736	736	736	---
	V7.1-100 R	342	736	736	736	---
	V7.1-25 R	365	736	736	736	---
1	---	---	---	---	---	---

MITRE encounter class: 13 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 13.1

Number of unresolved Failures with neither aircraft having an RA
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 64
Normalizing number for TCAS-TCAS cells: 128

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	0	0	0	---
	V6.04A R	0	0	0	0	---
	V7.1-100 R	0	0	0	0	---
	V7.1-25 R	0	0	0	0	---
1	---	---	---	---	---	---

Table 13.2

Number of unresolved Failures with at least one aircraft having an RA
(based on simulation truth).

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 64
Normalizing number for TCAS-TCAS cells: 128

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	0	0	0	---
	V6.04A R	1	0	0	0	---
	V7.1-100 R	0	0	0	0	---
	V7.1-25 R	0	0	0	0	---
1	---	---	---	---	---	---

MITRE encounter class: 13 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 13.3

Total number of unresolved Failures
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 64
Normalizing number for TCAS-TCAS cells: 128

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	0	0	0	---	
	V6.04A R	1	0	0	0	---	
	V7.1-100 R	0	0	0	0	---	
	V7.1-25 R	0	0	0	0	---	
1	---	---	---	---	---	---	

Table 13.4

Number of induced Failures
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 1976
Normalizing number for TCAS-TCAS cells: 3952

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	19	2	2	---	
	V6.04A R	11	4	0	0	---	
	V7.1-100 R	13	2	1	0	---	
	V7.1-25 R	7	2	1	0	---	
1	---	---	---	---	---	---	

MITRE encounter class: 13 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 13.5

Number of nonNMAC RAs with Reduced Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 1976
Normalizing number for TCAS-TCAS cells: 3952

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	59	23	25	---
	V6.04A R	28	34	13	18	---
	V7.1-100 R	28	12	14	16	---
	V7.1-25 R	14	7	4	7	---
1	---	---	---	---	---	---

Table 13.6

Number of nonNMAC RAs with Increased Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 1976
Normalizing number for TCAS-TCAS cells: 3952

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	1128	1189	1190	---
	V6.04A R	1046	2474	2499	2496	---
	V7.1-100 R	1031	2504	2503	2504	---
	V7.1-25 R	1014	2453	2457	2455	---
1	---	---	---	---	---	---

MITRE encounter class: 13 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 13.7

Number of encounters without an RA
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 1976
Normalizing number for TCAS-TCAS cells: 3952

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	770	762	759	---
	V6.04A R	891	1440	1440	1438	---
	V7.1-100 R	904	1434	1434	1432	---
	V7.1-25 R	941	1490	1490	1490	---
1	---	---	---	---	---	---

Table 13.8

Number of RAs Resolving NMACs
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 1976
Normalizing number for TCAS-TCAS cells: 3952

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	64	64	64	---
	V6.04A R	63	128	128	128	---
	V7.1-100 R	64	128	128	128	---
	V7.1-25 R	64	128	128	128	---
1	---	---	---	---	---	---

MITRE encounter class: 13 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Classes: 3, 13 SUMMARY			
	TOTAL	CROSSING	NON CROSSING
# ENCOUNTERS	101088	48048	53040
PLANNED	7776	3696	4080
NMAC's	10368	8832	1536
NMAC's resolved	10305	8770	1535
NMAC's undetected	0	0	0
NMAC's unresolved	63	62	1
NON NMAC's	82944	35520	47424
NON NMAC's NO RA	33288	15173	18115
NON NMAC's induced	64	0	64
NON NMAC nuisance	348	46	302

Altitude Separation at CPA for Classes: 3, 13							
Version 7.1 Logic							
	<= 100	<= 200	<= 300	<= 400	<= 500	<= 600	> 600
PLANNED	12096	0	10248	13944	24192	0	48384
NMAC's resolved	0	115	283	1026	1381	3550	3950
NMAC's undetected	0	0	0	0	0	0	0
NMAC's unresolved	63	0	0	0	0	0	0
NON NMAC's NO RA	0	0	0	0	0	0	33288
NON NMAC's induced	64	0	0	0	0	0	0
NON NMAC nuisance	0	109	80	24	90	0	45

MITRE encounter class: 4 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 4.1

Number of unresolved Failures with neither aircraft having an RA
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 60
Normalizing number for TCAS-TCAS cells: 120

		A i r c r a f t 2				
			V7.1-100 R	V7.1-25 R	---	
A i r c r a f t 1		---	0	0	0	---
		0	0	0	0	---
	V7.1-100 R	0	0	0	0	---
	V7.1-25 R	0	0	0	0	---
	---	---	---	---	---	---

Table 4.2

Number of unresolved Failures with at least one aircraft having an RA
(based on simulation truth).

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 60
Normalizing number for TCAS-TCAS cells: 120

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t 1	Non-TCAS	---	0	1	0	---
	V6.04A R	0	0	0	0	---
	V7.1-100 R	1	0	0	0	---
	V7.1-25 R	0	0	0	0	---
	---	---	---	---	---	---

MITRE encounter class: 4 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 4.3

Total number of unresolved Failures
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 60
Normalizing number for TCAS-TCAS cells: 120

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	0	1	0	---
	V6.04A R	0	0	0	0	---
	V7.1-100 R	1	0	0	0	---
	V7.1-25 R	0	0	0	0	---
1	---	---	---	---	---	---

Table 4.4

Number of induced Failures
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 304
Normalizing number for TCAS-TCAS cells: 608

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	0	0	0	---
	V6.04A R	0	0	0	0	---
	V7.1-100 R	0	0	0	0	---
	V7.1-25 R	0	0	0	0	---
1	---	---	---	---	---	---

MITRE encounter class: 4 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 4.5

Number of nonNMAC RAs with Reduced Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 304
Normalizing number for TCAS-TCAS cells: 608

		A i r c r a f t 2				---
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	
A i r c r a f t	Non-TCAS	---	25	22	24	---
	V6.04A R	28	14	4	5	---
	V7.1-100 R	20	5	1	1	---
	V7.1-25 R	23	5	1	1	---
1	---	---	---	---	---	---

Table 4.6

Number of nonNMAC RAs with Increased Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 304
Normalizing number for TCAS-TCAS cells: 608

		A i r c r a f t 2				---
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	
A i r c r a f t	Non-TCAS	---	269	272	270	---
	V6.04A R	266	574	584	583	---
	V7.1-100 R	274	583	587	587	---
	V7.1-25 R	271	583	587	587	---
1	---	---	---	---	---	---

MITRE encounter class: 4 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 4.7

Number of encounters without an RA
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 304
Normalizing number for TCAS-TCAS cells: 608

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	10	10	10	---	
	V6.04A R	10	20	20	20	---	
	V7.1-100 R	10	20	20	20	---	
	V7.1-25 R	10	20	20	20	---	
1	---	---	---	---	---	---	

Table 4.8

Number of RAs Resolving NMACs
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 304
Normalizing number for TCAS-TCAS cells: 608

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	60	59	60	---	
	V6.04A R	60	120	120	120	---	
	V7.1-100 R	59	120	120	120	---	
	V7.1-25 R	60	120	120	120	---	
1	---	---	---	---	---	---	

MITRE encounter class: 14 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 14.1

Number of unresolved Failures with neither aircraft having an RA
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 12
Normalizing number for TCAS-TCAS cells: 24

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	0	0	0	---	
	V6.04A R	0	0	0	0	---	
	V7.1-100 R	0	0	0	0	---	
	V7.1-25 R	0	0	0	0	---	
1	---	---	---	---	---	---	

Table 14.2

Number of unresolved Failures with at least one aircraft having an RA
(based on simulation truth).

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 12
Normalizing number for TCAS-TCAS cells: 24

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	0	0	0	---	
	V6.04A R	0	0	0	0	---	
	V7.1-100 R	0	0	0	0	---	
	V7.1-25 R	0	0	0	0	---	
1	---	---	---	---	---	---	

MITRE encounter class: 14 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 14.3

Total number of unresolved Failures
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 12
Normalizing number for TCAS-TCAS cells: 24

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	0	0	0	---	
	V6.04A R	0	0	0	0	---	
	V7.1-100 R	0	0	0	0	---	
	V7.1-25 R	0	0	0	0	---	
1	---	---	---	---	---	---	

Table 14.4

Number of induced Failures
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 128
Normalizing number for TCAS-TCAS cells: 256

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	0	0	0	---	
	V6.04A R	0	0	0	0	---	
	V7.1-100 R	0	0	0	0	---	
	V7.1-25 R	0	0	0	0	---	
1	---	---	---	---	---	---	

MITRE encounter class: 14 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 14.5

Number of nonNMAC RAs with Reduced Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 128
Normalizing number for TCAS-TCAS cells: 256

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	1	2	1	---
	V6.04A R	0	1	0	0	---
	V7.1-100 R	1	0	0	0	---
	V7.1-25 R	0	0	0	0	---
1	---	---	---	---	---	---

Table 14.6

Number of nonNMAC RAs with Increased Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 128
Normalizing number for TCAS-TCAS cells: 256

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	83	82	83	---
	V6.04A R	84	167	168	168	---
	V7.1-100 R	83	168	168	168	---
	V7.1-25 R	84	168	168	168	---
1	---	---	---	---	---	---

MITRE encounter class: 14 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 14.7

Number of encounters without an RA
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 128
Normalizing number for TCAS-TCAS cells: 256

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	44	44	44	---	
	V6.04A R	44	88	88	88	---	
	V7.1-100 R	44	88	88	88	---	
	V7.1-25 R	44	88	88	88	---	
1	---	---	---	---	---	---	

Table 14.8

Number of RAs Resolving NMACs
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 128
Normalizing number for TCAS-TCAS cells: 256

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	12	12	12	---	
	V6.04A R	12	24	24	24	---	
	V7.1-100 R	12	24	24	24	---	
	V7.1-25 R	12	24	24	24	---	
1	---	---	---	---	---	---	

MITRE encounter class: 14 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Classes: 4, 14 SUMMARY			
	TOTAL	CROSSING	NON CROSSING
# ENCOUNTERS	13104	9464	3640
PLANNED	1008	728	280
NMAC's	1728	1440	288
NMAC's resolved	1726	1438	288
NMAC's undetected	0	0	0
NMAC's unresolved	2	2	0
NON NMAC's	10368	7296	3072
NON NMAC's NO RA	1296	240	1056
NON NMAC's induced	0	0	0
NON NMAC nuisance	185	179	6

Altitude Separation at CPA for Classes: 4, 14							
Version 7.1 Logic							
	<= 100	<= 200	<= 300	<= 400	<= 500	<= 600	> 600
PLANNED	2016	0	1344	2688	4032	0	4032
NMAC's resolved	0	14	11	35	146	166	1354
NMAC's undetected	0	0	0	0	0	0	0
NMAC's unresolved	2	0	0	0	0	0	0
NON NMAC's NO RA	0	0	0	0	0	0	1296
NON NMAC's induced	0	0	0	0	0	0	0
NON NMAC nuisance	0	2	10	20	94	38	21

MITRE encounter class: 5 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 5.1

Number of unresolved Failures with neither aircraft having an RA
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 796
Normalizing number for TCAS-TCAS cells: 1592

		A i r c r a f t 2				
		Non-TCA	V6.04A	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCA	---	0	0	0	---
	V6.04A	0	0	0	0	---
	V7.1-100 R	0	0	0	0	---
	V7.1-25 R	0	0	0	0	---
1	---	---	---	---	---	---

Table 5.2

Number of unresolved Failures with at least one aircraft having an RA
(based on simulation truth).

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 796
Normalizing number for TCAS-TCAS cells: 1592

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	6	14	4	---
	V6.04A R	94	0	0	0	---
	V7.1-100 R	96	2	0	0	---
	V7.1-25 R	44	0	0	0	---
1	---	---	---	---	---	---

MITRE encounter class: 5 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 5.3

Total number of unresolved Failures
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 796
Normalizing number for TCAS-TCAS cells: 1592

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	6	14	4	---	
	V6.04A R	94	0	0	0	---	
	V7.1-100 R	96	2	0	0	---	
	V7.1-25 R	44	0	0	0	---	
1	---	---	---	---	---	---	

Table 5.4

Number of induced Failures
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 3948
Normalizing number for TCAS-TCAS cells: 7896

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	102	46	42	---	
	V6.04A R	171	29	5	4	---	
	V7.1-100 R	129	24	9	7	---	
	V7.1-25 R	58	15	4	3	---	
1	---	---	---	---	---	---	

MITRE encounter class: 5 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 5.5

Number of nonNMAC RAs with Reduced Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 3948
Normalizing number for TCAS-TCAS cells: 7896

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	512	539	541	---
	V6.04A R	625	502	358	406	---
	V7.1-100 R	549	345	247	279	---
	V7.1-25 R	504	330	243	275	---
1	---	---	---	---	---	---

Table 5.6

Number of nonNMAC RAs with Increased Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 3948
Normalizing number for TCAS-TCAS cells: 7896

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	3127	3155	3159	---
	V6.04A R	2957	6989	7153	7106	---
	V7.1-100 R	3061	7149	7260	7230	---
	V7.1-25 R	3184	7151	7245	7218	---
1	---	---	---	---	---	---

MITRE encounter class: 5 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 5.7

Number of encounters without an RA
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 3948
Normalizing number for TCAS-TCAS cells: 7896

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	207	208	206	---	
	V6.04A R	195	376	380	380	---	
	V7.1-100 R	209	378	380	380	---	
	V7.1-25 R	202	400	404	400	---	
1	---	---	---	---	---	---	

Table 5.8

Number of RAs Resolving NMACs
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 3948
Normalizing number for TCAS-TCAS cells: 7896

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	790	782	792	---	
	V6.04A R	702	1592	1592	1592	---	
	V7.1-100 R	700	1590	1592	1592	---	
	V7.1-25 R	752	1592	1592	1592	---	
1	---	---	---	---	---	---	

MITRE encounter class: 15 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 15.1

Number of unresolved Failures with neither aircraft having an RA
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 68
Normalizing number for TCAS-TCAS cells: 136

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	0	0	0	---
	V6.04A R	0	0	0	0	---
	V7.1-100 R	0	0	0	0	---
	V7.1-25 R	0	0	0	0	---
1	---	---	---	---	---	---

Table 15.2

Number of unresolved Failures with at least one aircraft having an RA
(based on simulation truth).

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 68
Normalizing number for TCAS-TCAS cells: 136

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	0	0	0	---
	V6.04A R	22	0	0	0	---
	V7.1-100 R	23	0	0	0	---
	V7.1-25 R	17	0	0	0	---
1	---	---	---	---	---	---

MITRE encounter class: 15 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 15.3

Total number of unresolved Failures
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 68
Normalizing number for TCAS-TCAS cells: 136

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	0	0	0	---	
	V6.04A R	22	0	0	0	---	
	V7.1-100 R	23	0	0	0	---	
	V7.1-25 R	17	0	0	0	---	
1	---	---	---	---	---	---	

Table 15.4

Number of induced Failures
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 1236
Normalizing number for TCAS-TCAS cells: 2472

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	7	3	0	---	
	V6.04A R	2	18	4	4	---	
	V7.1-100 R	2	5	2	2	---	
	V7.1-25 R	4	3	2	2	---	
1	---	---	---	---	---	---	

MITRE encounter class: 15 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 15.5

Number of nonNMAC RAs with Reduced Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 1236
Normalizing number for TCAS-TCAS cells: 2472

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	100	120	119	---
	V6.04A R	6	83	79	76	---
	V7.1-100 R	2	45	43	38	---
	V7.1-25 R	0	48	41	36	---
1	---	---	---	---	---	---

Table 15.6

Number of nonNMAC RAs with Increased Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 1236
Normalizing number for TCAS-TCAS cells: 2472

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	750	739	741	---
	V6.04A R	925	1811	1837	1838	---
	V7.1-100 R	948	1878	1883	1886	---
	V7.1-25 R	911	1817	1825	1828	---
1	---	---	---	---	---	---

MITRE encounter class: 15 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 15.7

Number of encounters without an RA
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 1236
Normalizing number for TCAS-TCAS cells: 2472

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	379	374	376	---	
	V6.04A R	303	560	552	554	---	
	V7.1-100 R	284	544	544	546	---	
	V7.1-25 R	321	604	604	606	---	
1	---	---	---	---	---	---	

Table 15.8

Number of RAs Resolving NMACs
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 1236
Normalizing number for TCAS-TCAS cells: 2472

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	68	68	68	---	
	V6.04A R	46	136	136	136	---	
	V7.1-100 R	45	136	136	136	---	
	V7.1-25 R	51	136	136	136	---	
1	---	---	---	---	---	---	

MITRE encounter class: 15 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Classes: 5, 15 SUMMARY			
	TOTAL	CROSSING	NON CROSSING
# ENCOUNTERS	157248	123344	33904
PLANNED	12096	9488	2608
NMAC's	20736	19104	1632
NMAC's resolved	20414	18844	1570
NMAC's undetected	0	0	0
NMAC's unresolved	322	260	62
NON NMAC's	124416	94752	29664
NON NMAC's NO RA	11856	4705	7151
NON NMAC's induced	708	648	60
NON NMAC nuisance	7091	6255	836

Altitude Separation at CPA for Classes: 5, 15							
Version 7.1 Logic							
	<= 100	<= 200	<= 300	<= 400	<= 500	<= 600	> 600
PLANNED	24192	0	18368	30016	48384	0	48384
NMAC's resolved	0	439	771	1348	2170	2663	13023
NMAC's undetected	0	0	0	0	0	0	0
NMAC's unresolved	322	0	0	0	0	0	0
NON NMAC's NO RA	0	0	0	0	0	0	11856
NON NMAC's induced	708	0	0	0	0	0	0
NON NMAC nuisance	0	1144	1259	1152	1485	562	1489

MITRE encounter class: 6 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 6.1

Number of unresolved Failures with neither aircraft having an RA
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 864
Normalizing number for TCAS-TCAS cells: 1728

		A i r c r a f t 2				
			V7.1-100 R	V7.1-25 R		---
A i r c r a f t 1		---	0	0	0	---
		4	0	0	0	---
	V7.1-100 R	0	0	0	0	---
	V7.1-25 R	0	0	0	0	---
	---	---	---	---	---	---

Table 6.2

Number of unresolved Failures with at least one aircraft having an RA
(based on simulation truth).

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 864
Normalizing number for TCAS-TCAS cells: 1728

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t 1	Non-TCAS	---	5	0	1	---
	V6.04A R	86	14	1	1	---
	V7.1-100 R	70	12	2	2	---
	V7.1-25 R	29	3	2	2	---
	---	---	---	---	---	---

MITRE encounter class: 6 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 6.3

Total number of unresolved Failures
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 864
Normalizing number for TCAS-TCAS cells: 1728

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	5	0	1	---	
	V6.04A R	90	14	1	1	---	
	V7.1-100 R	70	12	2	2	---	
	V7.1-25 R	29	3	2	2	---	
1	---	---	---	---	---	---	

Table 6.4

Number of induced Failures
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 3912
Normalizing number for TCAS-TCAS cells: 7824

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	49	30	28	---	
	V6.04A R	25	12	12	14	---	
	V7.1-100 R	15	12	14	10	---	
	V7.1-25 R	10	10	4	4	---	
1	---	---	---	---	---	---	

MITRE encounter class: 6 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 6.5

Number of nonNMAC RAs with Reduced Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 3912
Normalizing number for TCAS-TCAS cells: 7824

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	125	88	83	---
	V6.04A R	389	372	326	314	---
	V7.1-100 R	365	133	118	128	---
	V7.1-25 R	378	96	100	118	---
1	---	---	---	---	---	---

Table 6.6

Number of nonNMAC RAs with Increased Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 3912
Normalizing number for TCAS-TCAS cells: 7824

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	3477	3535	3542	---
	V6.04A R	3231	7004	7046	7052	---
	V7.1-100 R	3273	7239	7248	7242	---
	V7.1-25 R	3275	7280	7278	7262	---
1	---	---	---	---	---	---

MITRE encounter class: 6 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 6.7

Number of encounters without an RA
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 3912
Normalizing number for TCAS-TCAS cells: 7824

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	261	259	259	---	
	V6.04A R	267	436	440	444	---	
	V7.1-100 R	259	440	444	444	---	
	V7.1-25 R	249	438	442	440	---	
1	---	---	---	---	---	---	

Table 6.8

Number of RAs Resolving NMACs
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 3912
Normalizing number for TCAS-TCAS cells: 7824

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	859	864	863	---	
	V6.04A R	774	1714	1727	1727	---	
	V7.1-100 R	794	1716	1726	1726	---	
	V7.1-25 R	835	1725	1726	1726	---	
1	---	---	---	---	---	---	

MITRE encounter class: 16 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 16.1

Number of unresolved Failures with neither aircraft having an RA
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 0
Normalizing number for TCAS-TCAS cells: 0

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	0	0	0	---
	V6.04A R	0	0	0	0	---
	V7.1-100 R	0	0	0	0	---
	V7.1-25 R	0	0	0	0	---
1	---	---	---	---	---	---

Table 16.2

Number of unresolved Failures with at least one aircraft having an RA
(based on simulation truth).

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 0
Normalizing number for TCAS-TCAS cells: 0

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	0	0	0	---
	V6.04A R	0	0	0	0	---
	V7.1-100 R	0	0	0	0	---
	V7.1-25 R	0	0	0	0	---
1	---	---	---	---	---	---

MITRE encounter class: 16 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 16.3

Total number of unresolved Failures
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 0
Normalizing number for TCAS-TCAS cells: 0

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	0	0	0	---	
	V6.04A R	0	0	0	0	---	
	V7.1-100 R	0	0	0	0	---	
	V7.1-25 R	0	0	0	0	---	
1	---	---	---	---	---	---	

Table 16.4

Number of induced Failures
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 1272
Normalizing number for TCAS-TCAS cells: 2544

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	4	1	1	---	
	V6.04A R	16	1	1	0	---	
	V7.1-100 R	5	0	1	1	---	
	V7.1-25 R	1	0	1	0	---	
1	---	---	---	---	---	---	

MITRE encounter class: 16 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 16.5

Number of nonNMAC RAs with Reduced Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 1272
Normalizing number for TCAS-TCAS cells: 2544

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	27	16	16	---	
	V6.04A R	109	63	55	57	---	
	V7.1-100 R	117	47	34	36	---	
	V7.1-25 R	86	44	29	29	---	
1	---	---	---	---	---	---	

Table 16.6

Number of nonNMAC RAs with Increased Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 1272
Normalizing number for TCAS-TCAS cells: 2544

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	977	1084	1085	---	
	V6.04A R	870	2154	2178	2177	---	
	V7.1-100 R	961	2173	2201	2199	---	
	V7.1-25 R	992	2176	2190	2191	---	
1	---	---	---	---	---	---	

MITRE encounter class: 16 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 16.7

Number of encounters without an RA
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 1272
Normalizing number for TCAS-TCAS cells: 2544

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	264	171	170	---	
	V6.04A R	277	326	310	310	---	
	V7.1-100 R	189	324	308	308	---	
	V7.1-25 R	193	324	324	324	---	
1	---	---	---	---	---	---	

Table 16.8

Number of RAs Resolving NMACs
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 1272
Normalizing number for TCAS-TCAS cells: 2544

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	0	0	0	---	
	V6.04A R	0	0	0	0	---	
	V7.1-100 R	0	0	0	0	---	
	V7.1-25 R	0	0	0	0	---	
1	---	---	---	---	---	---	

MITRE encounter class: 16 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Classes: 6, 16 SUMMARY			
	TOTAL	CROSSING	NON CROSSING
# ENCOUNTERS	157248	124176	33072
PLANNED	12096	9552	2544
NMAC's	20736	20736	0
NMAC's resolved	20502	20502	0
NMAC's undetected	4	4	0
NMAC's unresolved	230	230	0
NON NMAC's	124416	93888	30528
NON NMAC's NO RA	9644	5522	4122
NON NMAC's induced	282	249	33
NON NMAC nuisance	3898	3133	765

Altitude Separation at CPA for Classes: 6, 16							
Version 7.1 Logic							
	<= 100	<= 200	<= 300	<= 400	<= 500	<= 600	> 600
PLANNED	24192	0	17836	30548	48384	0	48384
NMAC's resolved	0	484	1246	1875	1850	2097	12950
NMAC's undetected	4	0	0	0	0	0	0
NMAC's unresolved	230	0	0	0	0	0	0
NON NMAC's NO RA	0	0	2	0	2	0	9640
NON NMAC's induced	282	0	0	0	0	0	0
NON NMAC nuisance	0	294	282	535	930	389	1468

MITRE encounter class: 7 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 7.1

Number of unresolved Failures with neither aircraft having an RA
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 1212
Normalizing number for TCAS-TCAS cells: 2424

		A i r c r a f t 2				
			V7.1-100 R	V7.1-25 R		---
A i r c r a f t 1		---	0	0	0	---
		0	0	0	0	---
	V7.1-100 R	0	0	0	0	---
	V7.1-25 R	0	0	0	0	---
	---	---	---	---	---	---

Table 7.2

Number of unresolved Failures with at least one aircraft having an RA
(based on simulation truth).

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 1212
Normalizing number for TCAS-TCAS cells: 2424

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t 1	Non-TCAS	---	125	122	40	---
	V6.04A R	92	4	4	0	---
	V7.1-100 R	125	6	0	0	---
	V7.1-25 R	44	0	0	0	---
	---	---	---	---	---	---

MITRE encounter class: 7 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 7.3

Total number of unresolved Failures
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 1212
Normalizing number for TCAS-TCAS cells: 2424

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	125	122	40	---	
	V6.04A R	92	4	4	0	---	
	V7.1-100 R	125	6	0	0	---	
	V7.1-25 R	44	0	0	0	---	
1	---	---	---	---	---	---	

Table 7.4

Number of induced Failures
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 5023
Normalizing number for TCAS-TCAS cells: 10046

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	422	313	262	---	
	V6.04A R	562	196	159	55	---	
	V7.1-100 R	411	92	81	40	---	
	V7.1-25 R	235	64	39	28	---	
1	---	---	---	---	---	---	

MITRE encounter class: 7 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 7.5

Number of nonNMAC RAs with Reduced Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 5023
Normalizing number for TCAS-TCAS cells: 10046

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	1063	1018	1095	---
	V6.04A R	1002	1696	1474	1439	---
	V7.1-100 R	933	1489	1282	1236	---
	V7.1-25 R	1010	1340	1166	1089	---
1	---	---	---	---	---	---

Table 7.6

Number of nonNMAC RAs with Increased Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 5023
Normalizing number for TCAS-TCAS cells: 10046

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	3508	3665	3630	---
	V6.04A R	3439	8116	8383	8512	---
	V7.1-100 R	3654	8423	8649	8724	---
	V7.1-25 R	3739	8592	8797	8867	---
1	---	---	---	---	---	---

MITRE encounter class: 7 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 7.7

Number of encounters without an RA
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 5023
Normalizing number for TCAS-TCAS cells: 10046

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	30	27	36	---
	V6.04A R	20	38	30	40	---
	V7.1-100 R	25	42	34	46	---
	V7.1-25 R	39	50	44	62	---
1	---	---	---	---	---	---

Table 7.8

Number of RAs Resolving NMACs
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 5023
Normalizing number for TCAS-TCAS cells: 10046

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	1087	1090	1172	---
	V6.04A R	1120	2420	2420	2424	---
	V7.1-100 R	1087	2418	2424	2424	---
	V7.1-25 R	1168	2424	2424	2424	---
1	---	---	---	---	---	---

MITRE encounter class: 17 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 17.1

Number of unresolved Failures with neither aircraft having an RA
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 84
Normalizing number for TCAS-TCAS cells: 168

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	0	0	0	---	
	V6.04A R	0	0	0	0	---	
	V7.1-100 R	0	0	0	0	---	
	V7.1-25 R	0	0	0	0	---	
1	---	---	---	---	---	---	

Table 17.2

Number of unresolved Failures with at least one aircraft having an RA
(based on simulation truth).

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 84
Normalizing number for TCAS-TCAS cells: 168

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	12	12	9	---	
	V6.04A R	11	0	0	0	---	
	V7.1-100 R	4	0	0	0	---	
	V7.1-25 R	4	0	0	0	---	
1	---	---	---	---	---	---	

MITRE encounter class: 17 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 17.3

Total number of unresolved Failures
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 84
Normalizing number for TCAS-TCAS cells: 168

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	12	12	9	---	
	V6.04A R	11	0	0	0	---	
	V7.1-100 R	4	0	0	0	---	
	V7.1-25 R	4	0	0	0	---	
1	---	---	---	---	---	---	

Table 17.4

Number of induced Failures
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 2753
Normalizing number for TCAS-TCAS cells: 5506

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	21	2	15	---	
	V6.04A R	10	14	7	8	---	
	V7.1-100 R	5	10	7	5	---	
	V7.1-25 R	15	18	10	6	---	
1	---	---	---	---	---	---	

MITRE encounter class: 17 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 17.5

Number of nonNMAC RAs with Reduced Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 2753
Normalizing number for TCAS-TCAS cells: 5506

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	40	42	36	---
	V6.04A R	44	40	16	19	---
	V7.1-100 R	41	28	16	15	---
	V7.1-25 R	64	33	19	17	---
1	---	---	---	---	---	---

Table 17.6

Number of nonNMAC RAs with Increased Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 2753
Normalizing number for TCAS-TCAS cells: 5506

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	1951	2023	1982	---
	V6.04A R	1983	4290	4335	4239	---
	V7.1-100 R	2025	4342	4371	4280	---
	V7.1-25 R	1959	4183	4219	4129	---
1	---	---	---	---	---	---

MITRE encounter class: 17 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 17.7

Number of encounters without an RA
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 2753
Normalizing number for TCAS-TCAS cells: 5506

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	741	686	720	---
	V6.04A R	716	1162	1148	1240	---
	V7.1-100 R	682	1126	1112	1206	---
	V7.1-25 R	715	1272	1258	1354	---
1	---	---	---	---	---	---

Table 17.8

Number of RAs Resolving NMACs
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 2753
Normalizing number for TCAS-TCAS cells: 5506

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	72	72	75	---
	V6.04A R	73	168	168	168	---
	V7.1-100 R	80	168	168	168	---
	V7.1-25 R	80	168	168	168	---
1	---	---	---	---	---	---

MITRE encounter class: 17 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Classes: 7, 17 SUMMARY			
	TOTAL	CROSSING	NON CROSSING
# ENCOUNTERS	235872	162110	73762
PLANNED	18144	12470	5674
NMAC's	31104	29088	2016
NMAC's resolved	30490	28526	1964
NMAC's undetected	0	0	0
NMAC's unresolved	614	562	52
NON NMAC's	186624	120552	66072
NON NMAC's NO RA	15701	563	15138
NON NMAC's induced	3112	2959	153
NON NMAC nuisance	18802	18332	470

Altitude Separation at CPA for Classes: 7, 17							
Version 7.1 Logic							
	<= 100	<= 200	<= 300	<= 400	<= 500	<= 600	> 600
PLANNED	36288	0	26656	45920	72576	0	72576
NMAC's resolved	0	1408	2161	3260	3061	4084	16516
NMAC's undetected	0	0	0	0	0	0	0
NMAC's unresolved	614	0	0	0	0	0	0
NON NMAC's NO RA	0	0	0	0	0	0	15701
NON NMAC's induced	3112	0	0	0	0	0	0
NON NMAC nuisance	0	3501	3295	2382	3575	2332	3717

MITRE encounter class: 8 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 8.1

Number of unresolved Failures with neither aircraft having an RA
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 1296
Normalizing number for TCAS-TCAS cells: 2592

		A i r c r a f t 2				
			V7.1-100 R	V7.1-25 R		---
A i r c r a f t 1		---	4	0	0	---
		0	0	0	0	---
	V7.1-100 R	0	0	0	0	---
	V7.1-25 R	0	0	0	0	---
	---	---	---	---	---	---

Table 8.2

Number of unresolved Failures with at least one aircraft having an RA
(based on simulation truth).

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 1296
Normalizing number for TCAS-TCAS cells: 2592

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t 1	Non-TCAS	---	89	72	26	---
	V6.04A R	69	30	5	6	---
	V7.1-100 R	113	33	6	4	---
	V7.1-25 R	58	6	6	6	---
	---	---	---	---	---	---

MITRE encounter class: 8 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 8.3

Total number of unresolved Failures
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 1296
Normalizing number for TCAS-TCAS cells: 2592

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	93	72	26	---
	V6.04A R	69	30	5	6	---
	V7.1-100 R	113	33	6	4	---
	V7.1-25 R	58	6	6	6	---
1	---	---	---	---	---	---

Table 8.4

Number of induced Failures
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 5702
Normalizing number for TCAS-TCAS cells: 11404

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	186	93	52	---
	V6.04A R	485	188	92	57	---
	V7.1-100 R	377	126	103	56	---
	V7.1-25 R	247	116	84	48	---
1	---	---	---	---	---	---

MITRE encounter class: 8 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 8.5

Number of nonNMAC RAs with Reduced Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 5702
Normalizing number for TCAS-TCAS cells: 11404

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	734	742	797	---
	V6.04A R	817	857	668	662	---
	V7.1-100 R	823	925	670	700	---
	V7.1-25 R	731	787	619	656	---
1	---	---	---	---	---	---

Table 8.6

Number of nonNMAC RAs with Increased Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 5702
Normalizing number for TCAS-TCAS cells: 11404

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	4262	4421	4454	---
	V6.04A R	3999	9667	10052	10137	---
	V7.1-100 R	4116	9685	10043	10104	---
	V7.1-25 R	4373	9803	10003	10026	---
1	---	---	---	---	---	---

MITRE encounter class: 8 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 8.7

Number of encounters without an RA
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 5702
Normalizing number for TCAS-TCAS cells: 11404

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	520	446	399	---
	V6.04A R	401	692	592	548	---
	V7.1-100 R	386	668	588	544	---
	V7.1-25 R	351	698	698	674	---
1	---	---	---	---	---	---

Table 8.8

Number of RAs Resolving NMACs
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 5702
Normalizing number for TCAS-TCAS cells: 11404

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	1203	1224	1270	---
	V6.04A R	1227	2562	2587	2586	---
	V7.1-100 R	1183	2559	2586	2588	---
	V7.1-25 R	1238	2586	2586	2586	---
1	---	---	---	---	---	---

MITRE encounter class: 18 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 18.1

Number of unresolved Failures with neither aircraft having an RA
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 0
Normalizing number for TCAS-TCAS cells: 0

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	0	0	0	---
	V6.04A R	0	0	0	0	---
	V7.1-100 R	0	0	0	0	---
	V7.1-25 R	0	0	0	0	---
1	---	---	---	---	---	---

Table 18.2

Number of unresolved Failures with at least one aircraft having an RA
(based on simulation truth).

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 0
Normalizing number for TCAS-TCAS cells: 0

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	0	0	0	---
	V6.04A R	0	0	0	0	---
	V7.1-100 R	0	0	0	0	---
	V7.1-25 R	0	0	0	0	---
1	---	---	---	---	---	---

MITRE encounter class: 18 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 18.3

Total number of unresolved Failures
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 0
Normalizing number for TCAS-TCAS cells: 0

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	0	0	0	---	
	V6.04A R	0	0	0	0	---	
	V7.1-100 R	0	0	0	0	---	
	V7.1-25 R	0	0	0	0	---	
1	---	---	---	---	---	---	

Table 18.4

Number of induced Failures
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 2074
Normalizing number for TCAS-TCAS cells: 4148

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	16	31	12	---	
	V6.04A R	66	17	18	6	---	
	V7.1-100 R	18	9	10	5	---	
	V7.1-25 R	9	5	0	1	---	
1	---	---	---	---	---	---	

MITRE encounter class: 18 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 18.5

Number of nonNMAC RAs with Reduced Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 2074
Normalizing number for TCAS-TCAS cells: 4148

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	252	256	233	---	
	V6.04A R	101	325	182	159	---	
	V7.1-100 R	42	186	110	85	---	
	V7.1-25 R	39	118	85	63	---	
1	---	---	---	---	---	---	

Table 18.6

Number of nonNMAC RAs with Increased Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 2074
Normalizing number for TCAS-TCAS cells: 4148

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	1468	1520	1512	---	
	V6.04A R	1493	3264	3512	3521	---	
	V7.1-100 R	1615	3439	3592	3594	---	
	V7.1-25 R	1781	3611	3619	3604	---	
1	---	---	---	---	---	---	

MITRE encounter class: 18 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 18.7

Number of encounters without an RA
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 2074
Normalizing number for TCAS-TCAS cells: 4148

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	338	267	317	---	
	V6.04A R	414	542	436	462	---	
	V7.1-100 R	399	514	436	464	---	
	V7.1-25 R	245	414	444	480	---	
1	---	---	---	---	---	---	

Table 18.8

Number of RAs Resolving NMACs
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 2074
Normalizing number for TCAS-TCAS cells: 4148

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	0	0	0	---	
	V6.04A R	0	0	0	0	---	
	V7.1-100 R	0	0	0	0	---	
	V7.1-25 R	0	0	0	0	---	
1	---	---	---	---	---	---	

MITRE encounter class: 18 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Classes: 8, 18 SUMMARY			
	TOTAL	CROSSING	NON CROSSING
# ENCOUNTERS	235872	181948	53924
PLANNED	18144	13996	4148
NMAC's	31104	31104	0
NMAC's resolved	30571	30571	0
NMAC's undetected	4	4	0
NMAC's unresolved	529	529	0
NON NMAC's	186624	136848	49776
NON NMAC's NO RA	14377	8205	6172
NON NMAC's induced	2533	2310	223
NON NMAC nuisance	13424	11188	2236

Altitude Separation at CPA for Classes: 8, 18							
Version 7.1 Logic							
	<= 100	<= 200	<= 300	<= 400	<= 500	<= 600	> 600
PLANNED	36288	0	26712	45864	72576	0	72576
NMAC's resolved	0	1240	2500	3033	3413	3877	16508
NMAC's undetected	4	0	0	0	0	0	0
NMAC's unresolved	529	0	0	0	0	0	0
NON NMAC's NO RA	0	0	5	0	4	0	14368
NON NMAC's induced	2533	0	0	0	0	0	0
NON NMAC nuisance	0	2646	2330	1932	2473	1626	2417

MITRE encounter class: 9 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of March 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 9.1

Number of unresolved Failures with neither aircraft having an RA
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 579
Normalizing number for TCAS-TCAS cells: 1158

		A i r c r a f t 2				
			V7.1-100 R	V7.1-25 R		---
A i r c r a f t 1		---	0	0	0	---
		0	0	0	0	---
	V7.1-100 R	0	0	0	0	---
	V7.1-25 R	0	0	0	0	---
	---	---	---	---	---	---

Table 9.2

Number of unresolved Failures with at least one aircraft having an RA
(based on simulation truth).

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 579
Normalizing number for TCAS-TCAS cells: 1158

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t 1	Non-TCAS	---	18	8	4	---
	V6.04A R	61	0	0	0	---
	V7.1-100 R	15	0	0	0	---
	V7.1-25 R	24	0	0	0	---
	---	---	---	---	---	---

MITRE encounter class: 9 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of March 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 9.3

Total number of unresolved Failures
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 579
Normalizing number for TCAS-TCAS cells: 1158

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	18	8	4	---
	V6.04A R	61	0	0	0	---
	V7.1-100 R	15	0	0	0	---
	V7.1-25 R	24	0	0	0	---
1	---	---	---	---	---	---

Table 9.4

Number of induced Failures
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 3210
Normalizing number for TCAS-TCAS cells: 6420

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	5	3	1	---
	V6.04A R	2	18	11	7	---
	V7.1-100 R	4	12	9	2	---
	V7.1-25 R	2	7	7	2	---
1	---	---	---	---	---	---

MITRE encounter class: 9 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of March 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 9.5

Number of nonNMAC RAs with Reduced Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 3210
Normalizing number for TCAS-TCAS cells: 6420

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	53	64	47	---
	V6.04A R	118	126	121	105	---
	V7.1-100 R	108	131	137	147	---
	V7.1-25 R	93	111	150	135	---
1	---	---	---	---	---	---

Table 9.6

Number of nonNMAC RAs with Increased Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 3210
Normalizing number for TCAS-TCAS cells: 6420

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	1955	1938	1956	---
	V6.04A R	1930	4000	4006	4010	---
	V7.1-100 R	1917	3977	3968	3949	---
	V7.1-25 R	1900	3928	3879	3889	---
1	---	---	---	---	---	---

MITRE encounter class: 9 "planned = CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of March 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 9.7

Number of encounters without an RA
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 3210
Normalizing number for TCAS-TCAS cells: 6420

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	1197	1205	1206	---
	V6.04A R	1160	2276	2282	2298	---
	V7.1-100 R	1181	2300	2306	2322	---
	V7.1-25 R	1215	2374	2384	2394	---
1	---	---	---	---	---	---

Table 9.8

Number of RAs Resolving NMACs
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 3210
Normalizing number for TCAS-TCAS cells: 6420

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	561	571	575	---
	V6.04A R	518	1158	1158	1158	---
	V7.1-100 R	564	1158	1158	1158	---
	V7.1-25 R	555	1158	1158	1158	---
1	---	---	---	---	---	---

MITRE encounter class: 19 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of March 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 19.1

Number of unresolved Failures with neither aircraft having an RA
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 285
Normalizing number for TCAS-TCAS cells: 570

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	0	0	0	---	
	V6.04A R	0	0	0	0	---	
	V7.1-100 R	0	0	0	0	---	
	V7.1-25 R	0	0	0	0	---	
1	---	---	---	---	---	---	

Table 19.2

Number of unresolved Failures with at least one aircraft having an RA
(based on simulation truth).

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 285
Normalizing number for TCAS-TCAS cells: 570

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	32	0	0	---	
	V6.04A R	5	0	0	0	---	
	V7.1-100 R	0	0	0	0	---	
	V7.1-25 R	0	0	0	0	---	
1	---	---	---	---	---	---	

MITRE encounter class: 19 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of March 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 19.3

Total number of unresolved Failures
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that resulted in an
NMAC, based on simulation truth): 285
Normalizing number for TCAS-TCAS cells: 570

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	32	0	0	---
	V6.04A R	5	0	0	0	---
	V7.1-100 R	0	0	0	0	---
	V7.1-25 R	0	0	0	0	---
1	---	---	---	---	---	---

Table 19.4

Number of induced Failures
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 3702
Normalizing number for TCAS-TCAS cells: 7404

		A i r c r a f t 2				
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---
A i r c r a f t	Non-TCAS	---	115	50	31	---
	V6.04A R	35	36	18	21	---
	V7.1-100 R	22	24	13	10	---
	V7.1-25 R	8	5	9	3	---
1	---	---	---	---	---	---

MITRE encounter class: 19 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of March 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 19.5

Number of nonNMAC RAs with Reduced Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 3702
Normalizing number for TCAS-TCAS cells: 7404

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	142	272	138	---	
	V6.04A R	105	289	170	115	---	
	V7.1-100 R	131	161	94	79	---	
	V7.1-25 R	102	94	71	61	---	
1	---	---	---	---	---	---	

Table 19.6

Number of nonNMAC RAs with Increased Separation
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 3702
Normalizing number for TCAS-TCAS cells: 7404

		A i r c r a f t 2					
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	---	
A i r c r a f t	Non-TCAS	---	2423	2315	2425	---	
	V6.04A R	2412	5305	5388	5388	---	
	V7.1-100 R	2363	5405	5427	5395	---	
	V7.1-25 R	2405	5379	5338	5316	---	
1	---	---	---	---	---	---	

MITRE encounter class: 19 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of March 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Table 19.7

Number of encounters without an RA
(based on simulation truth)

Normalizing Number = number of planned encounters not resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 3702
Normalizing number for TCAS-TCAS cells: 7404

		A i r c r a f t 2				---
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	
A i r c r a f t	Non-TCAS	---	1022	1065	1108	---
	V6.04A R	1150	1774	1828	1880	---
	V7.1-100 R	1186	1814	1870	1920	---
	V7.1-25 R	1187	1926	1986	2024	---
1	---	---	---	---	---	---

Table 19.8

Number of RAs Resolving NMACs
(based on simulation truth)

Normalizing Number = number of planned encounters resulting in failure
Normalizing number for cells in first row and column
(number of planned encounters that did not result in an
NMAC, based on simulation truth): 3702
Normalizing number for TCAS-TCAS cells: 7404

		A i r c r a f t 2				---
		Non-TCAS	V6.04A R	V7.1-100 R	V7.1-25 R	
A i r c r a f t	Non-TCAS	---	253	285	285	---
	V6.04A R	280	570	570	570	---
	V7.1-100 R	285	570	570	570	---
	V7.1-25 R	285	570	570	570	---
1	---	---	---	---	---	---

MITRE encounter class: 19 "planned = NON CROSSING" Date processed: 8/16/ 7
Based on FAA Technical Center data of March 2007
Version 7.1 = V7.0 + CP112E + CP115 + CP116 "data files J1 K1"
Failure : CPA <= 100.0 ft based on simulation truth

Classes: 9, 19 SUMMARY			
	TOTAL	CROSSING	NON CROSSING
# ENCOUNTERS	202176	98514	103662
PLANNED	15552	7578	7974
NMAC's	20736	13896	6840
NMAC's resolved	20569	13766	6803
NMAC's undetected	0	0	0
NMAC's unresolved	167	130	37
NON NMAC's	165888	77040	88848
NON NMAC's NO RA	51840	28100	23740
NON NMAC's induced	492	92	400
NON NMAC nuisance	3670	1646	2024

Altitude Separation at CPA for Classes: 9, 19							
Version 7.1 Logic							
	<= 100	<= 200	<= 300	<= 400	<= 500	<= 600	> 600
PLANNED	24192	0	19852	28532	48384	0	96768
NMAC's resolved	0	633	880	2102	2612	3207	11135
NMAC's undetected	0	0	0	0	0	0	0
NMAC's unresolved	167	0	0	0	0	0	0
NON NMAC's NO RA	0	0	1	0	1	0	51838
NON NMAC's induced	492	0	0	0	0	0	0
NON NMAC nuisance	0	565	375	560	585	163	1422

Appendix J SUMMARY NMAC TABLES (Both Pilots Responding)

MITRE encounter classes: 0,10 Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007 All TCAS Responding
Failure: separation at CPA <= 100 ft based on simulation truth
Ratio threshold (**) = 1.00 Significance threshold (>>) = 2.0 DATASET 7

Table 0.3 - Percent of unresolved failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	0.000	0.000	0.000	-----	-----	-----

Table 0.4 - Percent of induced failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	0.000	0.000	0.000	-----	-----	-----

Table 10.3 - Percent of unresolved failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	0.000	0.000	0.000	-----	-----	-----

Table 10.4 - Percent of induced failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	0.000	0.000	0.000	-----	-----	-----

MITRE encounter classes: 1,11 Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007 All TCAS Responding
Failure: separation at CPA <= 100 ft based on simulation truth
Ratio threshold (**) = 1.00 Significance threshold (>=) = 2.0 DATASET 7

Table 1.3 - Percent of unresolved failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	0.000	0.000	0.000	-----	-----	-----

Table 1.4 - Percent of induced failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	0.000	0.000	0.000	-----	-----	-----

Table 11.3 - Percent of unresolved failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	0.000	0.000	0.000	-----	-----	-----

Table 11.4 - Percent of induced failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	0.000	0.000	0.000	-----	-----	-----

MITRE encounter classes: 2,12 Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007 All TCAS Responding
Failure: separation at CPA <= 100 ft based on simulation truth
Ratio threshold (**) = 1.00 Significance threshold (>=) = 2.0 DATASET 7

Table 2.3 - Percent of unresolved failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.579	0.000	0.000	0.347	0.000	0.000
One Mode C	1.620	** >> 3.125	** 1.852	-----	-----	-----

Table 2.4 - Percent of induced failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	1.707	0.419	0.451	0.805	0.677	0.451
One Mode C	7.796	4.800	3.028	-----	-----	-----

Table 12.3 - Percent of unresolved failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	0.000	0.000	0.000	-----	-----	-----

Table 12.4 - Percent of induced failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	0.192	0.192	0.000	-----	-----	-----

MITRE encounter classes: 3,13 Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007 All TCAS Responding
Failure: separation at CPA <= 100 ft based on simulation truth
Ratio threshold (**) = 1.00 Significance threshold (>=) = 2.0 DATASET 7

Table 3.3 - Percent of unresolved failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	4.484	3.533	0.408	-----	-----	-----

Table 3.4 - Percent of induced failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	0.000	0.000	0.000	-----	-----	-----

Table 13.3 - Percent of unresolved failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	0.781	0.000	0.000	-----	-----	-----

Table 13.4 - Percent of induced failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.101	0.025	0.000	0.025	0.025	0.013
One Mode C	0.759	0.380	0.228	-----	-----	-----

MITRE encounter classes: 4,14 Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007 All TCAS Responding
Failure: separation at CPA <= 100 ft based on simulation truth
Ratio threshold (**) = 1.00 Significance threshold (>>) = 2.0 DATASET 7

Table 4.3 - Percent of unresolved failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	0.000	** 1.667	0.000	-----	-----	-----

Table 4.4 - Percent of induced failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	0.000	0.000	0.000	-----	-----	-----

Table 14.3 - Percent of unresolved failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	0.000	0.000	0.000	-----	-----	-----

Table 14.4 - Percent of induced failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	0.000	0.000	0.000	-----	-----	-----

MITRE encounter classes: 5,15 Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007 All TCAS Responding
Failure: separation at CPA <= 100 ft based on simulation truth
Ratio threshold (**) = 1.00 Significance threshold (>>) = 2.0 DATASET 7

Table 5.3 - Percent of unresolved failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.000	0.000	0.000	** 0.063	0.000	0.000
One Mode C	6.281	** >> 6.910	3.015	-----	-----	-----

Table 5.4 - Percent of induced failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.367	0.114	0.038	0.184	0.120	0.070
One Mode C	3.457	2.216	1.266	-----	-----	-----

Table 15.3 - Percent of unresolved failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	16.176	** >> 16.912	12.500	-----	-----	-----

Table 15.4 - Percent of induced failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.728	0.081	0.081	0.182	0.142	0.081
One Mode C	0.364	0.202	0.162	-----	-----	-----

MITRE encounter classes: 6,16 Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007 All TCAS Responding
Failure: separation at CPA <= 100 ft based on simulation truth
Ratio threshold (**) = 1.00 Significance threshold (>=) = 2.0 DATASET 7

Table 6.3 - Percent of unresolved failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.810	0.116	0.116	0.376	0.116	0.116
One Mode C	5.498	4.051	1.736	-----	-----	-----

Table 6.4 - Percent of induced failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.153	** 0.179	0.051	0.153	0.153	0.089
One Mode C	0.946	0.575	0.486	-----	-----	-----

Table 16.3 - Percent of unresolved failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	0.000	0.000	0.000	-----	-----	-----

Table 16.4 - Percent of induced failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.039	0.039	0.000	0.020	0.000	0.039
One Mode C	0.786	0.236	0.079	-----	-----	-----

MITRE encounter classes: 7,17 Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007 All TCAS Responding
Failure: separation at CPA <= 100 ft based on simulation truth
Ratio threshold (**) = 1.00 Significance threshold (>>) = 2.0 DATASET 7

Table 7.3 - Percent of unresolved failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.165	0.000	0.000	** 0.206	0.000	0.000
One Mode C	8.952	** >> 10.190	3.465	-----	-----	-----

Table 7.4 - Percent of induced failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	1.951	0.806	0.279	1.249	0.592	0.393
One Mode C	9.795	7.207	4.947	-----	-----	-----

Table 17.3 - Percent of unresolved failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	13.690	9.524	7.738	-----	-----	-----

Table 17.4 - Percent of induced failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.254	0.127	0.109	0.154	0.236	0.136
One Mode C	0.563	0.127	0.545	-----	-----	-----

MITRE encounter classes: 8,18 Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007 All TCAS Responding
Failure: separation at CPA <= 100 ft based on simulation truth
Ratio threshold (**) = 1.00 Significance threshold (>>) = 2.0 DATASET 7

Table 8.3 - Percent of unresolved failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	1.157	0.231	0.231	0.733	0.231	0.193
One Mode C	6.250	** >> 7.137	3.241	-----	-----	-----

Table 8.4 - Percent of induced failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	1.649	0.903	0.421	0.956	0.759	0.614
One Mode C	5.884	4.121	2.622	-----	-----	-----

Table 18.3 - Percent of unresolved failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	0.000	0.000	0.000	-----	-----	-----

Table 18.4 - Percent of induced failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.410	0.241	0.024	0.325	0.133	0.060
One Mode C	1.977	1.181	0.506	-----	-----	-----

MITRE encounter classes: 9,19 Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007 All TCAS Responding
Failure: separation at CPA <= 100 ft based on simulation truth
Ratio threshold (**) = 1.00 Significance threshold (>>) = 2.0 DATASET 7

Table 9.3 - Percent of unresolved failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	6.822	1.986	2.418	-----	-----	-----

Table 9.4 - Percent of induced failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.280	0.140	0.031	0.179	0.109	0.070
One Mode C	0.109	0.109	0.047	-----	-----	-----

Table 19.3 - Percent of unresolved failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	6.491	0.000	0.000	-----	-----	-----

Table 19.4 - Percent of induced failures

	6.04A only	7.1-100 ft only	7.1-25 ft only	6.04A/ 7.1-100	6.04A/ 7.1-25	7.1-25/ 7.1-100
TCAS-TCAS	0.486	0.176	0.041	0.284	0.176	0.128
One Mode C	2.026	0.972	0.527	-----	-----	-----

Appendix K SUMMARY NMAC TABLES (One Pilot Non-responding)

MITRE encounter classes: 0,10 Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007 Some TCAS Non-Responding
Failure: separation at CPA <= 100 ft based on simulation truth
Ratio threshold (**) = 1.00 Significance threshold (>) = 1.0 % DATASET 8

Table 0.3 - Percent of unresolved failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	0.000	0.000	-----	-----	-----	-----	-----

Table 0.4 - Percent of induced failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	0.000	0.000	-----	-----	-----	-----	-----

Table 10.3 - Percent of unresolved failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	0.000	0.000	-----	-----	-----	-----	-----

Table 10.4 - Percent of induced failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	0.000	0.000	-----	-----	-----	-----	-----

MITRE encounter classes: 1,11 Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007 Some TCAS Non-Responding
Failure: separation at CPA <= 100 ft based on simulation truth
Ratio threshold (**) = 1.00 Significance threshold (>) = 1.0 % DATASET 8

Table 1.3 - Percent of unresolved failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	0.000	0.000	-----	-----	-----	-----	-----

Table 1.4 - Percent of induced failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.000	0.000	0.000	3.750	3.750	3.750	3.750
One Mode C	0.000	0.000	-----	-----	-----	-----	-----

Table 11.3 - Percent of unresolved failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	0.000	0.000	-----	-----	-----	-----	-----

Table 11.4 - Percent of induced failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	0.000	0.000	-----	-----	-----	-----	-----

MITRE encounter classes: 2,12 Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007 Some TCAS Non-Responding
Failure: separation at CPA <= 100 ft based on simulation truth
Ratio threshold (**) = 1.00 Significance threshold (>) = 1.0 % DATASET 8

Table 2.3 - Percent of unresolved failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.579	0.000	0.000	2.315	1.157	1.678	1.157
One Mode C	1.620	1.852	-----	-----	-----	-----	-----

Table 2.4 - Percent of induced failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	1.707	0.451	0.677	11.662	8.344	10.341	8.650
One Mode C	7.796	3.028	-----	-----	-----	-----	-----

Table 12.3 - Percent of unresolved failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	0.000	0.000	-----	-----	-----	-----	-----

Table 12.4 - Percent of induced failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.000	0.000	0.000	0.192	0.000	** 0.288	0.000
One Mode C	0.192	0.000	-----	-----	-----	-----	-----

MITRE encounter classes: 3,13 Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007 Some TCAS Non-Responding
Failure: separation at CPA <= 100 ft based on simulation truth
Ratio threshold (**) = 1.00 Significance threshold (>) = 1.0 % DATASET 8

Table 3.3 - Percent of unresolved failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.000	0.000	0.000	0.543	0.000	0.543	0.000
One Mode C	4.484	0.408	-----	-----	-----	-----	-----

Table 3.4 - Percent of induced failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.000	0.000	0.000	0.135	0.135	0.135	** 0.152
One Mode C	0.000	0.000	-----	-----	-----	-----	-----

Table 13.3 - Percent of unresolved failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	0.781	0.000	-----	-----	-----	-----	-----

Table 13.4 - Percent of induced failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.101	0.000	0.025	2.024	0.215	1.088	0.797
One Mode C	0.759	0.228	-----	-----	-----	-----	-----

MITRE encounter classes: 4,14 Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007 Some TCAS Non-Responding
Failure: separation at CPA <= 100 ft based on simulation truth
Ratio threshold (**) = 1.00 Significance threshold (>) = 1.0 % DATASET 8

Table 4.3 - Percent of unresolved failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.000	0.000	0.000	6.667	6.667	6.667	6.667
One Mode C	0.000	0.000	-----	-----	-----	-----	-----

Table 4.4 - Percent of induced failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.000	0.000	0.000	1.974	1.809	** 2.138	1.809
One Mode C	0.000	0.000	-----	-----	-----	-----	-----

Table 14.3 - Percent of unresolved failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.000	0.000	0.000	33.333	16.667	27.083	22.917
One Mode C	0.000	0.000	-----	-----	-----	-----	-----

Table 14.4 - Percent of induced failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	0.000	0.000	-----	-----	-----	-----	-----

MITRE encounter classes: 5,15 Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007 Some TCAS Non-Responding
Failure: separation at CPA <= 100 ft based on simulation truth
Ratio threshold (**) = 1.00 Significance threshold (>) = 1.0 % DATASET 8

Table 5.3 - Percent of unresolved failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.000	0.000	0.000	7.946	6.501	7.883	6.376
One Mode C	6.281	3.015	-----	-----	-----	-----	-----

Table 5.4 - Percent of induced failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.367	0.038	0.120	5.351	3.540	5.180	3.375
One Mode C	3.457	1.266	-----	-----	-----	-----	-----

Table 15.3 - Percent of unresolved failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.000	0.000	0.000	30.882	23.162	29.044	25.735
One Mode C	16.176	12.500	-----	-----	-----	-----	-----

Table 15.4 - Percent of induced failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.728	0.081	0.142	0.546	0.303	0.182	0.263
One Mode C	0.364	0.162	-----	-----	-----	-----	-----

MITRE encounter classes: 6,16 Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007 Some TCAS Non-Responding
Failure: separation at CPA <= 100 ft based on simulation truth
Ratio threshold (**) = 1.00 Significance threshold (>) = 1.0 % DATASET 8

Table 6.3 - Percent of unresolved failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.810	0.116	0.116	3.877	1.910	3.588	1.852
One Mode C	5.498	1.736	-----	-----	-----	-----	-----

Table 6.4 - Percent of induced failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.153	0.051	0.153	4.141	3.087	4.001	3.310
One Mode C	0.946	0.486	-----	-----	-----	-----	-----

Table 16.3 - Percent of unresolved failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	0.000	0.000	-----	-----	-----	-----	-----

Table 16.4 - Percent of induced failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.039	0.000	0.000	2.909	0.079	1.533	1.238
One Mode C	0.786	0.079	-----	-----	-----	-----	-----

MITRE encounter classes: 7,17 Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007 Some TCAS Non-Responding
Failure: separation at CPA <= 100 ft based on simulation truth
Ratio threshold (**) = 1.00 Significance threshold (>) = 1.0 % DATASET 8

Table 7.3 - Percent of unresolved failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.165	0.000	0.000	8.416	4.827	6.663	5.342
One Mode C	8.952	3.465	-----	-----	-----	-----	-----

Table 7.4 - Percent of induced failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	1.951	0.279	0.592	14.399	9.974	13.359	10.109
One Mode C	9.795	4.947	-----	-----	-----	-----	-----

Table 17.3 - Percent of unresolved failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.000	0.000	0.000	22.619	12.500	17.857	17.560
One Mode C	13.690	7.738	-----	-----	-----	-----	-----

Table 17.4 - Percent of induced failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.254	0.109	0.236	0.318	**	0.291	**
One Mode C	0.563	0.545	-----	-----	-----	-----	-----

MITRE encounter classes: 8,18 Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007 Some TCAS Non-Responding
Failure: separation at CPA <= 100 ft based on simulation truth
Ratio threshold (**) = 1.00 Significance threshold (>) = 1.0 % DATASET 8

Table 8.3 - Percent of unresolved failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	1.157	0.231	0.231	4.090	1.755	2.855	2.006
One Mode C	6.250	3.241	-----	-----	-----	-----	-----

Table 8.4 - Percent of induced failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	1.649	0.421	0.759	7.655	5.516	7.541	5.476
One Mode C	5.884	2.622	-----	-----	-----	-----	-----

Table 18.3 - Percent of unresolved failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.000	0.000	0.000	0.000	0.000	0.000	0.000
One Mode C	0.000	0.000	-----	-----	-----	-----	-----

Table 18.4 - Percent of induced failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.410	0.024	0.133	6.304	0.530	4.062	2.218
One Mode C	1.977	0.506	-----	-----	-----	-----	-----

MITRE encounter classes: 9,19 Date processed: 8/16/ 7
Based on FAA Technical Center data of July 2007 Some TCAS Non-Responding
Failure: separation at CPA <= 100 ft based on simulation truth
Ratio threshold (**) = 1.00 Significance threshold (>) = 1.0 % DATASET 8

Table 9.3 - Percent of unresolved failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.000	0.000	0.000	1.986	0.950	1.641	0.864
One Mode C	6.822	2.418	-----	-----	-----	-----	-----

Table 9.4 - Percent of induced failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.280	0.031	0.109	1.379	0.639	0.942	0.787
One Mode C	0.109	0.047	-----	-----	-----	-----	-----

Table 19.3 - Percent of unresolved failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.000	0.000	0.000	0.000	** 0.088	0.000	** 0.088
One Mode C	6.491	0.000	-----	-----	-----	-----	-----

Table 19.4 - Percent of induced failures

	BOTH TCAS RESPONDING			ONE TCAS NON-RESPONDING			
	6.04A only	7.1-25 only	7.1-25/ 6.04A	6.04A only	7.1-25 only	6.04A/ 7.1-25NR	7.1-25/ 6.04A NR
TCAS-TCAS	0.486	0.041	0.176	5.126	0.331	2.411	1.553
One Mode C	2.026	0.527	-----	-----	-----	-----	-----

Appendix L REVERSAL ANALYSIS PROGRAM 1 (One Pilot Non-responding)

Encounter classes: 0,10 Date processed: 8/27/ 7 DATA SET NUMBER 8
 Based on FAA Technical Center data of: July 2007
 Total Encounters : 2352 Total incorrectly labeled RAs : 0

		Class 0		Planned = CROSSING						
		6.04A NonTCAS	V7.1-25 NonTCAS	6.04A R only	V7.1-25R only	6.04A R V7.1-25R	6.04A R 6.04AN	V7.1-25R 7.1-25N	6.04A R 7.1-25N	V7.1-25R 6.04AN
RAS/ runs	(%)	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
Total NMACS/ runs	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Induced/ NMACS	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reversals/ runs	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reversals/ RAS	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fast Reverse/ Reversals	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1 Reversal/ Reversals	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NMACS/ 1 Rev.	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Induced NMAC/ NMACS	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		Class 10		Planned = NON-CROSSING						
		6.04A NonTCAS	V7.1-25 NonTCAS	6.04A R only	V7.1-25R only	6.04A R V7.1-25R	6.04A R 6.04AN	V7.1-25R 7.1-25N	6.04A R 7.1-25N	V7.1-25R 6.04AN
RAS/ runs	(%)	65.63	65.63	65.63	65.63	65.63	65.63	65.63	65.63	65.63
Total NMACS/ runs	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Induced/ NMACS	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reversals/ runs	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reversals/ RAS	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fast Reverse/ Reversals	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1 Reversal/ Reversals	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NMACS/ 1 Rev.	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Induced NMAC/ NMACS	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

* NMACS and average alt. sep. at CPA are based on simulation truth

Encounter classes: 1,11 Date processed: 8/27/ 7 DATA SET NUMBER 8
Based on FAA Technical Center data of: July 2007
Total Encounters : 7056 Total incorrectly labeled RAs : 0

Class 1		Planned = CROSSING								
		6.04A NonTCAS	V7.1-25 NonTCAS	6.04A R only	V7.1-25R only	6.04A R V7.1-25R	6.04A R 6.04AN	V7.1-25R 7.1-25N	6.04A R 7.1-25N	V7.1-25R 6.04AN
RAs/ runs	(%)	94.39	94.39	94.39	94.39	94.39	94.39	94.39	94.39	94.39
Total NMACS/ runs	(%)	0.00	0.00	0.00	0.00	0.00	3.06	3.06	3.06	3.06
Induced/ NMACS	(%)	0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00	100.00
Reversals/ runs	(%)	0.00	0.00	0.00	0.00	0.00	0.00	1.40	1.02	0.64
Reversals/ RAs	(%)	0.00	0.00	0.00	0.00	0.00	0.00	1.49	1.08	0.68
Fast Reverse/ Reversals	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1 Reversal/ Reversals	(%)	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00
NMACS/ 1 Rev.	(%)	0.00	0.00	0.00	0.00	0.00	0.00	63.64	75.00	60.00
Induced NMAC/ NMACS	(%)	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00

Class 11		Planned = NON-CROSSING								
		6.04A NonTCAS	V7.1-25 NonTCAS	6.04A R only	V7.1-25R only	6.04A R V7.1-25R	6.04A R 6.04AN	V7.1-25R 7.1-25N	6.04A R 7.1-25N	V7.1-25R 6.04AN
RAs/ runs	(%)	60.71	71.43	60.71	71.43	71.43	60.71	71.43	71.43	71.43
Total NMACS/ runs	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Induced/ NMACS	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reversals/ runs	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reversals/ RAs	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fast Reverse/ Reversals	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1 Reversal/ Reversals	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NMACS/ 1 Rev.	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Induced NMAC/ NMACS	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

* NMACS and average alt. sep. at CPA are based on simulation truth

Encounter classes: 2,12 Date processed: 8/27/ 7 DATA SET NUMBER 8
Based on FAA Technical Center data of: July 2007
Total Encounters : 84648 Total incorrectly labeled RAS : 24

Class 2		Planned = CROSSING								
		6.04A NonTCAS	V7.1-25 NonTCAS	6.04A R only	V7.1-25R only	6.04A R V7.1-25R	6.04A R 6.04AN	V7.1-25R 7.1-25N	6.04A R 7.1-25N	V7.1-25R 6.04AN
RAS/ runs	(%)	99.14	98.97	99.60	98.94	99.07	99.55	98.97	99.07	99.07
Total NMACS/ runs	(%)	6.45	2.77	1.46	0.35	0.53	9.63	6.78	8.46	7.02
Induced/ NMACS	(%)	94.53	85.45	91.38	100.00	100.00	94.76	96.28	95.68	96.41
Reversals/ runs	(%)	2.04	7.89	0.00	0.33	0.28	0.00	8.13	4.94	3.99
Reversals/ RAS	(%)	2.06	7.97	0.00	0.33	0.28	0.00	8.21	4.99	4.03
Fast Reverse/ Reversals	(%)	6.17	0.32	0.00	0.00	4.55	0.00	0.47	0.26	0.63
1 Reversal/ Reversals	(%)	100.00	100.00	0.00	100.00	100.00	0.00	100.00	100.00	100.00
NMACS/ 1 Rev.	(%)	0.00	10.22	0.00	0.00	4.55	0.00	19.38	20.15	19.24
Induced NMAC/ NMACS	(%)	0.00	100.00	0.00	0.00	100.00	0.00	100.00	100.00	100.00

Class 12		Planned = NON-CROSSING								
		6.04A NonTCAS	V7.1-25 NonTCAS	6.04A R only	V7.1-25R only	6.04A R V7.1-25R	6.04A R 6.04AN	V7.1-25R 7.1-25N	6.04A R 7.1-25N	V7.1-25R 6.04AN
RAS/ runs	(%)	73.27	80.87	75.10	80.82	80.87	75.10	80.84	80.87	80.87
Total NMACS/ runs	(%)	0.19	0.00	0.00	0.00	0.00	0.19	0.00	0.29	0.00
Induced/ NMACS	(%)	100.00	0.00	0.00	0.00	0.00	100.00	0.00	100.00	0.00
Reversals/ runs	(%)	0.91	0.53	0.00	0.14	0.17	0.00	0.38	0.43	0.36
Reversals/ RAS	(%)	1.25	0.65	0.00	0.18	0.21	0.00	0.48	0.54	0.45
Fast Reverse/ Reversals	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1 Reversal/ Reversals	(%)	100.00	100.00	0.00	100.00	100.00	0.00	100.00	100.00	100.00
NMACS/ 1 Rev.	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.33	0.00
Induced NMAC/ NMACS	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00

* NMACS and average alt. sep. at CPA are based on simulation truth

Encounter classes: 3,13 Date processed: 8/27/ 7 DATA SET NUMBER 8
Based on FAA Technical Center data of: July 2007
Total Encounters : 108864 Total incorrectly labeled RAs : 0

Class 3 Planned = CROSSING		6.04A NonTCAS	V7.1-25 NonTCAS	6.04A R only	V7.1-25R only	6.04A R V7.1-25R	6.04A R 6.04AN	V7.1-25R 7.1-25N	6.04A R 7.1-25N	V7.1-25R 6.04AN
RAS/ runs (%)		65.75	65.77	65.69	65.77	65.77	65.69	65.77	65.77	65.77
Total NMACS/ runs (%)		0.89	0.08	0.00	0.00	0.00	0.22	0.11	0.22	0.12
Induced/ NMACS (%)		0.00	0.00	0.00	0.00	0.00	50.00	100.00	50.00	100.00
Reversals/ runs (%)		1.06	0.54	0.00	0.54	0.27	0.00	0.68	0.35	0.35
Reversals/ RAS (%)		1.60	0.82	0.00	0.82	0.41	0.00	1.03	0.53	0.53
Fast Reverse/ Reversals (%)		30.77	55.00	0.00	20.00	20.00	0.00	18.00	15.38	19.23
1 Reversal/ Reversals (%)		100.00	100.00	0.00	100.00	100.00	0.00	100.00	100.00	100.00
NMACS/ 1 Rev. (%)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Induced NMAC/ NMACS (%)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Class 13 Planned = NON-CROSSING		6.04A NonTCAS	V7.1-25 NonTCAS	6.04A R only	V7.1-25R only	6.04A R V7.1-25R	6.04A R 6.04AN	V7.1-25R 7.1-25N	6.04A R 7.1-25N	V7.1-25R 6.04AN
RAS/ runs (%)		59.29	58.33	62.06	60.12	60.01	62.13	60.66	60.01	61.20
Total NMACS/ runs (%)		0.76	0.22	0.10	0.00	0.02	1.96	0.21	1.05	0.77
Induced/ NMACS (%)		96.77	100.00	100.00	0.00	100.00	100.00	100.00	100.00	100.00
Reversals/ runs (%)		6.89	9.39	0.00	5.34	2.86	0.00	5.91	3.22	3.00
Reversals/ RAS (%)		11.62	16.09	0.00	8.89	4.76	0.00	9.74	5.37	4.91
Fast Reverse/ Reversals (%)		38.43	43.34	0.00	36.70	32.62	0.00	33.20	28.90	31.02
1 Reversal/ Reversals (%)		100.00	100.00	0.00	100.00	100.00	0.00	100.00	100.00	100.00
NMACS/ 1 Rev. (%)		0.00	0.00	0.00	0.00	0.43	0.00	1.04	3.42	0.00
Induced NMAC/ NMACS (%)		0.00	0.00	0.00	0.00	100.00	0.00	100.00	100.00	0.00

* NMACS and average alt. sep. at CPA are based on simulation truth

Encounter classes: 4,14 Date processed: 8/27/ 7 DATA SET NUMBER 8
Based on FAA Technical Center data of: July 2007
Total Encounters : 14112 Total incorrectly labeled RAs : 0

Class 4		Planned = CROSSING								
		6.04A NonTCAS	V7.1-25 NonTCAS	6.04A R only	V7.1-25R only	6.04A R V7.1-25R	6.04A R 6.04AN	V7.1-25R 7.1-25N	6.04A R 7.1-25N	V7.1-25R 6.04AN
RAS/ runs	(%)	97.25	97.25	96.70	97.25	96.84	96.98	97.25	96.84	97.25
Total NMACS/ runs	(%)	0.00	0.00	0.00	0.00	0.00	2.75	2.61	2.88	2.61
Induced/ NMACS	(%)	0.00	0.00	0.00	0.00	0.00	60.00	57.89	61.90	57.89
Reversals/ runs	(%)	0.00	0.00	0.00	0.00	0.14	0.00	3.37	2.13	1.37
Reversals/ RAS	(%)	0.00	0.00	0.00	0.00	0.14	0.00	3.46	2.20	1.41
Fast Reverse/ Reversals	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1 Reversal/ Reversals	(%)	0.00	0.00	0.00	0.00	100.00	0.00	100.00	100.00	100.00
NMACS/ 1 Rev.	(%)	0.00	0.00	0.00	0.00	0.00	0.00	16.33	19.35	20.00
Induced NMAC/ NMACS	(%)	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00

Class 14		Planned = NON-CROSSING								
		6.04A NonTCAS	V7.1-25 NonTCAS	6.04A R only	V7.1-25R only	6.04A R V7.1-25R	6.04A R 6.04AN	V7.1-25R 7.1-25N	6.04A R 7.1-25N	V7.1-25R 6.04AN
RAS/ runs	(%)	68.57	68.57	68.57	68.57	68.57	68.57	68.57	68.57	68.57
Total NMACS/ runs	(%)	0.00	0.00	0.00	0.00	0.00	2.86	1.43	2.32	1.96
Induced/ NMACS	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reversals/ runs	(%)	0.00	0.00	0.00	0.00	0.00	0.00	3.39	2.50	0.89
Reversals/ RAS	(%)	0.00	0.00	0.00	0.00	0.00	0.00	4.95	3.65	1.30
Fast Reverse/ Reversals	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1 Reversal/ Reversals	(%)	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00
NMACS/ 1 Rev.	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Induced NMAC/ NMACS	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

* NMACS and average alt. sep. at CPA are based on simulation truth

Encounter classes: 5,15 Date processed: 8/27/ 7 DATA SET NUMBER 8
Based on FAA Technical Center data of: July 2007
Total Encounters : 169344 Total incorrectly labeled RAs : 0

Class		Planned = CROSSING								
		6.04A NonTCAS	V7.1-25 NonTCAS	6.04A R only	V7.1-25R only	6.04A R V7.1-25R	6.04A R 6.04AN	V7.1-25R 7.1-25N	6.04A R 7.1-25N	V7.1-25R 6.04AN
RAS/ runs	(%)	95.76	95.70	95.77	94.25	95.01	95.83	94.97	95.01	95.70
Total NMACS/ runs	(%)	3.93	1.56	0.31	0.03	0.10	5.79	4.04	5.63	3.88
Induced/ NMACS	(%)	73.19	67.57	100.00	100.00	100.00	76.96	72.98	76.52	72.42
Reversals/ runs	(%)	0.81	3.36	0.00	0.34	0.23	0.00	4.13	2.77	1.93
Reversals/ RAS	(%)	0.85	3.51	0.00	0.36	0.24	0.00	4.35	2.91	2.02
Fast Reverse/ Reversals	(%)	0.00	4.39	0.00	28.13	18.60	0.00	2.30	1.52	2.19
1 Reversal/ Reversals	(%)	100.00	100.00	0.00	100.00	100.00	0.00	100.00	100.00	100.00
NMACS/ 1 Rev.	(%)	0.00	10.03	0.00	6.25	4.65	0.00	22.07	23.05	23.77
Induced NMAC/ NMACS	(%)	0.00	93.75	0.00	100.00	100.00	0.00	93.06	95.87	94.25

Class		Planned = NON-CROSSING								
		6.04A NonTCAS	V7.1-25 NonTCAS	6.04A R only	V7.1-25R only	6.04A R V7.1-25R	6.04A R 6.04AN	V7.1-25R 7.1-25N	6.04A R 7.1-25N	V7.1-25R 6.04AN
RAS/ runs	(%)	73.85	73.27	78.07	72.12	70.99	78.07	73.68	70.99	75.27
Total NMACS/ runs	(%)	1.19	0.81	0.69	0.08	0.13	2.13	1.50	1.69	1.59
Induced/ NMACS	(%)	29.03	19.05	100.00	100.00	100.00	24.32	19.23	10.23	15.66
Reversals/ runs	(%)	1.88	2.91	0.00	2.15	1.11	0.00	4.74	3.24	1.71
Reversals/ RAS	(%)	2.54	3.98	0.00	2.98	1.57	0.00	6.43	4.56	2.27
Fast Reverse/ Reversals	(%)	12.24	15.79	0.00	44.64	39.66	0.00	20.24	13.61	25.84
1 Reversal/ Reversals	(%)	100.00	100.00	0.00	100.00	100.00	0.00	100.00	100.00	100.00
NMACS/ 1 Rev.	(%)	0.00	2.63	0.00	3.57	3.45	0.00	6.07	1.18	10.11
Induced NMAC/ NMACS	(%)	0.00	0.00	0.00	100.00	100.00	0.00	60.00	100.00	33.33

* NMACS and average alt. sep. at CPA are based on simulation truth

Encounter classes: 6,16 Date processed: 8/27/ 7 DATA SET NUMBER 8
Based on FAA Technical Center data of: July 2007
Total Encounters : 169020 Total incorrectly labeled RAs : 324

Class 6		Planned = CROSSING								
		6.04A NonTCAS	V7.1-25 NonTCAS	6.04A R only	V7.1-25R only	6.04A R V7.1-25R	6.04A R 6.04AN	V7.1-25R 7.1-25N	6.04A R 7.1-25N	V7.1-25R 6.04AN
RAs/ runs	(%)	94.43	94.68	94.53	94.11	94.22	94.53	94.45	94.22	94.81
Total NMAs/ runs	(%)	1.77	0.71	0.27	0.06	0.15	4.10	2.87	3.93	3.05
Induced/ NMAs	(%)	43.79	55.88	46.15	66.67	85.71	82.97	87.98	83.47	89.00
Reversals/ runs	(%)	1.32	2.56	0.00	0.70	0.42	0.00	3.58	1.96	1.79
Reversals/ RAs	(%)	1.40	2.71	0.00	0.75	0.45	0.00	3.79	2.08	1.89
Fast Reverse/ Reversals	(%)	42.06	28.57	0.00	38.81	39.51	0.00	8.19	8.56	10.53
1 Reversal/ Reversals	(%)	100.00	100.00	0.00	100.00	100.00	0.00	100.00	100.00	100.00
NMAs/ 1 Rev.	(%)	3.17	8.57	0.00	2.99	7.41	0.00	21.64	24.87	16.08
Induced NMA/ NMAs	(%)	100.00	42.86	0.00	0.00	66.67	0.00	83.11	74.19	90.91

Class 16		Planned = NON-CROSSING								
		6.04A NonTCAS	V7.1-25 NonTCAS	6.04A R only	V7.1-25R only	6.04A R V7.1-25R	6.04A R 6.04AN	V7.1-25R 7.1-25N	6.04A R 7.1-25N	V7.1-25R 6.04AN
RAs/ runs	(%)	78.73	85.73	78.57	84.87	84.65	79.18	85.67	84.65	86.52
Total NMAs/ runs	(%)	0.79	0.08	0.04	0.00	0.00	2.98	0.08	1.53	1.24
Induced/ NMAs	(%)	100.00	100.00	100.00	0.00	0.00	100.00	100.00	100.00	100.00
Reversals/ runs	(%)	9.87	9.24	0.00	5.03	2.61	0.00	7.06	3.93	3.34
Reversals/ RAs	(%)	12.53	10.77	0.00	5.93	3.09	0.00	8.24	4.64	3.86
Fast Reverse/ Reversals	(%)	30.68	29.79	0.00	28.13	27.82	0.00	20.06	18.50	21.76
1 Reversal/ Reversals	(%)	100.00	100.00	0.00	100.00	100.00	0.00	100.00	100.00	100.00
NMAs/ 1 Rev.	(%)	0.00	0.43	0.00	0.00	0.00	0.00	0.84	2.00	0.00
Induced NMA/ NMAs	(%)	0.00	100.00	0.00	0.00	0.00	0.00	100.00	100.00	0.00

* NMAs and average alt. sep. at CPA are based on simulation truth

Encounter classes: 7,17 Date processed: 8/27/ 7 DATA SET NUMBER 8
Based on FAA Technical Center data of: July 2007
Total Encounters : 253848 Total incorrectly labeled RAs : 168

Class 7 Planned = CROSSING										
	6.04A NonTCAS	V7.1-25 NonTCAS	6.04A R only	V7.1-25R only	6.04A R V7.1-25R	6.04A R 6.04AN	V7.1-25R 7.1-25N	6.04A R 7.1-25N	V7.1-25R 6.04AN	
RAs/ runs (%)	99.60	99.40	99.36	99.15	99.18	99.52	99.30	99.18	99.44	
Total NMACS/ runs (%)	9.63	4.66	1.60	0.22	0.48	13.24	8.97	12.06	9.18	
Induced/ NMACS (%)	81.93	85.54	98.00	100.00	100.00	87.64	89.54	89.26	88.69	
Reversals/ runs (%)	2.66	12.48	0.00	0.43	0.38	0.00	9.55	6.84	4.94	
Reversals/ RAs (%)	2.67	12.55	0.00	0.44	0.38	0.00	9.61	6.89	4.97	
Fast Reverse/ Reversals (%)	5.72	3.92	0.00	0.00	4.21	0.00	0.17	0.23	0.32	
1 Reversal/ Reversals (%)	99.40	100.00	0.00	100.00	100.00	0.00	100.00	100.00	100.00	
NMACS/ 1 Rev. (%)	2.73	13.50	0.00	22.22	12.63	0.00	23.81	19.18	24.41	
Induced NMAC/ NMACS (%)	22.22	97.62	0.00	100.00	100.00	0.00	99.65	98.47	99.67	

Class 17 Planned = NON-CROSSING										
	6.04A NonTCAS	V7.1-25 NonTCAS	6.04A R only	V7.1-25R only	6.04A R V7.1-25R	6.04A R 6.04AN	V7.1-25R 7.1-25N	6.04A R 7.1-25N	V7.1-25R 6.04AN	
RAs/ runs (%)	74.32	74.71	71.63	73.44	71.62	73.26	74.29	71.62	75.13	
Total NMACS/ runs (%)	0.95	0.76	0.25	0.11	0.23	0.99	0.78	0.81	0.88	
Induced/ NMACS (%)	57.41	69.77	100.00	100.00	100.00	31.53	52.27	34.78	41.00	
Reversals/ runs (%)	0.56	2.13	0.00	0.25	0.12	0.00	1.16	0.74	0.52	
Reversals/ RAs (%)	0.76	2.85	0.00	0.34	0.17	0.00	1.57	1.03	0.69	
Fast Reverse/ Reversals (%)	18.75	12.40	0.00	35.71	21.43	0.00	7.58	3.57	5.08	
1 Reversal/ Reversals (%)	100.00	100.00	0.00	100.00	100.00	0.00	100.00	100.00	100.00	
NMACS/ 1 Rev. (%)	12.50	14.05	0.00	35.71	50.00	0.00	10.61	1.19	22.03	
Induced NMAC/ NMACS (%)	100.00	70.59	0.00	100.00	100.00	0.00	42.86	0.00	61.54	

* NMACS and average alt. sep. at CPA are based on simulation truth

Encounter classes: 8,18 Date processed: 8/27/ 7 DATA SET NUMBER 8
Based on FAA Technical Center data of: July 2007
Total Encounters : 252828 Total incorrectly labeled RAs : 1188

Class 8 Planned = CROSSING										
		6.04A NonTCAS	V7.1-25 NonTCAS	6.04A R only	V7.1-25R only	6.04A R V7.1-25R	6.04A R 6.04AN	V7.1-25R 7.1-25N	6.04A R 7.1-25N	V7.1-25R 6.04AN
RAs/ runs (%)		93.39	94.64	93.02	94.36	94.11	93.59	94.52	94.11	94.71
Total NMACS/ runs (%)		5.95	2.74	1.55	0.39	0.66	6.99	4.82	6.67	4.83
Induced/ NMACS (%)		80.55	78.07	85.92	88.89	93.51	89.23	93.25	92.08	92.31
Reversals/ runs (%)		3.89	8.27	0.00	1.47	0.93	0.00	6.73	4.18	3.34
Reversals/ RAs (%)		4.16	8.74	0.00	1.56	0.99	0.00	7.12	4.44	3.53
Fast Reverse/ Reversals (%)		37.32	14.08	0.00	11.17	13.46	0.00	2.60	2.99	4.06
1 Reversal/ Reversals (%)		99.63	100.00	0.00	100.00	100.00	0.00	100.00	100.00	100.00
NMACS/ 1 Rev. (%)		3.69	7.08	0.00	4.37	3.08	0.00	17.47	21.39	16.67
Induced NMAC/ NMACS (%)		90.00	97.56	0.00	77.78	87.50	0.00	98.78	97.60	100.00

Class 18 Planned = NON-CROSSING										
		6.04A NonTCAS	V7.1-25 NonTCAS	6.04A R only	V7.1-25R only	6.04A R V7.1-25R	6.04A R 6.04AN	V7.1-25R 7.1-25N	6.04A R 7.1-25N	V7.1-25R 6.04AN
RAs/ runs (%)		81.87	86.45	77.24	86.16	85.33	78.47	86.73	85.33	87.30
Total NMACS/ runs (%)		1.98	0.51	0.43	0.02	0.13	6.54	0.53	4.06	2.22
Induced/ NMACS (%)		100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Reversals/ runs (%)		15.02	14.85	0.00	7.62	4.04	0.00	9.91	5.77	4.81
Reversals/ RAs (%)		18.35	17.18	0.00	8.84	4.73	0.00	11.42	6.77	5.51
Fast Reverse/ Reversals (%)		41.41	38.31	0.00	24.37	22.69	0.00	18.73	15.87	19.05
1 Reversal/ Reversals (%)		100.00	100.00	0.00	100.00	100.00	0.00	100.00	100.00	100.00
NMACS/ 1 Rev. (%)		0.16	0.65	0.00	0.32	1.19	0.00	1.09	2.51	1.00
Induced NMAC/ NMACS (%)		100.00	100.00	0.00	100.00	100.00	0.00	100.00	100.00	100.00

* NMACS and average alt. sep. at CPA are based on simulation truth

Encounter classes: 9,19 Date processed: 8/27/ 7 DATA SET NUMBER 8
Based on FAA Technical Center data of: July 2007
Total Encounters : 217605 Total incorrectly labeled RAs : 123

Class 9 Planned = CROSSING		6.04A NonTCAS	V7.1-25 NonTCAS	6.04A R only	V7.1-25R only	6.04A R V7.1-25R	6.04A R 6.04AN	V7.1-25R 7.1-25N	6.04A R 7.1-25N	V7.1-25R 6.04AN
RAs/ runs (%)		68.90	68.05	69.32	68.32	68.30	69.42	68.35	68.30	68.58
Total NMACs/ runs (%)		1.13	0.41	0.22	0.03	0.09	1.46	0.69	1.05	0.80
Induced/ NMACS (%)		8.14	9.68	100.00	100.00	100.00	79.64	78.85	76.10	83.47
Reversals/ runs (%)		1.60	1.90	0.00	0.44	0.53	0.00	1.29	1.08	0.89
Reversals/ RAs (%)		2.32	2.79	0.00	0.64	0.78	0.00	1.89	1.57	1.30
Fast Reverse/ Reversals (%)		23.14	21.53	0.00	9.09	24.69	0.00	3.06	12.27	14.81
1 Reversal/ Reversals (%)		100.00	100.00	0.00	100.00	100.00	0.00	100.00	100.00	100.00
NMACS/ 1 Rev. (%)		0.00	4.86	0.00	3.03	3.70	0.00	5.10	4.91	2.22
Induced NMAC/ NMACs (%)		0.00	42.86	0.00	100.00	100.00	0.00	80.00	75.00	100.00

Class 19 Planned = NON-CROSSING		6.04A NonTCAS	V7.1-25 NonTCAS	6.04A R only	V7.1-25R only	6.04A R V7.1-25R	6.04A R 6.04AN	V7.1-25R 7.1-25N	6.04A R 7.1-25N	V7.1-25R 6.04AN
RAs/ runs (%)		72.76	71.22	74.29	73.00	72.13	74.41	73.28	72.13	73.49
Total NMACs/ runs (%)		2.35	0.49	0.44	0.04	0.16	4.70	0.31	2.24	1.45
Induced/ NMACS (%)		80.21	100.00	100.00	100.00	100.00	100.00	98.00	100.00	99.57
Reversals/ runs (%)		13.52	10.94	0.00	5.74	2.98	0.00	7.79	3.86	4.13
Reversals/ RAs (%)		18.58	15.35	0.00	7.87	4.13	0.00	10.64	5.36	5.62
Fast Reverse/ Reversals (%)		30.71	29.01	0.00	27.51	27.16	0.00	20.27	20.94	19.58
1 Reversal/ Reversals (%)		100.00	100.00	0.00	100.00	100.00	0.00	100.00	100.00	100.00
NMACS/ 1 Rev. (%)		0.00	0.46	0.00	0.66	2.32	0.00	2.09	2.76	0.91
Induced NMAC/ NMACs (%)		0.00	100.00	0.00	100.00	100.00	0.00	96.15	100.00	83.33

* NMACs and average alt. sep. at CPA are based on simulation truth

Appendix M V7.1 REPRESENTATIVE NMACs (Both Pilots Responding)

Change 7.1 Representative NMAC Unres01

Encounter Class : 8

Reit Number : 4813

NMAC Characterization

Number of encounters in group	2
AC1 low ID	0
Vertical tracker	25 ft
Planned separation	0 ft
AC1 rates :	-5000 fpm
AC2 rates :	-3000 fpm
AC1 acceleration :	0.05 g
AC2 acceleration :	-0.25 g
AC1 acceleration time :	CPA – 25 sec
AC2 acceleration time :	CPA – 30 sec
Encounters with reversed RAs	100 %

Performance Statistics for entire encounter class

<u>100 ft</u>	<u>25 ft</u>	
93	93	% of RAs were non-crossing
100	100	% of NMACs were non-crossing
97	98	% of RAs were not reversed
86	95	% of NMACs were not reversed

Comments

AC1 has high vertical rate. At the time AC2 issued the reversal, AC1 was just beginning to level off. At the time AC2 reversed, this looked like an SA01a encounter (vertical chase).

SIMULATION RESULTS FOR 6.04A, V7, and V7.1 JULY 2007 DATA ENCOUNTER C8H4813
 LOGIC THRESHOLDS SL = 6 ZTHR = 600 TAUR = 30 TAUV = 30 ALIM = 350
 PLANNED ENCOUNTER. SEP = 0.0 AC1 RATES(-5000.0,0.0) AC2 RATES(0.0,-3000.0)
 AC1 ACCEL 0.05g @ CPA -25 AC2 ACCEL -0.25g @ CPA -30 AC1 CPA ALT 7500

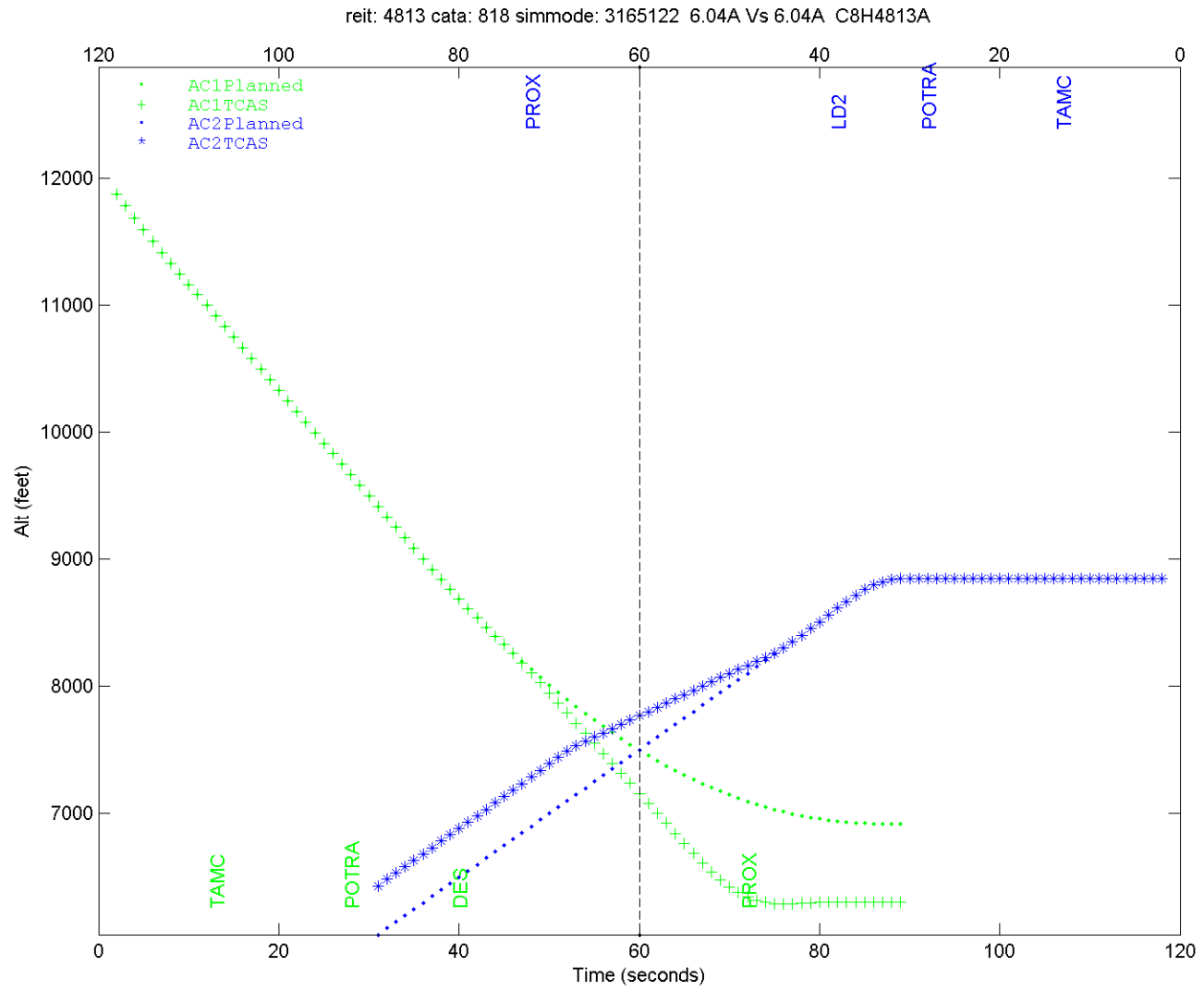
 4813 6.04A RH VS 6.04A RL 8 -607.74 CROSSING_ENC
 10 AC1: 3165122 TA :13 |TAUR| POTRA@28 (6FT) | DES @40 [X]
 5 AC2: 3265022 TA :13 |TAUR| LD2 @38 [X] | LD2 @49

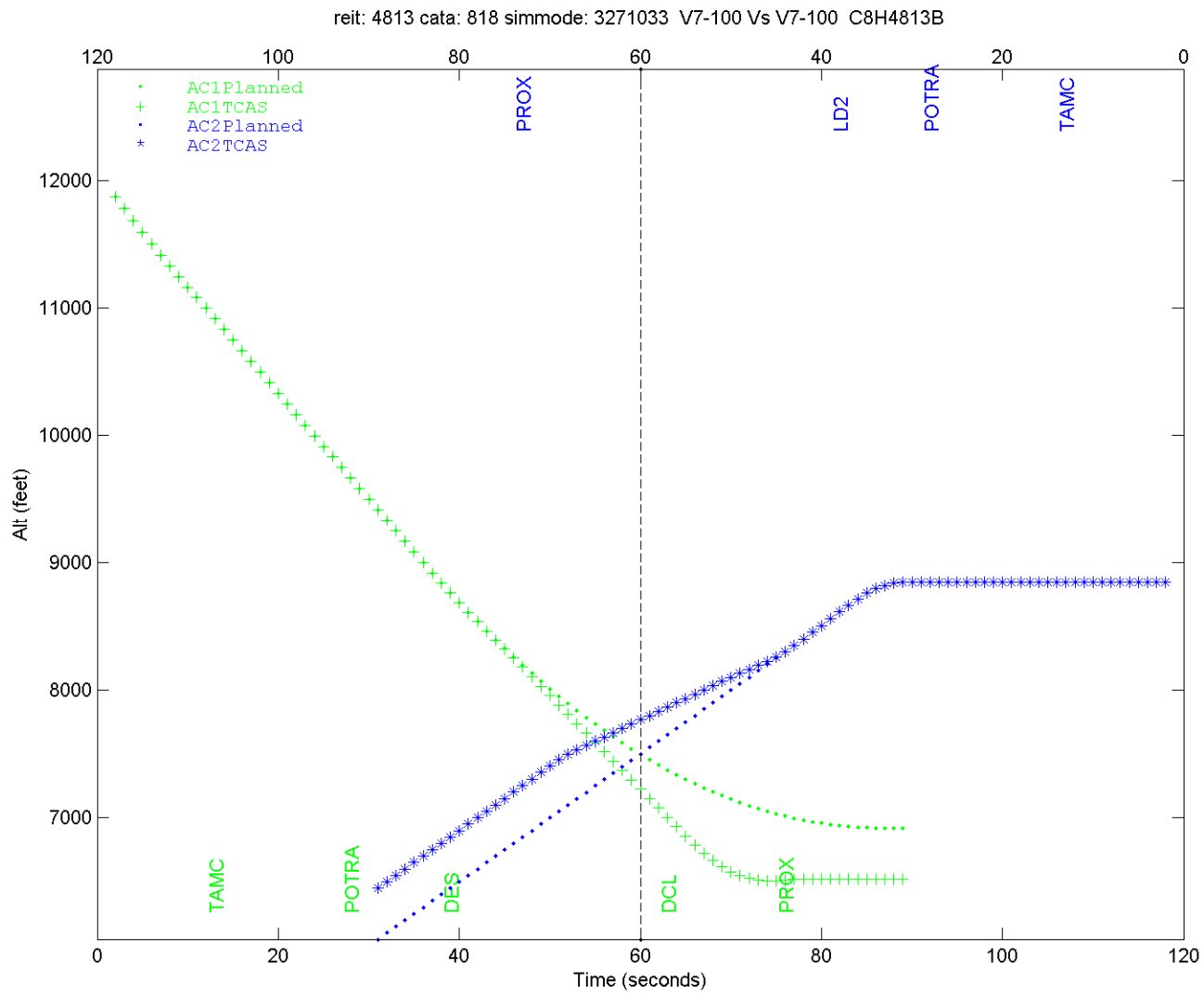
 4813 V7 100 FT RH VS V7 100 FT RL 8 -542.36 CROSSING_ENC
 10 AC1: 3171133 TA :13 |TAUR| POTRA@28 | DES @39 [X] | DCL @63
 5 AC2: 3271033 TA :13 |TAUR| POTRA@28 (LVW) | LD2 @38 [X] | LD2 @49

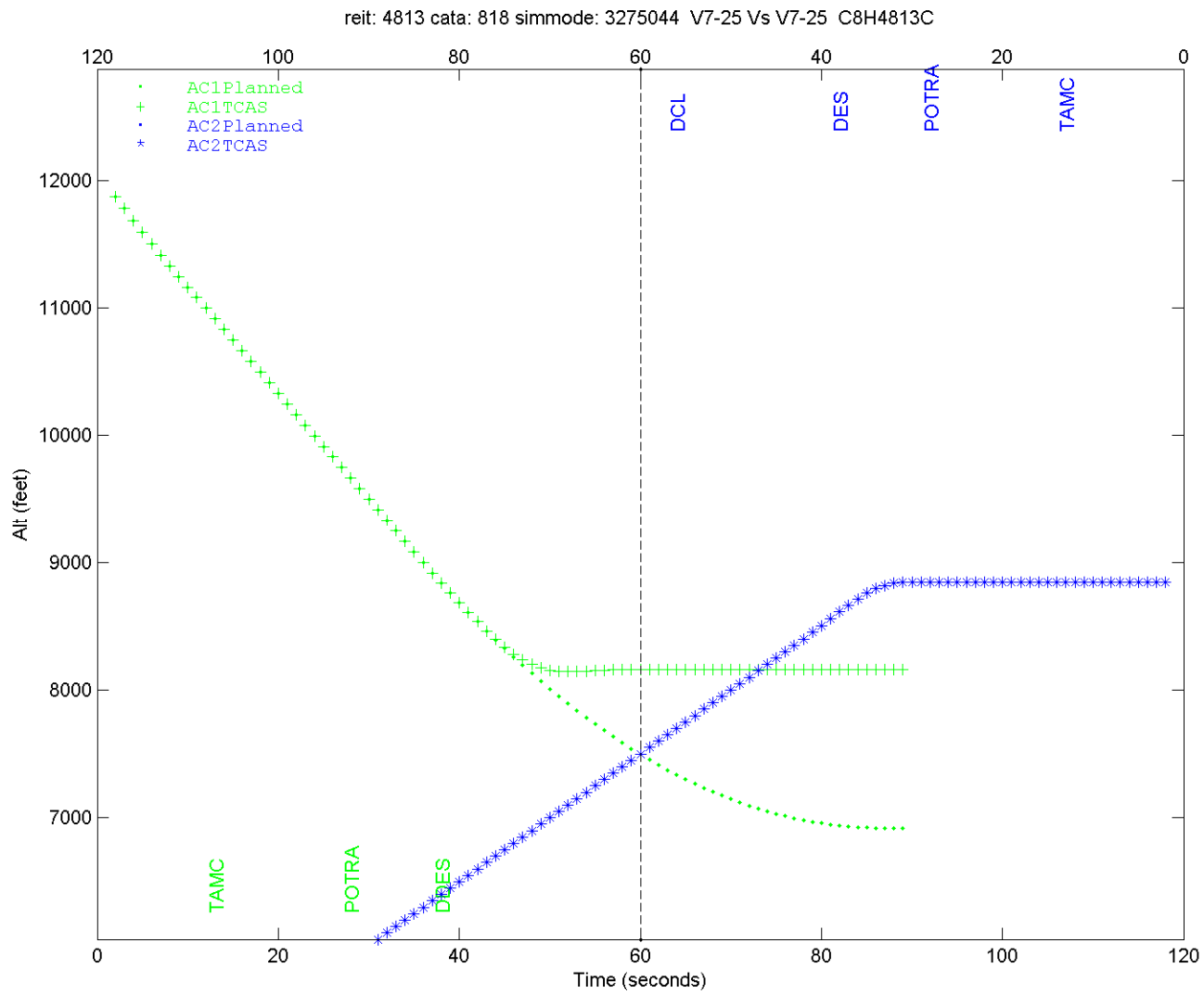
 4813 V7 25 FT RH VS V7 25 FT RL 8 656.79 NON_CROSSING_ENC
 10 AC1: 3175144 TA :13 |TAUR| POTRA@28 | DDES @38 [NX]
 5 AC2: 3275044 TA :13 |TAUR| POTRA@28 (LVW) | DES @38 [NX] | DCL @56

 4813 V7.1 100 FT RH VS V7.1 100 FT RL 8 -870.35 CROSSING_ENC
 CPT_REV 0 OWN_FOLLOW TRUE TTOFOLLOW 5.19 REV_AVOID 02 TIME_REV_AVOID 0.0
 10 AC1: 7171133 TA :13 |TAUR| POTRA@28 | DES @39 [X] | DCL @53
 CPT_REV 0 OWN_FOLLOW TRUE TTOFOLLOW 11.36 REV_AVOID 02 TIME_REV_AVOID 0.0
 5 AC2: 7271033 TA :13 |TAUR| POTRA@28 (LVW) | DDES @38 [X] | DDES @49

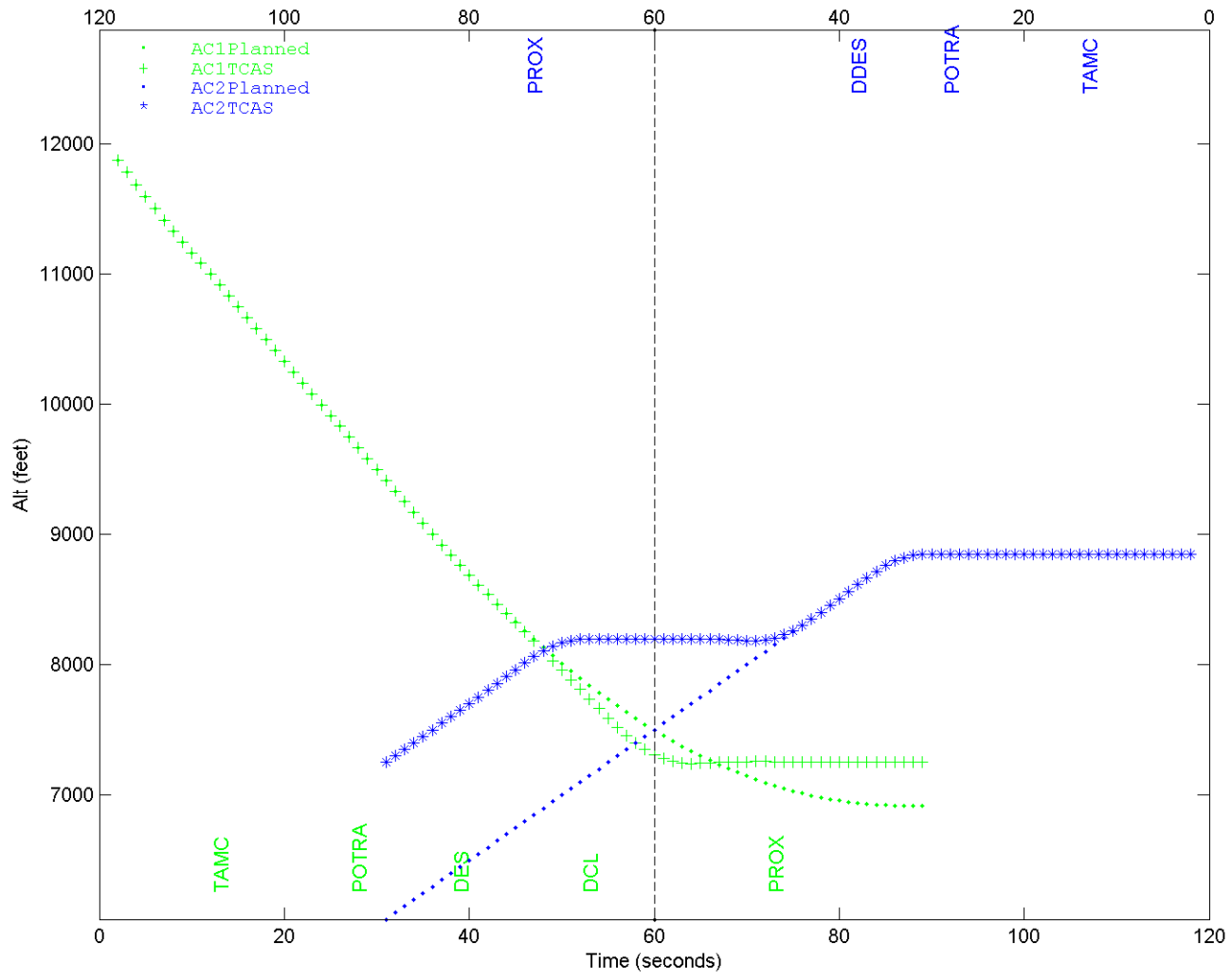
 4813 V7.1 25 FT RH VS V7.1 25 FT RL 8 -51.35 CROSSING_ENC
 CPT_REV 0 OWN_FOLLOW TRUE TTOFOLLOW 14.18 REV_AVOID 02 TIME_REV_AVOID 0.0
 10 AC1:*REV*7175144 TA :13 |TAUR| POTRA@28 | DDES @38 [NX] | DES @50 | IDES @52
 CPT_REV 1 OWN_FOLLOW TRUE TTOFOLLOW 5.60 REV_AVOID 02 TIME_REV_AVOID 0.0
 5 AC2:*REV*7275044 TA :13 |TAUR| POTRA@28 (LVW) | DES @38[NX] | CL @49 | ICL @54



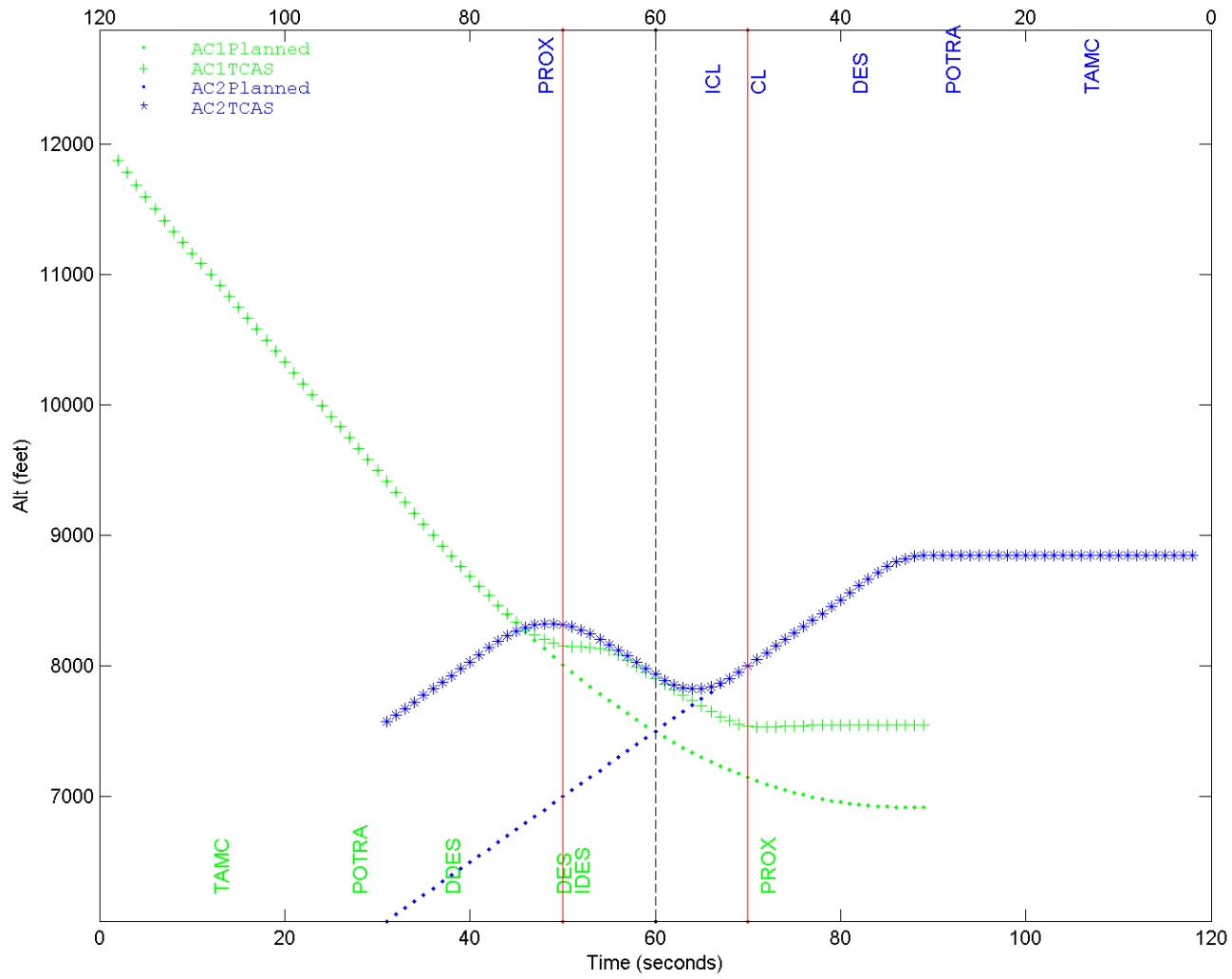




reit: 4813 cata: 818 simmode: 7271033 V7.1-100 Vs V7.1-100 C8H4813D



reit: 4813 cata: 818 simmode: 7275044 V7.1-25 Vs V7.1-25 C8H4813E



Change 7.1 Representative NMAC Ind01

Encounter Class : 5

Reit Number : 4213

NMAC Characterization

Number of encounters in group	8	
AC1 low ID	8	
Vertical tracker	100	ft
Planned separation	-500	ft
AC1 rates :	1000, 3000	fpm
AC2 rates :	3000, 5000	fpm
AC1 acceleration :	0	g
AC2 acceleration :	0.15, 0.25, 0.35	g
AC1 acceleration time :	no acceleration	
AC2 acceleration time :	CPA – 25	sec
Encounters with reversed RAs	100	%

Performance Statistics for entire encounter class

<u>100 ft</u>	<u>25 ft</u>	
95	95	% of RAs were non-crossing
100	100	% of NMACs were non-crossing
99	99	% of RAs were not reversed
68	94	% of NMACs were not reversed

Comments

At the time the reversal was chosen, this looked like a vertical chase scenario. Four of these encounters occur in the high altitude simulations. They are exactly the same encounter geometries that failed in the standard lower altitude simulations.

SIMULATION RESULTS FOR 6.04A, V7, and V7.1 JULY 2007 DATA ENCOUNTER C5L4213
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = -500.0 AC1 RATES(3000.0,3000.0) AC2 RATES(0.0,5000.0)
 AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.25g @ CPA -25 AC1 CPA ALT 7480

4213 6.04A RL VS 6.04A RH 5 327.84 CROSSING_ENC
 5 AC1: 3165022 TA :19 |PVMD| MCL @41 [NX]| ICL @46

10 AC2: 3265122 TA :19 |PVMD| POTRA@40 (DFD) | DES @41 [NX]| IDES @53

4213 V7 100 FT RL VS V7 100 FT RH 5 544.57 CROSSING_ENC
 5 AC1: 3171033 TA :19 |PVMD| CL @41[NX]| DDES @63

10 AC2: 3271133 TA :19 |PVMD| LC1 @40[NX]| DCL @45| DES @46| IDES @49| DCL @63

4213 V7 25 FT RL VS V7 25 FT RH 5 544.57 CROSSING_ENC
 5 AC1: 3175044 TA :19 |PVMD| CL @41[NX]| DDES @63

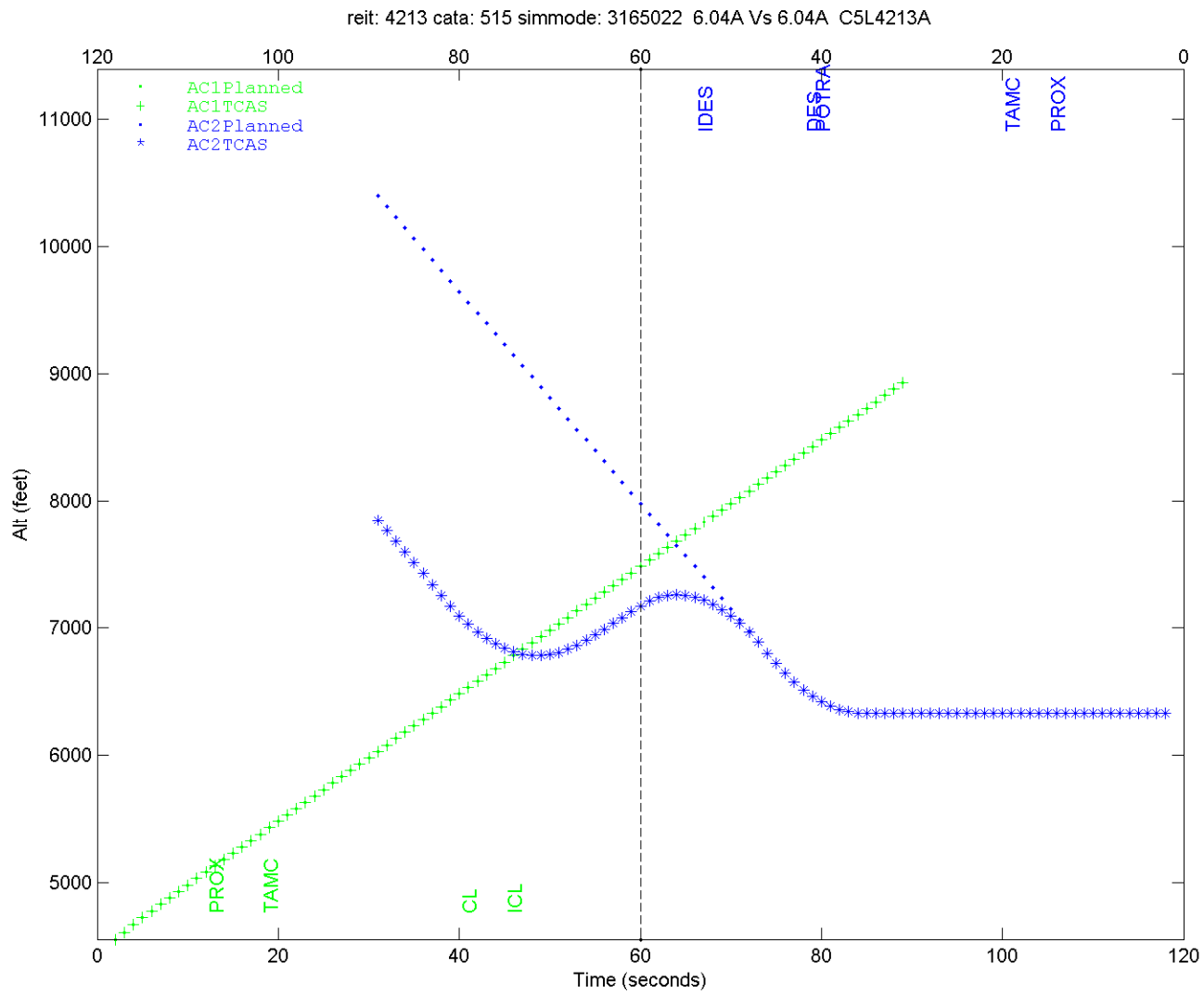
10 AC2: 3275144 TA :19 |PVMD| LC1 @40[NX]| DCL @45| DES @46| IDES @49| DCL @63

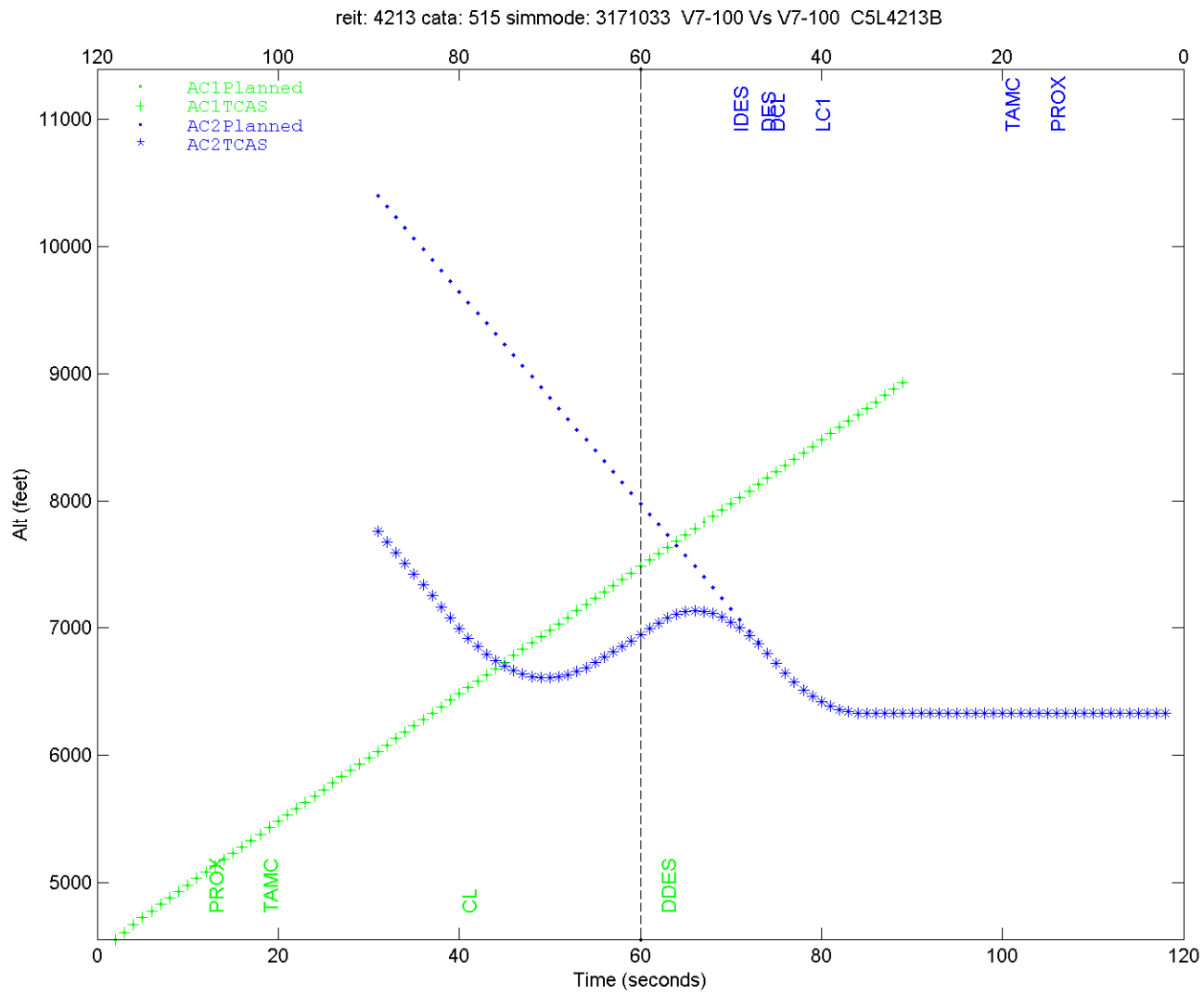
4213 V7.1 100 FT RL VS V7.1 100 FT RH 5 -29.90 CROSSING_ENC
 CPT_REV 1 OWN_FOLLOW TRUE TTOFOLLOW 5.00 REV_AVOID 02 TIME_REV_AVOID 0.0
 5 AC1:*REV*7171033 TA :19 |PVMD| CL @41[NX]| DES @52

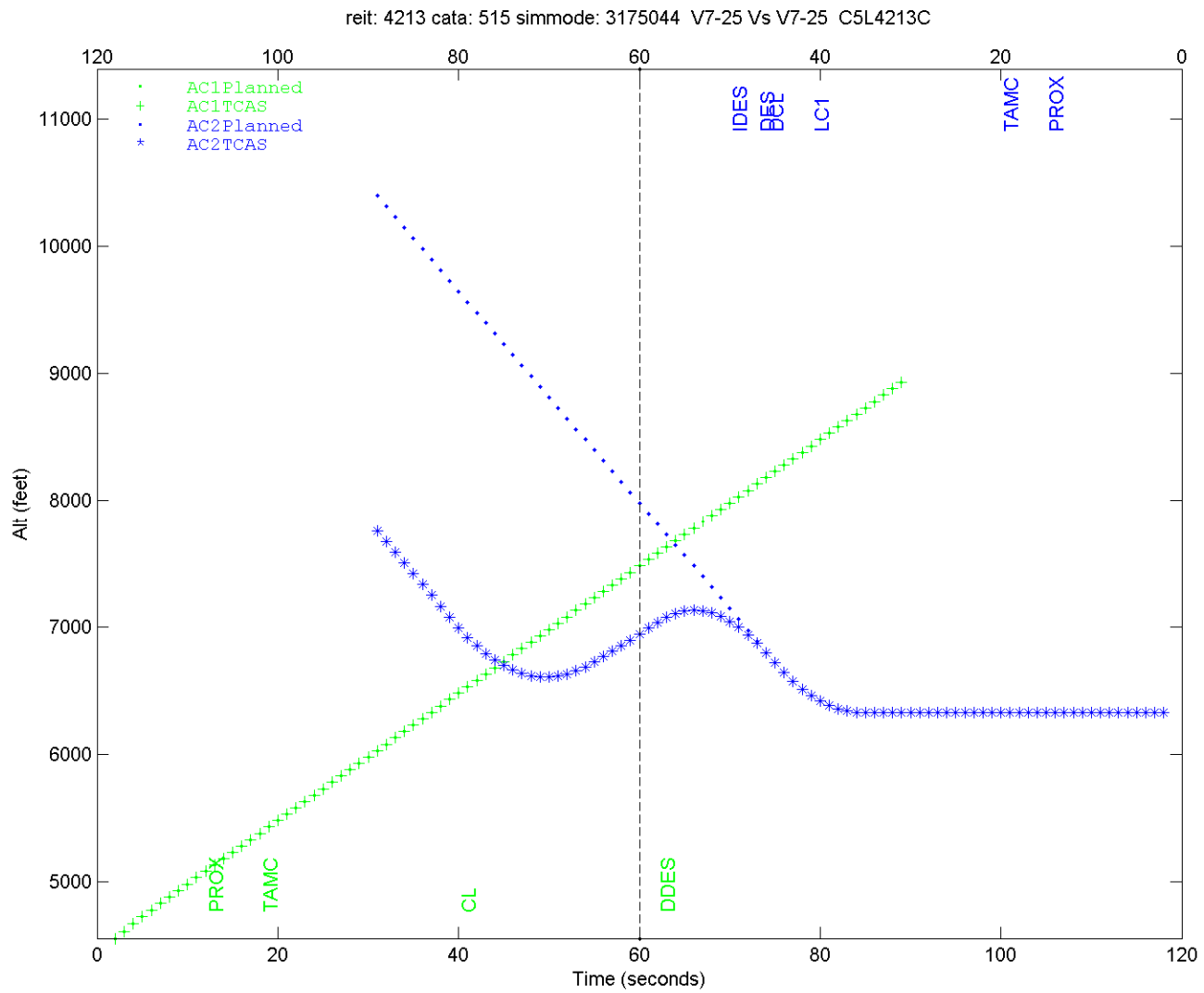
CPT_REV 1 OWN_FOLLOW TRUE TTOFOLLOW 13.22 REV_AVOID 02 TIME_REV_AVOID 0.0
 10 AC2:*REV*7271133 TA :19 |PVMD| DCL @40[NX]| DES @46| IDES @49| CL @52| ICL @54

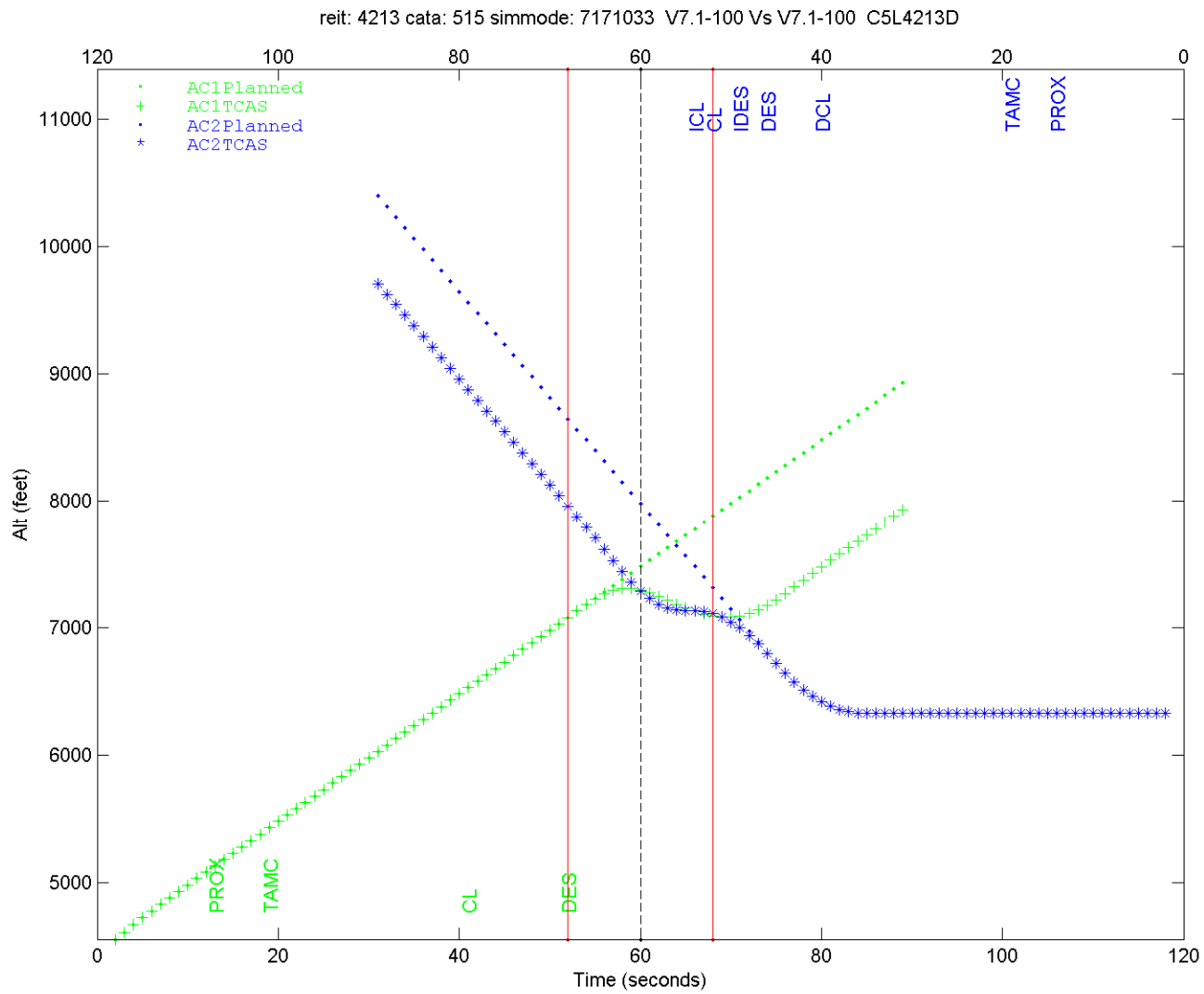
4213 V7.1 25 FT RL VS V7.1 25 FT RH 5 544.57 CROSSING_ENC
 CPT_REV 1 OWN_FOLLOW TRUE TTOFOLLOW 5.00 REV_AVOID 02 TIME_REV_AVOID 0.0
 5 AC1: 7175044 TA :19 |PVMD| CL @41 [NX]| DDES @63

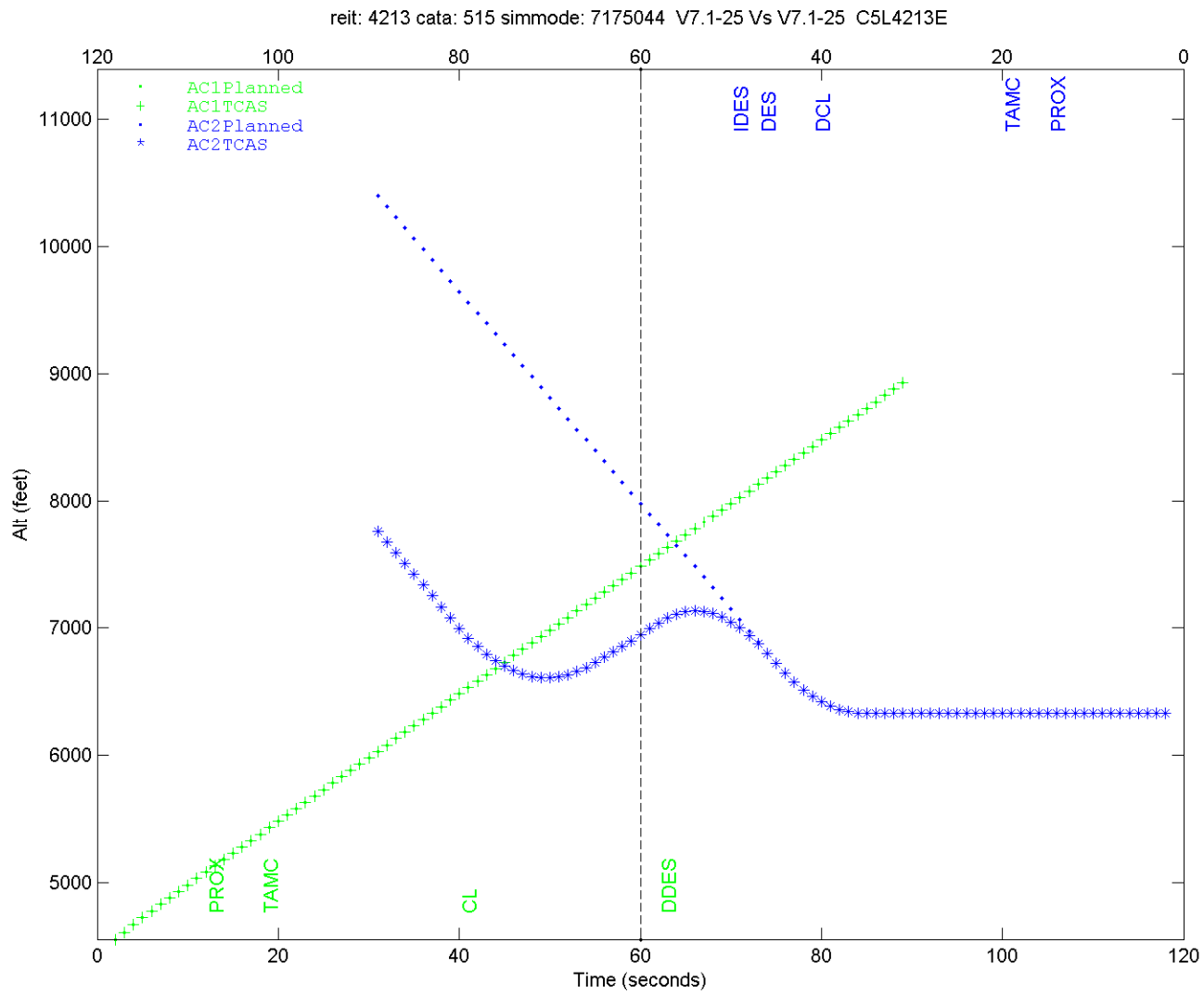
CPT_REV 0 OWN_FOLLOW TRUE TTOFOLLOW 13.22 REV_AVOID 02 TIME_REV_AVOID 0.0
 10 AC2: 7275144 TA :19 |PVMD| DCL @40 [NX]| DES @46 | IDES @49 | DCL @63











Change 7.1 Representative NMAC Ind02

Encounter Class : 6

Reit Number : 3409

NMAC Characterization

Number of encounters in group	2	
AC1 low ID	0	
Vertical tracker	100	ft
Planned separation	-750	ft
AC1 rates :	-3000	fpm
AC2 rates :	-5000	fpm
AC1 acceleration :	0	g
AC2 acceleration :	0.25	g
AC1 acceleration time :	no acceleration	
AC2 acceleration time :	CPA – 30	sec
Encounters with reversed RAs	100	%

Performance Statistics for entire encounter class

<u>100 ft</u>	<u>25 ft</u>	
84	85	% of RAs were non-crossing
87	67	% of NMACs were non-crossing
99	99	% of RAs were not reversed
95	97	% of NMACs were not reversed

Comments

Low ID AC2 initiated the reversal. At this time AC2 was below AC1 and descending.

SIMULATION RESULTS FOR 6.04A, V7, and V7.1 JULY 2007 DATA ENCOUNTER C6H3409
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = -750.0 AC1 RATES(-3000.0,-3000.0) AC2 RATES(-5000.0,0.0)
 AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.25g @ CPA -30 AC1 CPA ALT 7480

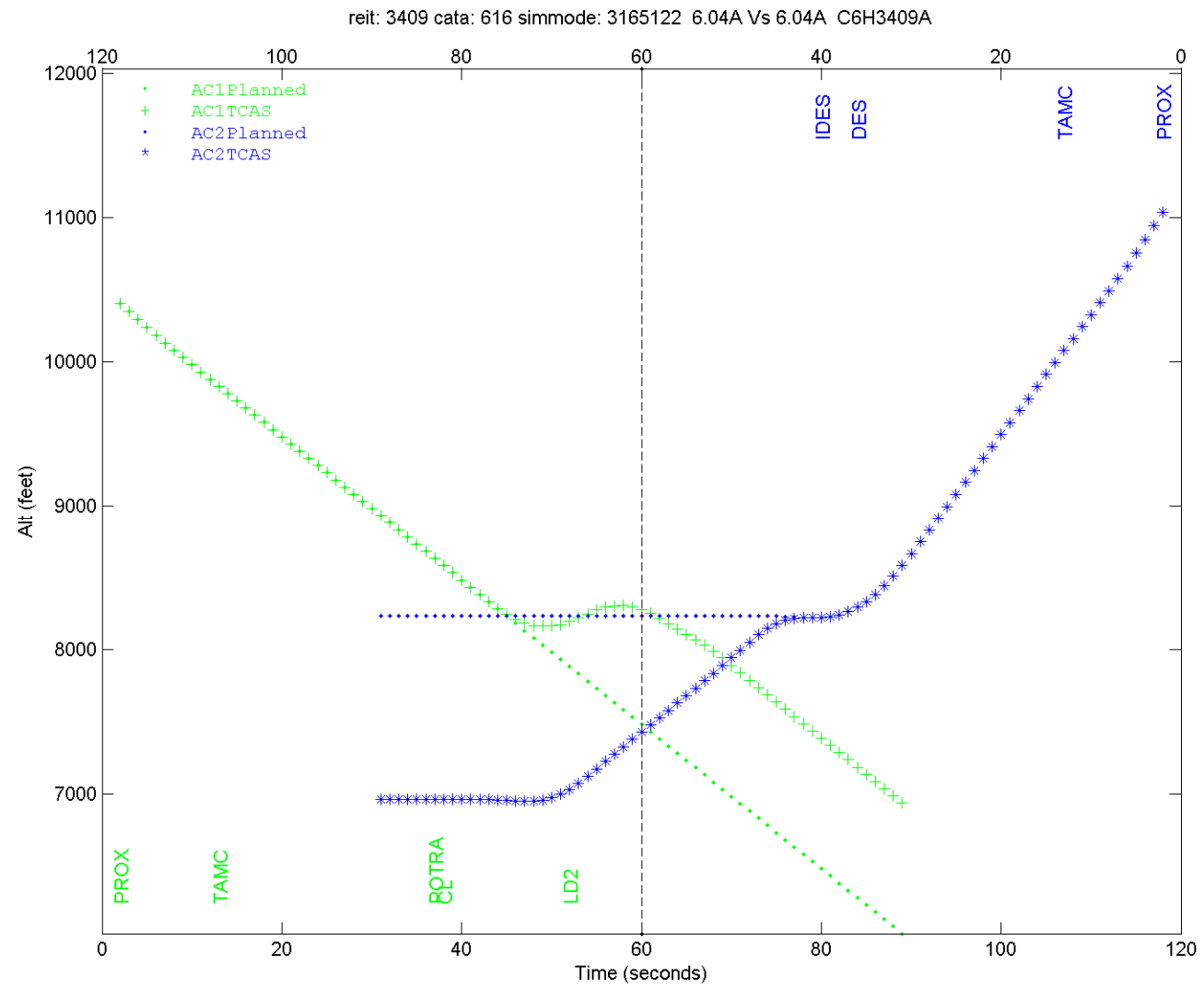
3409 6.04A RH VS 6.04A RL 6 835.25 CROSSING_ENC
 10 AC1: 3165122 TA :13 |PVMD| CL @38 [NX]| LD2 @52
 5 AC2: 3265022 TA :13 |PVMD| MDES @36 [NX]| DES @37 | IDES @40 | DES @57

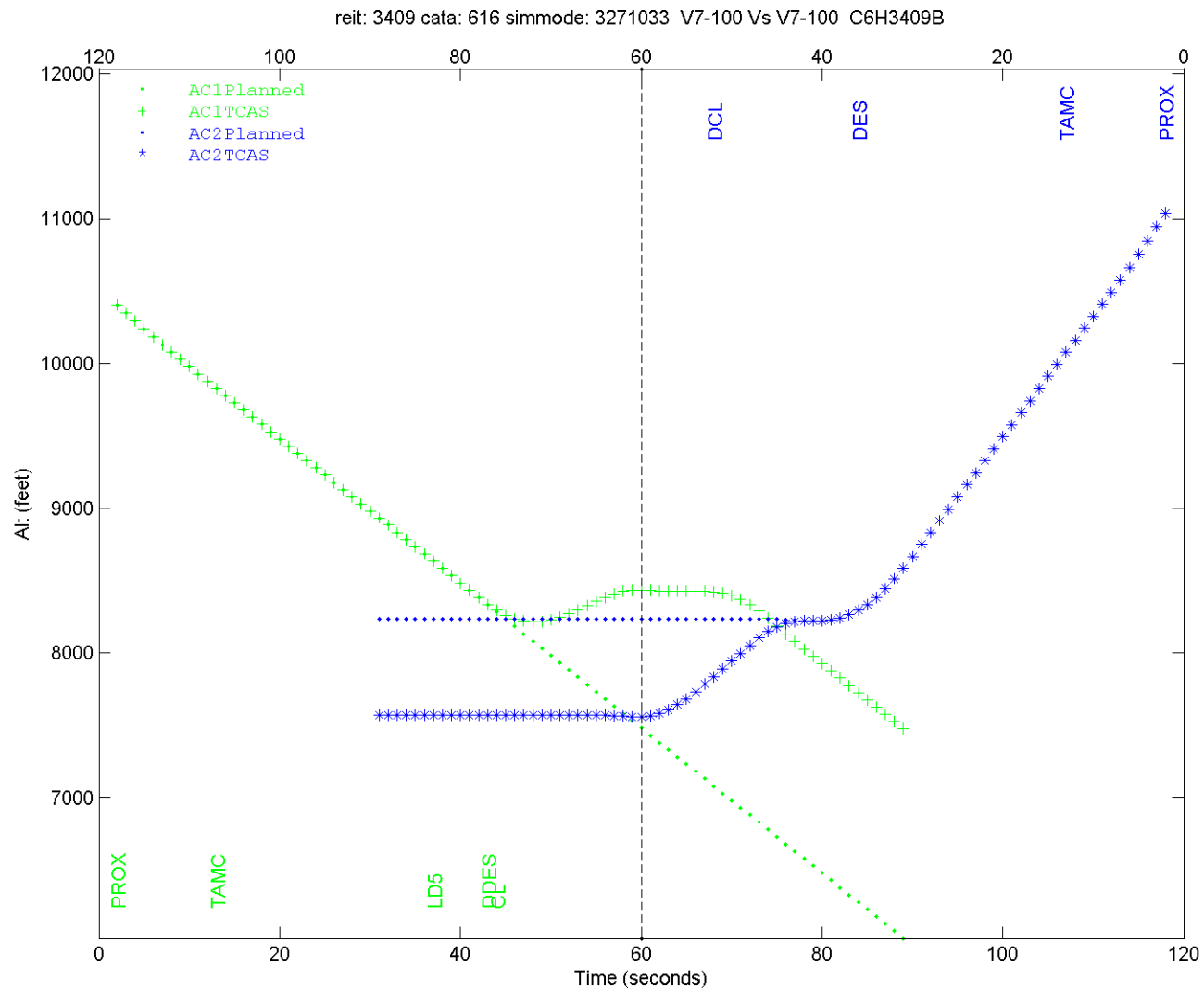
3409 V7 100 FT RH VS V7 100 FT RL 6 849.10 CROSSING_ENC
 10 AC1: 3171133 TA :13 |PVMD| LD5 @37 [NX]| DDES @43 | CL @44 | DDES @54
 5 AC2: 3271033 TA :13 |PVMD| DES @36 [NX]| DCL @52

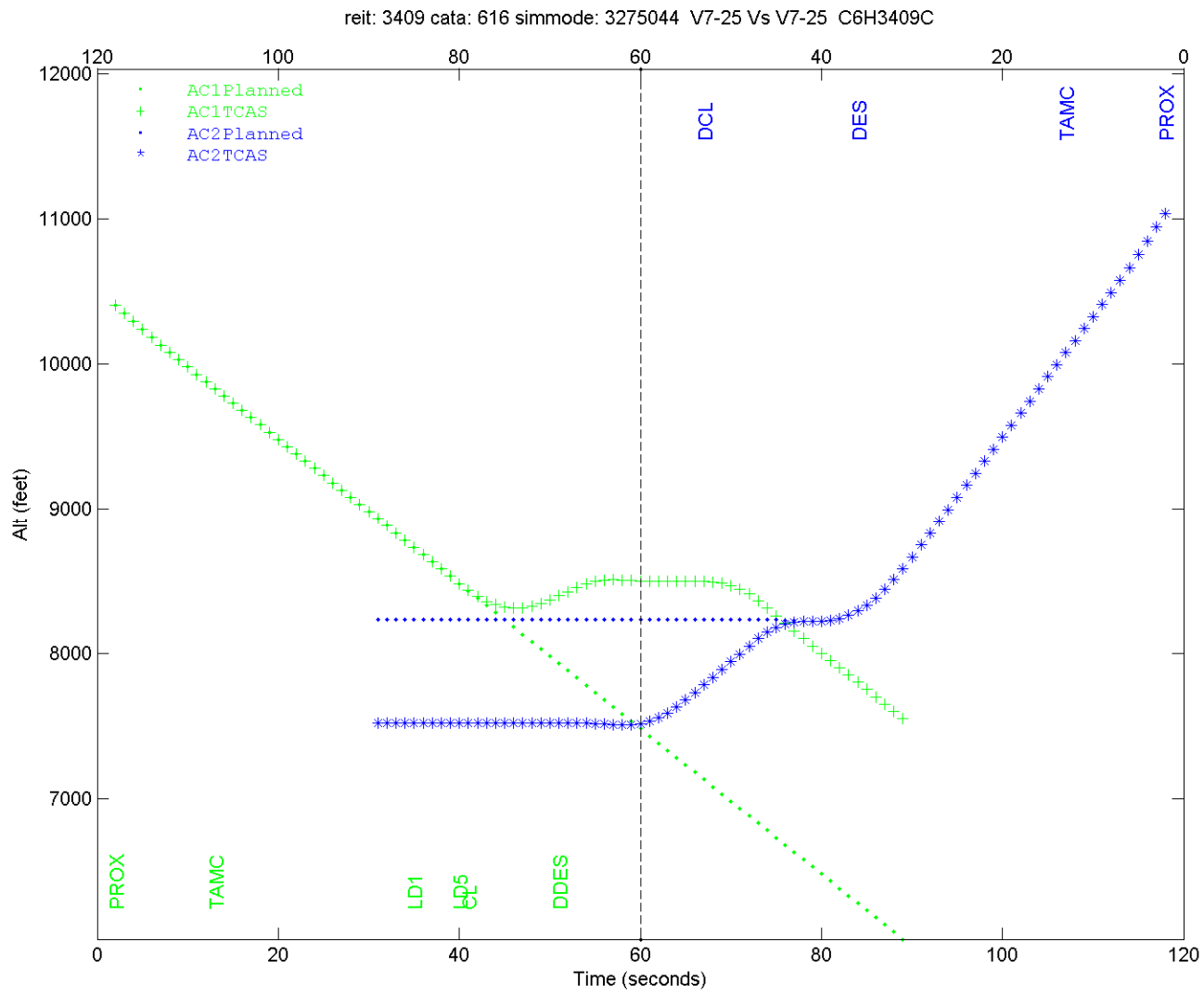
3409 V7 25 FT RH VS V7 25 FT RL 6 968.34 CROSSING_ENC
 10 AC1: 3175144 TA :13 |PVMD| LD1 @35 [NX]| LD5 @40 | CL @41 | DDES @51
 5 AC2: 3275044 TA :13 |PVMD| DES @36 [NX]| DCL @53

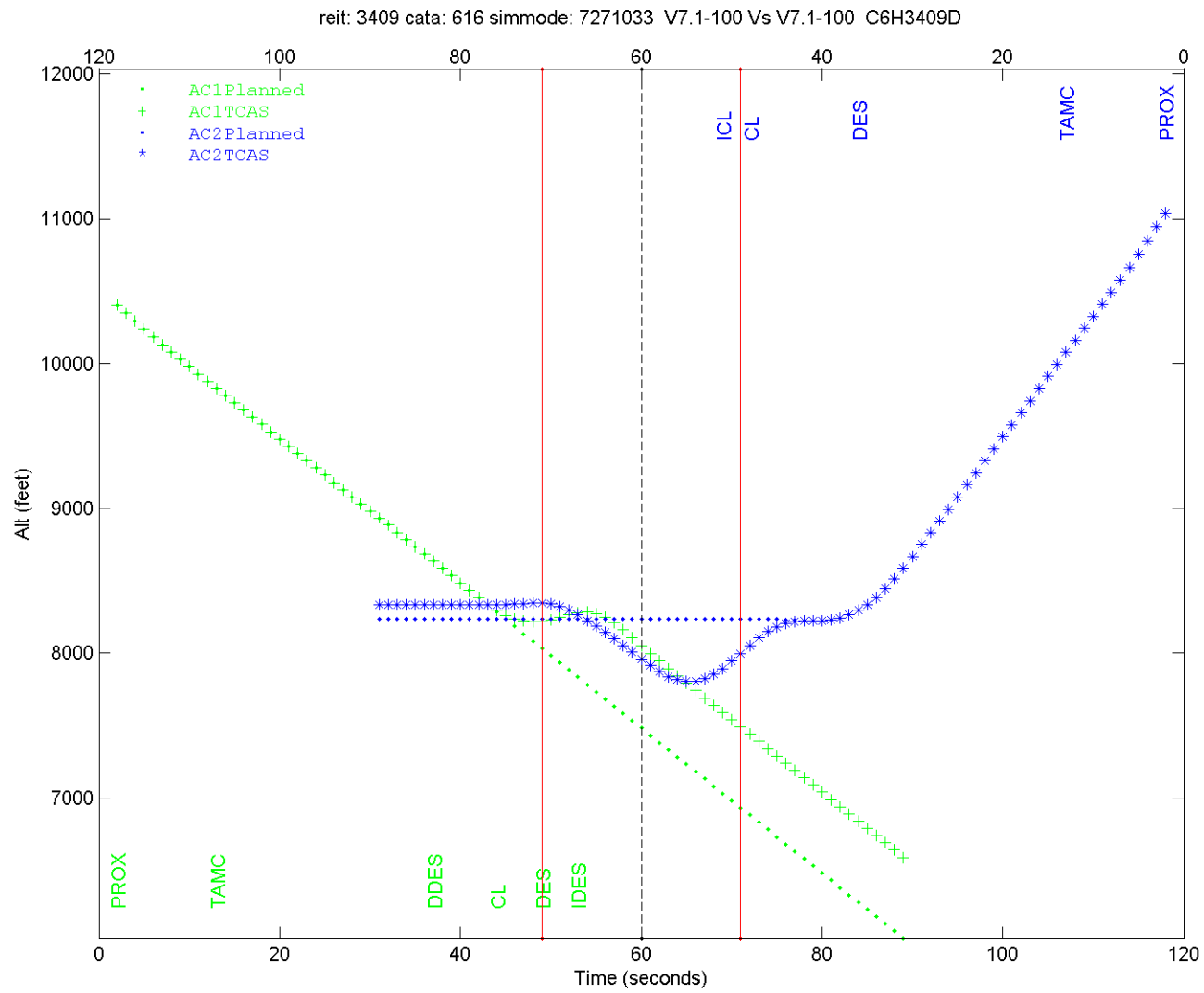
3409 V7.1 100 FT RH VS V7.1 100 FT RL 6 68.12 CROSSING_ENC
 CPT_REV 0 OWN_FOLLOW TRUE TTOFOLLOW 11.25 REV_AVOID 02 TIME_REV_AVOID 0.0
 10 AC1:*REV*7171133 TA :13 |PVMD| DDES @37 [NX]| CL @44 | DES @49 | IDES @53
 CPT_REV 1 OWN_FOLLOW TRUE TTOFOLLOW 10.12 REV_AVOID 02 TIME_REV_AVOID 0.0
 5 AC2:*REV*7271033 TA :13 |PVMD| DES @36 [NX]| CL @48 | ICL @51

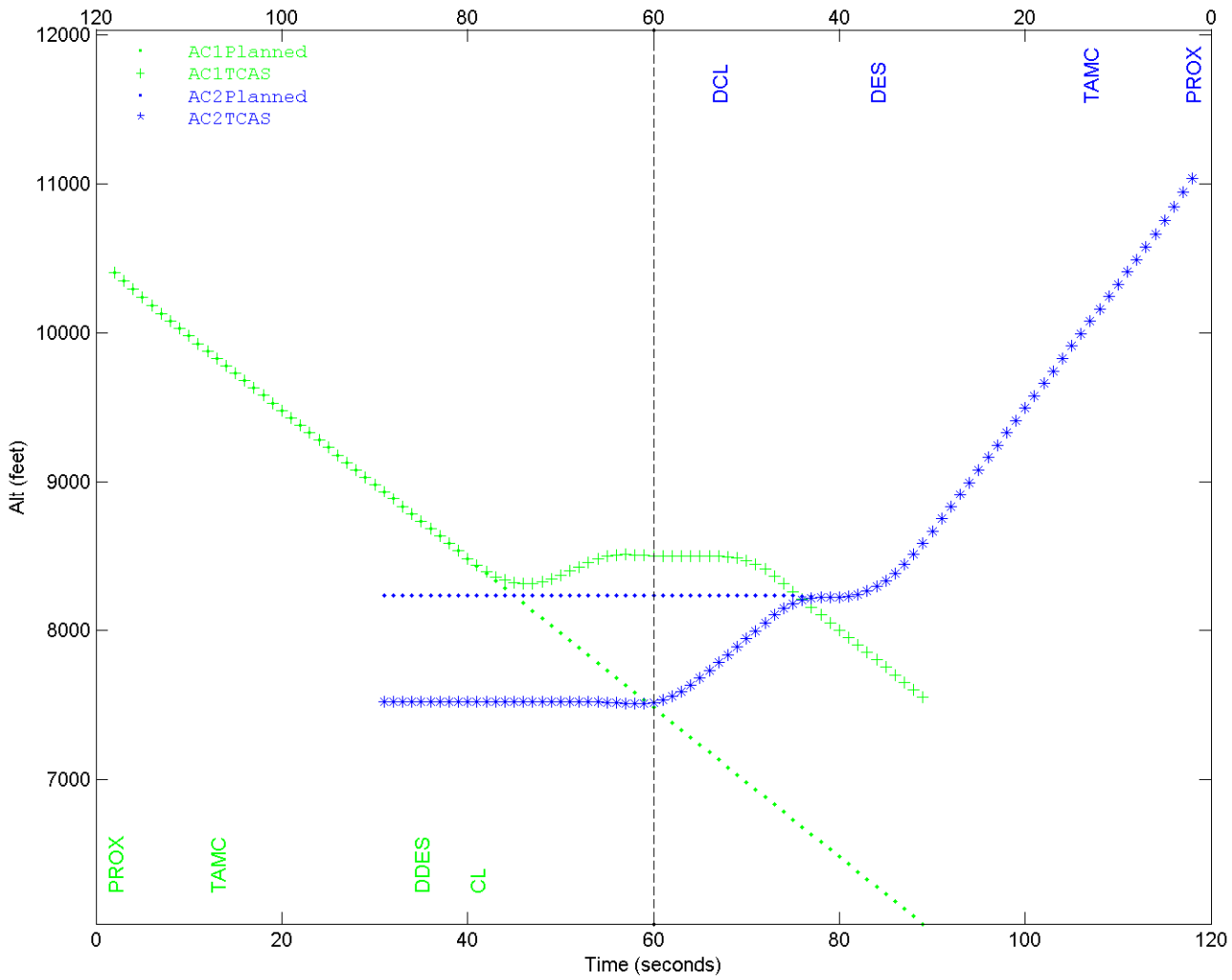
3409 V7.1 25 FT RH VS V7.1 25 FT RL 6 968.34 CROSSING_ENC
 CPT_REV 0 OWN_FOLLOW TRUE TTOFOLLOW 11.25 REV_AVOID 02 TIME_REV_AVOID 0.0
 10 AC1: 7175144 TA :13 |PVMD| DDES @35 [NX]| CL @41 | DDES @51
 CPT_REV 0 OWN_FOLLOW TRUE TTOFOLLOW 10.12 REV_AVOID 02 TIME_REV_AVOID 0.0
 5 AC2: 7275044 TA :13 |PVMD| DES @36 [NX]| DCL @53











Change 7.1 Representative NMAC Ind03

Encounter Class : 7

Reit Number : 749

NMAC Characterization

Number of encounters in group	1
AC1 low ID	1
Vertical tracker	100
Planned separation	-750 ft
AC1 rates :	3000 fpm
AC2 rates :	5000 fpm
AC1 acceleration :	0.05 g
AC2 acceleration :	0.15 g
AC1 acceleration time :	CPA – 25 sec
AC2 acceleration time :	CPA – 25 sec
Encounters with reversed RAs	100 %

Performance Statistics for entire encounter class

<u>100 ft</u>	<u>25 ft</u>	
97	98	% of RAs were non-crossing
100	100	% of NMACs were non-crossing
99	99	% of RAs were not reversed
74	78	% of NMACs were not reversed

Comments

AC2 with higher vertical rate had DES. At the time of the reversal this looked like a vertical chase scenario.

Same encounter with 25 foot tracker picked different sense initial commands with vastly different outcome.

SIMULATION RESULTS FOR 6.04A, V7, and V7.1 JULY 2007 DATA ENCOUNTER C7L749
 LOGIC THRESHOLDS SL = 4 ZTHR = 600 TAUR = 20 TAUV = 20 ALIM = 300
 PLANNED ENCOUNTER. SEP = -750.0 AC1 RATES (0.0,3000.0) AC2 RATES(0.0,5000.0)
 AC1 ACCEL 0.05g @ CPA -25 AC2 ACCEL 0.15g @ CPA -25 AC1 CPA ALT 3700

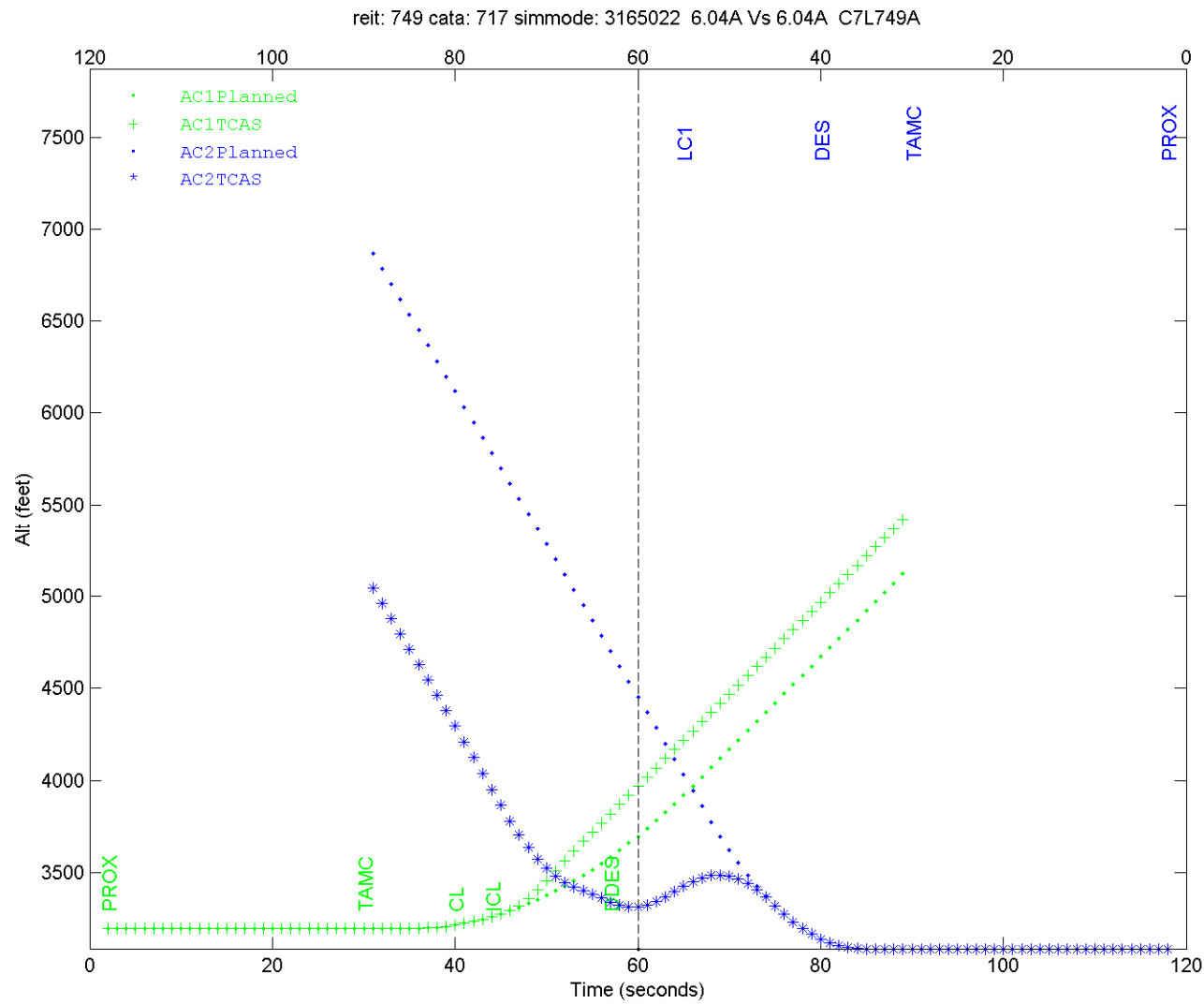
 749 6.04A RL VS 6.04A RH 7 645.84 CROSSING_ENC
 5 AC1: 3165022 TA :30 |TAUR| CL @40 [NX]| ICL @44 | DDES @57
 10 AC2: 3265122 TA :30 |TAUR| DES @40 [NX]| LC1 @55

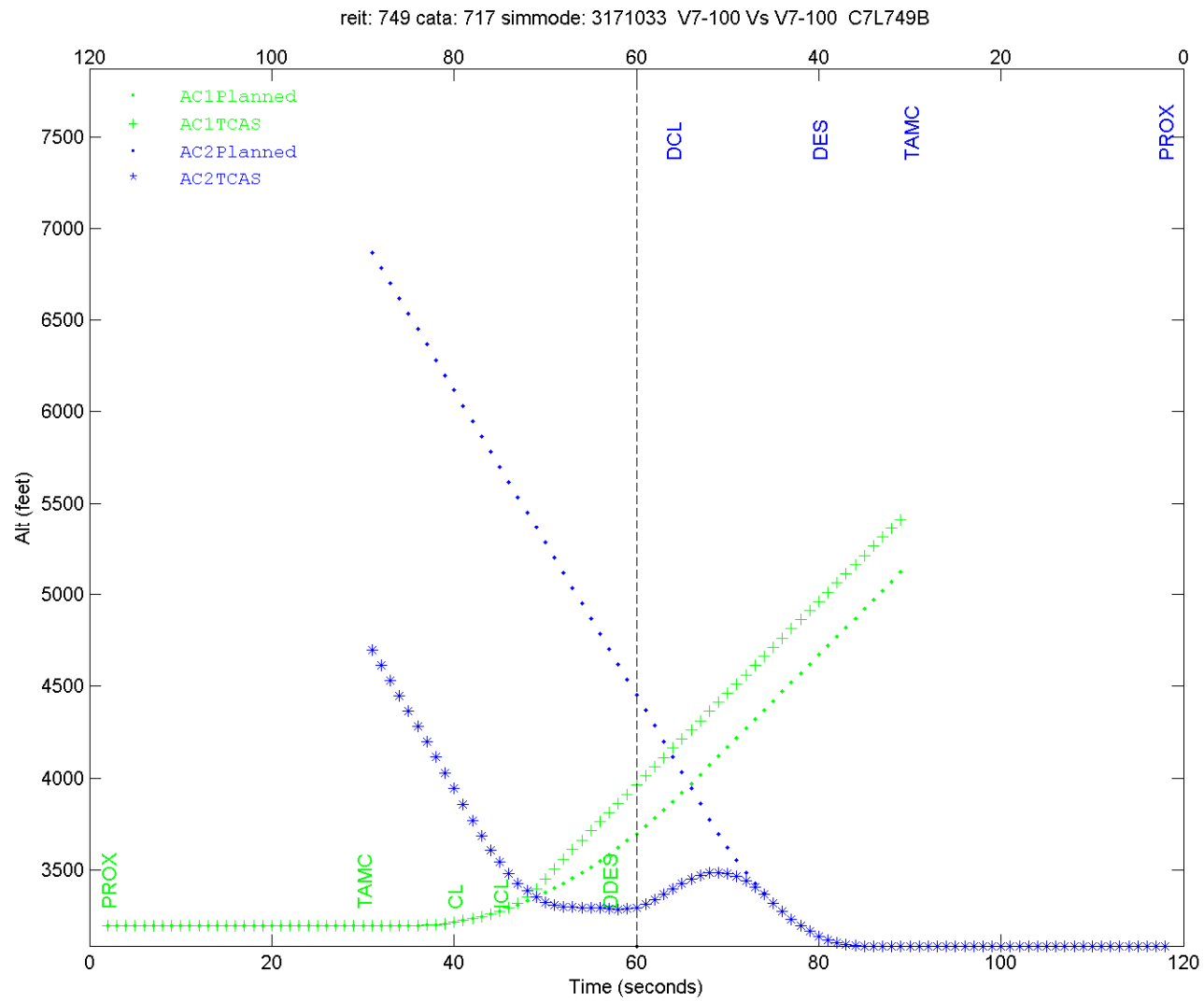
 749 V7 100 FT RL VS V7 100 FT RH 7 659.71 CROSSING_ENC
 5 AC1: 3171033 TA :30 |TAUR| CL @40 [NX]| ICL @45 | DDES @57
 10 AC2: 3271133 TA :30 |TAUR| DES @40 [NX]| DCL @56

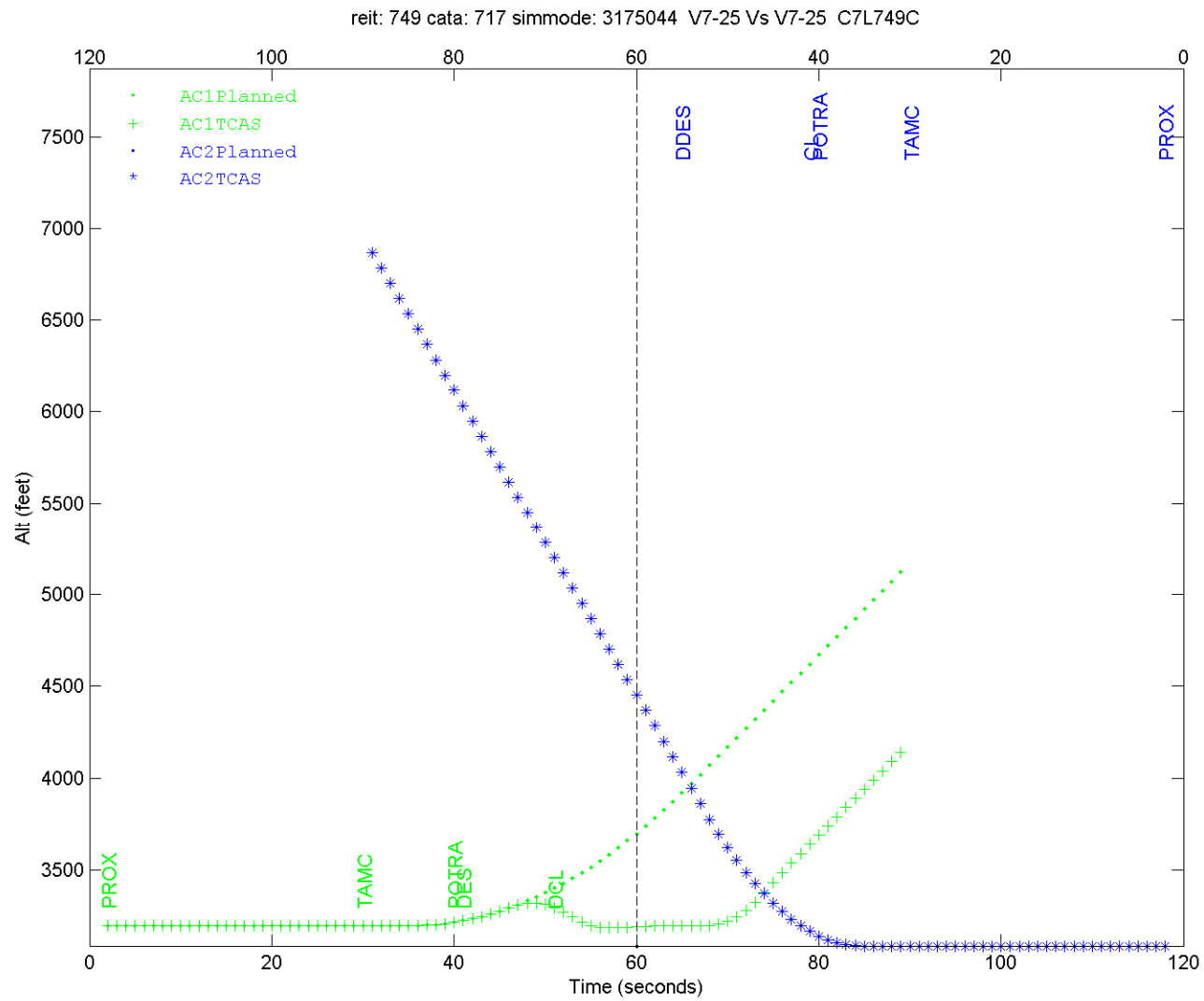
 749 V7 25 FT RL VS V7 25 FT RH 7 -1255.91 CROSSING_ENC
 5 AC1: 3175044 TA :30 |TAUR| POTRA@40 | DES @41 [NX]| DCL @51
 10 AC2: 3275144 TA :30 |TAUR| POTRA@40 | CL @41 [NX]| DDES @55

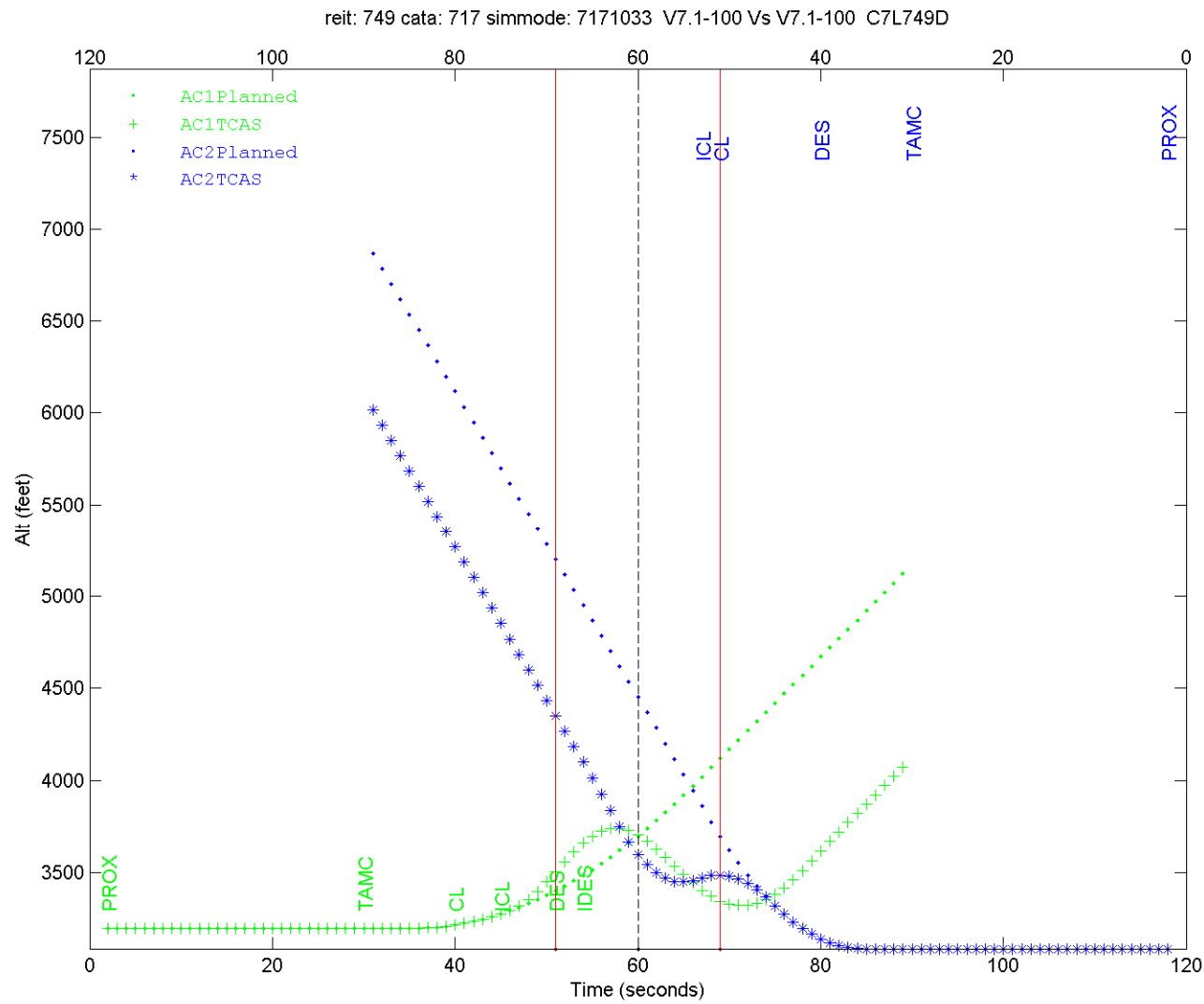
 749 V7.1 100 FT RL VS V7.1 100 FT RH 7 66.58 CROSSING_ENC
 CPT_REV 1 OWN_FOLLOW TRUE TTOFOLLOW 6.48 REV_AVOID 02 TIME_REV_AVOID 0.0
 5 AC1:*REV*7171033 TA :30 |TAUR| CL @40 [NX]| ICL @45 | DES @51 | IDES @54
 CPT_REV 0 OWN_FOLLOW TRUE TTOFOLLOW 13.06 REV_AVOID 02 TIME_REV_AVOID 0.0
 10 AC2:*REV*7271133 TA :30 |TAUR| DES @40 [NX]| CL @51 | ICL @53

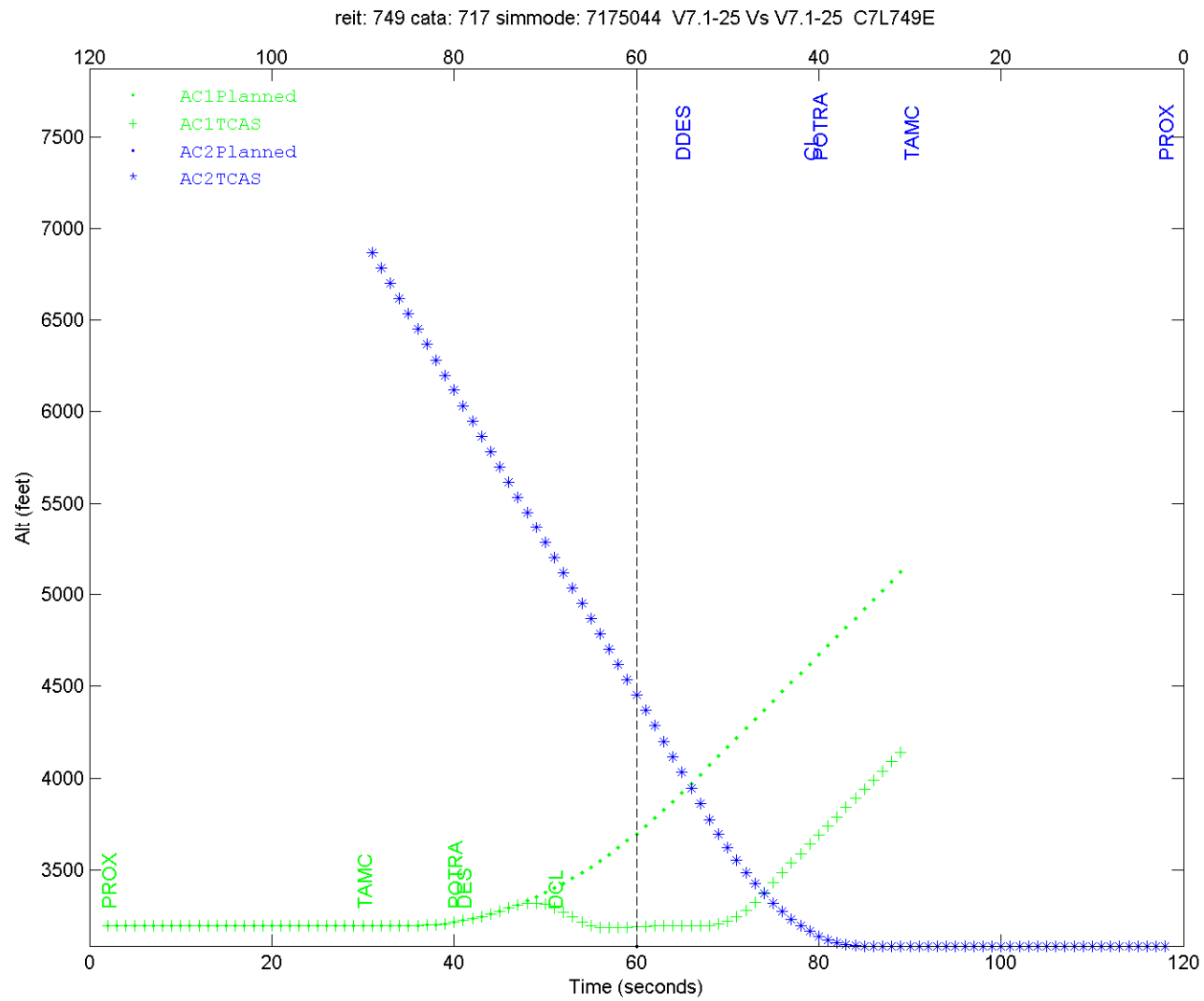
 749 V7.1 25 FT RL VS V7.1 25 FT RH 7 -1255.91 CROSSING_ENC
 CPT_REV 0 OWN_FOLLOW TRUE TTOFOLLOW 9.97 REV_AVOID 02 TIME_REV_AVOID 0.0
 5 AC1: 7175044 TA :30 |TAUR| POTRA@40 | DES @41 [NX]| DCL @51
 CPT_REV 0 OWN_FOLLOW TRUE TTOFOLLOW 7.42 REV_AVOID 02 TIME_REV_AVOID 0.0
 10 AC2: 7275144 TA :30 |TAUR| POTRA@40 | CL @41 [NX]| DDES @55











Change 7.1 Representative NMAC Ind04

Encounter Class : 8

Reit Number : 1422

NMAC Characterization

Number of encounters in group	5	
AC1 low ID	5	
Vertical tracker	100	ft
Planned separation	-750, 750	ft
AC1 rates :	-1000	fpm
AC2 rates :	-3000, 3000	fpm
AC1 acceleration :	0.15, 0.25	g
AC2 acceleration :	-0.35, 0.35	g
AC1 acceleration time :	CPA – 25	sec
AC2 acceleration time :	CPA – 20	sec
Encounters with reversed RAs	100	%

Performance Statistics for entire encounter class

<u>100 ft</u>	<u>25 ft</u>	
93	93	% of RAs were non-crossing
100	100	% of NMACs were non-crossing
97	98	% of RAs were not reversed
86	95	% of NMACs were not reversed

Comments

Higher vertical rate AC2 received positive RA in opposite sense.
 At time reversal was selected AC2 barely beginning to level off.
 This appeared to be an SA01 encounter.
 Four of the encounters ended with +/- 94 feet separation.

SIMULATION RESULTS FOR 6.04A, V7, and V7.1 JULY 2007 DATA ENCOUNTER C8L1422
 LOGIC THRESHOLDS SL = 4 ZTHR = 600 TAUR = 20 TAUV = 20 ALIM = 300
 PLANNED ENCOUNTER. SEP = 750.0 AC1 RATES(-1000.0,0.0) AC2 RATES(0.0,-3000.0)
 AC1 ACCEL 0.05g @ CPA -25 AC2 ACCEL -0.35g @ CPA -20 AC1 CPA ALT 3700

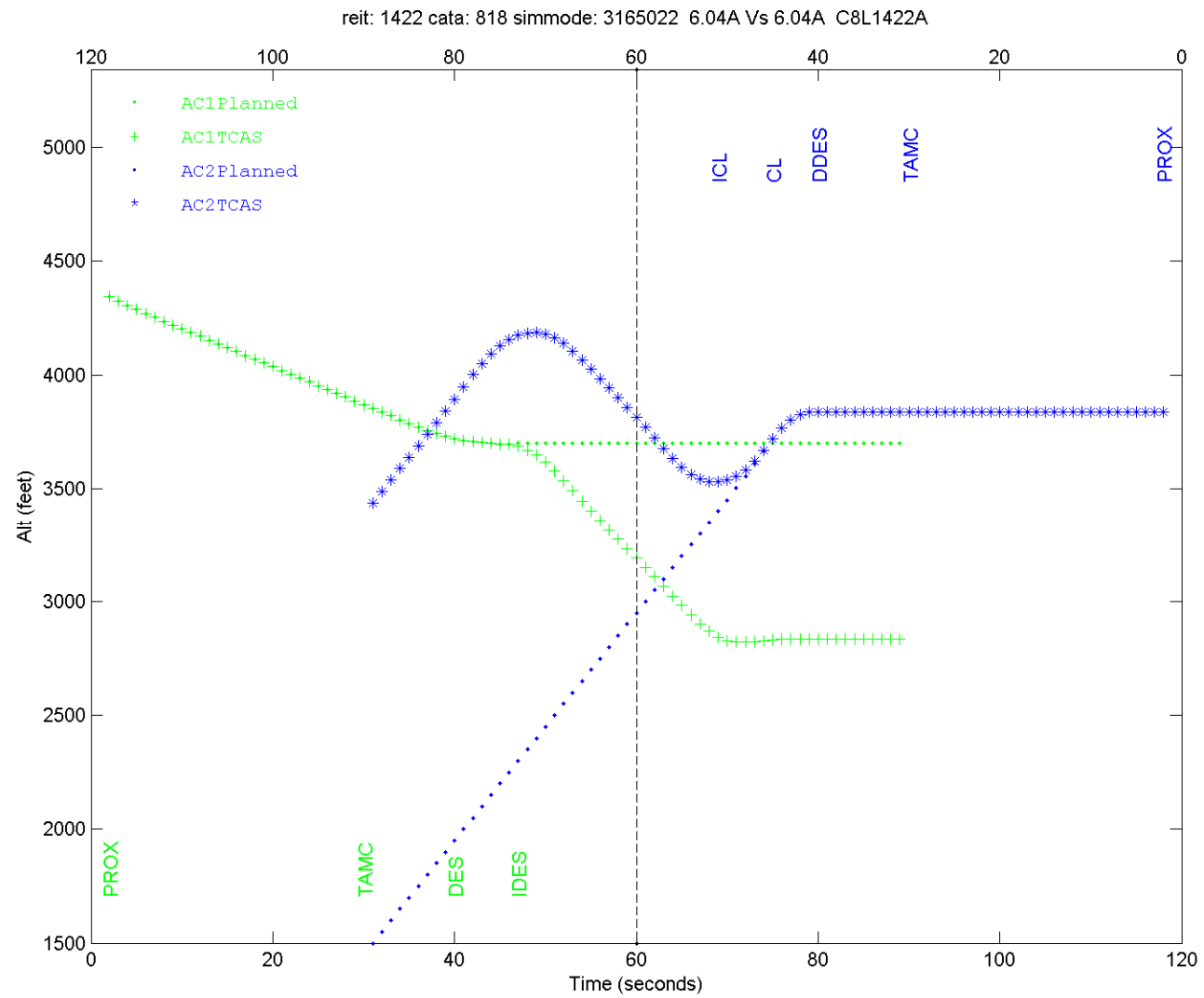
1422 6.04A RL VS 6.04A RH 8 -624.73 CROSSING_ENC
 5 AC1: 3165022 TA :30 |TAUR| DES @40[NX]| IDES @47 | MDES @62
 10 AC2: 3265122 TA :30 |TAUR| DDES @40[NX]| DDES @42 | CL @45 | ICL @51 | MCL @61

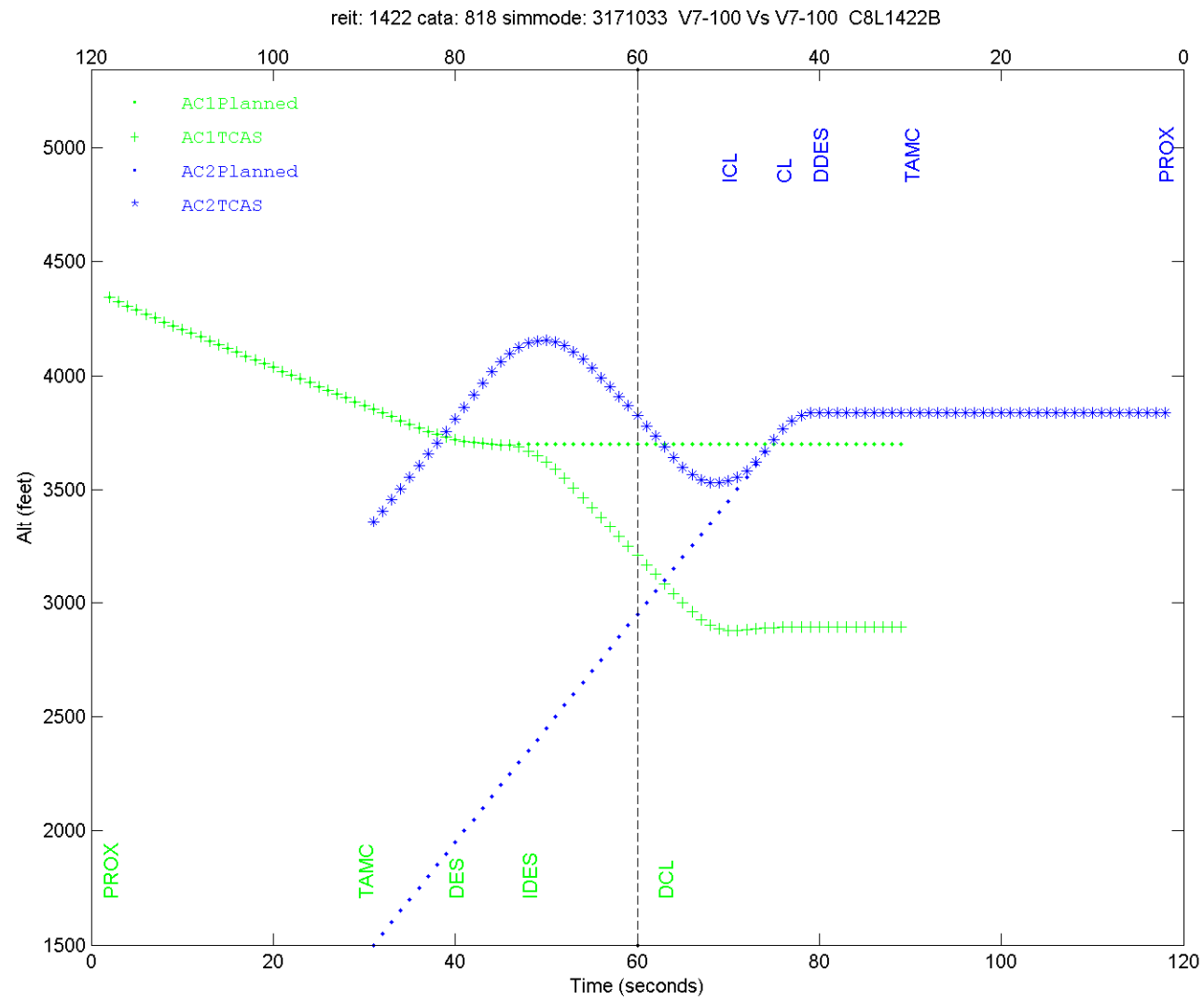
1422 V7 100 FT RL VS V7 100 FT RH 8 -617.01 CROSSING_ENC
 5 AC1: 3171033 TA :30 |TAUR| DES @40[NX]| IDES @48 | DCL @63
 10 AC2: 3271133 TA :30 |TAUR| DDES @40[NX]| DDES @42 | CL @44| ICL @50| DDES @63

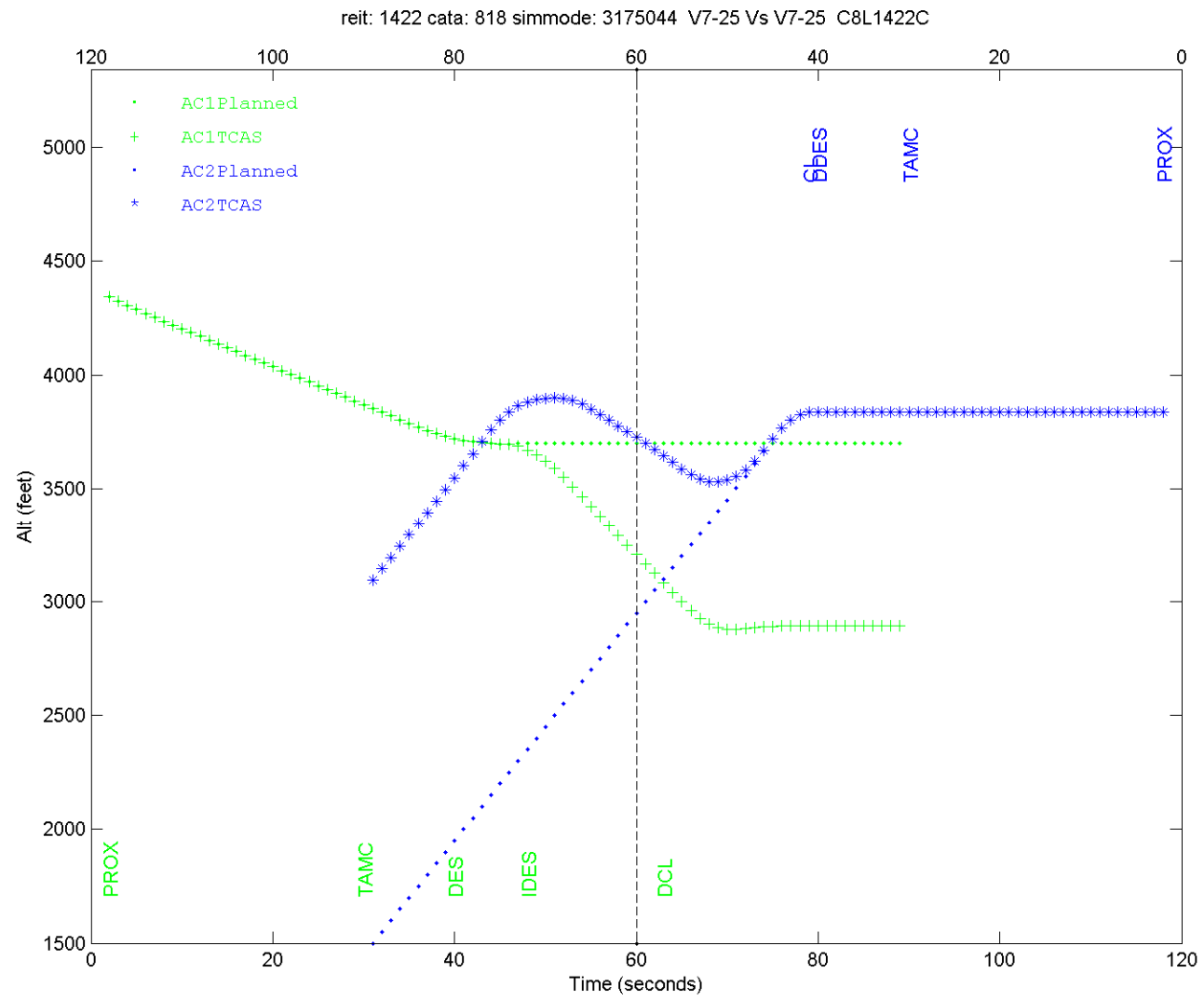
1422 V7 25 FT RL VS V7 25 FT RH 8 -517.48 CROSSING_ENC
 5 AC1: 3175044 TA :30 |TAUR| DES @40[NX]| IDES @48 | DCL @63
 10 AC2: 3275144 TA :30 |TAUR| DDES @40[NX]| CL @41 | DDES @63

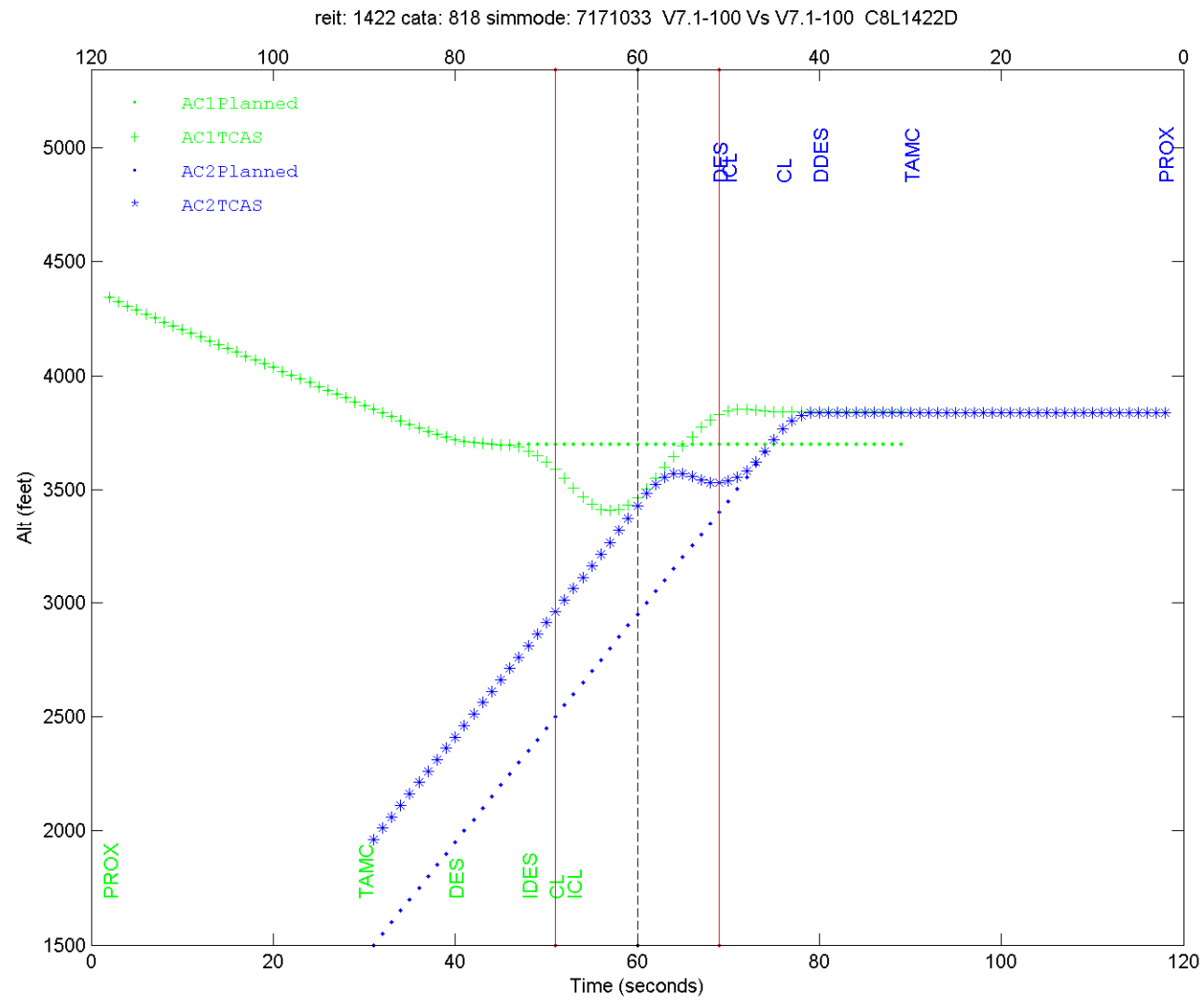
1422 V7.1 100 FT RL VS V7.1 100 FT RH 8 72.05 CROSSING_ENC
 CPT_REV 1 OWN_FOLLOW TRUE TTOFOLLOW 7.69 REV_AVOID 02 TIME_REV_AVOID 0.0
 5 AC1:*REV*7171033 TA :30 |TAUR| DES @40[NX]| IDES @48 | CL @51 | ICL @53
 CPT_REV 0 OWN_FOLLOW TRUE TTOFOLLOW 12.31 REV_AVOID 02 TIME_REV_AVOID 0.0
 10 AC2:*REV*7271133 TA :30 |TAUR| DDES @40[NX]| DDES @42 | CL @44| ICL @50| DES@51

1422 V7.1 25 FT RL VS V7.1 25 FT RH 8 -517.48 CROSSING_ENC
 CPT_REV 1 OWN_FOLLOW TRUE TTOFOLLOW 7.69 REV_AVOID 02 TIME_REV_AVOID 0.0
 5 AC1: 7175044 TA :30 |TAUR| DES @40 [NX]| IDES @48 | DCL @63
 CPT_REV 0 OWN_FOLLOW TRUE TTOFOLLOW 12.31 REV_AVOID 02 TIME_REV_AVOID 0.0
 10 AC2: 7275144 TA :30 |TAUR| DDES @40 [NX]| CL @41 | DDES @63

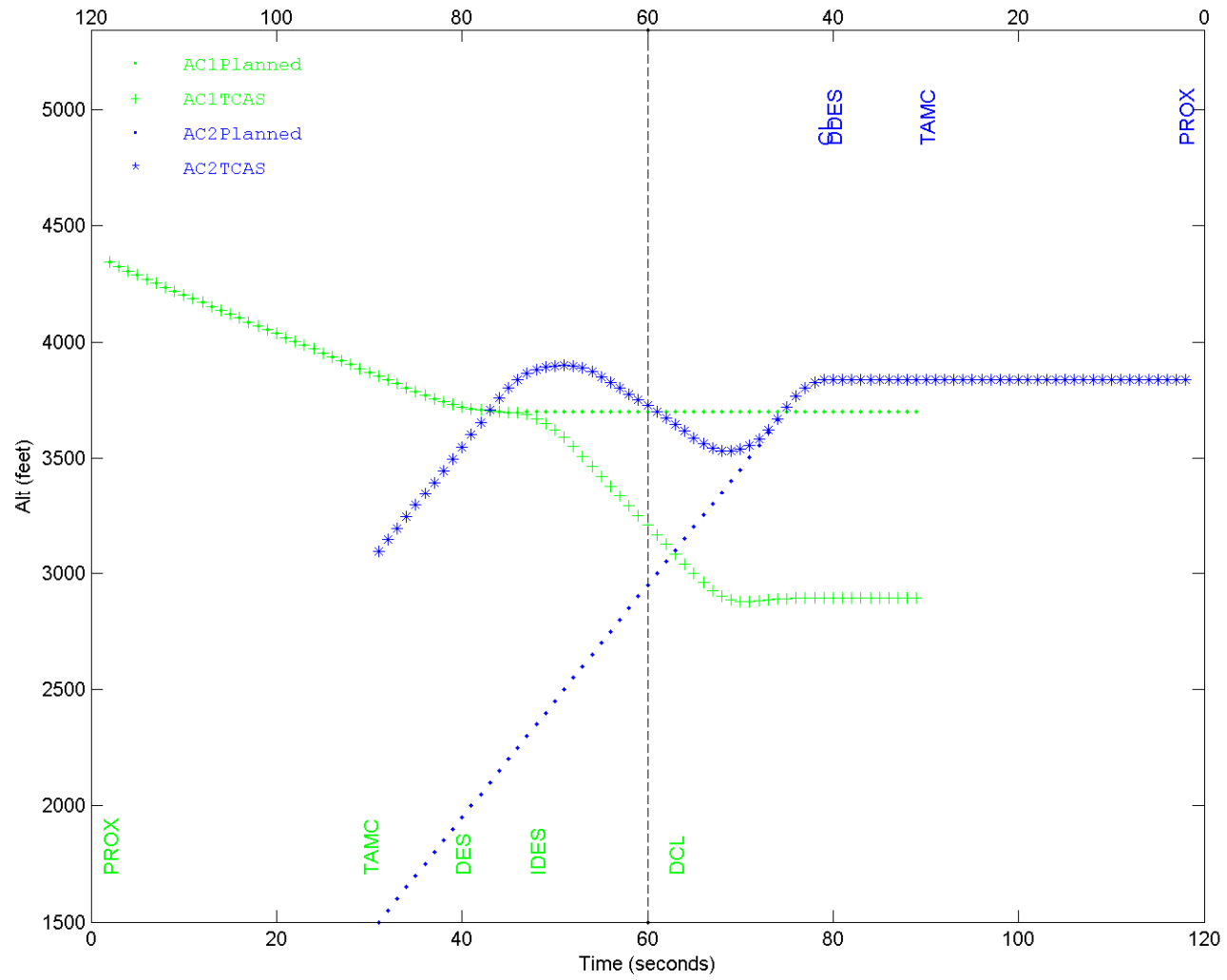








reit: 1422 cata: 818 simmode: 7175044 V7.1-25 Vs V7.1-25 C8L1422E



Change 7.1 Representative NMAC Ind05

Encounter Class : 9

Reit Number : 5644

NMAC Characterization

Number of encounters in group	4	
AC1 low ID	0	
Vertical tracker	100	ft
Planned separation	750, 1000	ft
AC1 rates :	5000	fpm
AC2 rates :	5000	fpm
AC1 acceleration :	-0.05	g
AC2 acceleration :	-0.15, -0.25	g
AC1 acceleration time :	CPA – 25	sec
AC2 acceleration time :	CPA – 25, 30	sec
Encounters with reversed RAs	100	%

Performance Statistics for entire encounter class

<u>100 ft</u>	<u>25 ft</u>	
72	72	% of RAs were non-crossing
44	0	% of NMACs were non-crossing
93	93	% of RAs were not reversed
97	99	% of NMACs were not reversed

Comments

AC2 with low ID initiated reversal.
 At the time of reversal AC1 reducing climb rate, almost level.
 Looked like vertical chase scenario (allowing for tracker lag).

SIMULATION RESULTS FOR 6.04A, V7, and V7.1 JULY 2007 DATA ENCOUNTER C9H5644
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = 1000.0 AC1 RATES(5000.0,0.0) AC2 RATES(5000.0,0.0)
 AC1 ACCEL -0.05g @ CPA -25 AC2 ACCEL -0.25g @ CPA -30 AC1 CPA ALT 7500

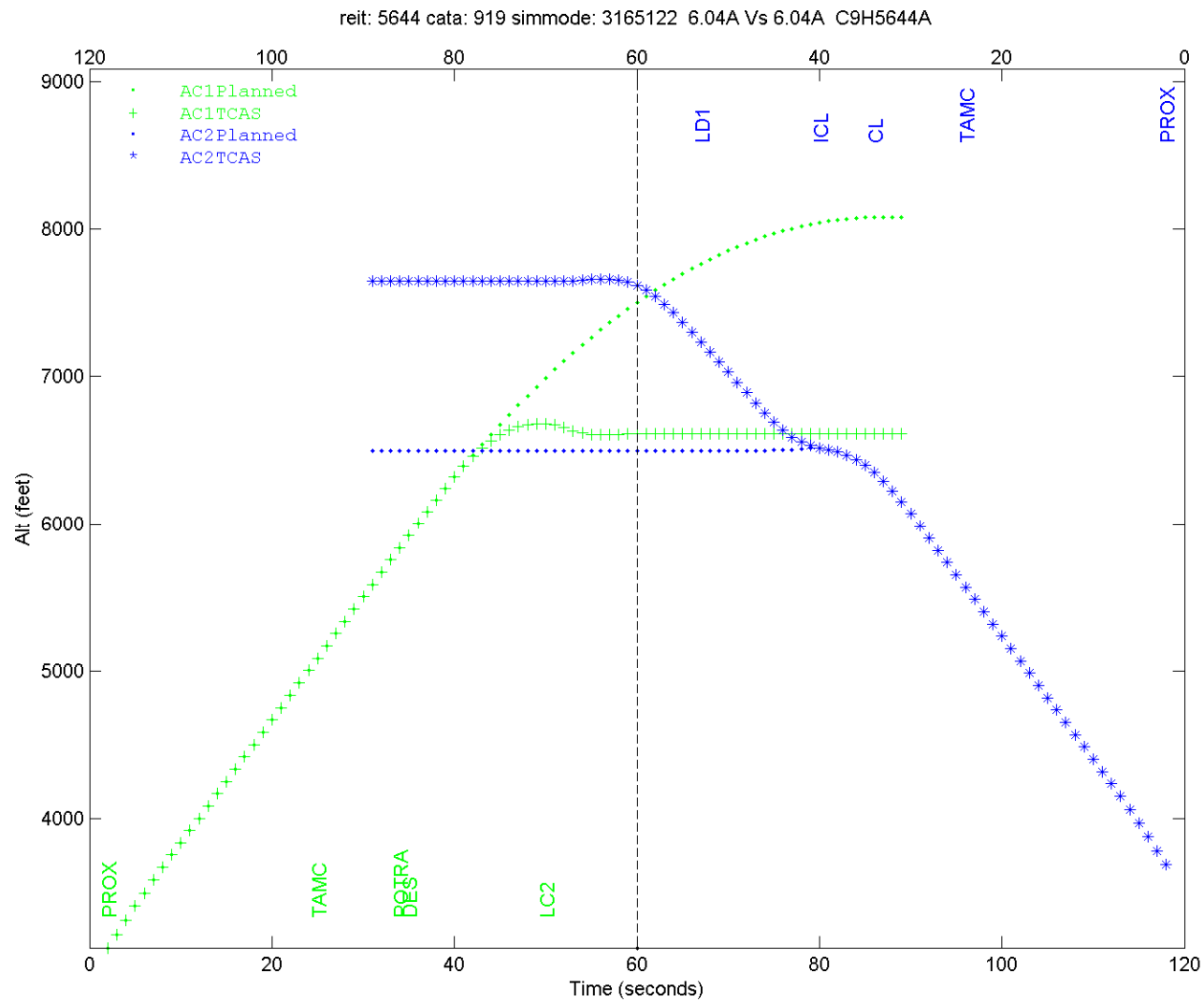
5644 6.04A RH VS 6.04A RL 9 -990.41 NON_CROSSING_ENC
 10 AC1: 3165122 TA :25 |TAUR| POTRA@34 (DFD) | DES @35 [NX]| LC2 @50
 5 AC2: 3265022 TA :24 |TAUR| MCL @34 [NX]| CL @35 | ICL @40 | LD1 @53

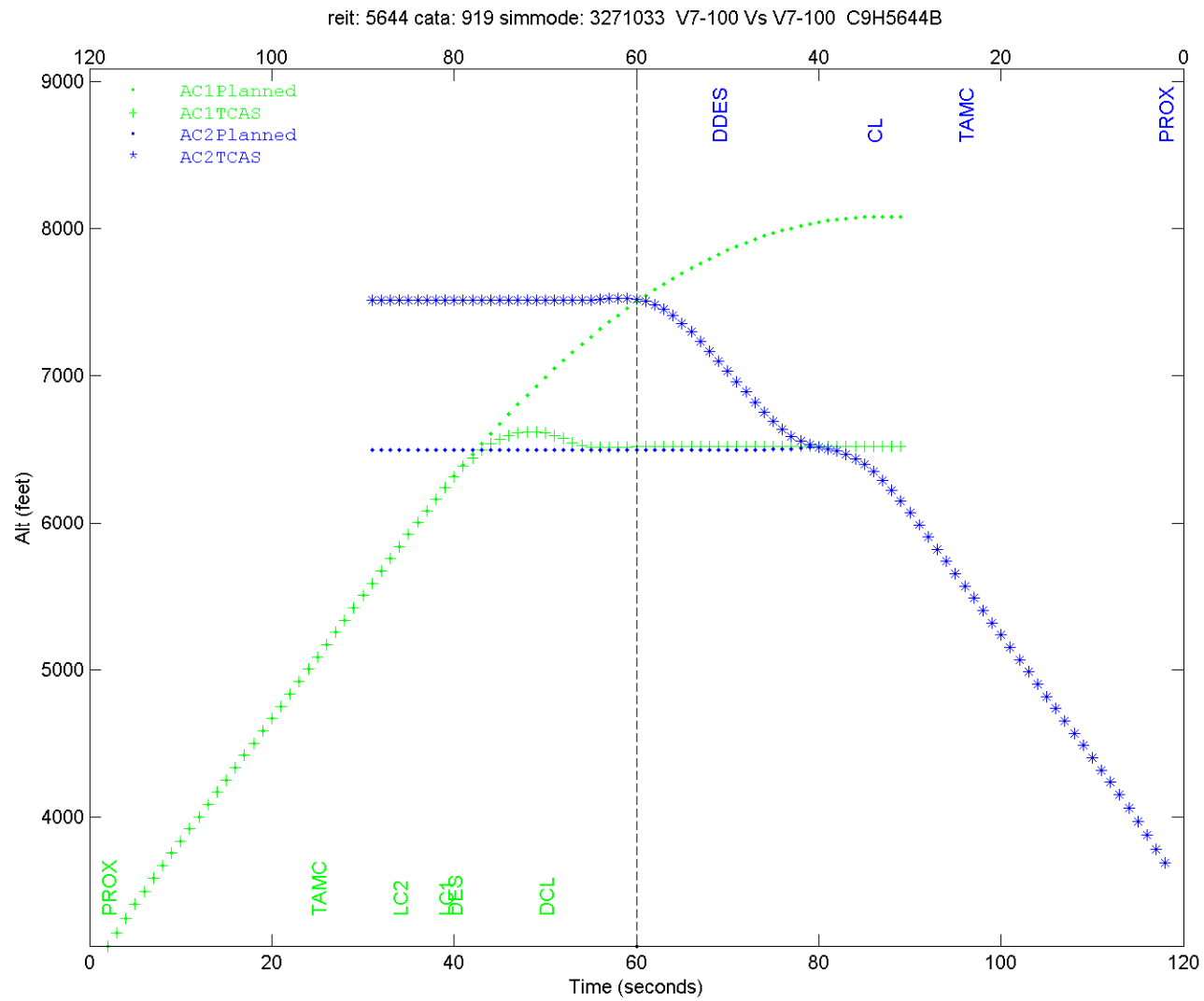
5644 V7 100 FT RH VS V7 100 FT RL 9 -984.73 NON_CROSSING_ENC
 10 AC1: 3171133 TA :25 |TAUR| LC2 @34 [NX]| LC1 @39 | DES @40 | DCL @50
 5 AC2: 3271033 TA :24 |TAUR| CL @34 [NX]| DDES @51

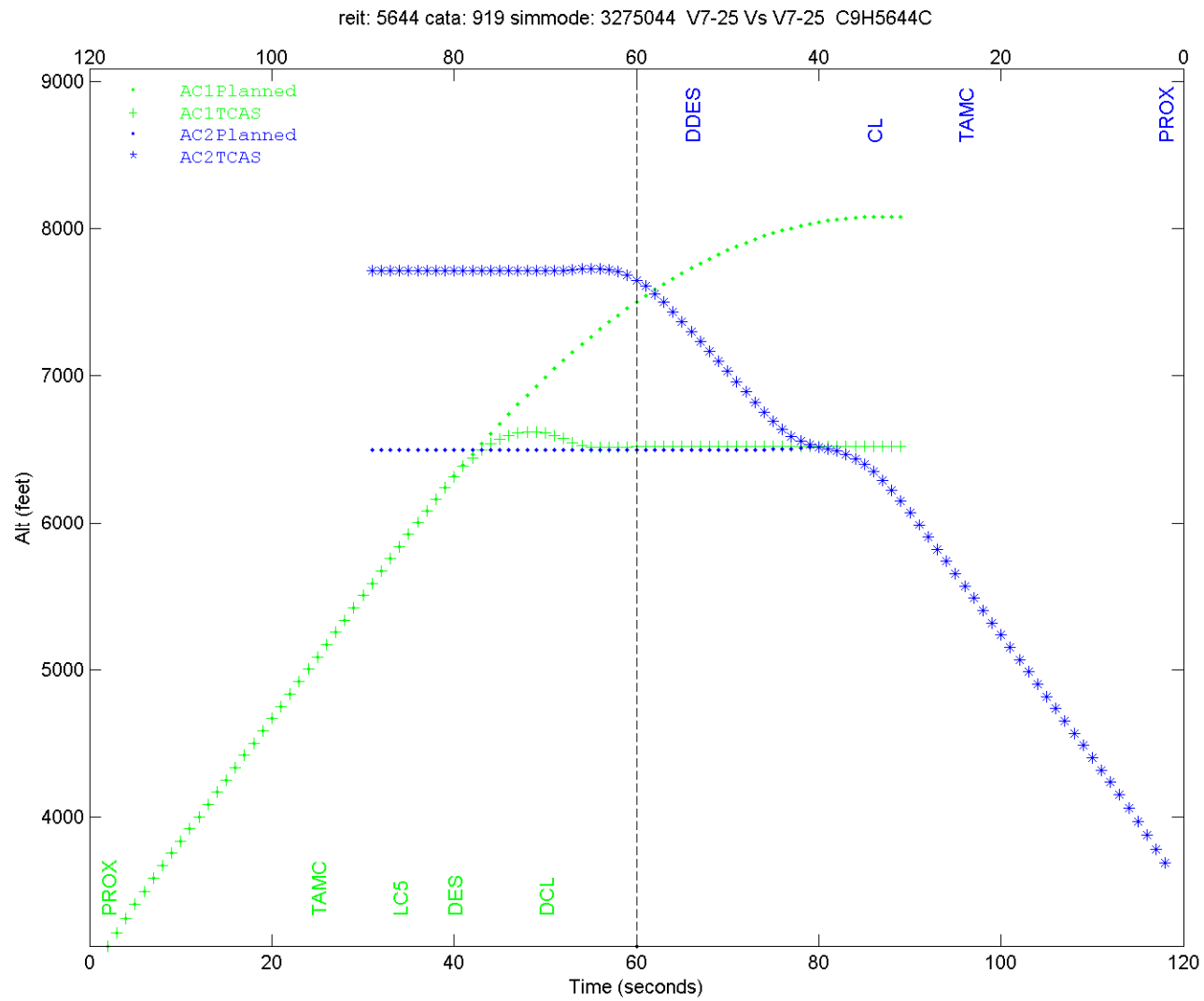
5644 V7 25 FT RH VS V7 25 FT RL 9 -1117.44 NON_CROSSING_ENC
 10 AC1: 3175144 TA :25 |TAUR| LC5 @34 [NX]| DES @40 | DCL @50
 5 AC2: 3275044 TA :24 |TAUR| CL @34 [NX]| DDES @54

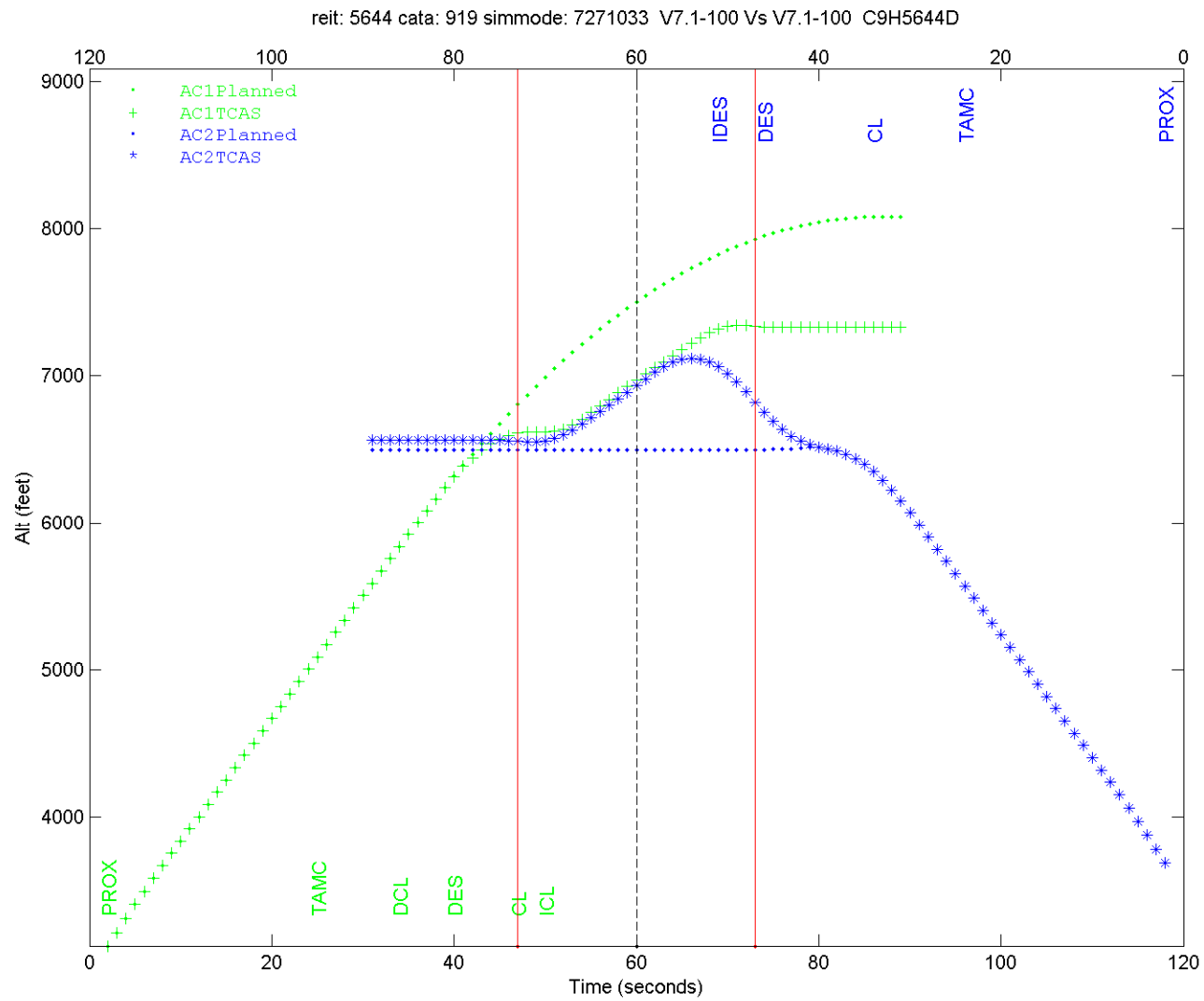
5644 V7.1 100 FT RH VS V7.1 100 FT RL 9 47.04 CROSSING_ENC
 CPT_REV 0 OWN_FOLLOW TRUE TTOFOLLOW 15.01 REV_AVOID 02 TIME_REV_AVOID 0.0
 10 AC1:*REV*7171133 TA :25 |TAUR| DCL @34 [NX]| DES @40 | CL @47 | ICL @50
 CPT_REV 1 OWN_FOLLOW TRUE TTOFOLLOW 10.15 REV_AVOID 02 TIME_REV_AVOID 0.0
 5 AC2:*REV*7271033 TA :24 |TAUR| CL @34 [NX]| DES @46 | IDES @51

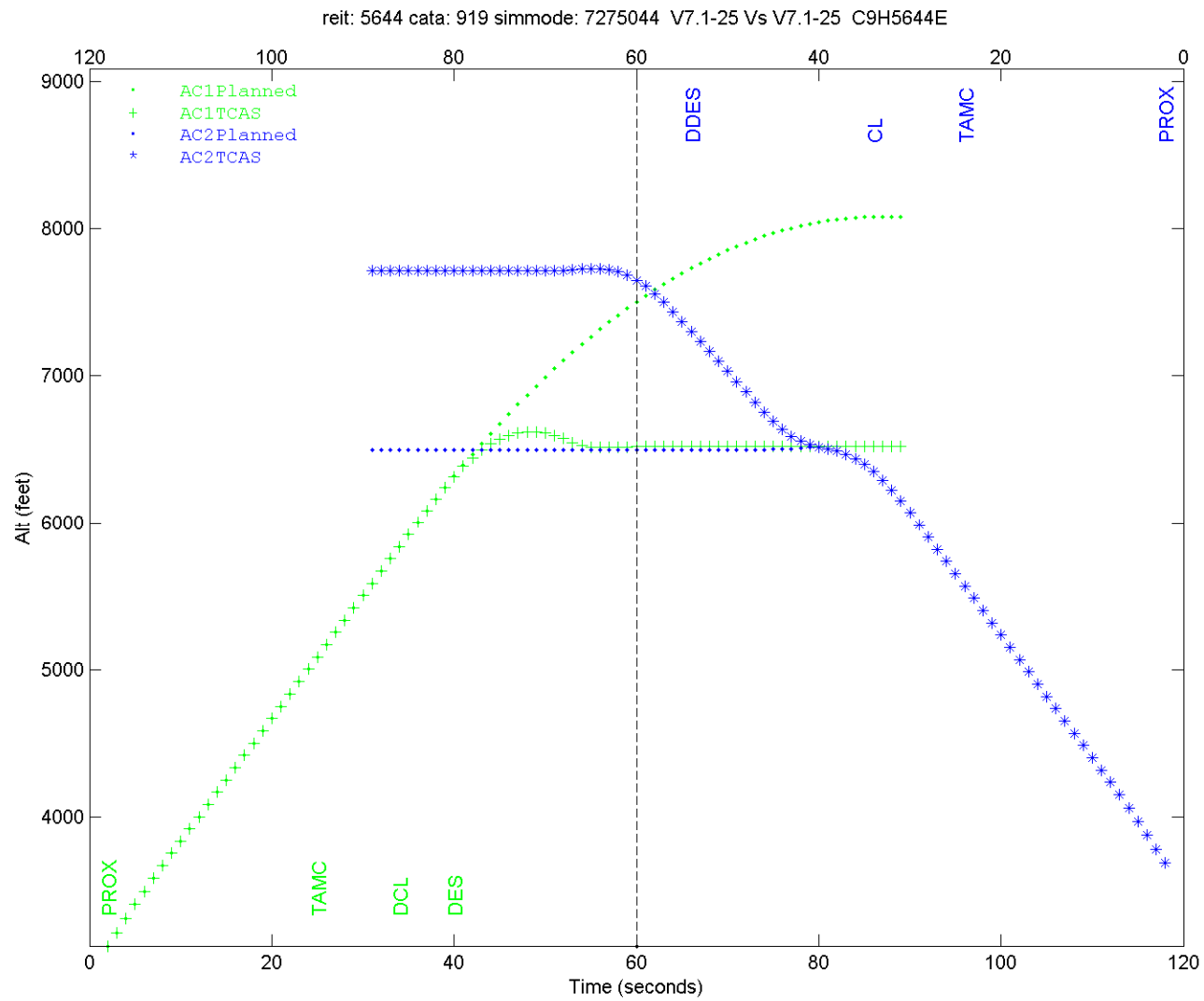
5644 V7.1 25 FT RH VS V7.1 25 FT RL 9 -1117.44 NON_CROSSING_ENC
 CPT_REV 0 OWN_FOLLOW TRUE TTOFOLLOW 15.01 REV_AVOID 02 TIME_REV_AVOID 0.0
 10 AC1: 7175144 TA :25 |TAUR| DCL @34 [NX]| DES @40 | DCL @50
 CPT_REV 0 OWN_FOLLOW TRUE TTOFOLLOW 10.15 REV_AVOID 02 TIME_REV_AVOID 0.0
 5 AC2: 7275044 TA :24 |TAUR| CL @34 [NX]| DDES @54











Change 7.1 Representative NMAC Ind06

Encounter Class : 18

Reit Number : 793

NMAC Characterization

Number of encounters in group	1	
AC1 low ID	1	
Vertical tracker	100	ft
Planned separation	500	ft
AC1 rates :	-3000	fpm
AC2 rates :	-3000	fpm
AC1 acceleration :	-0.05	g
AC2 acceleration :	-0.25	g
AC1 acceleration time :	CPA – 25	sec
AC2 acceleration time :	CPA – 20	sec
Encounters with reversed RAs	100	%

Performance Statistics for entire encounter class

<u>100 ft</u>	<u>25 ft</u>	
87	87	% of RAs were non-crossing
0	0	% of NMACs were non-crossing
91	91	% of RAs were not reversed
97	99	% of NMACs were not reversed

Comments

This is a late reversal (7 seconds prior to CPA).

Version 7-25 and Version 7.1-25 had earlier effective reversals for this encounter.

SIMULATION RESULTS FOR 6.04A, V7, and V7.1 JULY 2007 DATA ENCOUNTER C8L793
 LOGIC THRESHOLDS SL = 4 ZTHR = 600 TAUR = 20 TAUV = 20 ALIM = 300
 PLANNED ENCOUNTER. SEP = 500.0 AC1 RATES(-3000.0,0.0) AC2 RATES(0.0,-3000.0)
 AC1 ACCEL 0.05g @ CPA -25 AC2 ACCEL -0.25g @ CPA -20 AC1 CPA ALT 3700

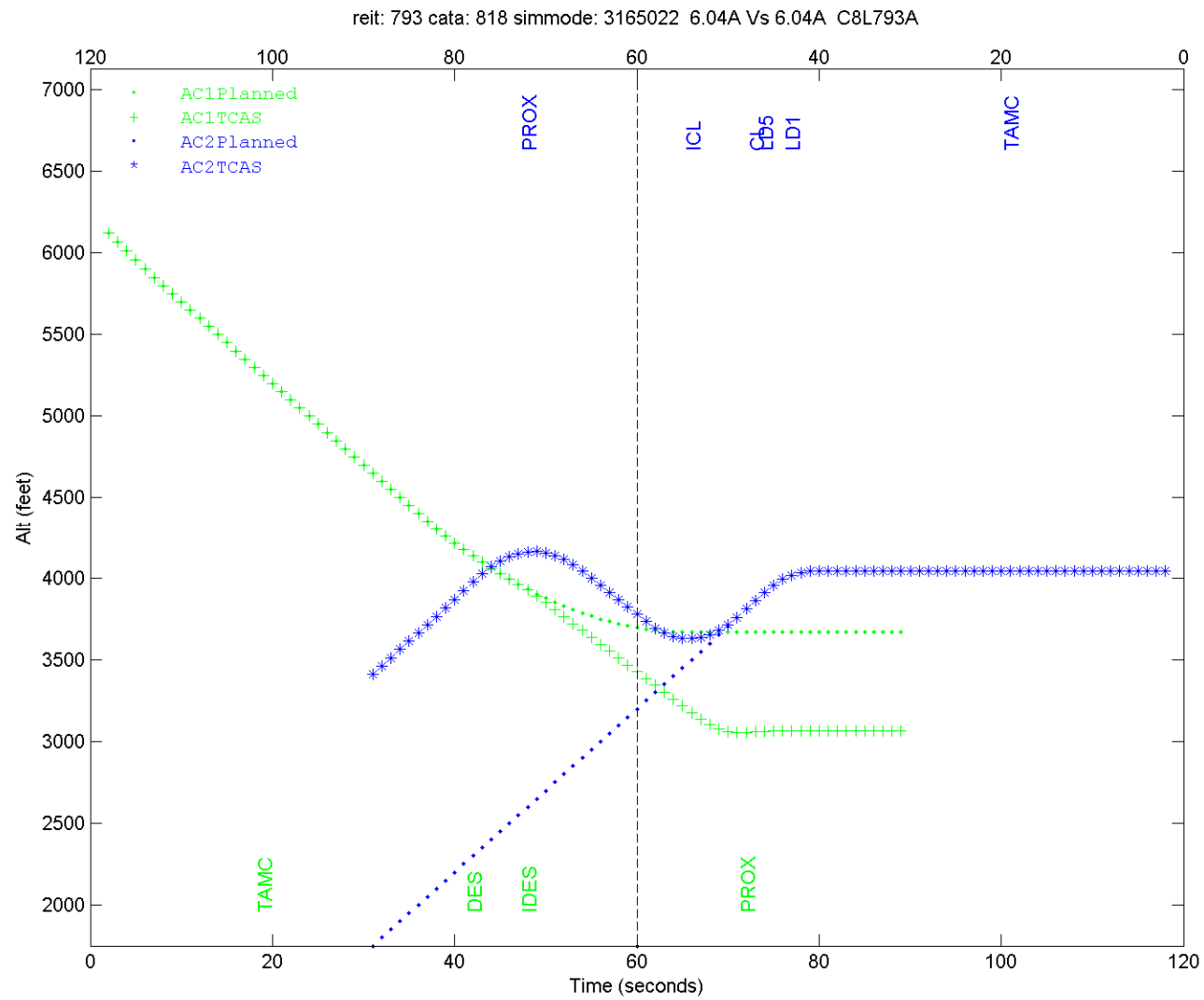
793 6.04A RL VS 6.04A RH 18 -363.61 CROSSING_ENC
 5 AC1: 3165022 TA :19 |PVMD| DES @42 [X] | IDES @48
 10 AC2: 3265122 TA :19 |PVMD| LD1 @43 [NX]| LD1 @45 | LD5 @46 | CL @47 | ICL @54

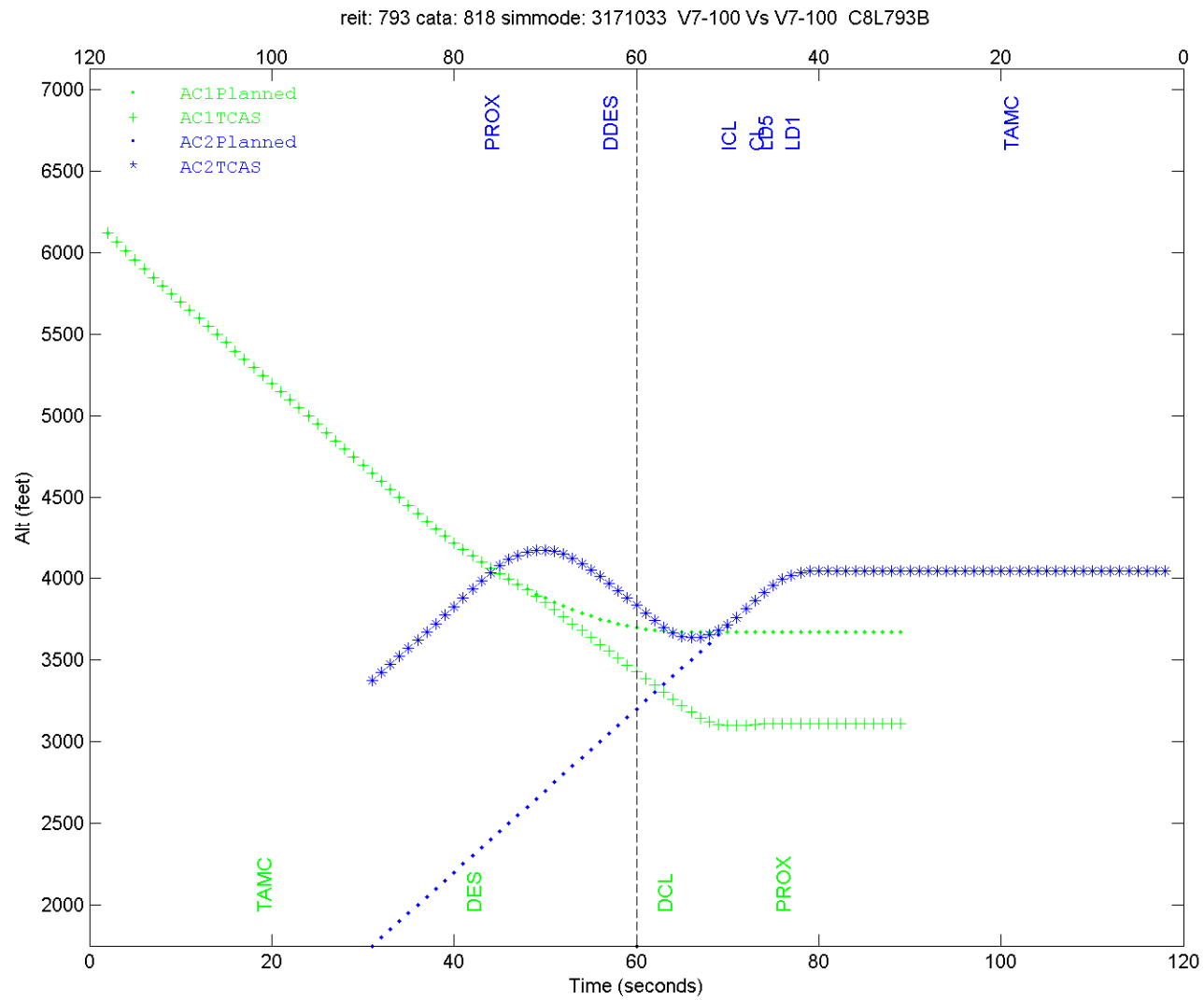
793 V7 100 FT RL VS V7 100 FT RH 18 -413.22 CROSSING_ENC
 5 AC1: 3171033 TA :19 |PVMD| DES @42 [X] | DCL @63
 10 AC2: 3271133 TA :19 |PVMD| LD1 @43 [NX]| LD1 @45 | LD5 @46| CL @47| ICL @50| DDES @63

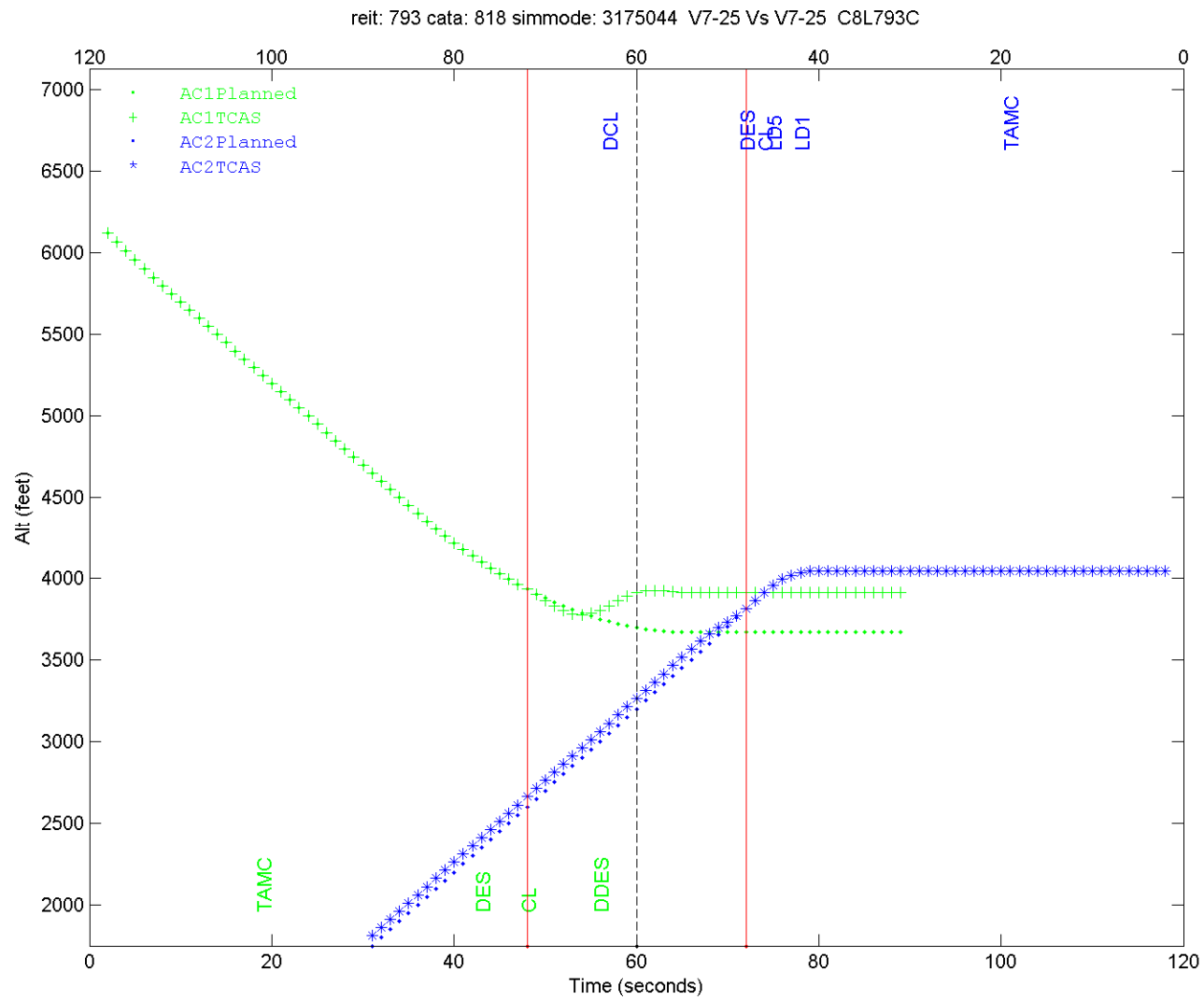
793 V7 25 FT RL VS V7 25 FT RH 18 644.04 NON_CROSSING_ENC
 5 AC1:*REV*3175044 TA :19 |PVMD| DES @43[NX]| CL @48 | DDES @56
 10 AC2:*REV*3275144 TA :19 |PVMD| LD1 @42[NX]| LD5 @45 | CL @46| DES @48| DCL @63

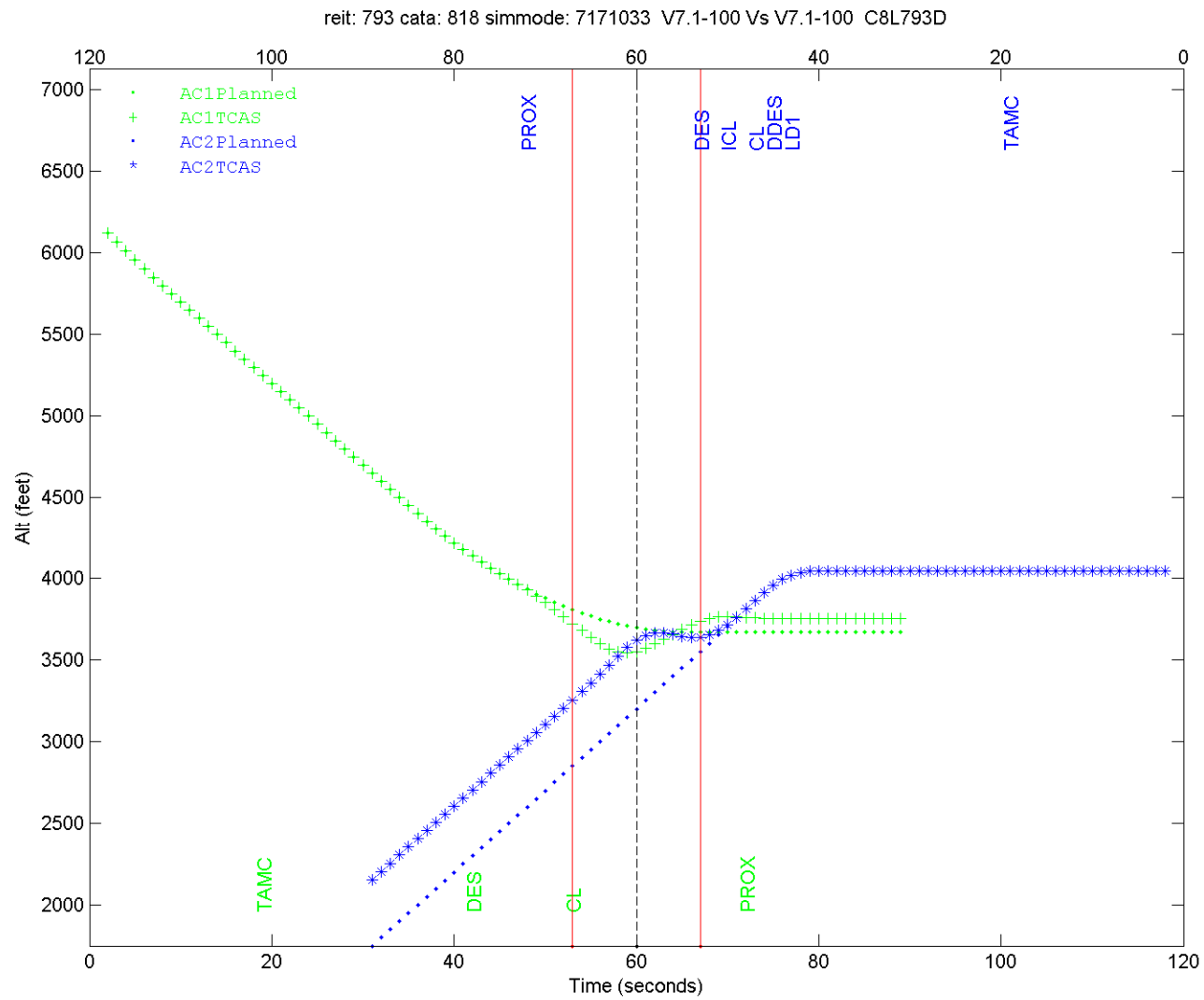
793 V7.1 100 FT RL VS V7.1 100 FT RH 18 -32.50 CROSSING_ENC
 CPT_REV 1 OWN_FOLLOW TRUE TTOFOLLOW 6.02 REV_AVOID 02 TIME_REV_AVOID 0.0
 5 AC1:*REV*7171033 TA :19 |PVMD| DES @42 [X] | CL @53
 CPT_REV 0 OWN_FOLLOW TRUE TTOFOLLOW 13.88 REV_AVOID 02 TIME_REV_AVOID 0.0
 10 AC2:*REV*7271133 TA :19 |PVMD| LD1 @43 [NX]| DDES @45| CL @47| ICL @50| DES@53

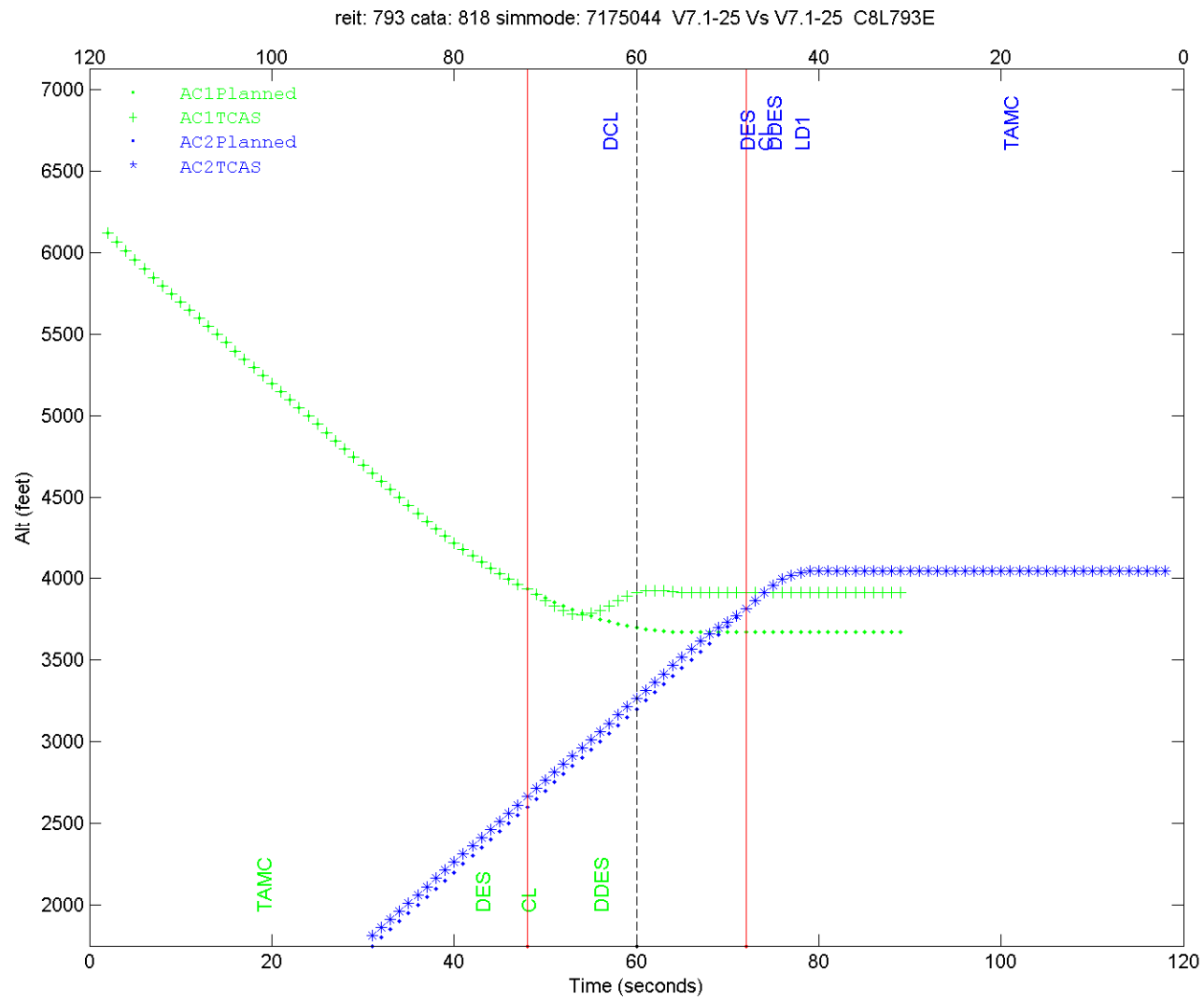
793 V7.1 25 FT RL VS V7.1 25 FT RH 18 644.04 NON_CROSSING_ENC
 CPT_REV 0 OWN_FOLLOW TRUE TTOFOLLOW 6.02 REV_AVOID 02 TIME_REV_AVOID 0.0
 5 AC1:*REV*7175044 TA :19 |PVMD| DES @43[NX]| CL @48 | DDES @56
 CPT_REV 0 OWN_FOLLOW TRUE TTOFOLLOW 13.17 REV_AVOID 02 TIME_REV_AVOID 0.0
 10 AC2:*REV*7275144 TA :19 |PVMD| LD1 @42[NX]| DDES @45 | CL @46| DES @48| DCL @63











Appendix N V7.1 REPRESENTATIVE SAVES (One Pilot Non-Responding)

Change 7.1 Non-responding Representative Save 01

Encounter Class: 2

Reit Number : 1981

Encounter Characterization

Number of encounters in group	38	
AC1 low ID	no	
Non-responding AC	2	
Vertical tracker	25	ft
Planned separation	-500, -750	ft
AC1 rates:	0	fpm
AC2 rates:	3000, 5000	fpm
AC1 acceleration:	none	
AC2 acceleration:	0.35	g
AC2 acceleration time:	CPA – 30	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

Climbing vertical chase caused by response to initial RA.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER L221981
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = -750.0 AC1 RATES(0.0,0.0) AC2 RATES(0.0,3000.0)
 AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.35g @ CPA -30 AC1 CPA ALT 7480

 1981 6.04A R L VS 6.04A NR H 2 -46.18 CROSSING_ENC

5 AC1: 4165024 TA:19 |RELZ| CL @36 [NX]| ICL @40

10 AC2: 4265142 TA:19 |TAUR| POTRA@34(DFD)| DES @36[NX]| IDES @54 ##NON-RESPONDING##

 1981 V7 25 FT R L VS V7 25 FT NR H 2 -19.13 CROSSING_ENC

5 AC1: 4175035 TA:19 |TAUR| POTRA@34 | CL @35 [NX]| ICL @41

10 AC2: 4275153 TA:19 |TAUR| DCL @34 [NX]| DES @35 | IDES @51 ##NON-RESPONDING##

 1981 CP112EV1.2 25 FT R L VS CP112EV1.2 25 FT NR H 2 -544.11 CROSSING_ENC

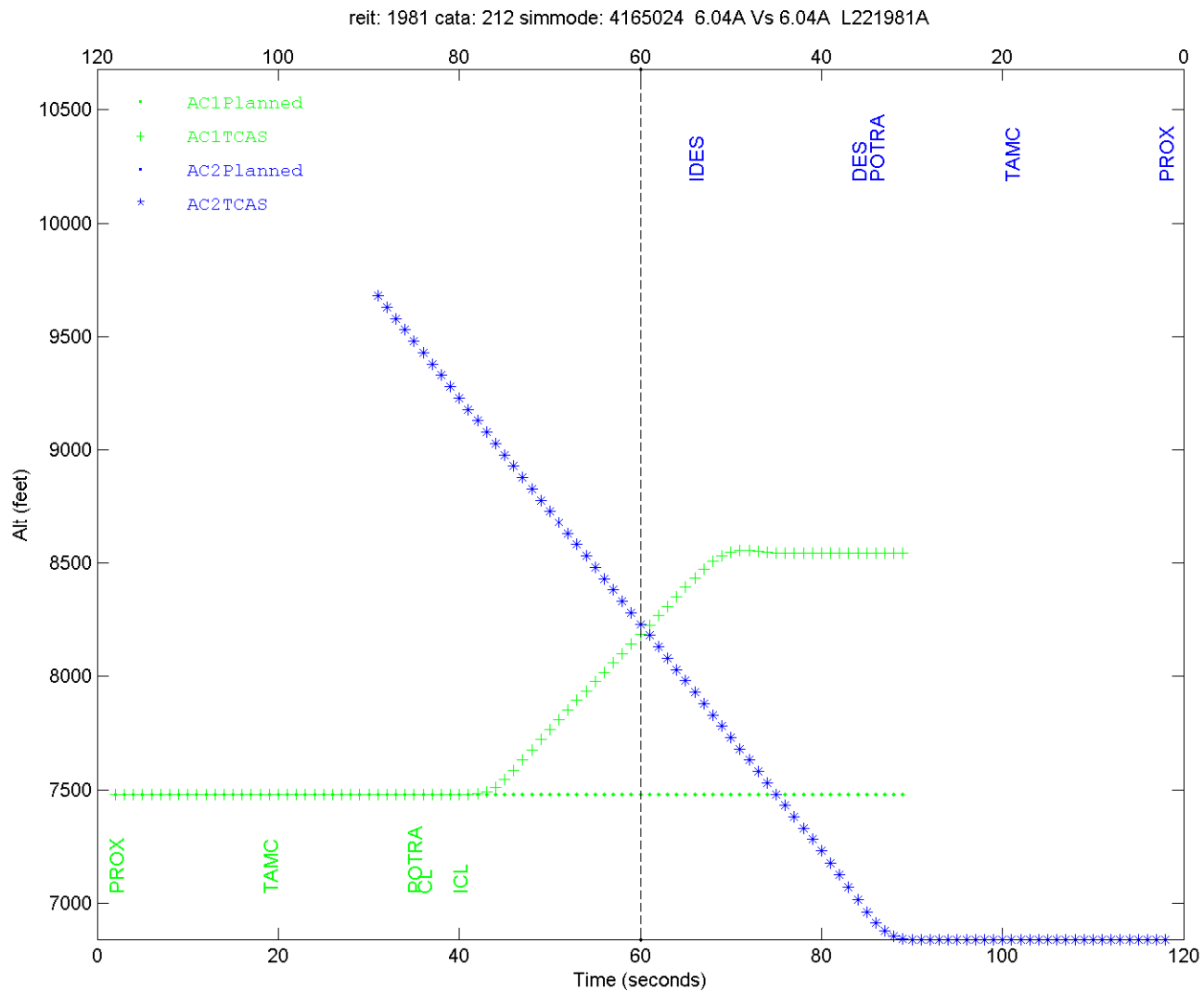
5 AC1:*REV*8175035 TA:19 |TAUR| POTRA@34 | CL @35 [NX]| ICL @41 | DES @48 | IDES @51 | DCL @63

10 AC2:*REV*8275153 TA:19 |TAUR| DCL @34 [NX]| DES @35 | CL @48 | DDES @63 ##NON-RESPONDING##

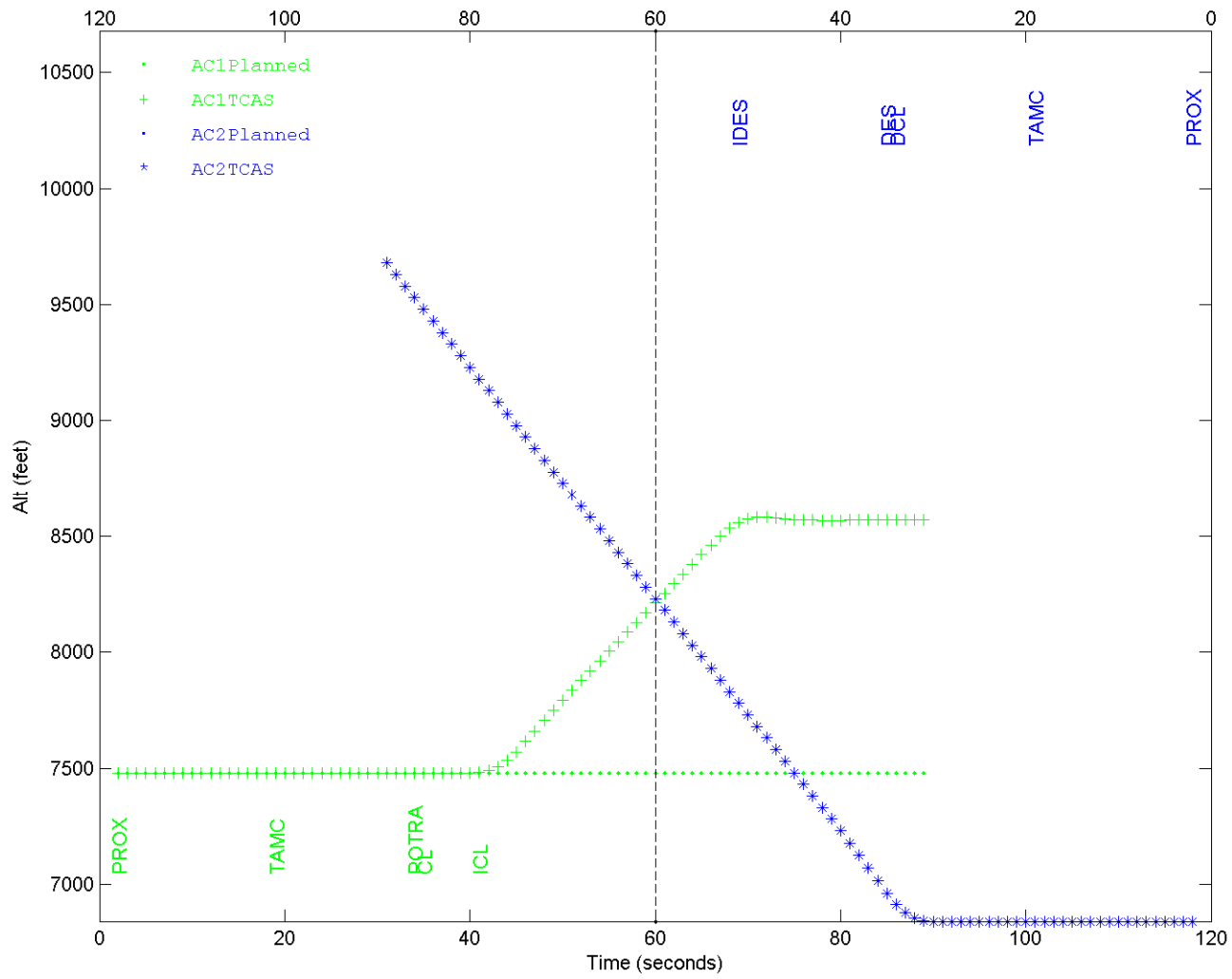
 1981 V7.1 25 FT R L VS V7.1 25 FT NR H 2 -544.11 CROSSING_ENC

5 AC1:*REV*8175035 TA:19 |TAUR| POTRA@34 | CL @35 [NX]| ICL @41 | DES @48 | IDES @51 | DCL @63

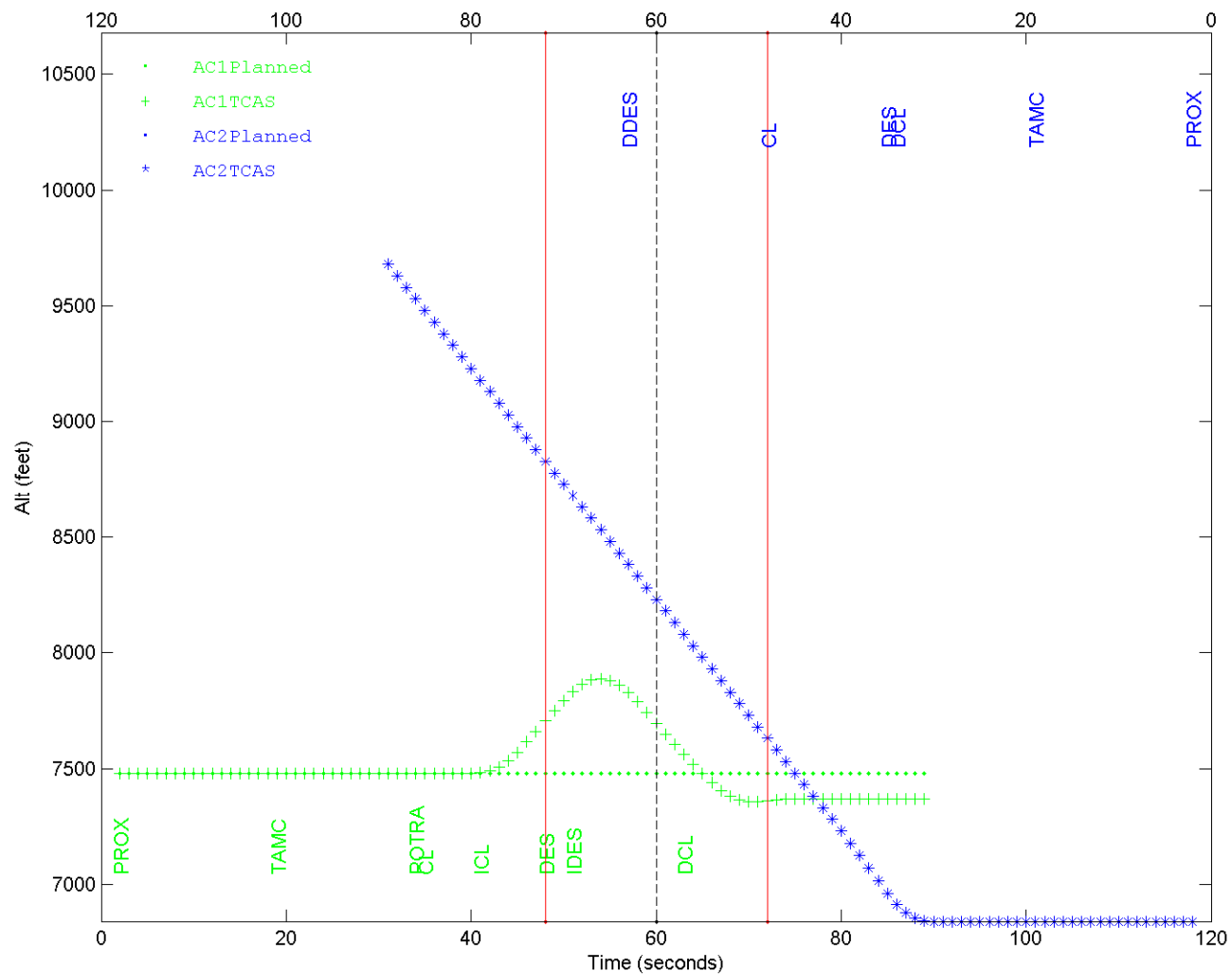
10 AC2:*REV*8275153 TA:19 |TAUR| DCL @34 [NX]| DES @35 | CL @48 | DDES @63 ##NON-RESPONDING##



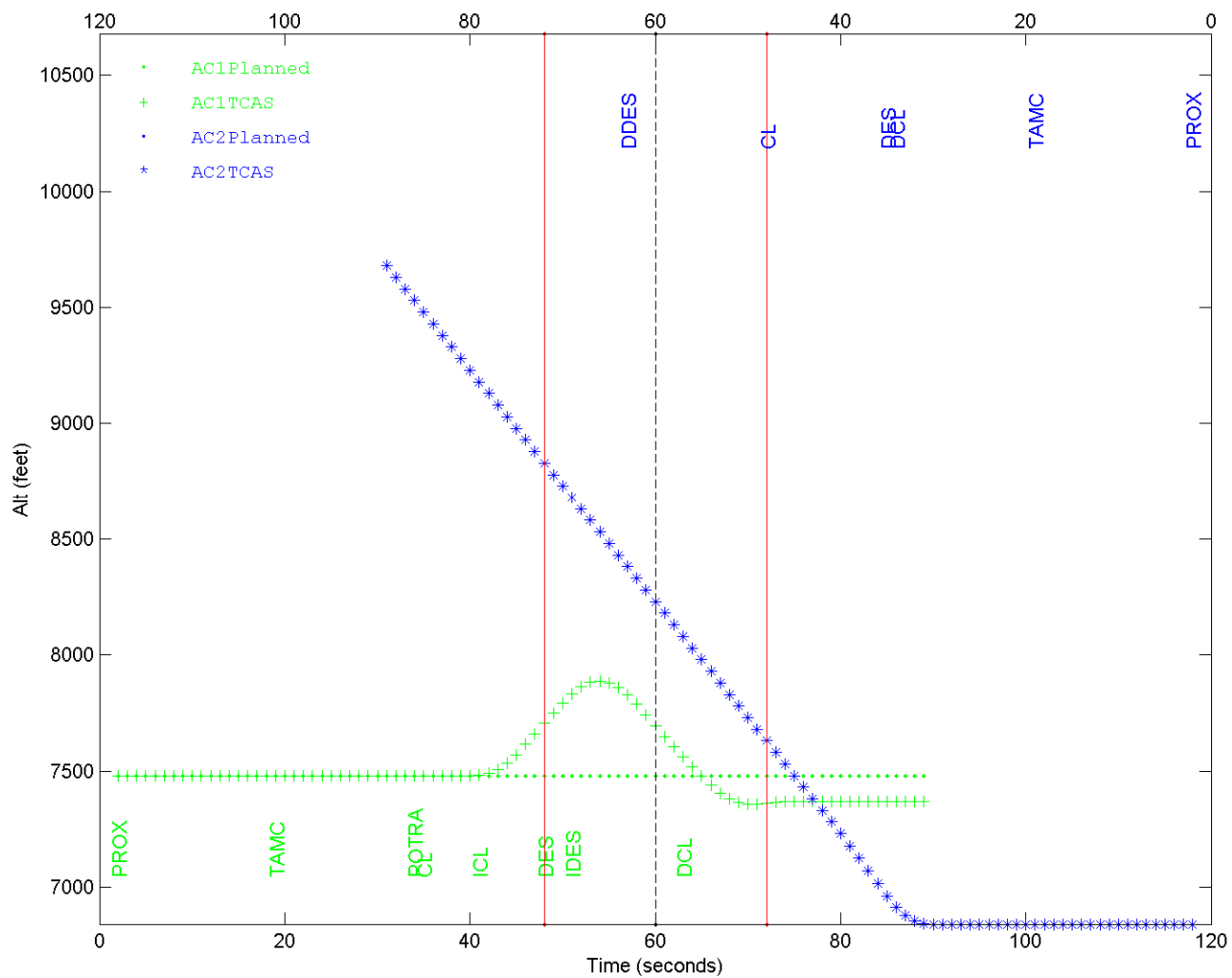
reit: 1981 cata: 212 simmode: 4175035 V7-25 Vs V7-25 L221981B



reit: 1981 cata: 212 simmode: 8175035 CP112EV1.2-25 Vs CP112EV1.2-25 L221981C



reit: 1981 cata: 212 simmode: 8175035 V7.1-25 Vs V7.1-25 L221981D



Change 7.1 Non-responding Representative Save 02

Encounter Class: 2

Reit Number : 2772

Encounter Characterization

Number of encounters in group	2	
AC1 low ID	no	
Non-responding AC	1	
Vertical tracker	25	ft
Planned separation	-750	ft
AC1 rates:	0	fpm
AC2 rates:	5000	fpm
AC1 acceleration:	none	
AC2 acceleration:	0.35	g
AC2 acceleration time:	CPA – 20	sec
Encounters with reversed RAs	0	%
Vertical chase	no	

Save Mechanism

Logic change solving NMAC

CP115

Comments

Responding aircraft received LOLO instead of AVSA.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER H122772
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = -750.0 AC1 RATES(0.0,0.0) AC2 RATES(0.0,5000.0)
 AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.35g @ CPA -20 AC1 CPA ALT 7520

 2772 6.04A NR H VS 6.04A NR L 2 475.27 NON_CROSSING_ENC

10 AC1: 4165142 TA :19 |PVMD| LD5 @52 [NX] ##NON-RESPONDING##

5 AC2: 4265024 TA :19 |TAUR| DCL @34 [NX]| LC5 @44 | LC1 @55

 2772 V7 25 FT NR H VS V7 25 FT R L 2 -12.65 CROSSING_ENC

10 AC1: 4275053 TA :19 |PVMD| DDES @43 [NX]| CL @44 | ICL @50 ##NON-RESPONDING##

5 AC2: 4175135 TA :19 |RELZ| LC5 @42 [NX]| LC5 @43 | DCL @44 | DES @45

 2772 CP112EV1.2 25 FT NR H VS CP112EV1.2 25 FT R L 2 -12.65 CROSSING_ENC

10 AC1: 8275053 TA :19 |PVMD| DDES @43 [NX]| CL @44 | ICL @50 ##NON-RESPONDING##

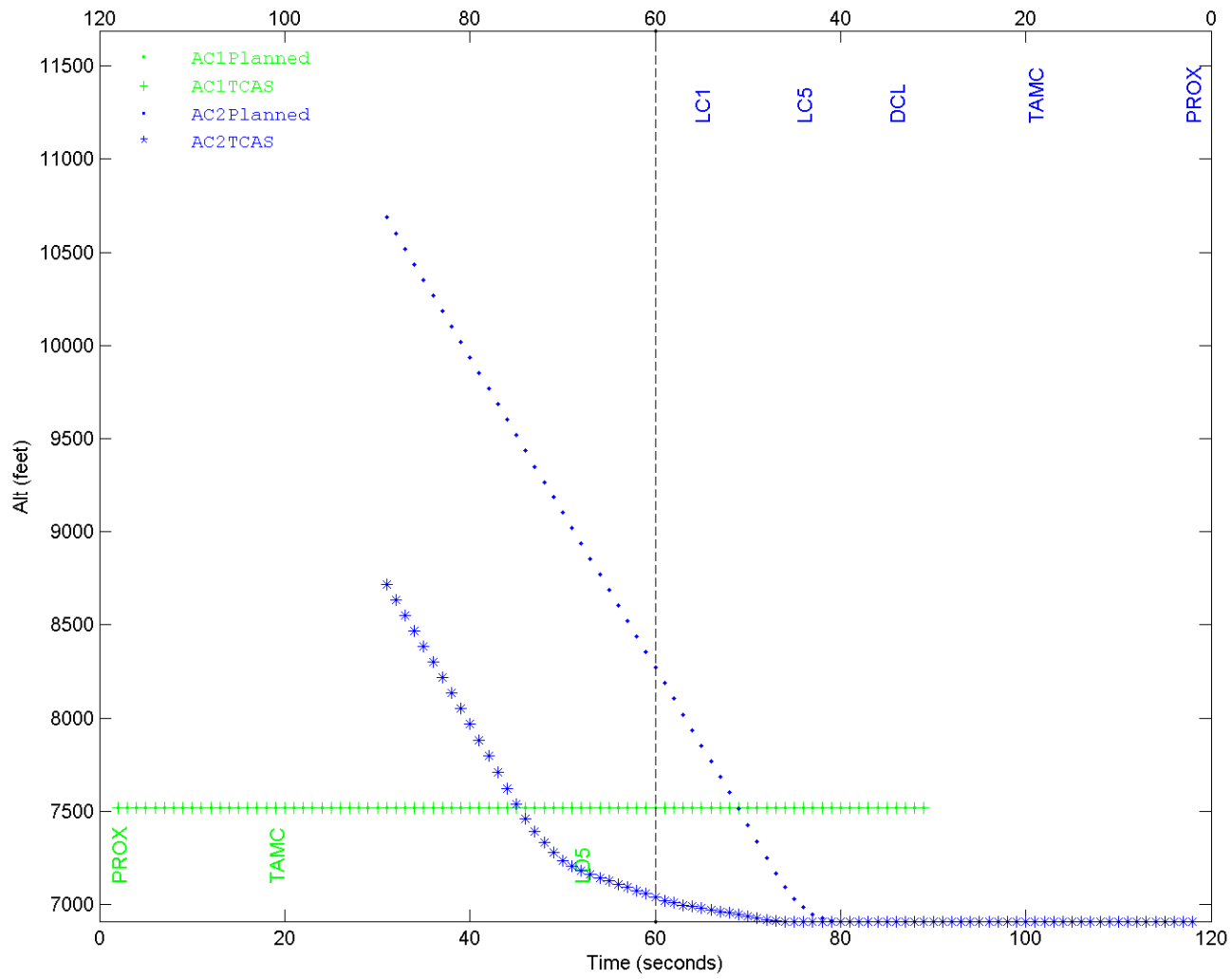
5 AC2: 8175135 TA :19 |RELZ| LC5 @42 [NX]| LC5 @43 | DCL @44 | DES @45

 2772 V7.1 25 FT NR H VS V7.1 25 FT R L 2 110.14 CROSSING_ENC

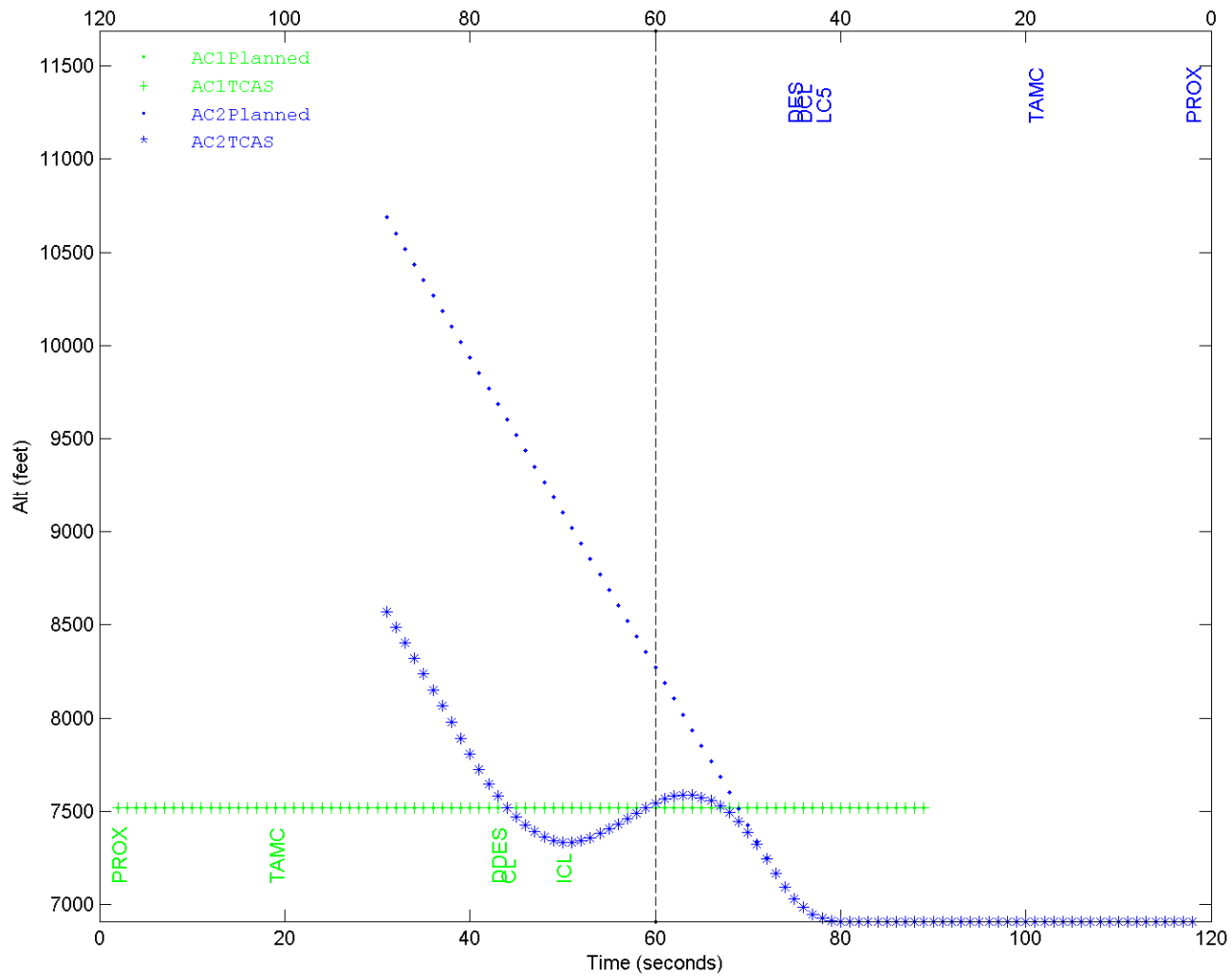
10 AC1: 8275053 TA :19 |PVMD| DDES @43 [NX]| CL @44 | ICL @50 ##NON-RESPONDING##

5 AC2: 8175135 TA :19 |RELZ| LC5 @42 [NX]| DCL @43 | DES @46 | IDES @49

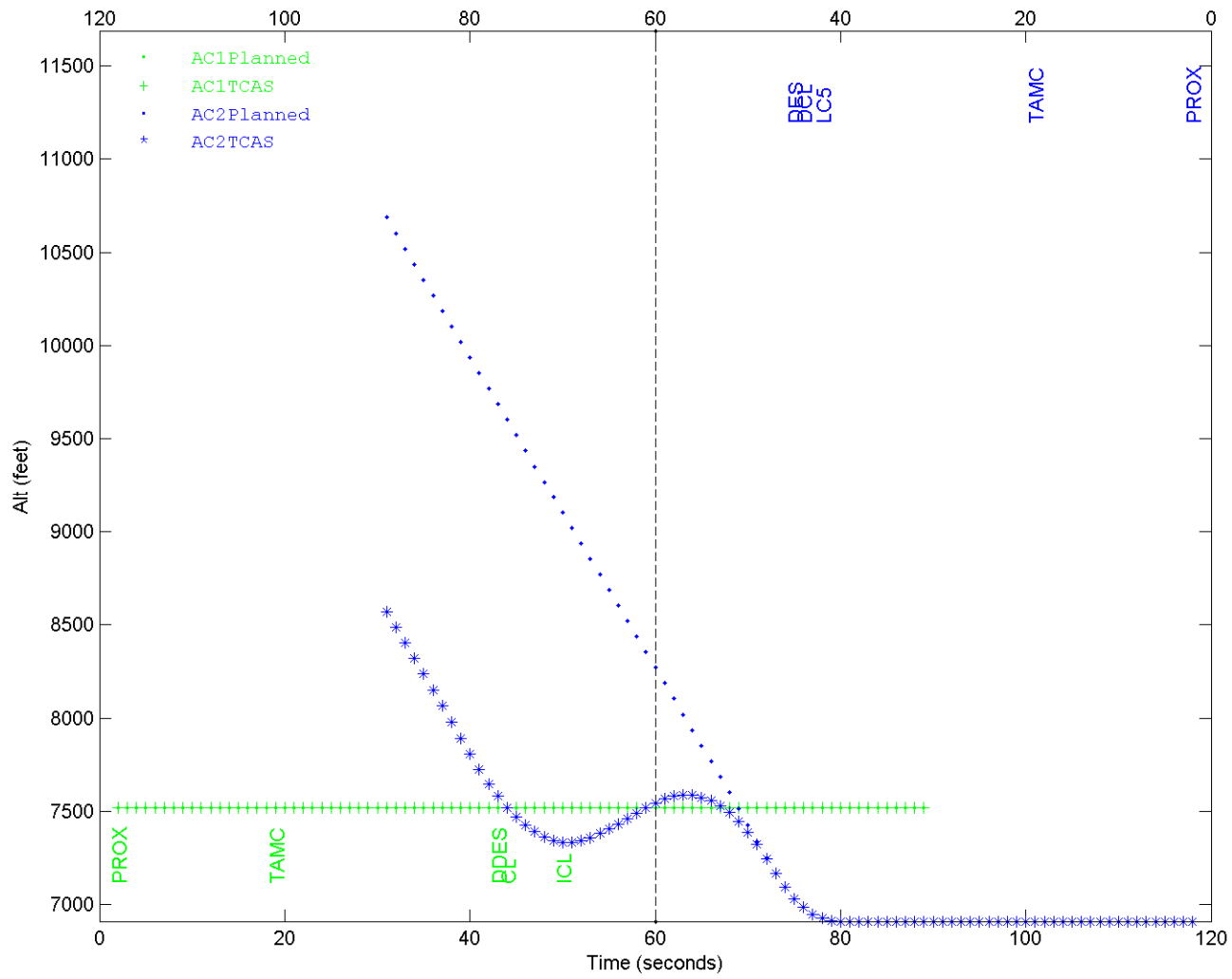
reit: 2772 cata: 212 simmode: 4165142 6.04A Vs 6.04A H122772A

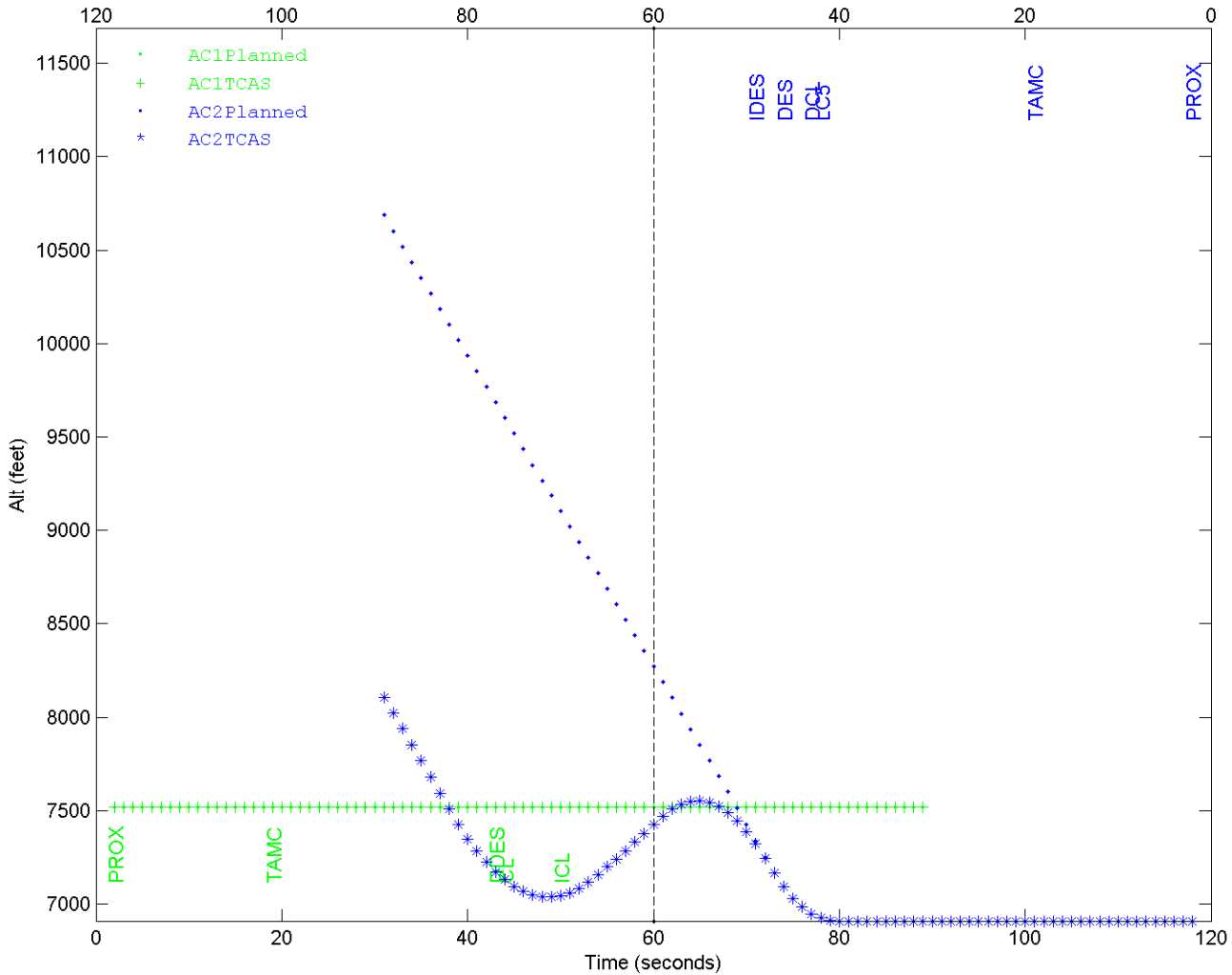


reit: 2772 cata: 212 simmode: 4275053 V7-25 Vs V7-25 H122772B



reit: 2772 cata: 212 simmode: 8275053 CP112EV1.2-25 Vs CP112EV1.2-25 H122772C





Change 7.1 Non-responding Representative Save 03

Encounter Class: 4

Reit Number : 338

Encounter Characterization

Number of encounters in group	6	
AC1 low ID	yes	
Non-responding AC	1	
Vertical tracker	25	ft
Planned separation	+/-500	ft
AC1 rates:	1000, 3000	fpm
AC2 rates:	1000, 3000	fpm
AC1 acceleration:	none	
AC2 acceleration:	none	
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

Climbing vertical chase caused by response to initial RA.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER L14338
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = 500.0 AC1 RATES(3000.0,3000.0) AC2 RATES(1000.0,1000.0)
 AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.00g @ CPA 0 AC1 CPA ALT 7480

```
-----
338  6.04A NR L VS 6.04A R H    4    41.66    CROSSING_ENC

5 AC1:      4165042 TA :19 |TAUR| DCL @34 [NX]| DES @43 | IDES @54 ##NON-RESPONDING##
10 AC2:      4265124 TA :19 |TAUR| CL  @34 [NX]| ICL @40
```

```
-----
338  V7 25 FT NR L VS V7 25 FT R H    4    58.33    CROSSING_ENC

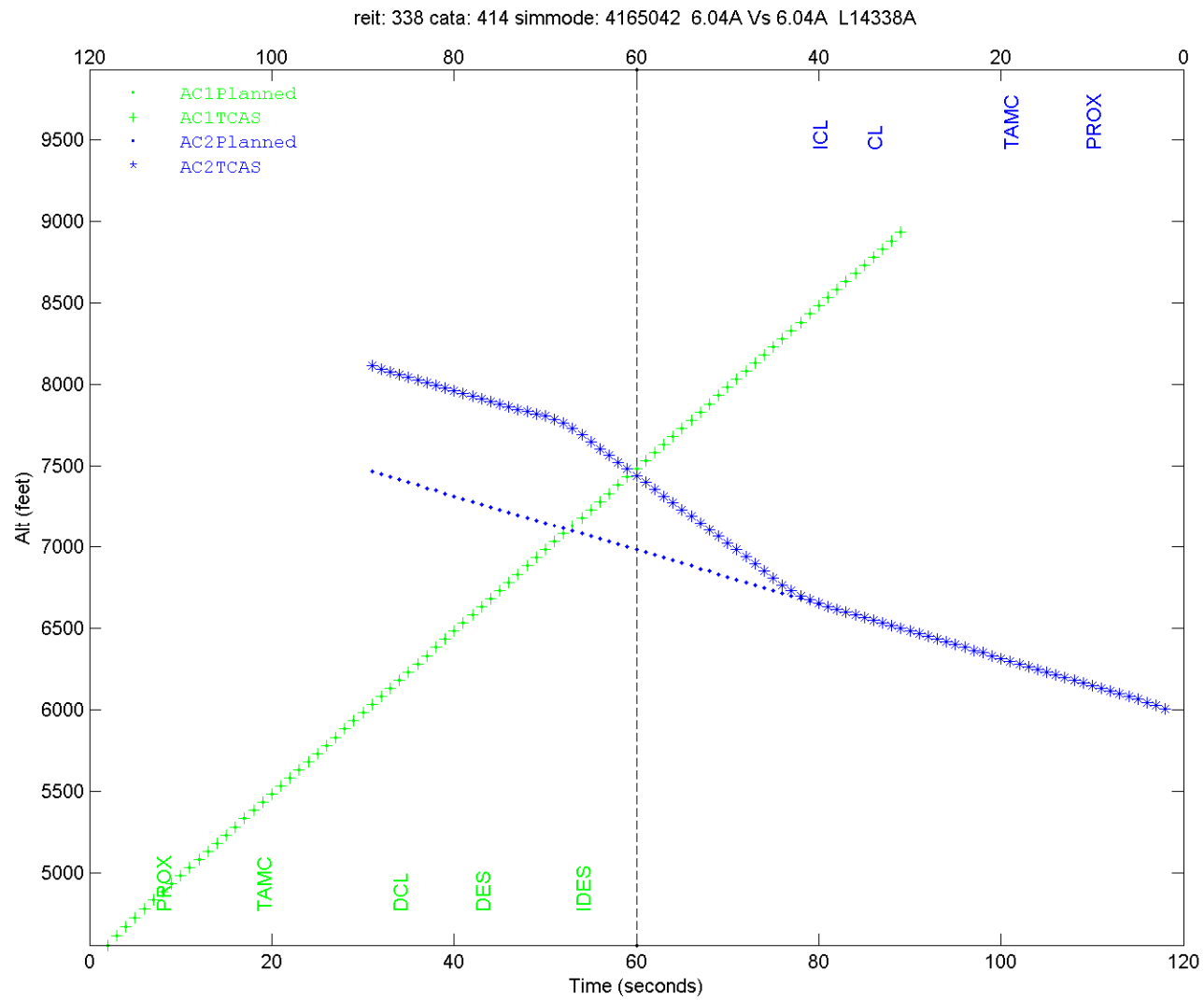
5 AC1:      4175053 TA :19 |TAUR| DCL @34 [NX]| DES @50 | IDES @52 ##NON-RESPONDING##
10 AC2:      4275135 TA :19 |TAUR| CL  @34 [NX]| ICL @41
```

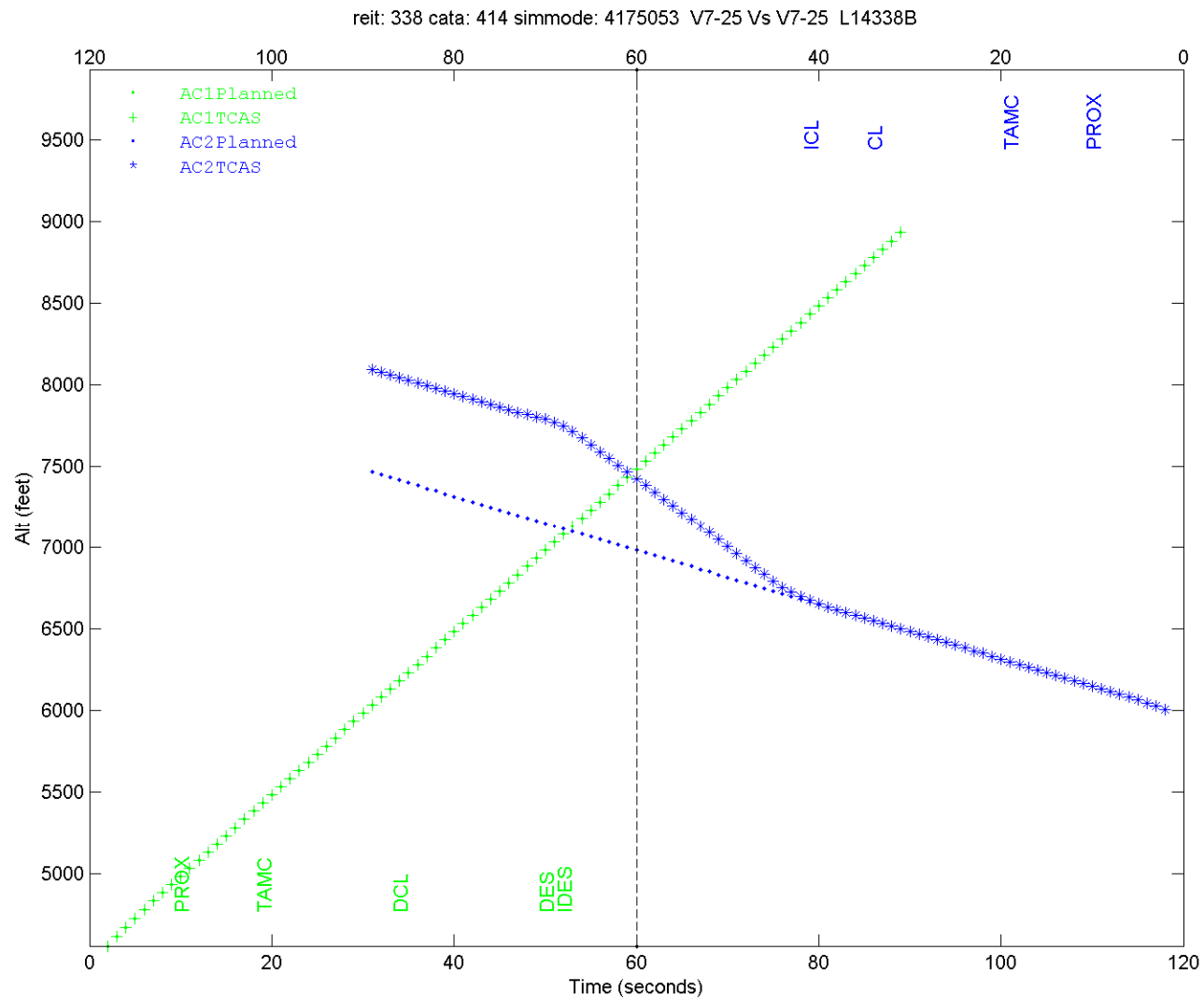
```
-----
338  CP112EV1.2 25 FT NR L VS CP112EV1.2 25 FT R H    4  660.98    CROSSING_ENC

5 AC1:*REV*8175053 TA :19 |TAUR| DCL @34 [NX]| CL  @46 | DDES @63 ##NON-RESPONDING##
10 AC2:*REV*8275135 TA :19 |TAUR| CL  @34 [NX]| ICL @41 | DES @46 | DCL @63
```

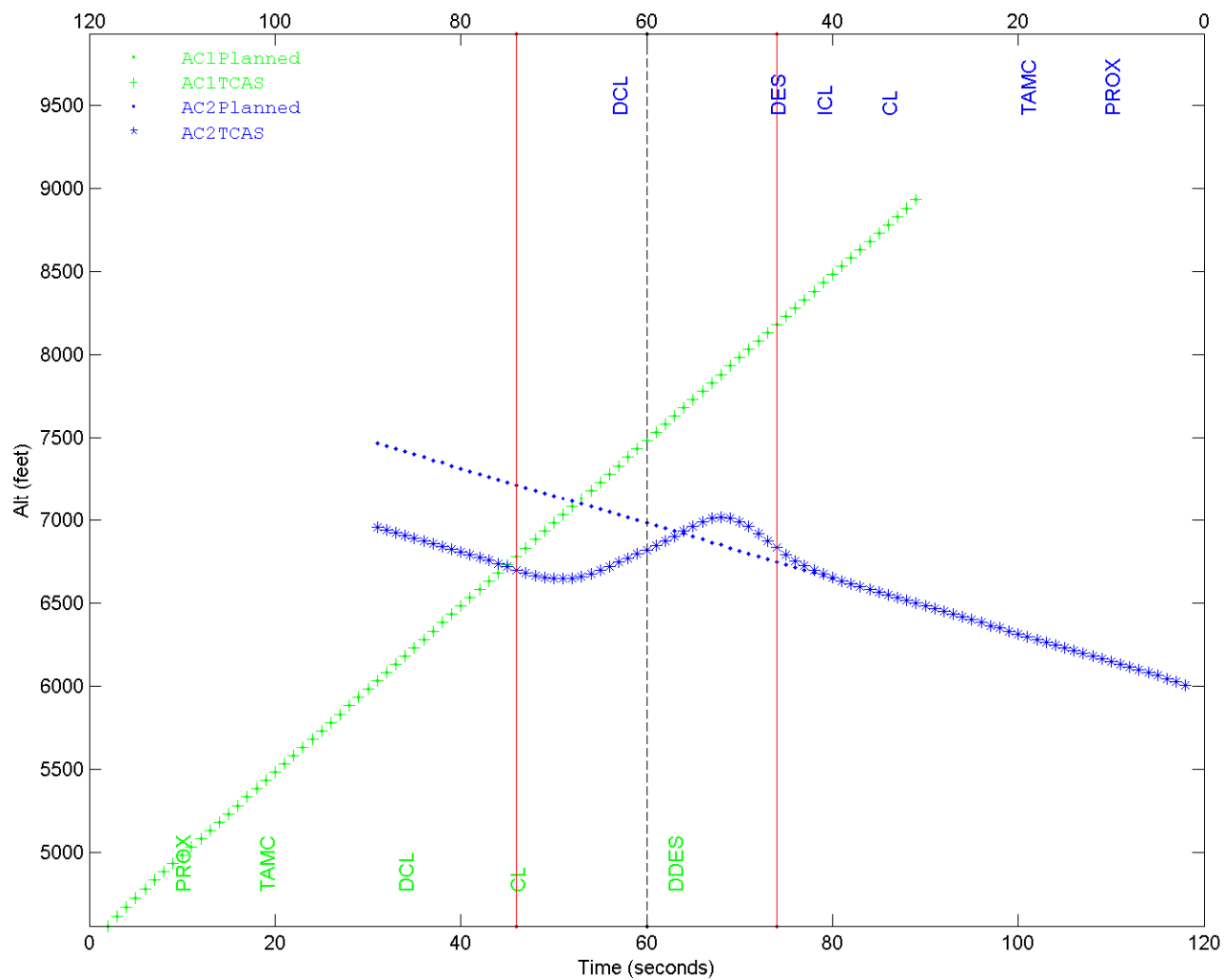
```
-----
338  V7.1 25 FT NR L VS V7.1 25 FT R H    4  660.98    CROSSING_ENC

5 AC1:*REV*8175053 TA :19 |TAUR| DCL @34 [NX]| CL  @46 | DDES @63 ##NON-RESPONDING##
10 AC2:*REV*8275135 TA :19 |TAUR| CL  @34 [NX]| ICL @41 | DES @46 | DCL @63
```

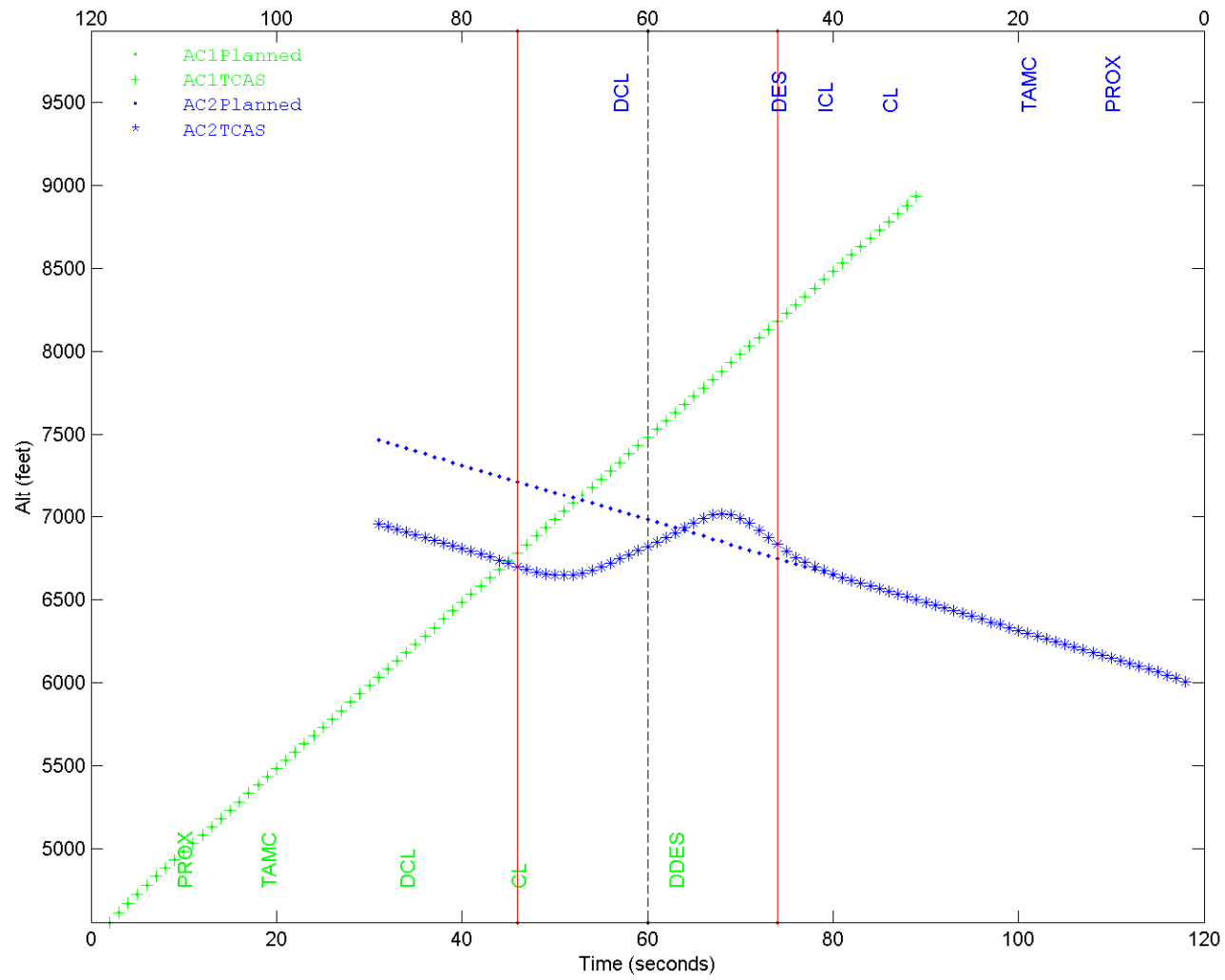





reit: 338 cata: 414 simmode: 8175053 CP112EV1.2-25 Vs CP112EV1.2-25 L14338C



reit: 338 cata: 414 simmode: 8175053 V7.1-25 Vs V7.1-25 L14338D



Change 7.1 Non-responding Representative Save 04

Encounter Class: 5

Reit Number : 665

Encounter Characterization

Number of encounters in group	12	
AC1 low ID	yes	
Non-responding AC	2	
Vertical tracker	25	ft
Planned separation	-750	ft
AC1 rates:	-1000	fpm
AC2 rates:	3000	fpm
AC1 acceleration:	none	
AC2 acceleration:	0.25	g
AC2 acceleration time	CPA – 25	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

Climbing vertical chase caused by response to initial RA.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER L25665
 LOGIC THRESHOLDS SL = 4 ZTHR = 600 TAUR = 20 TAUUV = 20 ALIM = 300
 PLANNED ENCOUNTER. SEP = -750.0 AC1 RATES(-1000.0, -1000.0) AC2 RATES(0.0, 3000.0)
 AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.25g @ CPA -25 AC1 CPA ALT 3680

```
-----
  665   6.04A R L VS 6.04A NR H    5   -99.95   CROSSING_ENC

  5 AC1:      4165024 TA :32 |RELZ| CL   @41 [NX]| ICL @45

 10 AC2:      4265142 TA :30 |TAUR| POTRA@40 (DFD) | DES @41 [NX]| IDES @48 ##NON-RESPONDING##

-----
  665   V7 25 FT R L VS V7 25 FT NR H    5   -84.43   CROSSING_ENC

  5 AC1:      4175035 TA :31 |TAUR| POTRA@40 | CL   @41 [NX]| ICL @44

 10 AC2:      4275153 TA :30 |TAUR| DES @40 [NX]   ##NON-RESPONDING##

-----
  665   CP112EV1.2 25 FT R L VS CP112EV1.2 25 FT NR H    5   -135.10   CROSSING_ENC

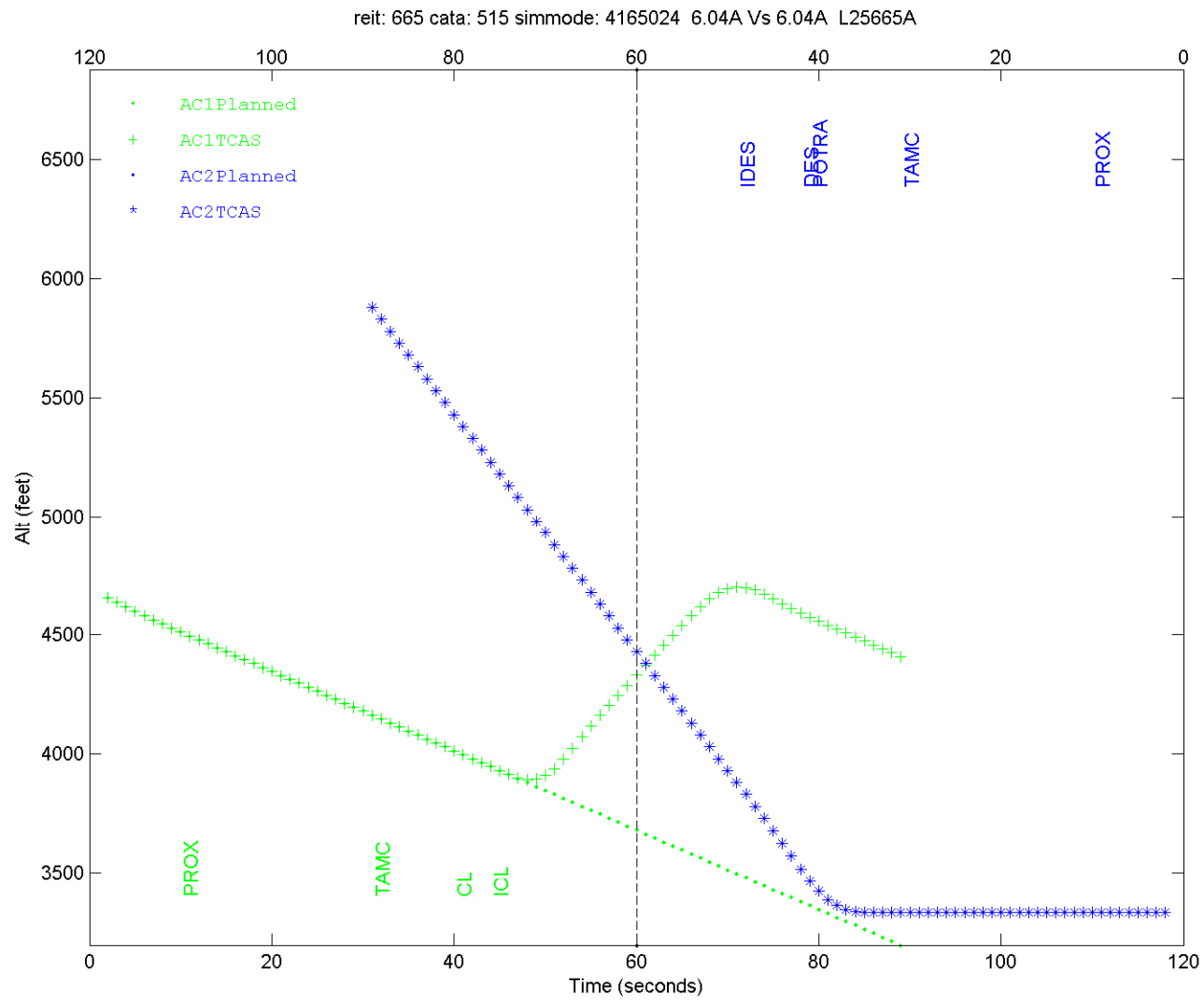
  5 AC1:*REV*8175035 TA :31 |TAUR| POTRA@40 | CL   @41 [NX]| ICL @44 | DES @55

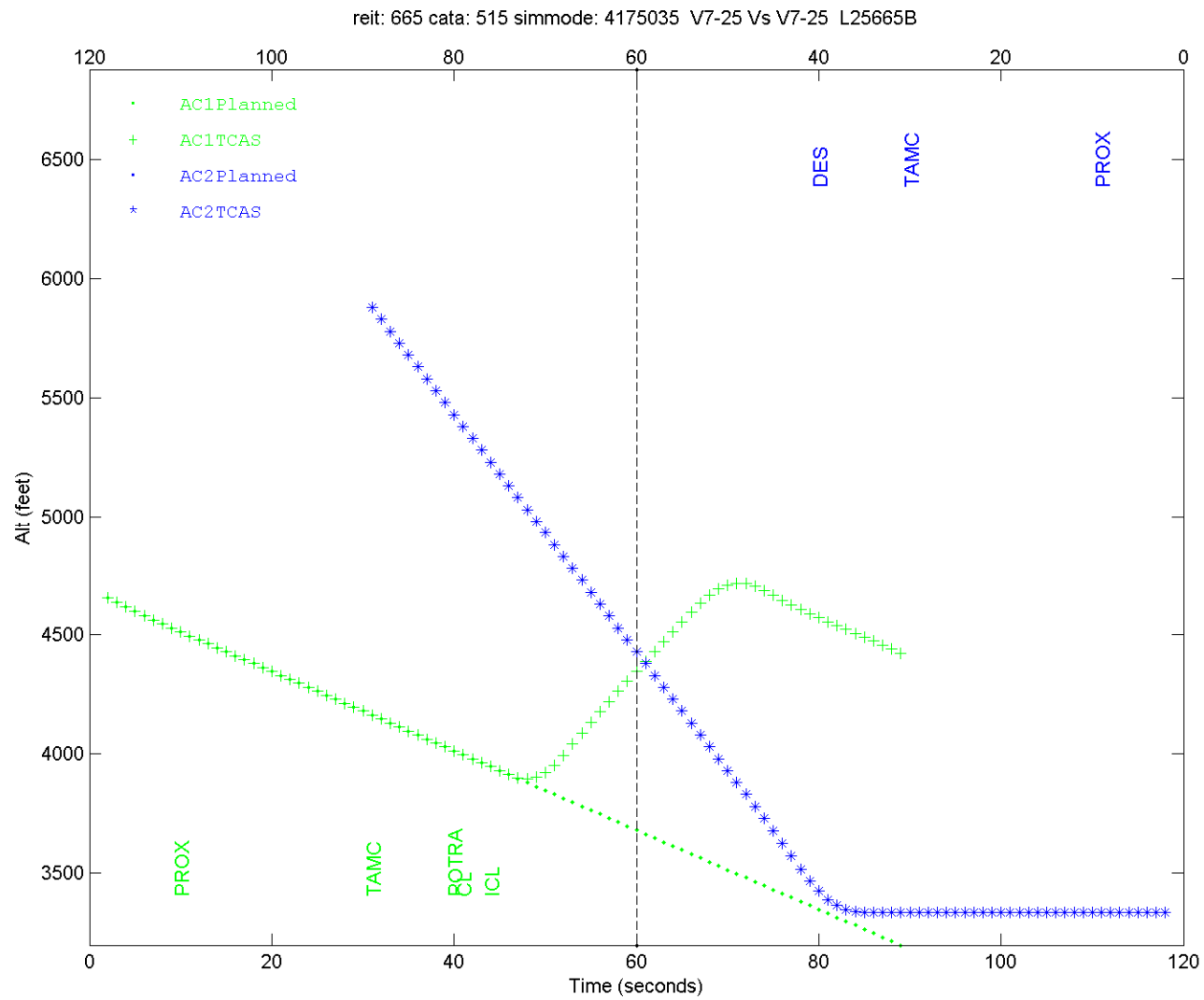
 10 AC2:*REV*8275153 TA :30 |TAUR| DES @40 [NX]| CL   @55 ##NON-RESPONDING##

-----
  665   V7.1 25 FT R L VS V7.1 25 FT NR H    5   -135.10   CROSSING_ENC

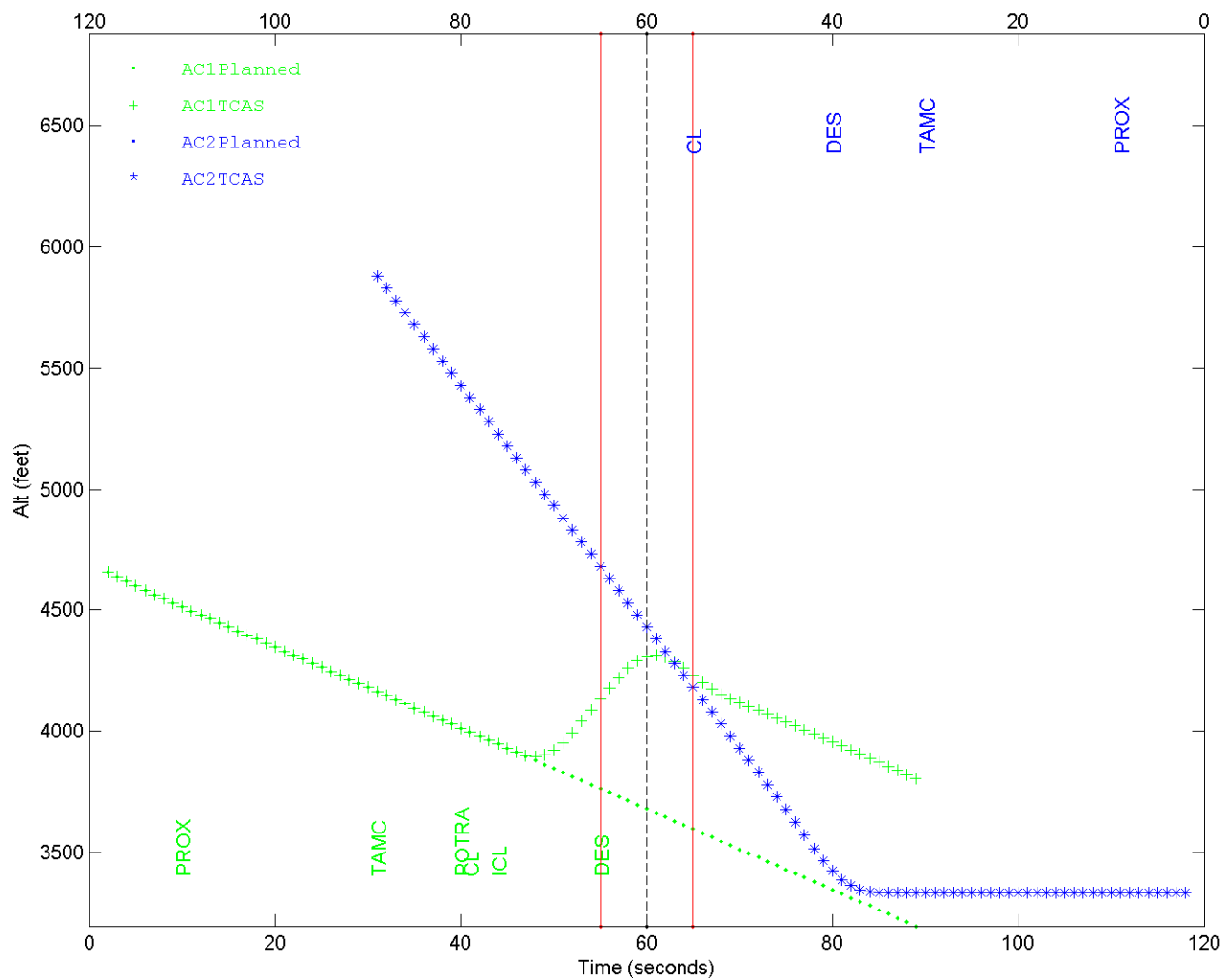
  5 AC1:*REV*8175035 TA :31 |TAUR| POTRA@40 | CL   @41 [NX]| ICL @44 | DES @55

 10 AC2:*REV*8275153 TA :30 |TAUR| DES @40 [NX]| CL   @55 ##NON-RESPONDING##
```

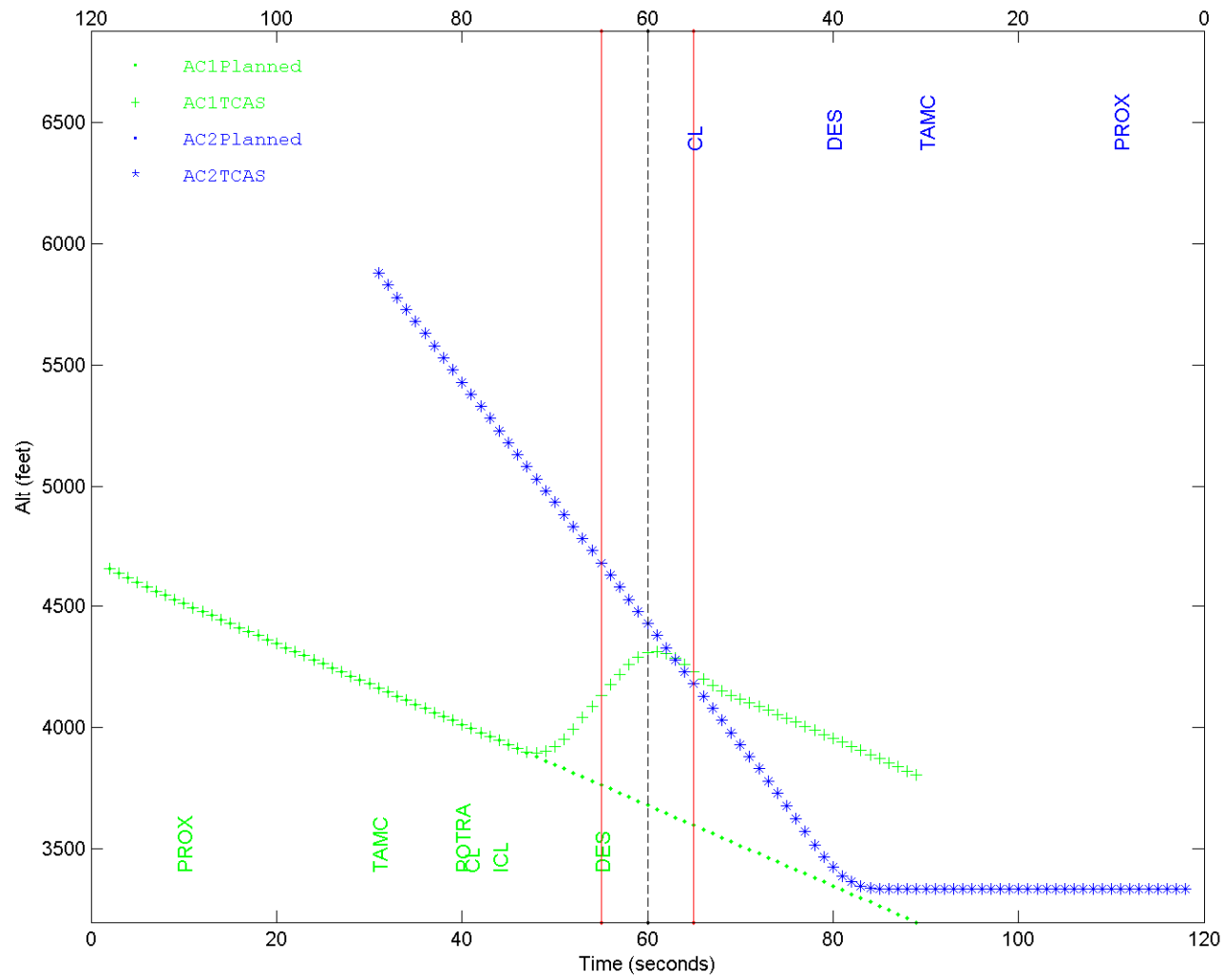




reit: 665 cata: 515 simmode: 8175035 CP112EV1.2-25 Vs CP112EV1.2-25 L25665C



reit: 665 cata: 515 simmode: 8175035 V7.1-25 Vs V7.1-25 L25665D



Change 7.1 Non-responding Representative Save 05

Encounter Class: 5

Reit Number : 3870

Encounter Characterization

Number of encounters in group	12	
AC1 low ID	yes	
Non-responding AC	2	
Vertical tracker	25	ft
Planned separation	-500	ft
AC1 rates:	1000	fpm
AC2 rates:	3000	fpm
AC1 acceleration:	none	
AC2 acceleration:	0.15	g
AC2 acceleration time	CPA – 30	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

Climbing vertical chase caused by response to initial RA.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER H253870
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = -500.0 AC1 RATES(1000.0,1000.0) AC2 RATES(0.0,3000.0)
 AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.15g @ CPA -30 AC1 CPA ALT 7480

 3870 6.04A R H VS 6.04A NR L 5 -58.75 CROSSING_ENC

10 AC1: 4165124 TA :19 |TAUR| CL @36 [NX]| ICL @40

5 AC2: 4265042 TA :19 |TAUR| LC5 @34 [NX]| DCL @38 | DES @39 | IDES @53 ##NON-RESPONDING##

 3870 V7 25 FT R H VS V7 25 FT NR L 5 -66.65 CROSSING_ENC

10 AC1: 4275035 TA :19 |PVMD| CL @35 [NX]| ICL @41

5 AC2: 4175153 TA :19 |TAUR| LC5 @34 [NX]| DCL @39 | DES @40 | IDES @51 ##NON-RESPONDING##

 3870 CP112EV1.2 25 FT R H VS CP112EV1.2 25 FT NR L 5 -674.96 CROSSING_ENC

10 AC1:*REV*8275035 TA :19 |PVMD| CL @35[NX]| ICL @41| DES @47| IDES @51| DCL @63

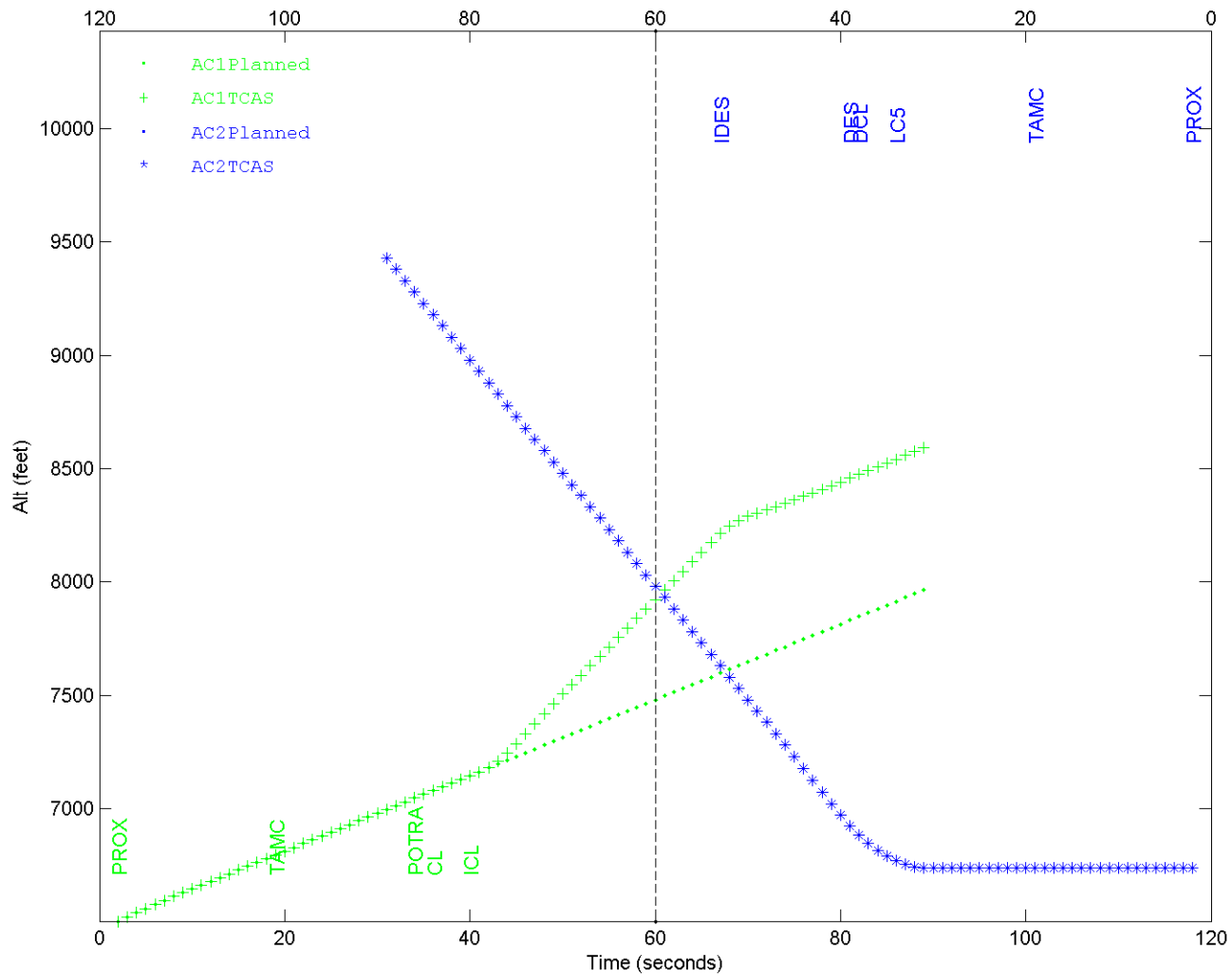
5 AC2:*REV*8175153 TA :19 |TAUR| LC5 @34[NX]| DCL @39| DES @40| CL @46| DDES @63 ##NON-RESPONDING##

 3870 V7.1 25 FT R H VS V7.1 25 FT NR L 5 -731.94 CROSSING_ENC

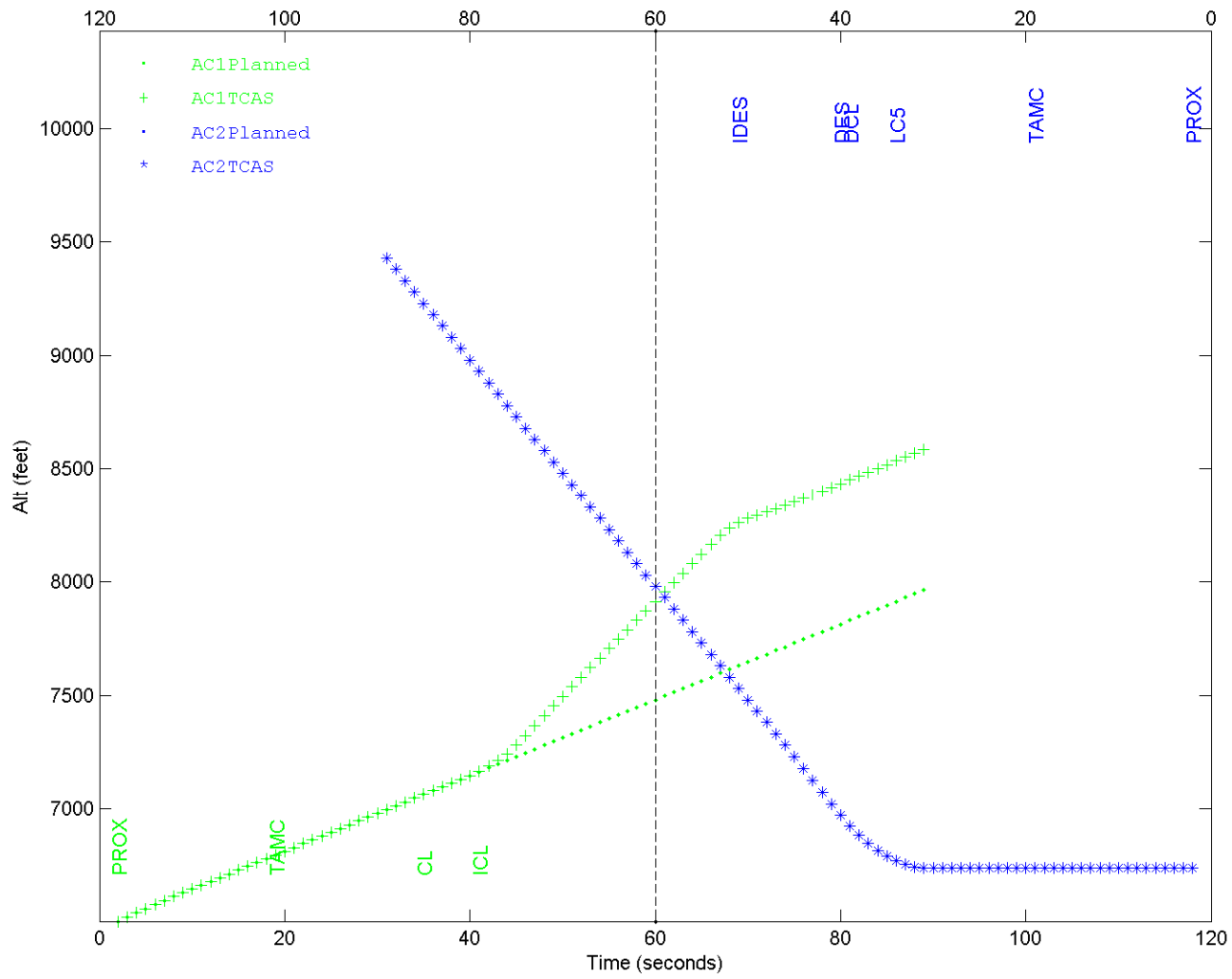
10 AC1:*REV*8275035 TA :19 |PVMD| CL @35 [NX]| ICL @41 | DES @45 | DCL @57

5 AC2:*REV*8175153 TA :19 |TAUR| DCL @34 [NX]| CL @44 | DDES @57 ##NON-RESPONDING##

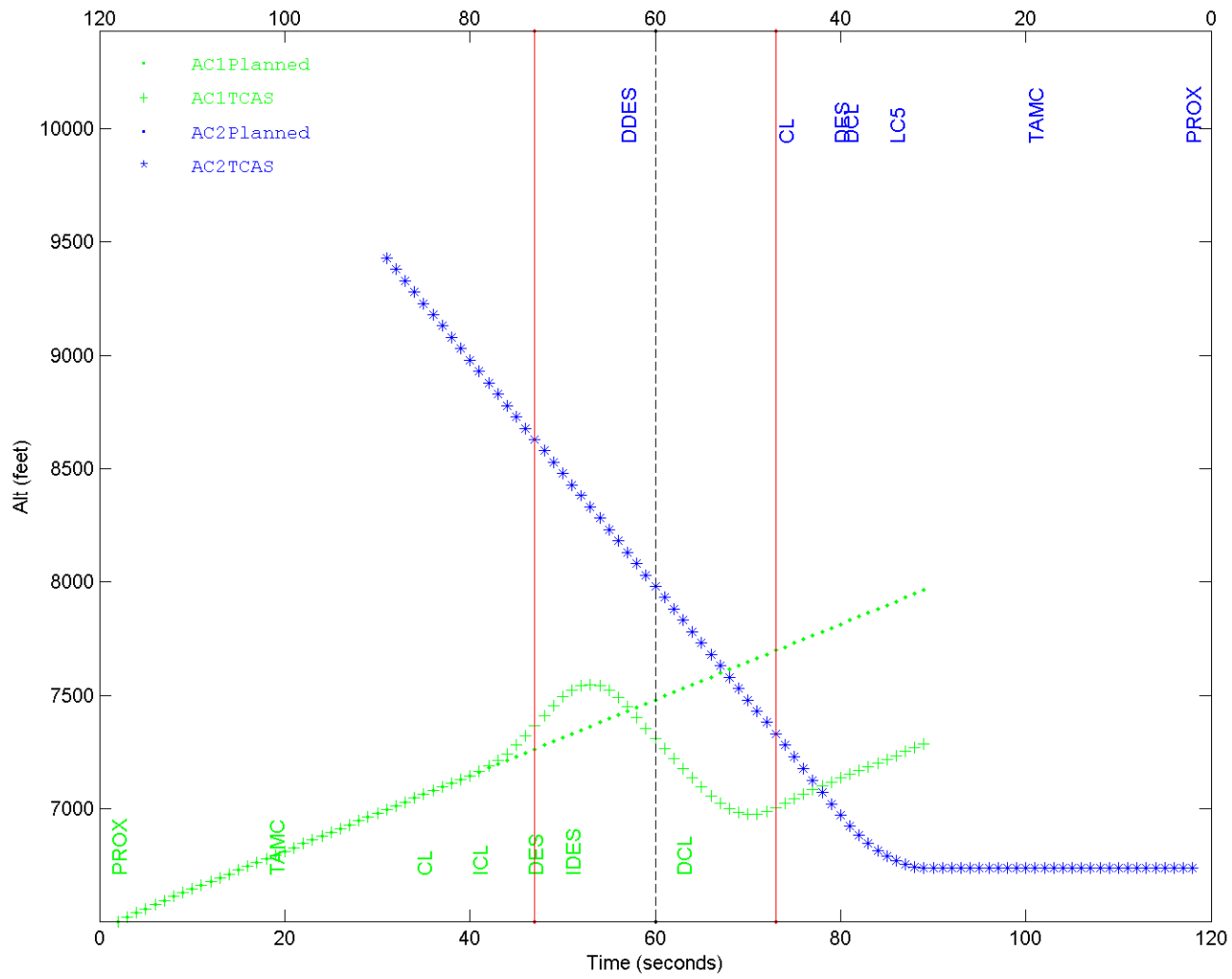
reit: 3870 cata: 515 simmode: 4165124 6.04A Vs 6.04A H253870A

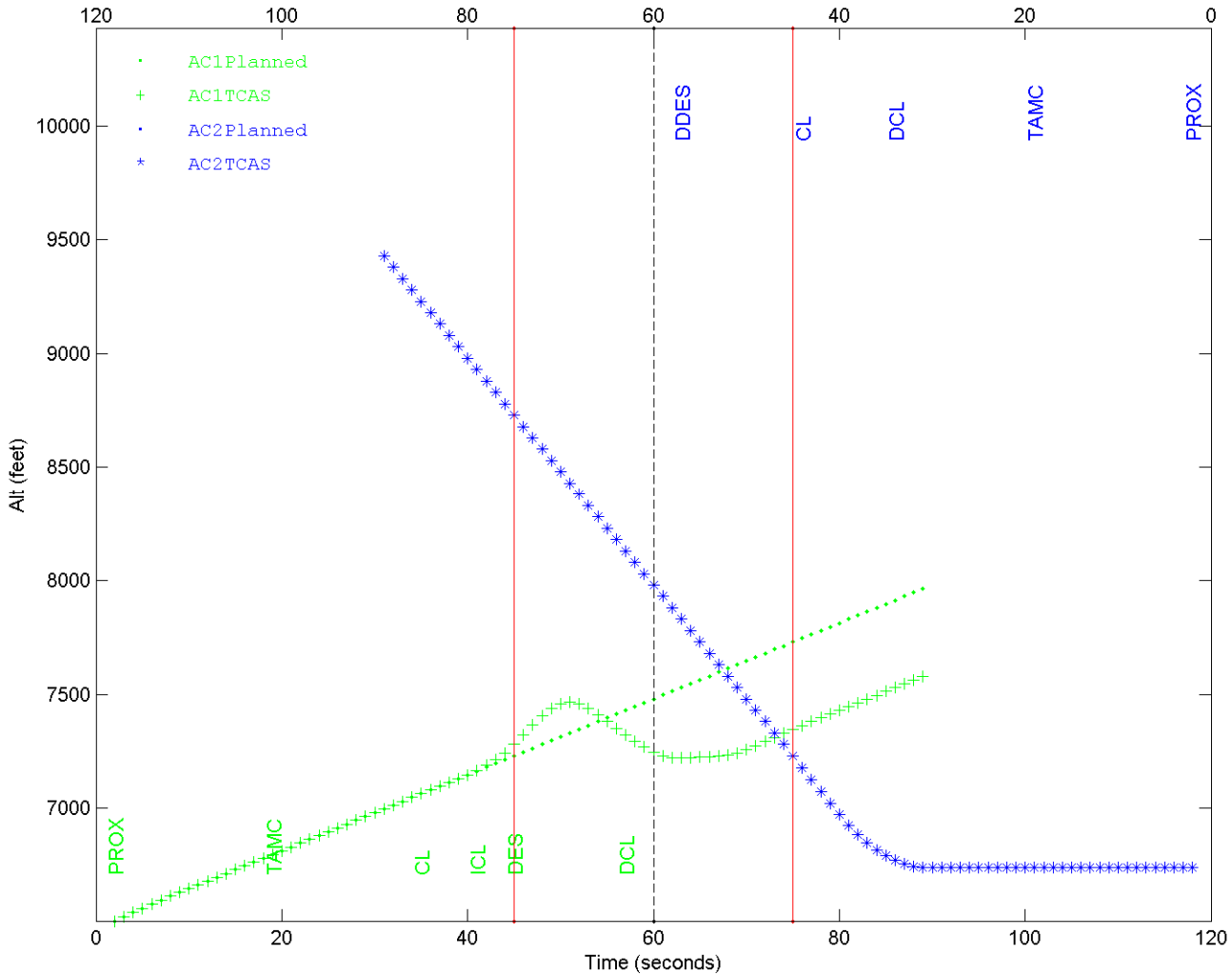


reit: 3870 cata: 515 simmode: 4275035 V7-25 Vs V7-25 H253870B



reit: 3870 cata: 515 simmode: 8275035 CP112EV1.2-25 Vs CP112EV1.2-25 H253870C





Change 7.1 Non-responding Representative Save 06

Encounter Class: 5

Reit Number : 1033

Encounter Characterization

Number of encounters in group	25	
AC1 low ID	yes	
Non-responding AC	2	
Vertical tracker	25	ft
Planned separation	0	ft
AC1 rates:	3000	fpm
AC2 rates:	3000	fpm
AC1 acceleration:	none	
AC2 acceleration:	0.05	g
AC2 acceleration time	CPA – 30	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

Climbing vertical chase caused by planned maneuver.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER L251033
 LOGIC THRESHOLDS SL = 4 ZTHR = 600 TAUR = 20 TAUUV = 20 ALIM = 300
 PLANNED ENCOUNTER. SEP = 0.0 AC1 RATES(3000.0,3000.0) AC2 RATES(0.0,3000.0)
 AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.05g @ CPA -30 AC1 CPA ALT 3680

 1033 6.04A R L VS 6.04A NR H 5 0.00 CROSSING_ENC

5 AC1: 4165024 TA :30 |PVMD| CL @42 [X] | ICL @50

10 AC2: 4265142 TA :30 |TAUR| POTRA@40 (DFD)| DES @42 [X] | IDES @55 ##NON-RESPONDING##

 1033 V7 25 FT R L VS V7 25 FT NR H 5 0.00 CROSSING_ENC

5 AC1: 4175035 TA :30 |TAUR| CL @40 [X]

10 AC2: 4275153 TA :30 |TAUR| LC5 @40 [X]| DCL @50 | DES @51 | IDES @53 ##NON-RESPONDING##

 1033 CP112EV1.2 25 FT R L VS CP112EV1.2 25 FT NR H 5 -275.88 NON_CROSSING_ENC

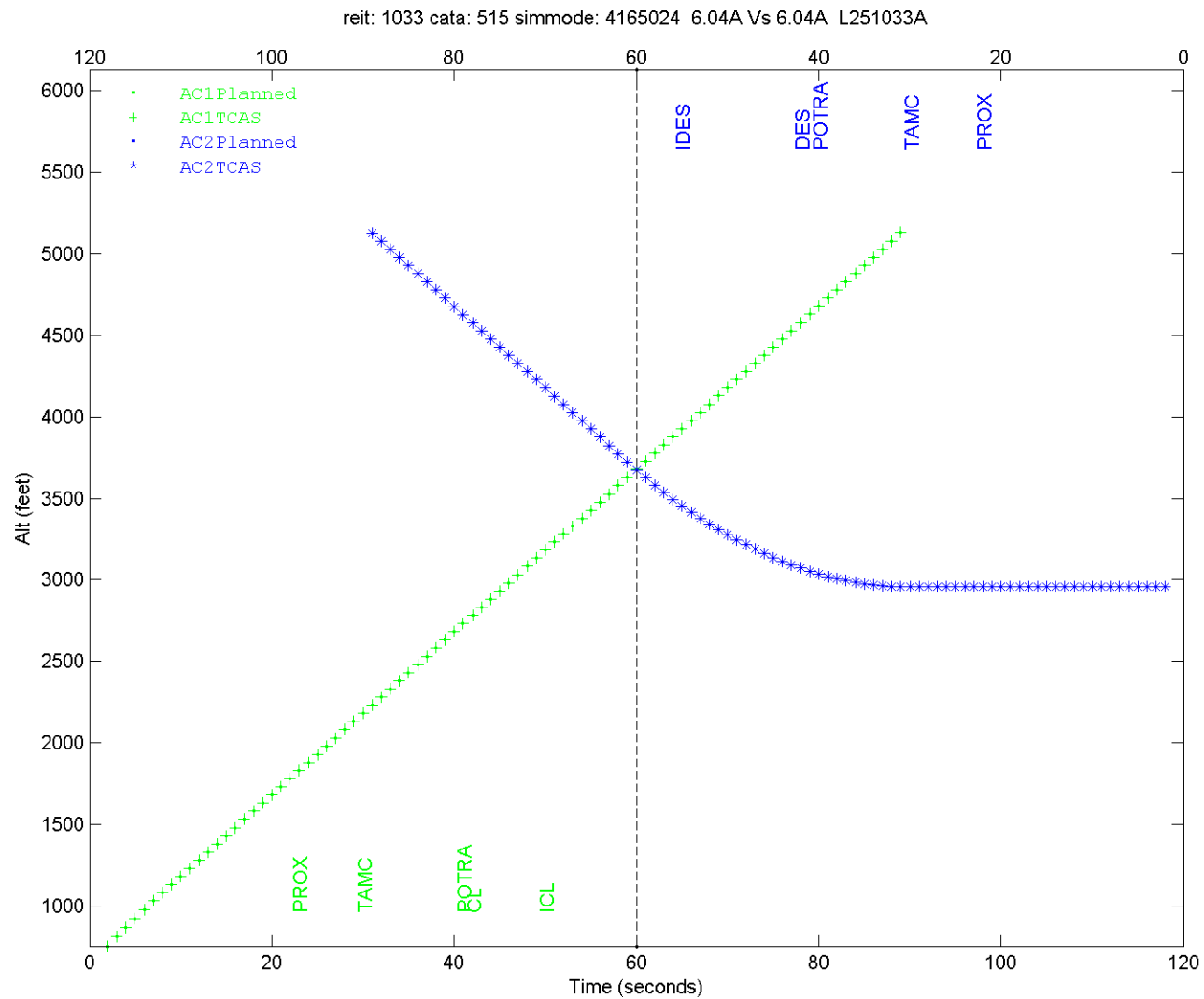
5 AC1:*REV*8175035 TA :30 |TAUR| CL @40 [X]| DES @51 | IDES @53

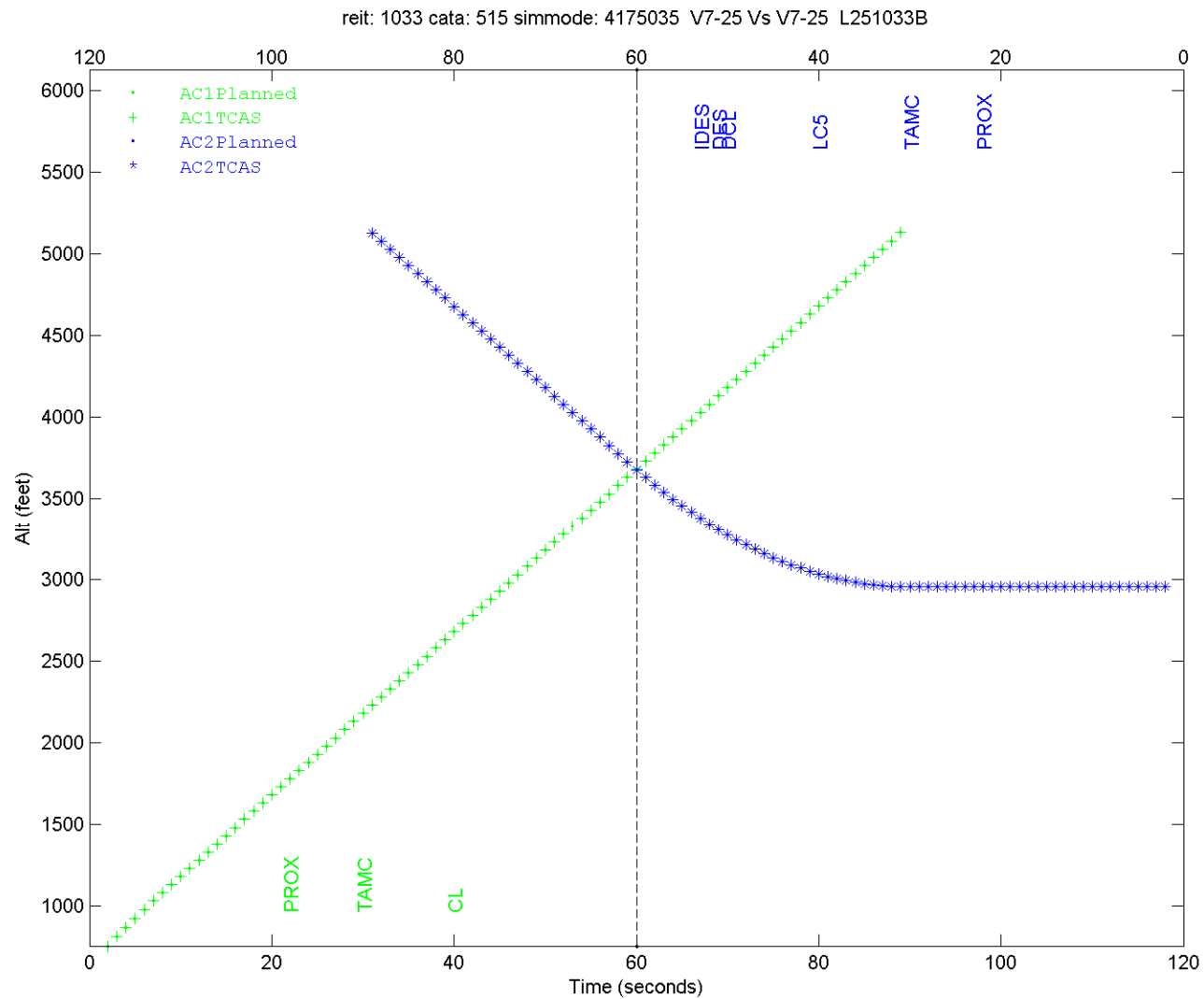
10 AC2:*REV*8275153 TA :30 |TAUR| LC5 @40 [X]| DCL @50 | CL @51 | ICL @53 ##NON-RESPONDING##

 1033 V7.1 25 FT R L VS V7.1 25 FT NR H 5 -275.88 NON_CROSSING_ENC

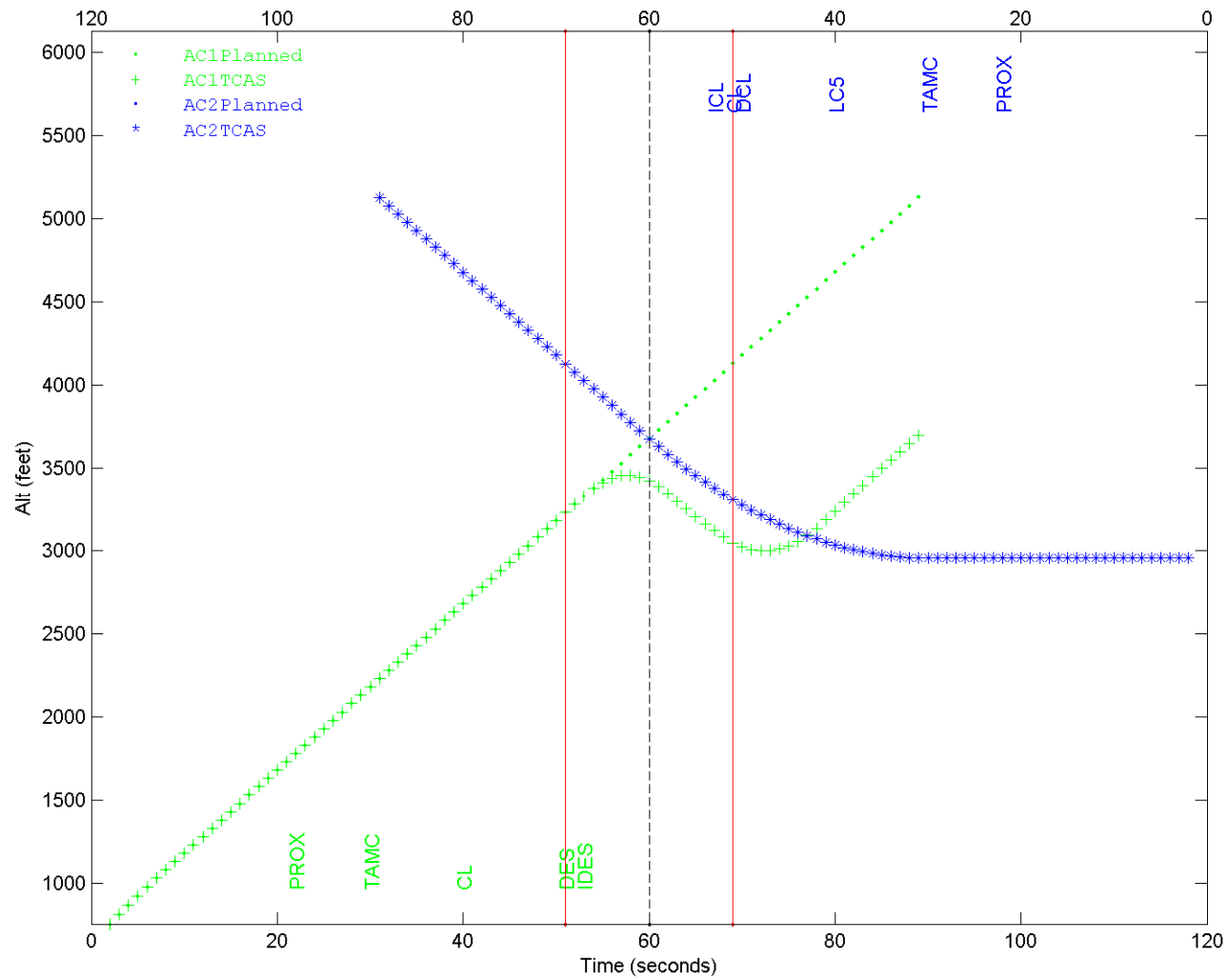
5 AC1:*REV*8175035 TA :30 |TAUR| CL @40 [X] | DES @51 | IDES @53

10 AC2:*REV*8275153 TA :30 |TAUR| DCL @40 [X] | CL @51 | ICL @53 ##NON-RESPONDING##

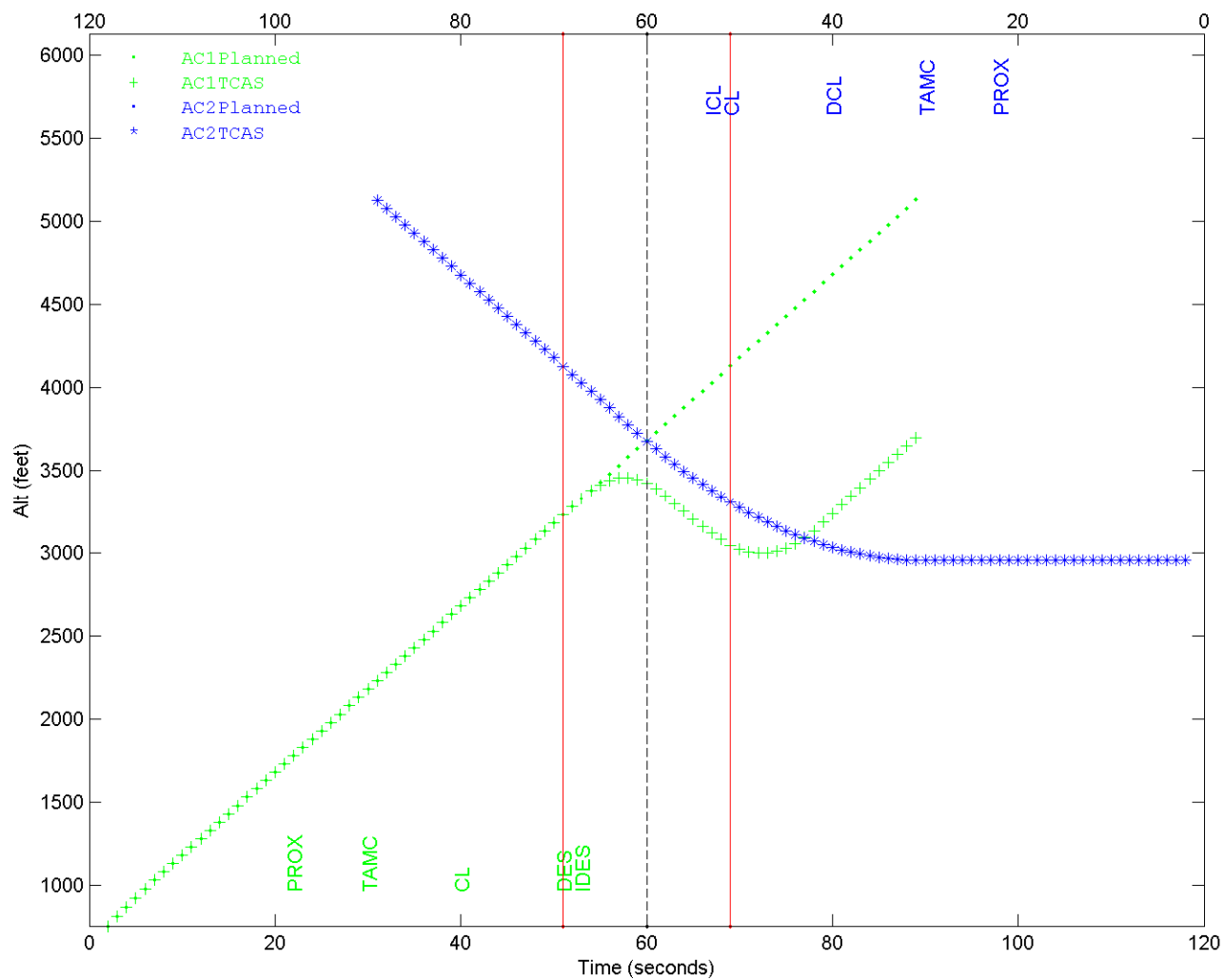




reit: 1033 cata: 515 simmode: 8175035 CP112EV1.2-25 Vs CP112EV1.2-25 L251033C



reit: 1033 cata: 515 simmode: 8175035 V7.1-25 Vs V7.1-25 L251033D



Change 7.1 Non-responding Representative Save 07

Encounter Class: 5

Reit Number : 5569

Encounter Characterization

Number of encounters in group	3	
AC1 low ID	no	
Non-responding AC	2	
Vertical tracker	25	ft
Planned separation	0	ft
AC1 rates:	3000	fpm
AC2 rates:	3000, 5000	fpm
AC1 acceleration:	none	
AC2 acceleration:	0.05	g
AC2 acceleration time	CPA – 30	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP115

Comments

Climbing vertical chase caused by planned maneuver.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER H255569
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = 0.0 AC1 RATES(3000.0,3000.0) AC2 RATES(0.0,3000.0)
 AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.05g @ CPA -30 AC1 CPA ALT 7520

 5569 6.04A R H VS 6.04A NR L 5 0.00 CROSSING_ENC

10 AC1: 4165124 TA :19 |PVMD| CL @39 [X] | ICL @44

5 AC2: 4265042 TA :19 |TAUR| LC5 @37 [X] | LC5 @41 | DCL @46 | DES @47
 | IDES @53 ##NON-RESPONDING##

 5569 V7 25 FT R H VS V7 25 FT NR L 5 0.00 CROSSING_ENC

10 AC1: 4275035 TA :19 |PVMD| CL @38 [X]

5 AC2: 4175153 TA :19 |TAUR| POTRA@34 (LVW) | LC5 @37 [X] | LC5 @38 | DCL @46
 | DES @47 | IDES @51 ##NON-RESPONDING##

 5569 CP112EV1.2 25 FT R H VS CP112EV1.2 25 FT NR L 5 -90.08 NON_CROSSING_ENC

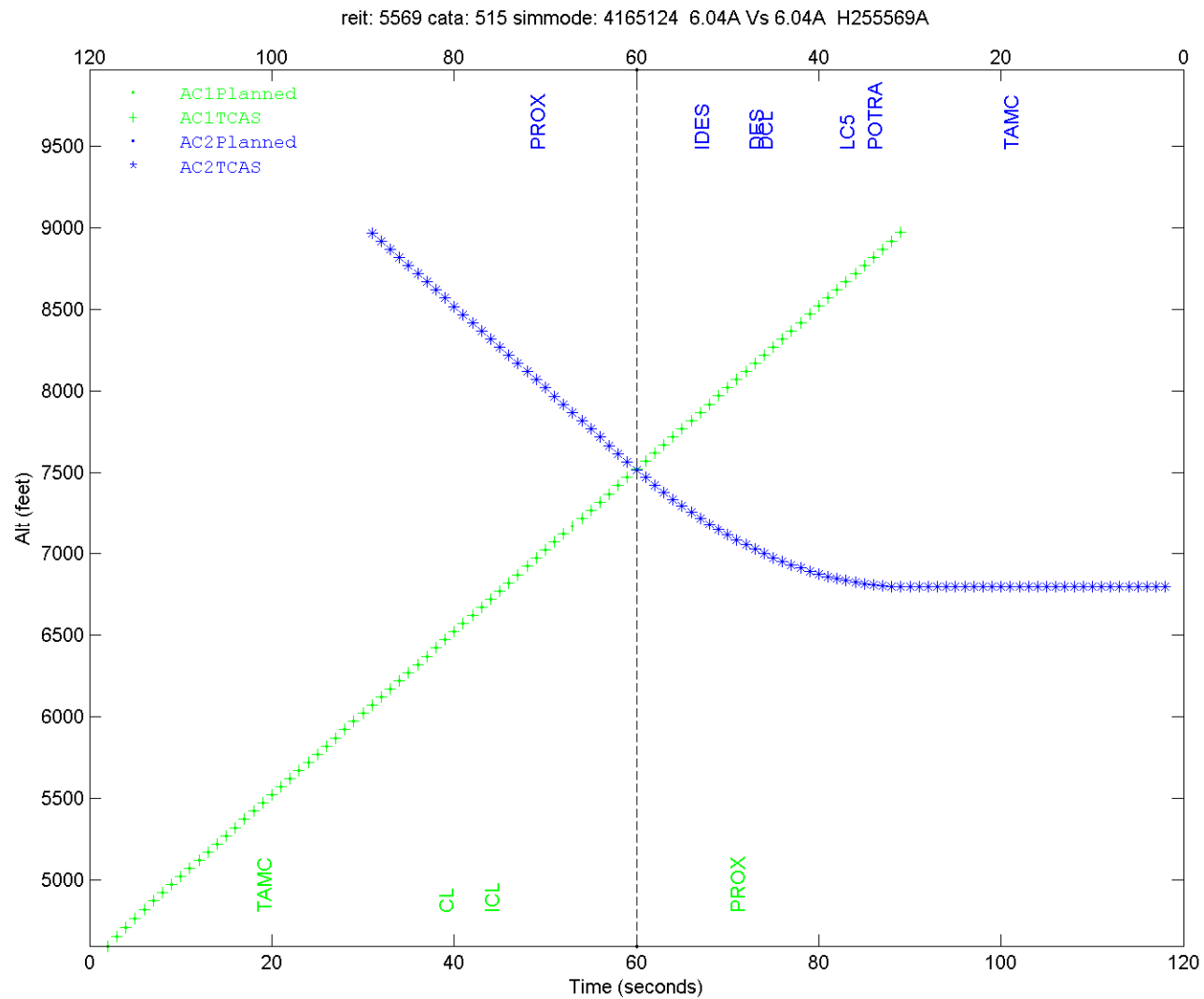
10 AC1:*REV*8275035 TA :19 |PVMD| CL @38 [X] | DES @54

5 AC2:*REV*8175153 TA :19 |TAUR| POTRA@34 (LVW) | LC5 @37 [X] | LC5 @38 | DCL @46
 | DES @47 | IDES @51 | CL @53 ##NON-RESPONDING##

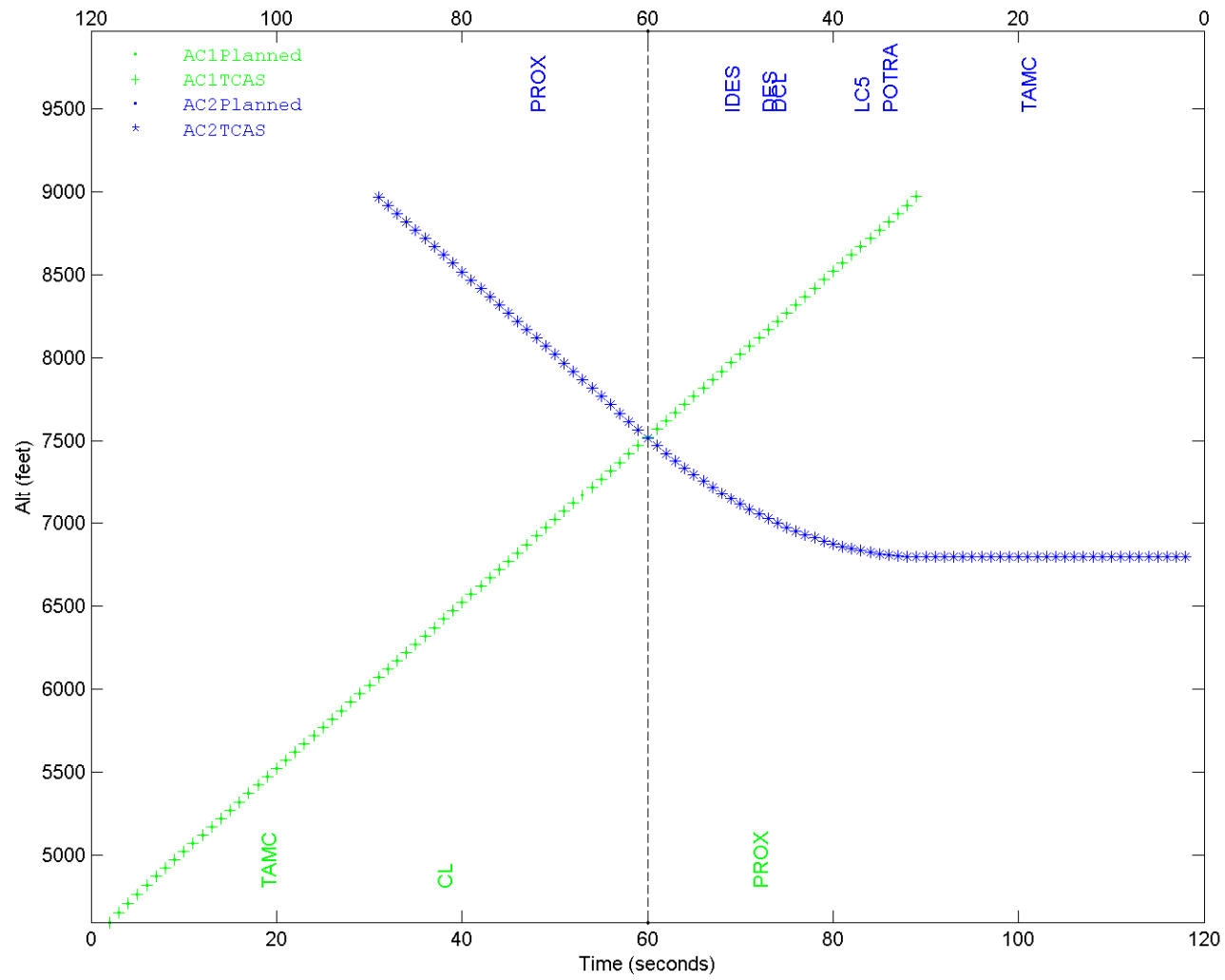
 5569 V7.1 25 FT R H VS V7.1 25 FT NR L 5 -451.89 NON_CROSSING_ENC

10 AC1:*REV*8275035 TA :19 |PVMD| CL @38 [X] | DES @49 | IDES @51 | DCL @63

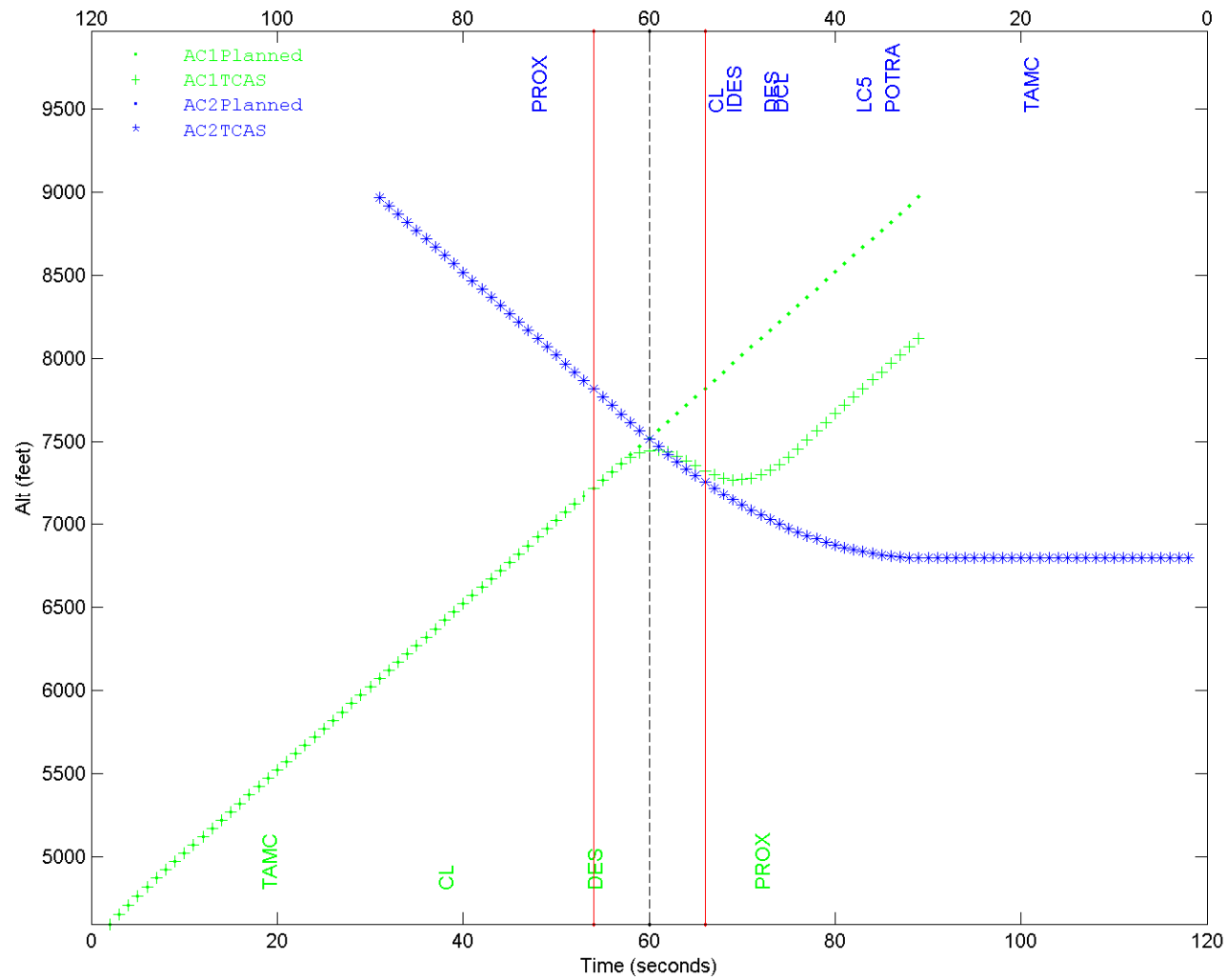
5 AC2:*REV*8175153 TA :19 |TAUR| POTRA@34 (LVW) | LC5 @37 [X] | DCL @38 | CL @48
 | ICL @51 ##NON-RESPONDING##

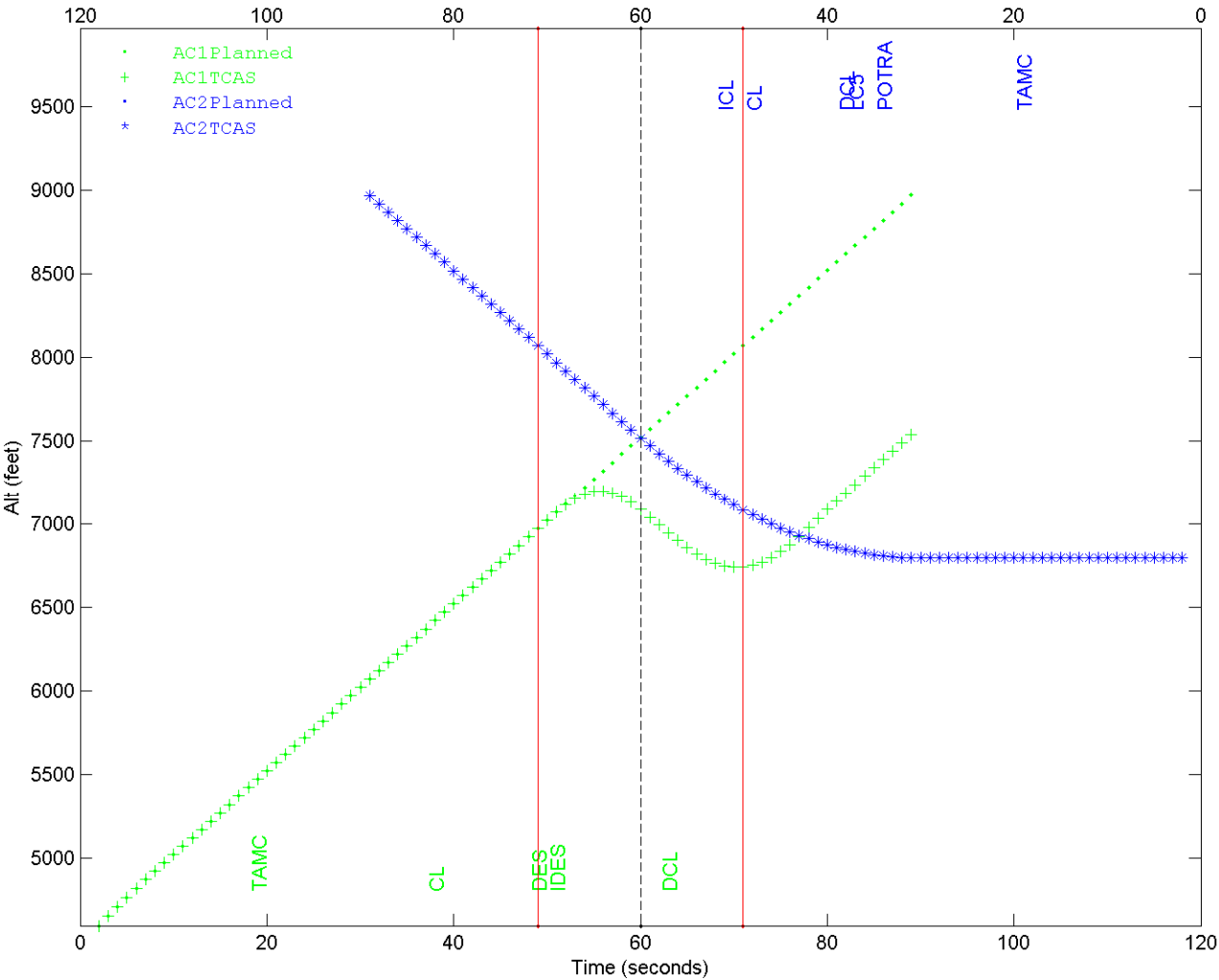


reit: 5569 cata: 515 simmode: 4275035 V7-25 Vs V7-25 H255569B



reit: 5569 cata: 515 simmode: 8275035 CP112EV1.2-25 Vs CP112EV1.2-25 H255569C





Change 7.1 Non-responding Representative Save 08

Encounter Class: 5

Reit Number : 3710

Encounter Characterization

Number of encounters in group	8	
AC1 low ID	yes	
Non-responding AC	1	
Vertical tracker	25	ft
Planned separation	-500, -750	ft
AC1 rates:	-1000, -3000, -5000	fpm
AC2 rates:	5000	fpm
AC1 acceleration:	none	
AC2 acceleration:	0.25	g
AC2 acceleration time	CPA – 25	sec
Encounters with reversed RAs	0	%
Vertical chase	no	

Save Mechanism

Logic change solving NMAC

CP115

Comments

Responding aircraft received LOLO rather than AVSA.
Strengthening of DES to IDES came 5 seconds sooner.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER L153710
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = -750.0 AC1 RATES(-1000.0, -1000.0) AC2 RATES(0.0, 5000.0)
 AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.25g @ CPA -25 AC1 CPA ALT 7480

```
-----
3710  6.04A NR L VS 6.04A R H    5    -12.45    CROSSING_ENC

5 AC1:    4165042 TA :42 |TAUV| CL    @42  [NX]| ICL @46  ##NON-RESPONDING##
10 AC2:    4265124 TA :39 |TAUV| POTRA@41  (DFD) | DES @42  [NX]| IDES @52

-----
3710  V7 25 FT NR L VS V7 25 FT R H    5    94.02    NON_CROSSING_ENC

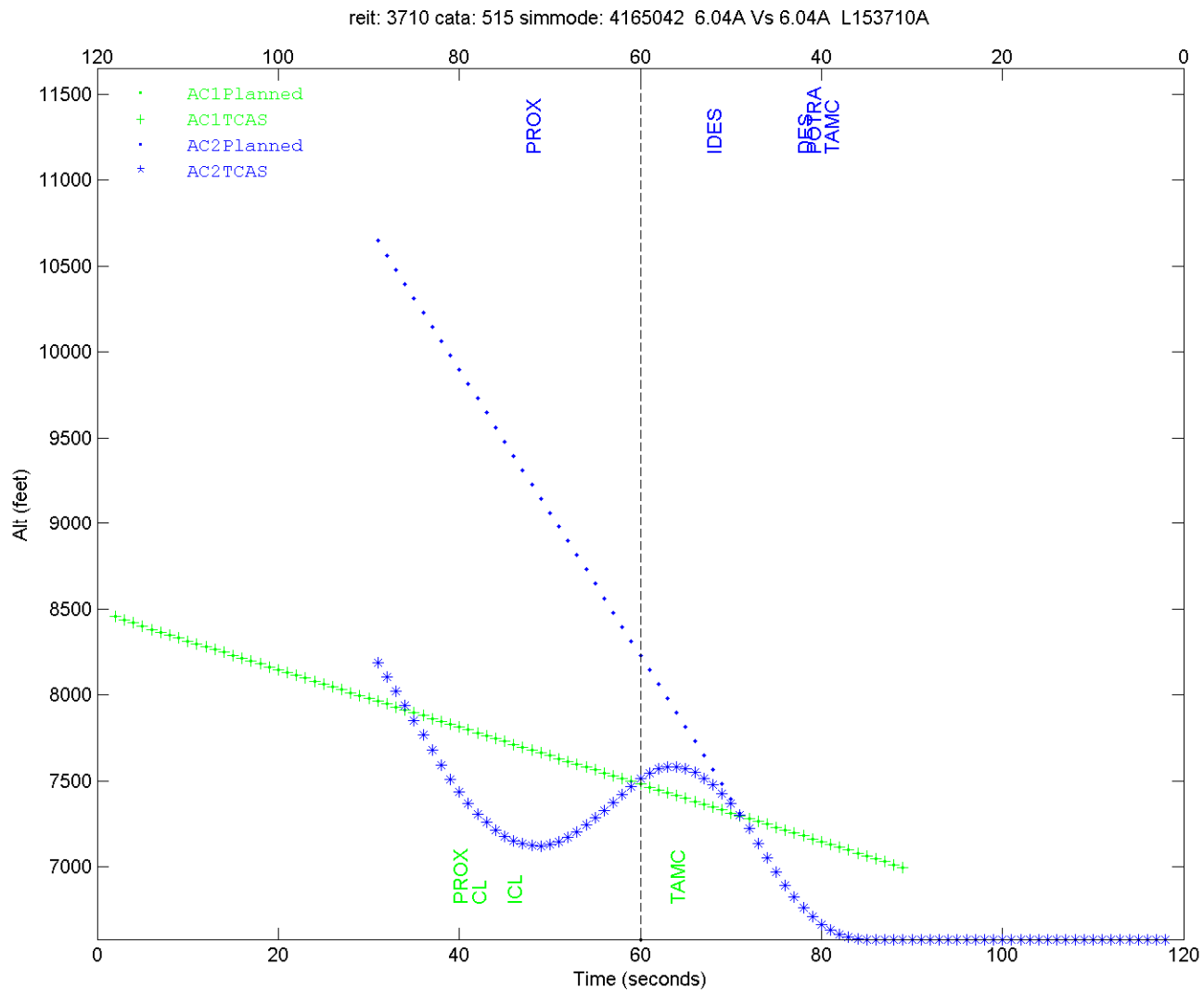
5 AC1:    4175053 TA :40 |TAUV| POTRA@41  | CL    @42  [NX]| ICL @49  ##NON-RESPONDING##
10 AC2:    4275135 TA :39 |TAUV| LC5 @41  [NX]| DCL @42  | DES @43  | IDES @52

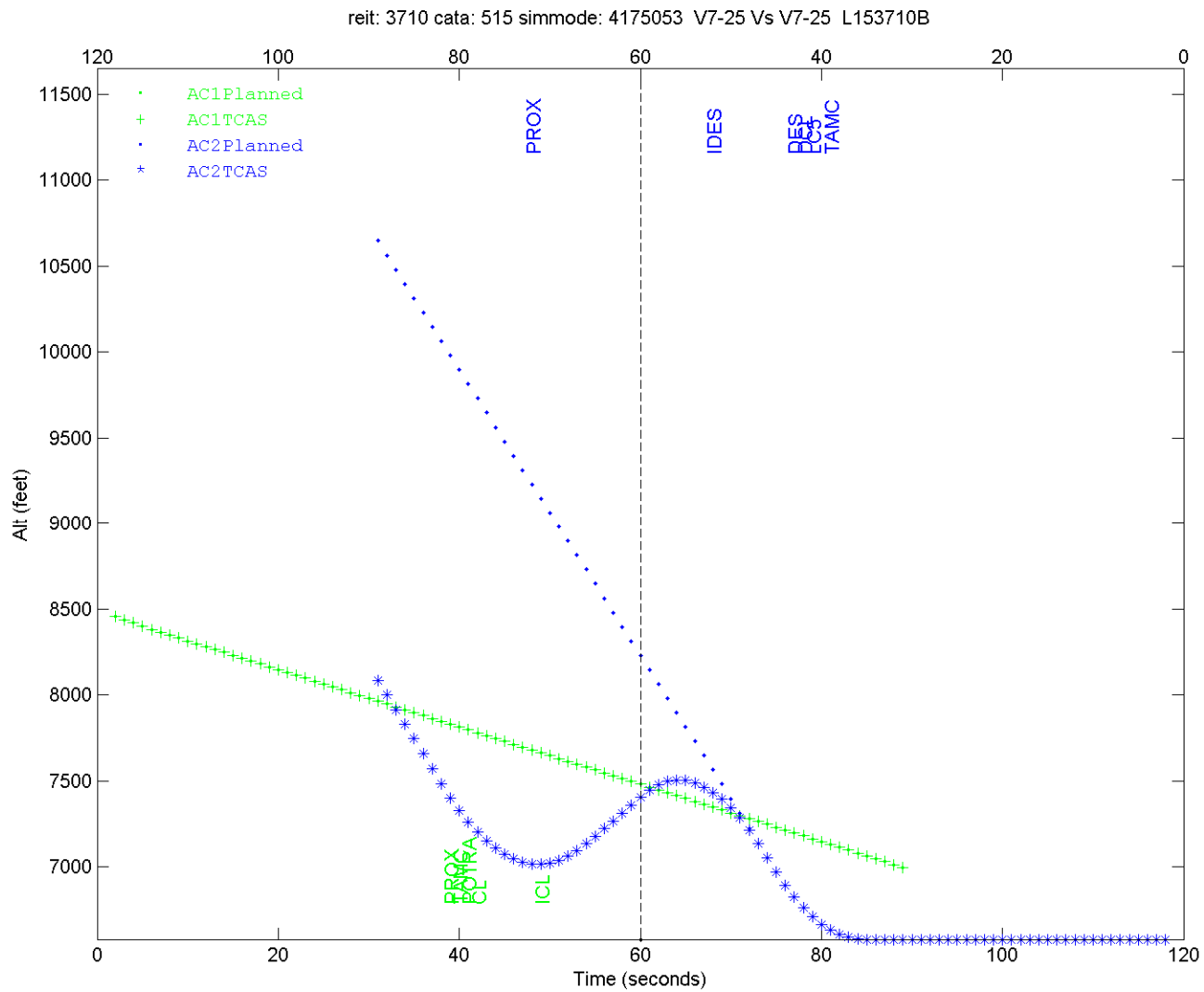
-----
3710  CP112EV1.2 25 FT NR L VS CP112EV1.2 25 FT R H    5  94.02 NON_CROSSING_ENC

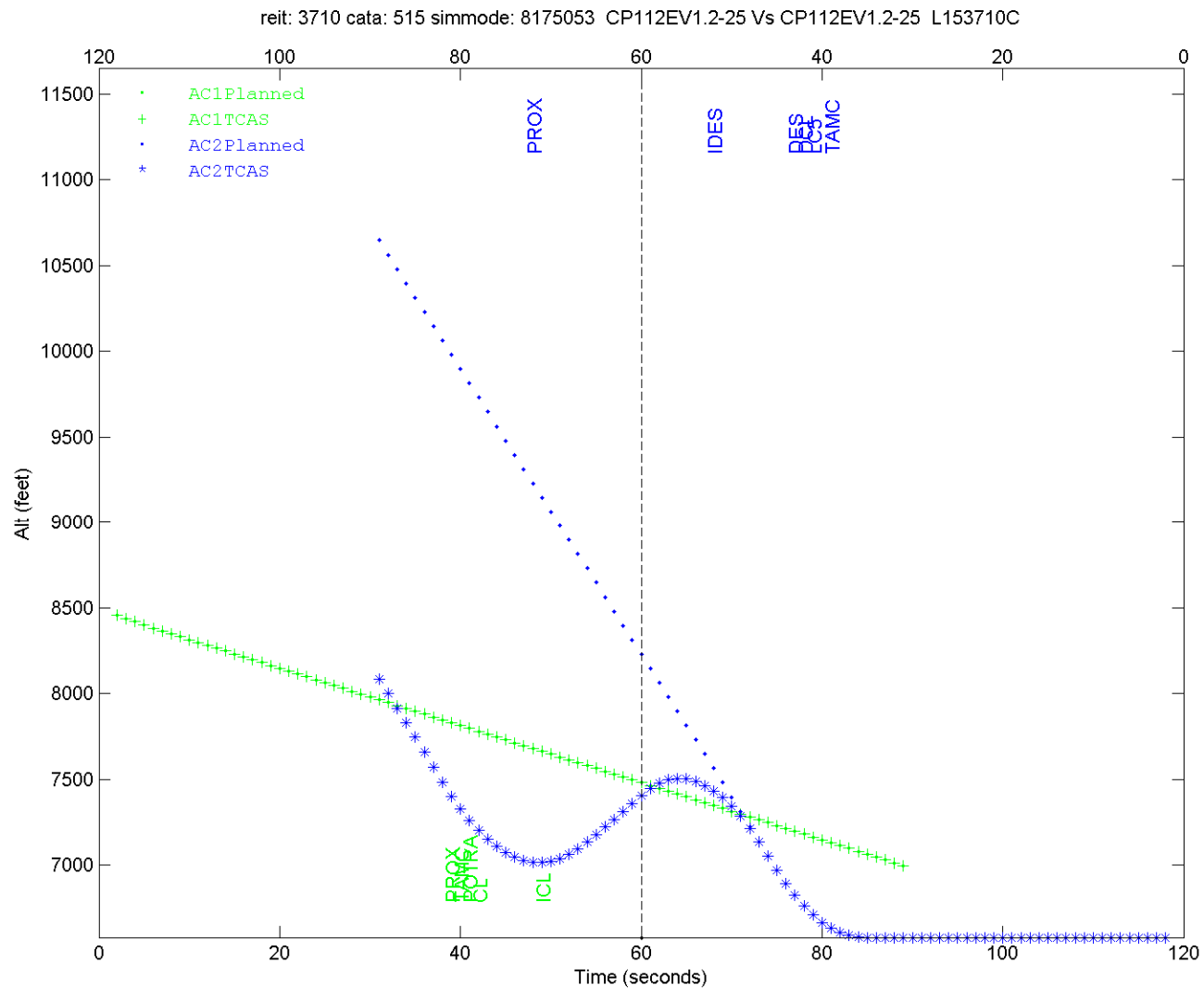
5 AC1:    8175053 TA :40 |TAUV| POTRA@41  | CL    @42  [NX]| ICL @49  ##NON-RESPONDING##
10 AC2:    8275135 TA :39 |TAUV| LC5 @41  [NX]| DCL @42  | DES @43  | IDES @52

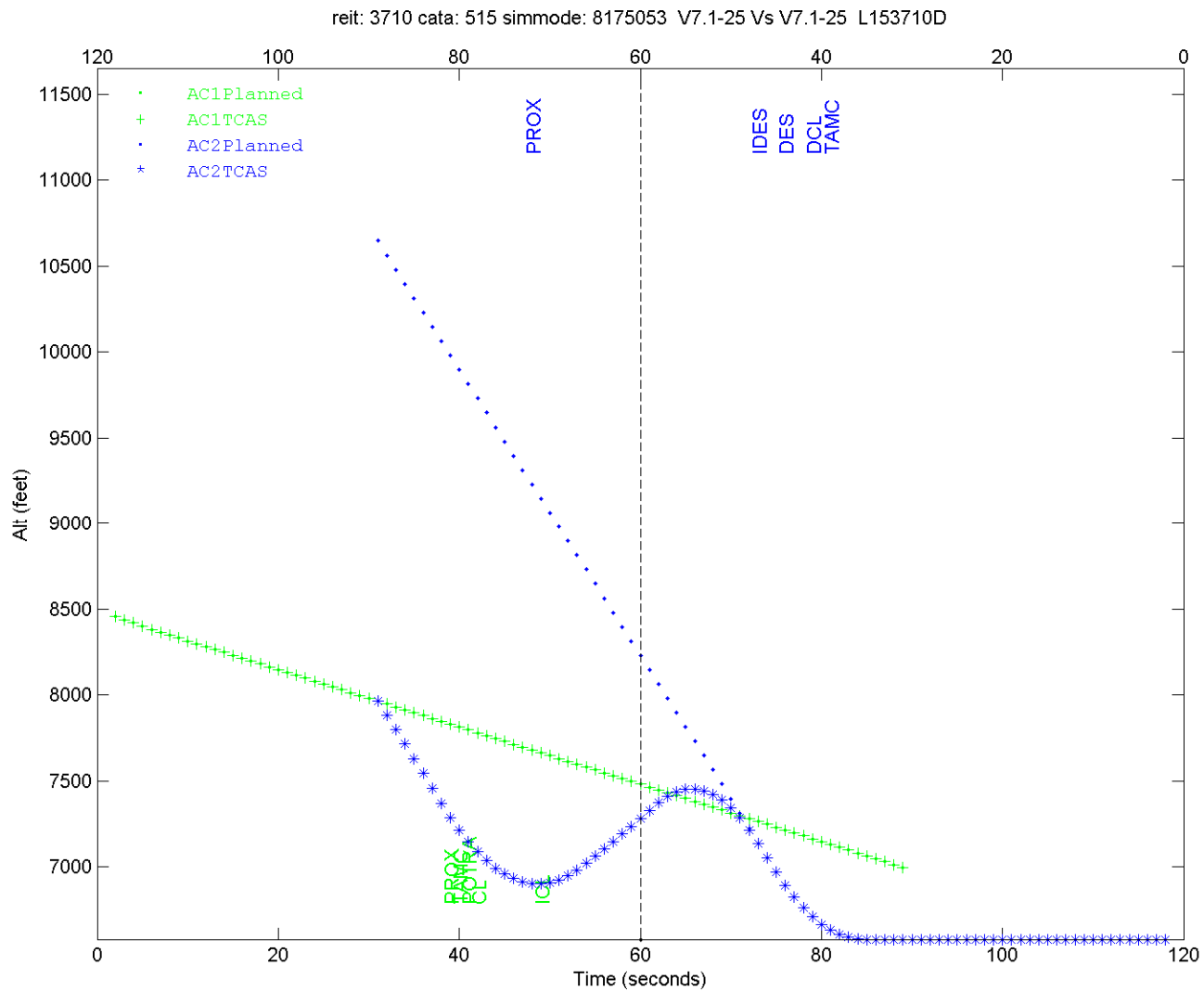
-----
3710  V7.1 25 FT NR L VS V7.1 25 FT R H    5    209.39    NON_CROSSING_ENC

5 AC1:    8175053 TA :40 |TAUV| POTRA@41  | CL    @42  [NX]| ICL @49  ##NON-RESPONDING##
10 AC2:    8275135 TA :39 |TAUV| DCL @41  [NX]| DES @44  | IDES @47
```









Change 7.1 Non-responding Representative Save 09

Encounter Class: 6

Reit Number : 4792

Encounter Characterization

Number of encounters in group	11	
AC1 low ID	yes	
Non-responding AC	2	
Vertical tracker	25	ft
Planned separation	0	ft
AC1 rates:	-3000	fpm
AC2 rates:	-5000	fpm
AC1 acceleration:	none	
AC2 acceleration:	0.05	g
AC2 acceleration time	CPA – 30	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

Pre-existing descending vertical chase.

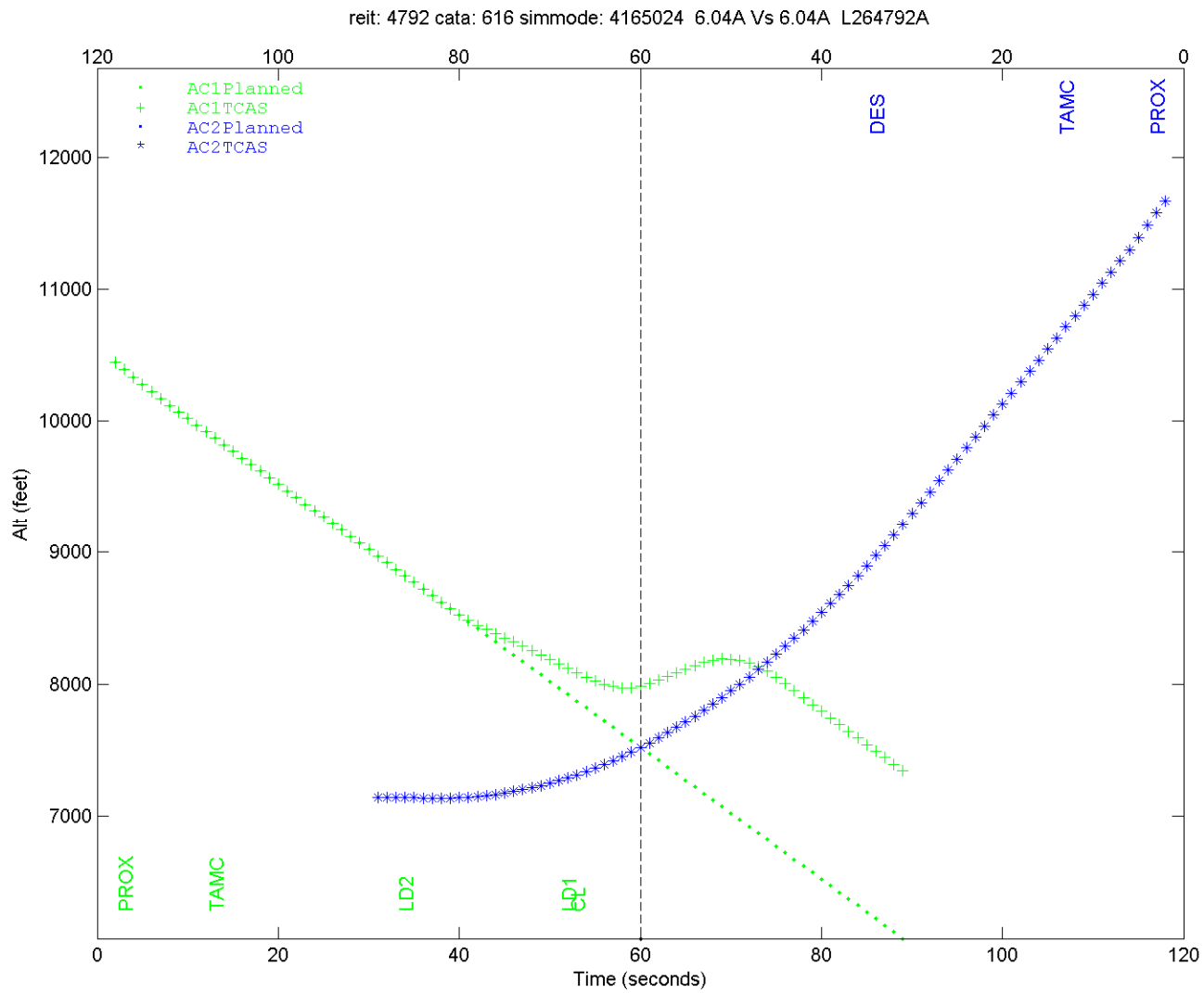
SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER L264792
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = 0.0 AC1 RATES(-3000.0,-3000.0) AC2 RATES(-5000.0,0.0)
 AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.05g @ CPA -30 AC1 CPA ALT 7520

 4792 6.04A R L VS 6.04A NR H 6 477.50 CROSSING_ENC
 5 AC1: 4165024 TA :13 |TAUR| LD2 @34 [X] | LD2 @43 | LD1 @52 | CL @53
 10 AC2: 4265142 TA :13 |TAUR| DES @34 [X] ##NON-RESPONDING##

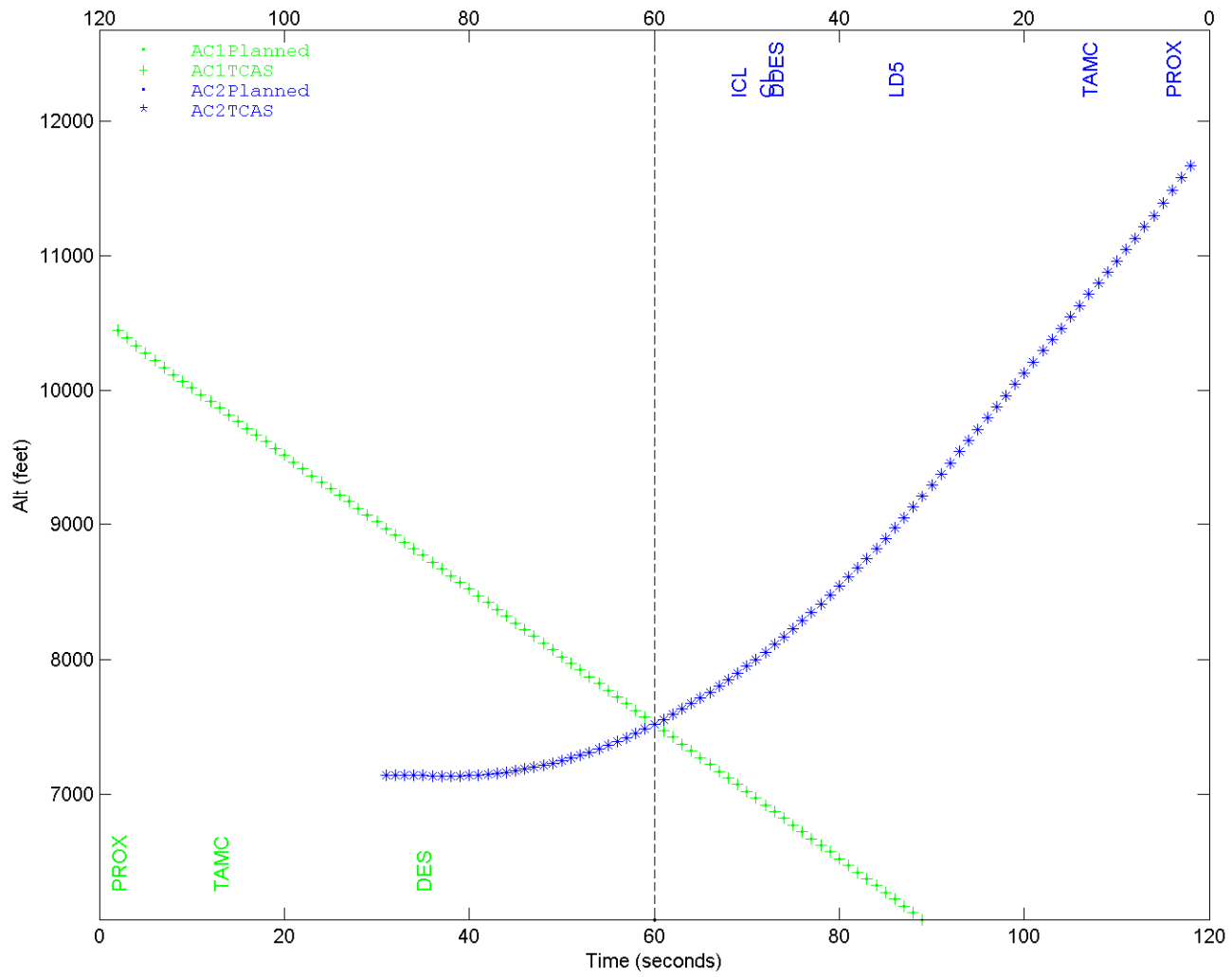
 4792 V7 25 FT R L VS V7 25 FT NR H 6 -0.01 CROSSING_ENC
 5 AC1: 4175035 TA :13 |PVMD| DES @35 [NX]
 10 AC2: 4275153 TA :13 |TAUR| LD5 @34 [NX]| DDES @47 | CL @48 | ICL @51 ##NON-RESPONDING##

 4792 CP112EV1.2 25 FT R L VS CP112EV1.2 25 FT NR H 6 646.20 CROSSING_ENC
 5 AC1:*REV*8175035 TA :13 |PVMD| DES @35 [NX]| CL @46 | DDES @57
 10 AC2:*REV*8275153 TA :13 |TAUR| LD5 @34 [NX]| DES @46 | DCL @63 ##NON-RESPONDING##

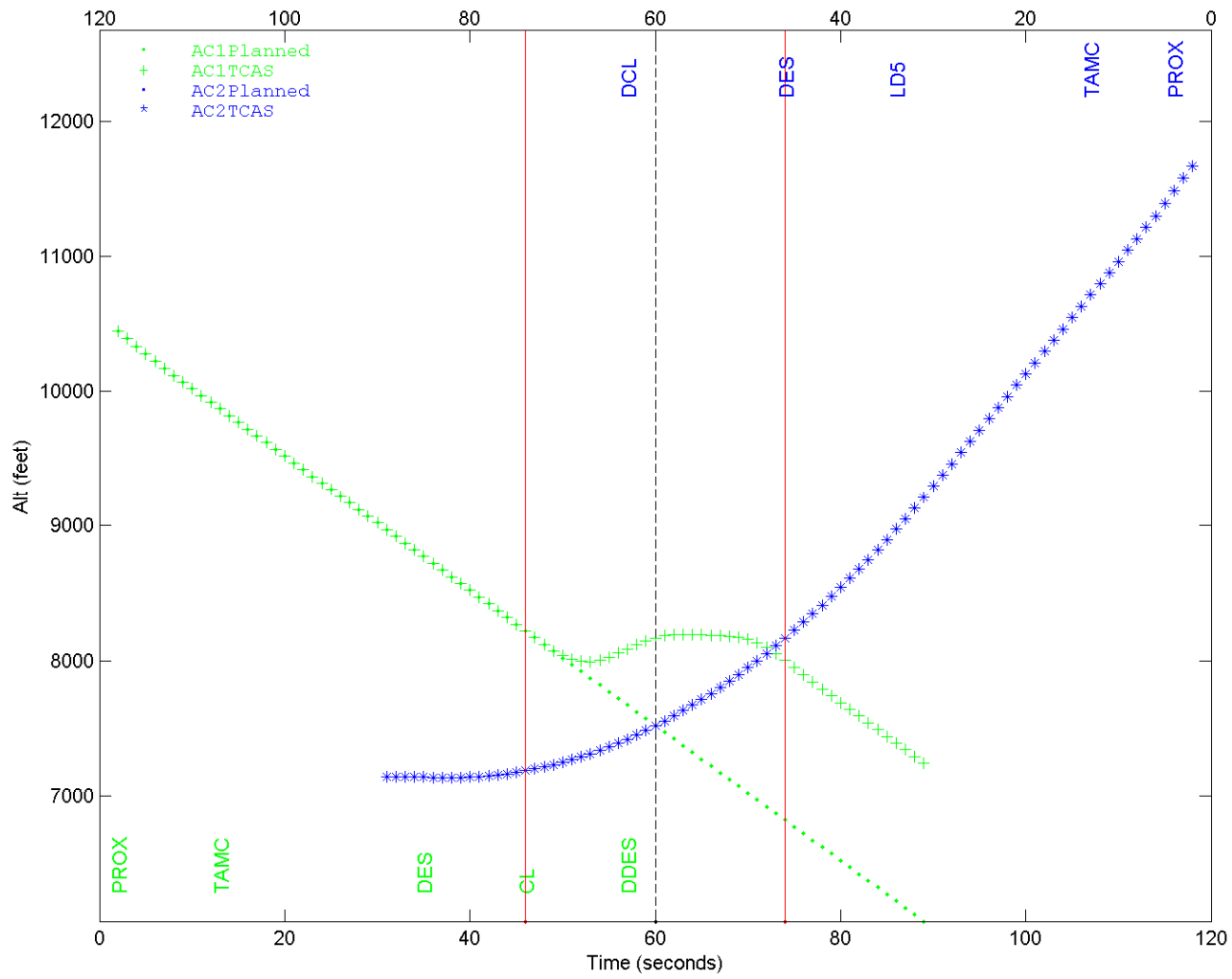
 4792 V7.1 25 FT R L VS V7.1 25 FT NR H 6 646.20 CROSSING_ENC
 5 AC1:*REV*8175035 TA :13 |PVMD| DES @35 [NX]| CL @46 | DDES @57
 10 AC2:*REV*8275153 TA :13 |TAUR| DDES @34 [NX]| DES @46 | DCL @63 ##NON-RESPONDING##



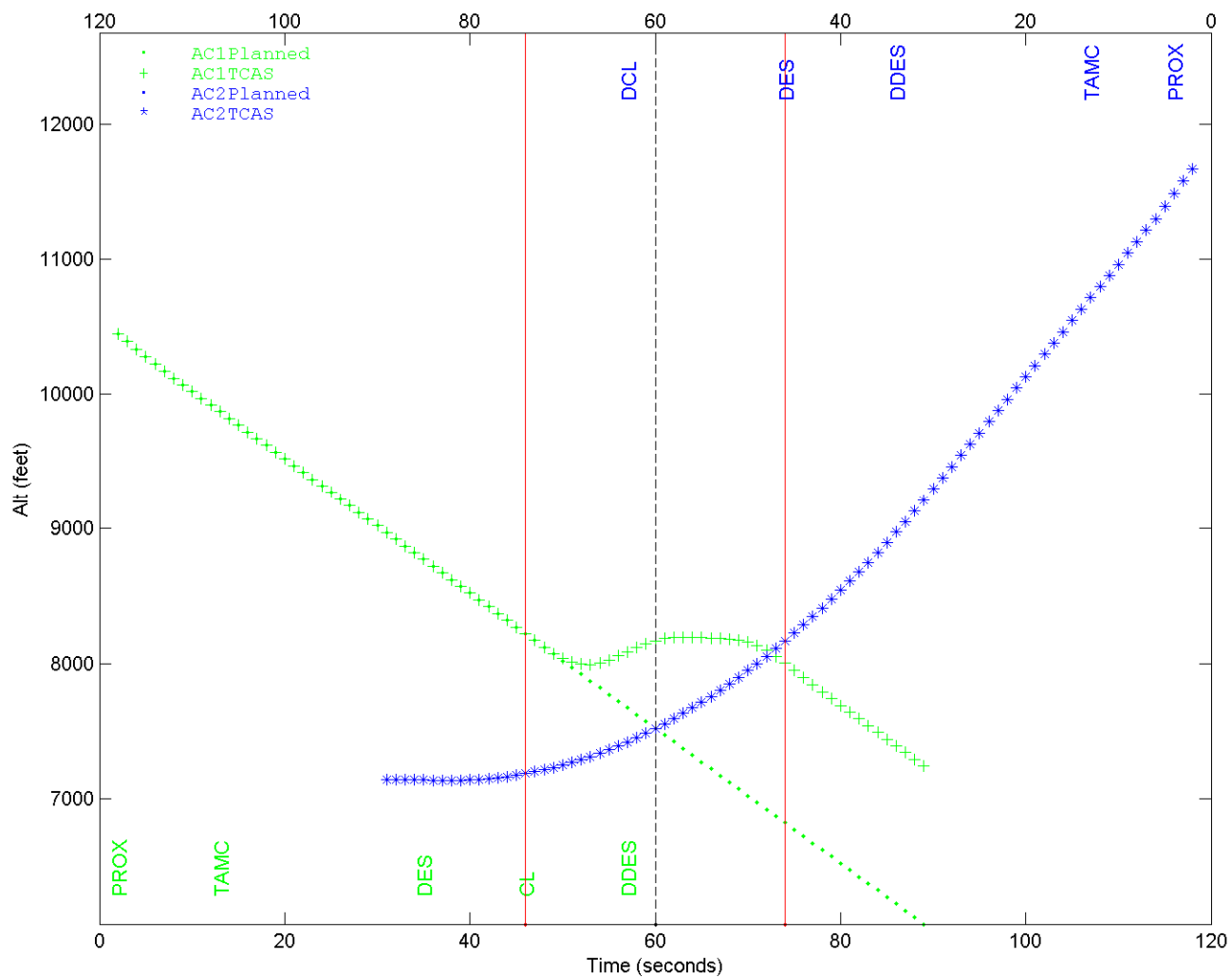
reit: 4792 cata: 616 simmode: 4175035 V7-25 Vs V7-25 L264792B



reit: 4792 cata: 616 simmode: 8175035 CP112EV1.2-25 Vs CP112EV1.2-25 L264792C



reit: 4792 cata: 616 simmode: 8175035 V7.1-25 Vs V7.1-25 L264792D



Change 7.1 Non-responding Representative Save 10

Encounter Class: 6

Reit Number : 7480

Encounter Characterization

Number of encounters in group	149	
AC1 low ID	no	
Non-responding AC	1	
Vertical tracker	25	ft
Planned separation	-250, +/-500, 750	ft
AC1 rates:	-1000, -3000, -5000	fpm
AC2 rates:	-1000, -3000, -5000	fpm
AC1 acceleration:	none	
AC2 acceleration:	0.25	g
AC2 acceleration time	CPA – 30	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

Descending vertical chase caused by response to initial RA.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER H163409
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = -750.0 AC1 RATES(-3000.0,-3000.0) AC2 RATES(-5000.0,0.0)
 AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.25g @ CPA -30 AC1 CPA ALT 7480

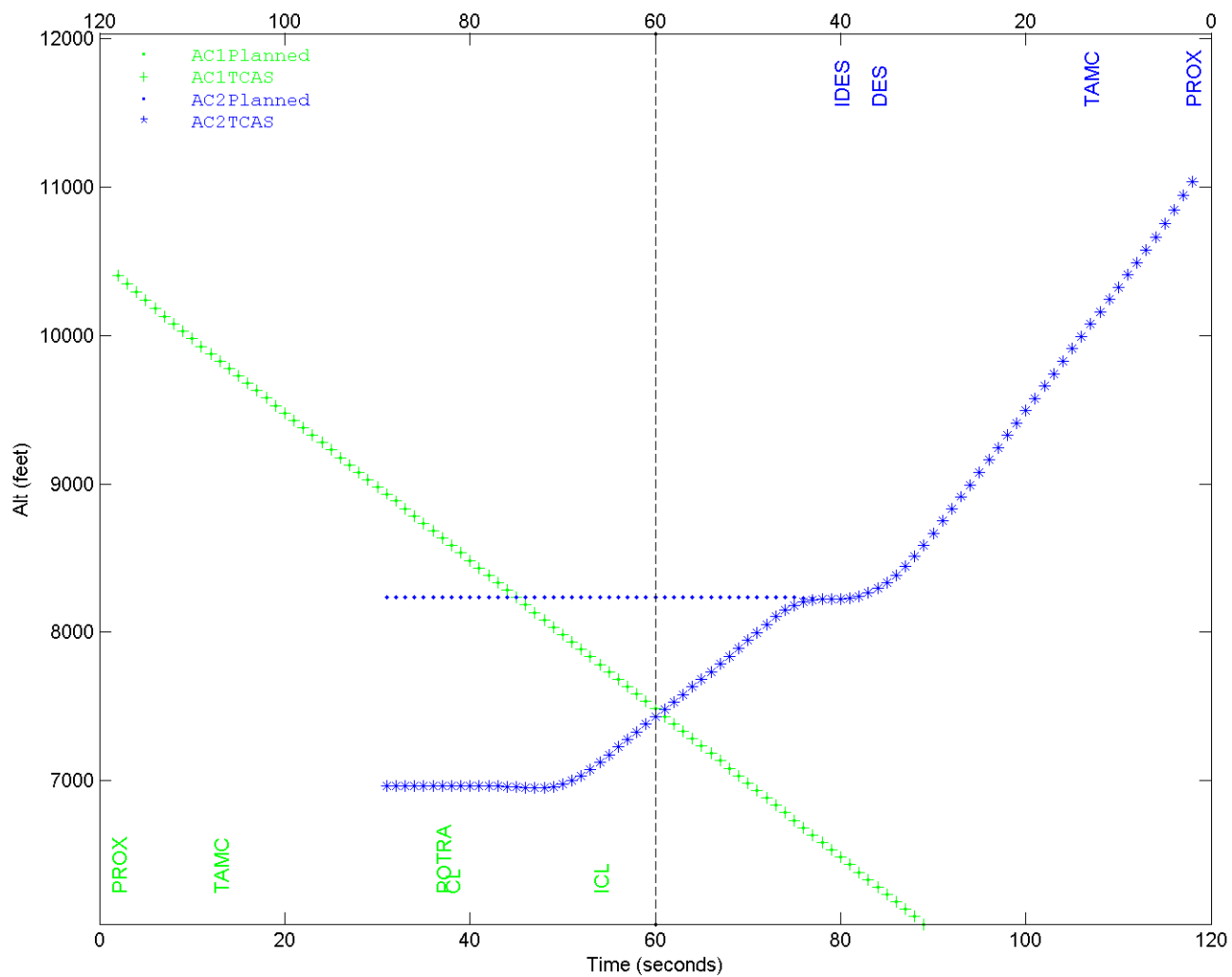
 3409 6.04A NR H VS 6.04A NR L 6 54.71 CROSSING_ENC
 10 AC1: 4165142 TA :13 |PVMD| CL @38 [NX]| ICL @54 ##NON-RESPONDING##
 5 AC2: 4265024 TA :13 |PVMD| MDES @36 [NX]| DES @37 | IDES @40

 3409 V7 25 FT NR H VS V7 25 FT R L 6 54.71 CROSSING_ENC
 10 AC1: 4275053 TA :13 |PVMD| LD1 @35 [NX]| LD5 @40 | CL @41 | ICL @44 ##NON-RESPONDING##
 5 AC2: 4175135 TA :13 |PVMD| DES @36 [NX]

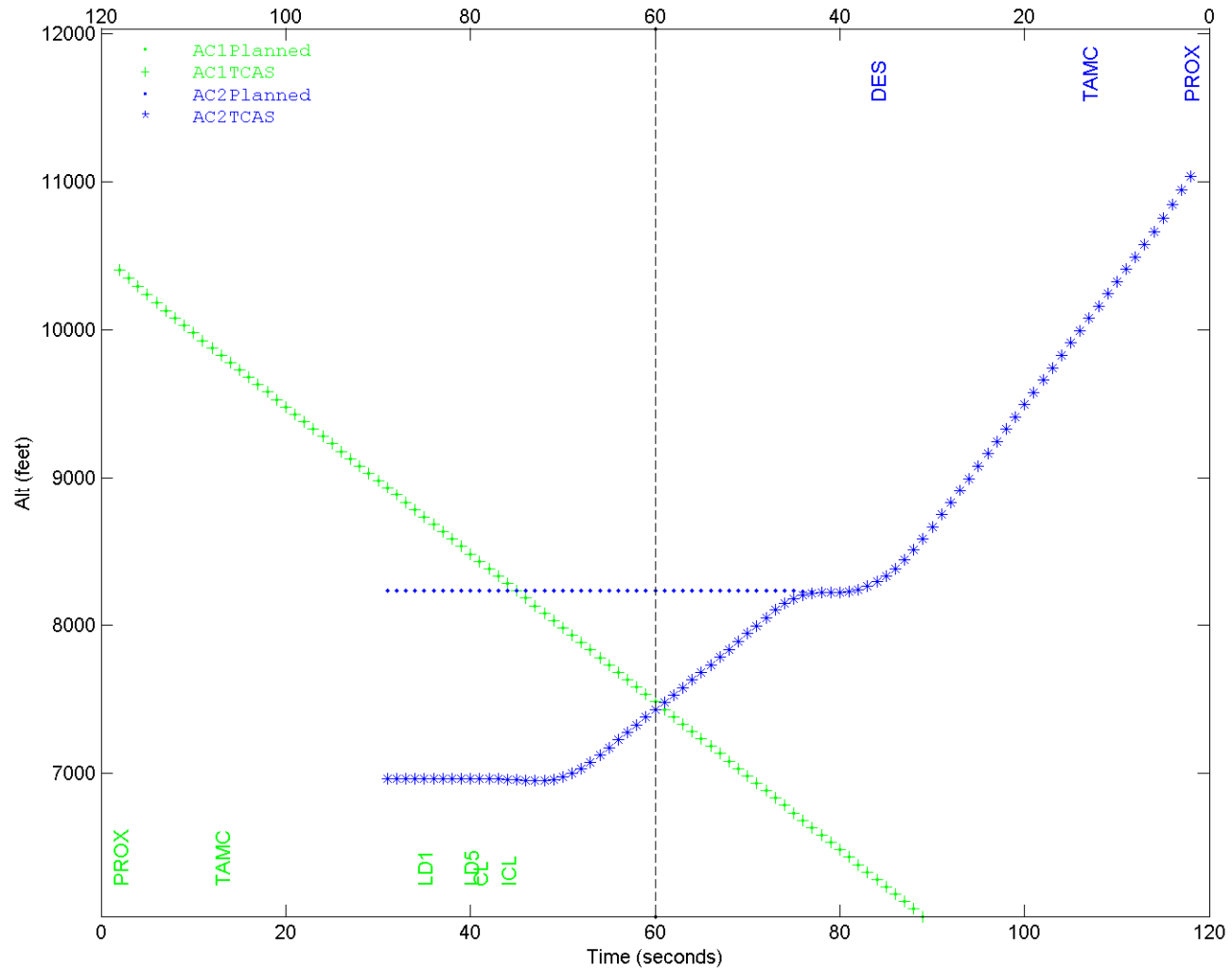
 3409 CP112EV1.2 25 FT NR H VS CP112EV1.2 25 FT R L 6 -490.30 CROSSING_ENC
 10 AC1:*REV*8275053 TA :13 |PVMD| LD1 @35 [NX]| LD5 @40| CL @41 | ICL @44 | DES @49 | DCL @63
 ##NON-RESPONDING##
 5 AC2:*REV*8175135 TA :13 |PVMD| DES @36 [NX]| CL @48 | ICL @51 | DDES @63

 3409 V7.1 25 FT NR H VS V7.1 25 FT R L 6 -490.30 CROSSING_ENC
 10 AC1:*REV*8275053 TA :13 |PVMD| DDES @35 [NX]| CL @41 | ICL @44 | DES @49
 | DCL @63 ##NON-RESPONDING##
 5 AC2:*REV*8175135 TA :13 |PVMD| DES @36 [NX]| CL @48 | ICL @51 | DDES @63

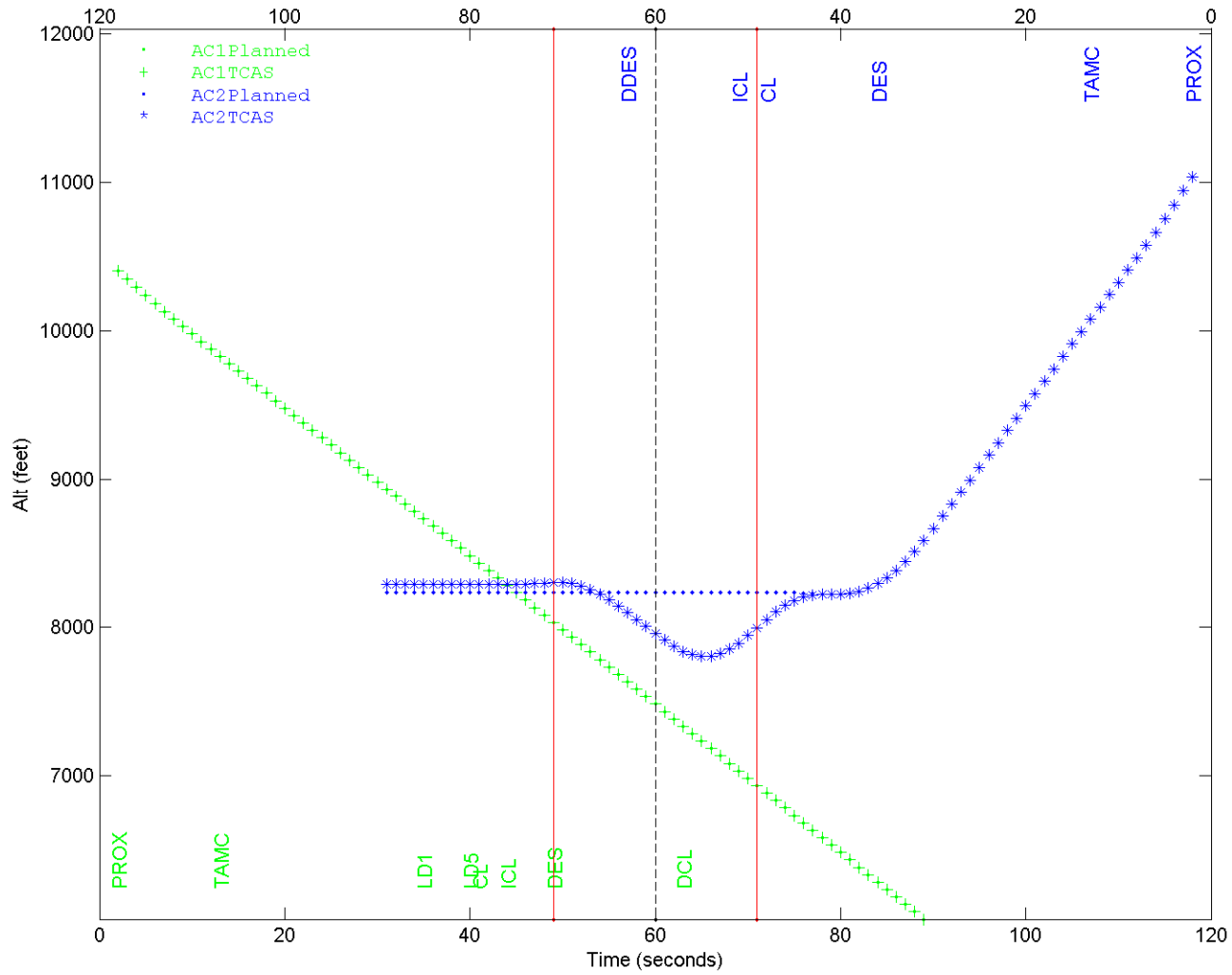
reit: 3409 cata: 616 simmode: 4165142 6.04A Vs 6.04A H163409A

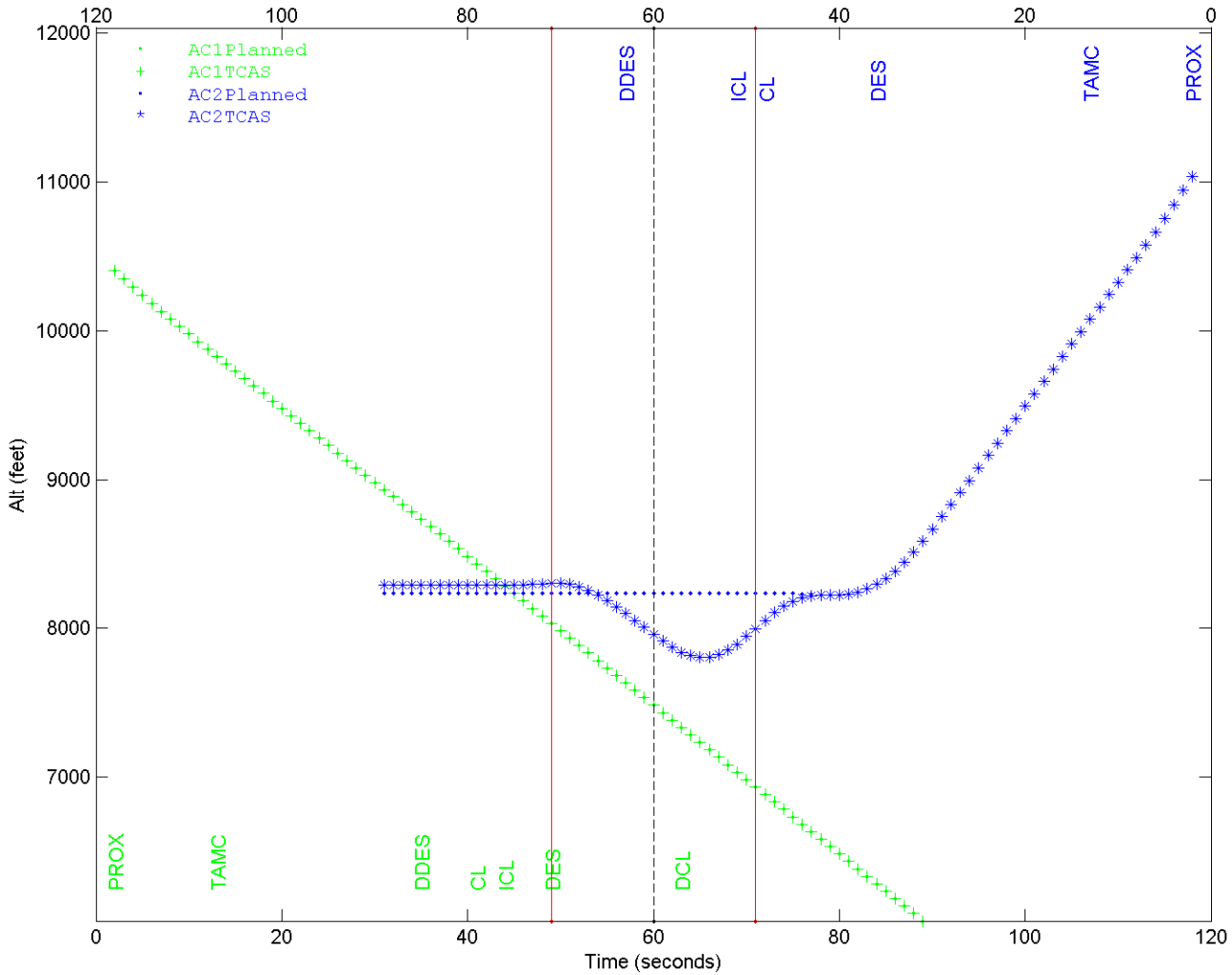


reit: 3409 cata: 616 simmode: 4275053 V7-25 Vs V7-25 H163409B



reit: 3409 cata: 616 simmode: 8275053 CP112EV1.2-25 Vs CP112EV1.2-25 H163409C





Change 7.1 Non-responding Representative Save 11

Encounter Class: 6

Reit Number : 4806

Encounter Characterization

Number of encounters in group	1	
AC1 low ID	no	
Non-responding AC	2	
Vertical tracker	25	ft
Planned separation	0	ft
AC1 rates:	-3000	fpm
AC2 rates:	-5000	fpm
AC1 acceleration:	none	
AC2 acceleration:	0.05	g
AC2 acceleration time	CPA – 20	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP115

Comments

Pre-existing descending vertical chase.
Addition of CP115 allowed reversal that did not occur with CP112E alone.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER H264806
 LOGIC THRESHOLDS SL = 6 ZTHR = 600 TAUR = 30 TAUV = 30 ALIM = 400
 PLANNED ENCOUNTER. SEP = 0.0 AC1 RATES(-3000.0,-3000.0) AC2 RATES(-5000.0,0.0)
 AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.05g @ CPA -20 AC1 CPA ALT 7520

```
-----
4806 6.04A R H VS 6.04A NR L 6 -0.01 CROSSING_ENC

10 AC1: 4165124 TA :13 |TAUR| POTRA@28 (6FT) | POTRA@29 (VTT) | MDES @31 [NX]| IDES @40

5 AC2: 4265042 TA :13 |TAUR| LD2 @28 [NX]| LD1 @47 | CL @48 | ICL @54 ##NON-
RESPONDING##
-----
4806 V7 25 FT R H VS V7 25 FT NR L 6 -0.01 CROSSING_ENC

10 AC1: 4275035 TA :13 |TAUR| POTRA@28 (VTT) | DES @29 [NX]

5 AC2: 4175153 TA :13 |TAUR| LD2 @28 [NX]| LD1 @46 | CL @47 | ICL @49 ##NON-
RESPONDING##
-----
4806 CP112EV1.2 25 FT R H VS CP112EV1.2 25 FT NR L 6 -0.01 CROSSING_ENC

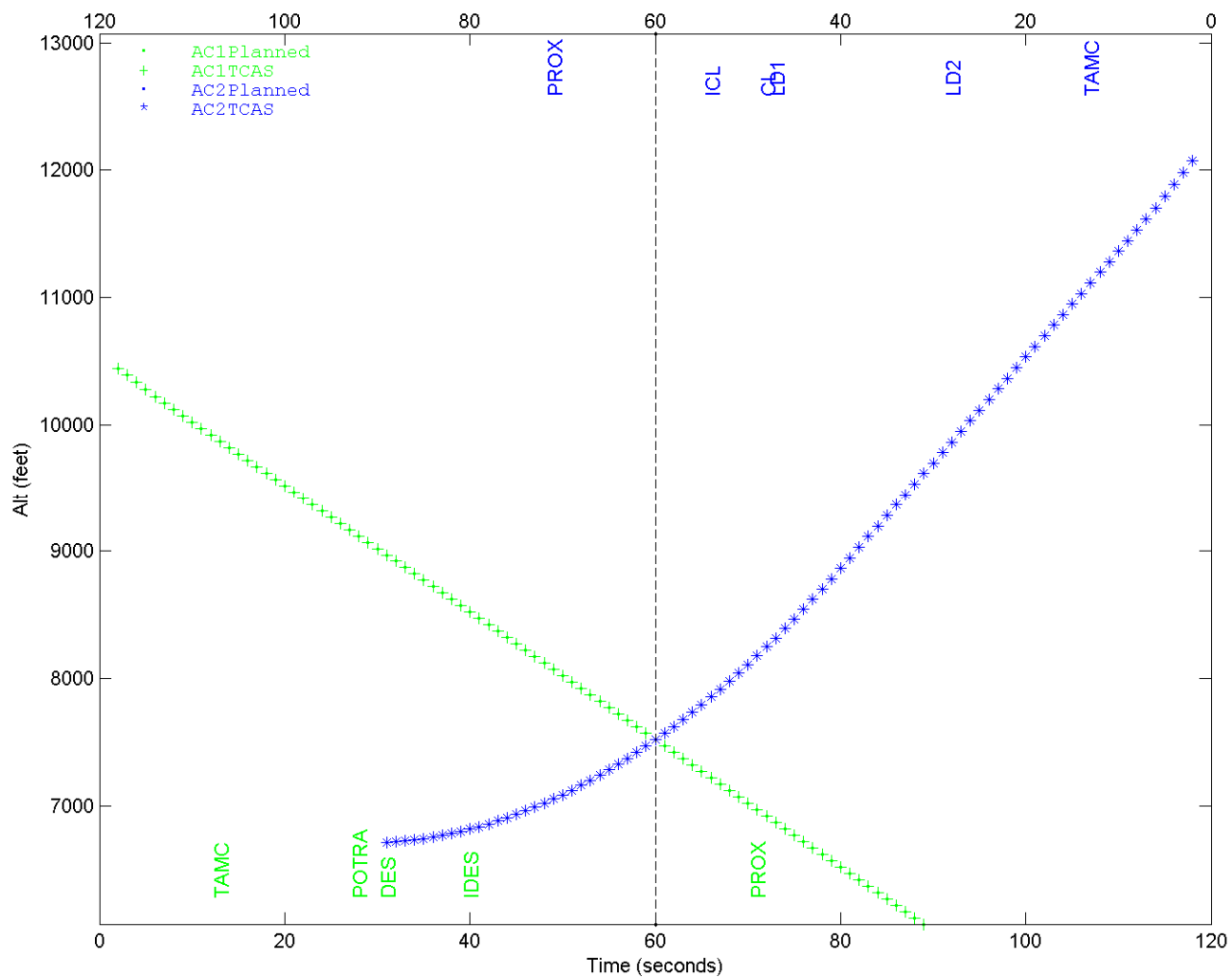
10 AC1: 8275035 TA :13 |TAUR| POTRA@28 (VTT) | DES @29 [NX]

5 AC2: 8175153 TA :13 |TAUR| LD2 @28 [NX]| LD1 @46 | CL @47 | ICL @49 ##NON-
RESPONDING##
-----
4806 V7.1 25 FT R H VS V7.1 25 FT NR L 6 543.54 CROSSING_ENC

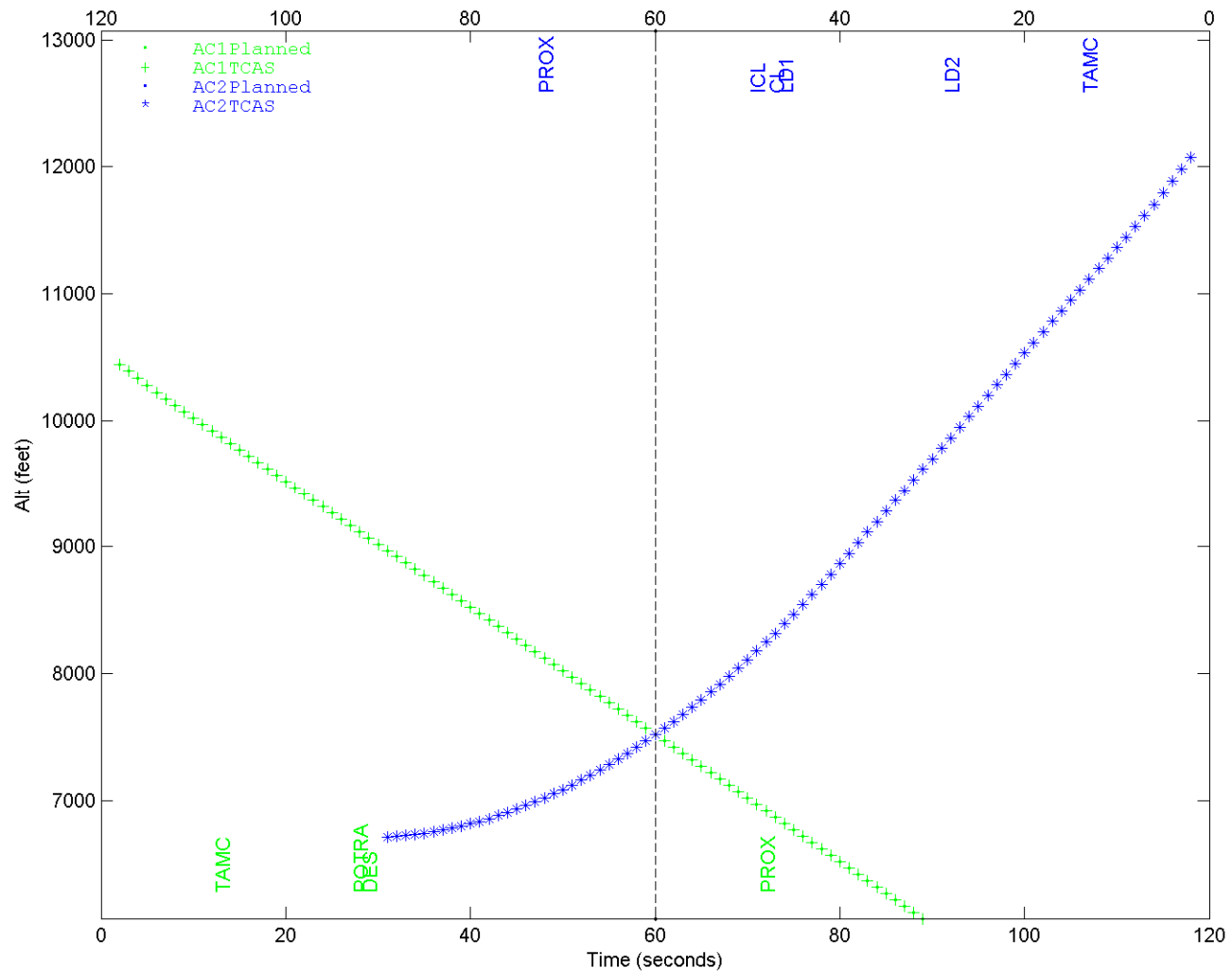
10 AC1:*REV*8275035 TA :13 |TAUR| POTRA@28 (VTT)| DES @29 [NX]| CL @48 | ICL @50
| DDES @63

5 AC2:*REV*8175153 TA :13 |TAUR| DDES @28 [NX]| DES @47 | DCL @63 ##NON-RESPONDING##
```

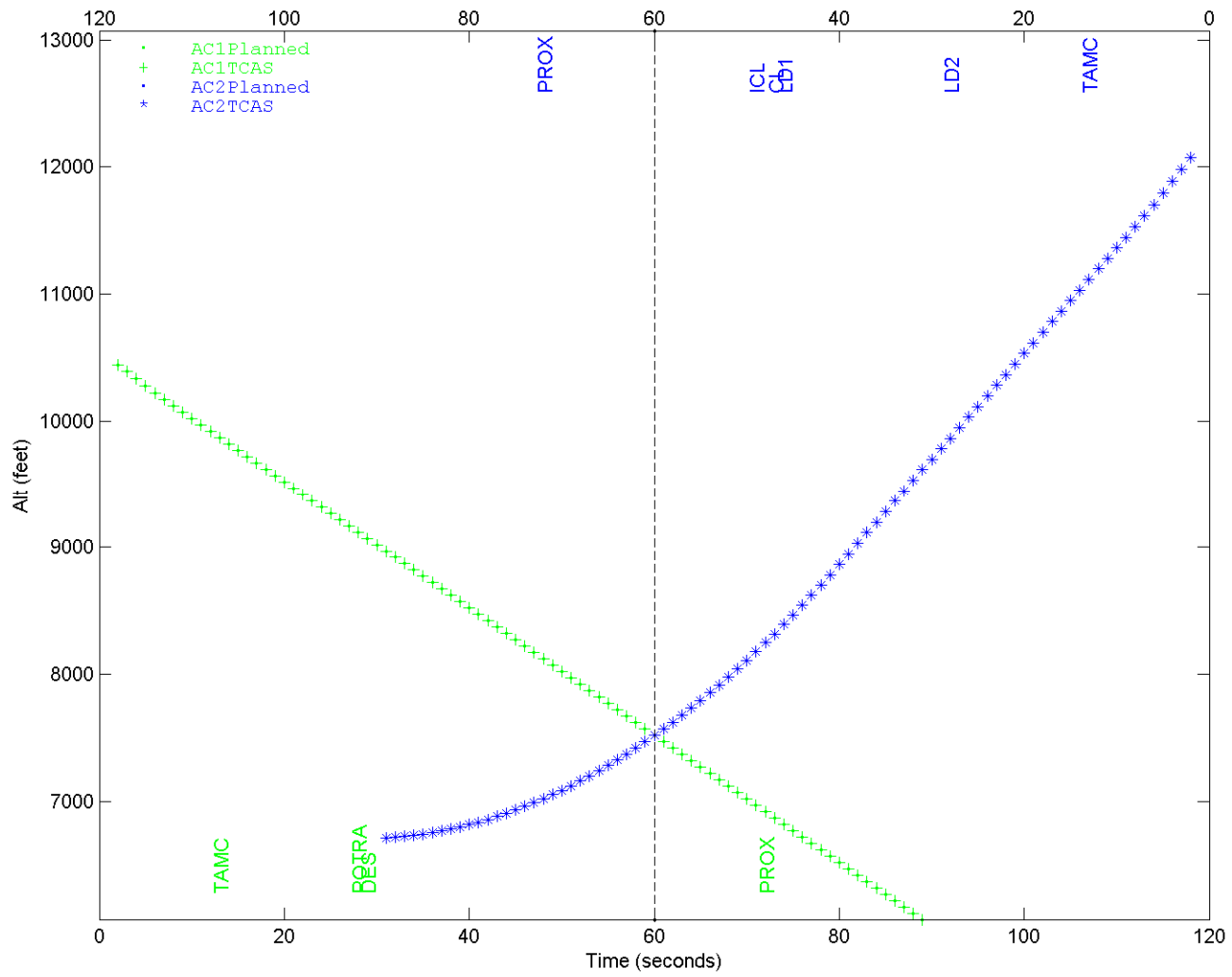

reit: 4806 cata: 616 simmode: 4165124 6.04A Vs 6.04A H264806A

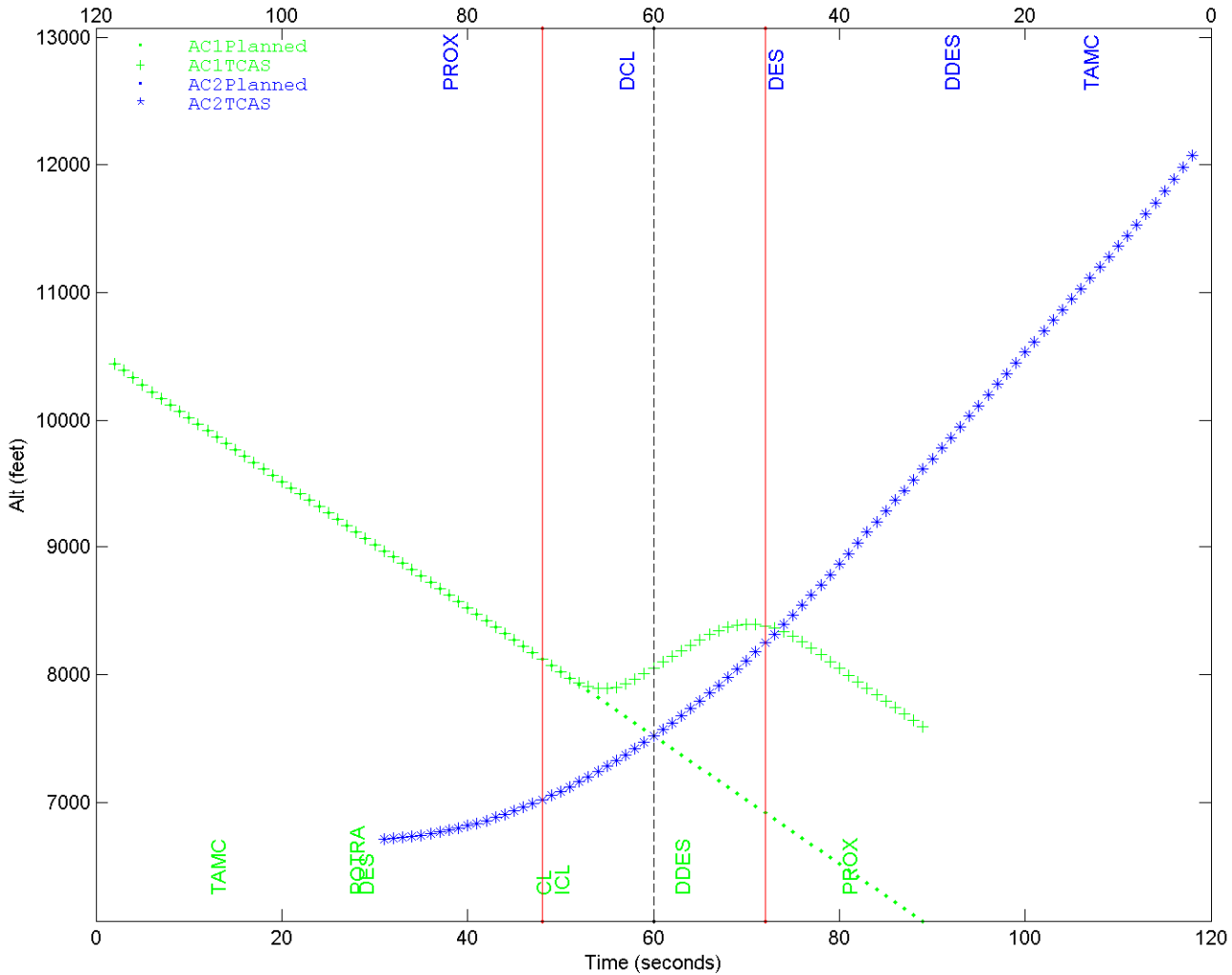


reit: 4806 cata: 616 simmode: 4275035 V7-25 Vs V7-25 H264806B



reit: 4806 cata: 616 simmode: 8275035 CP112EV1.2-25 Vs CP112EV1.2-25 H264806C





Change 7.1 Non-responding Representative Save 12

Encounter Class: 6

Reit Number : 4815

Encounter Characterization

Number of encounters in group	16	
AC1 low ID	yes	
Non-responding AC	1	
Vertical tracker	25	ft
Planned separation	-250, -500, -750	ft
AC1 rates:	-3000, -5000	fpm
AC2 rates:	-3000, -5000	fpm
AC1 acceleration:	none	
AC2 acceleration:	0.05	g
AC2 acceleration time	CPA – 30	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP115

Comments

Pre-existing descending vertical chase.
Addition of CP115 allowed reversal that did not occur with CP112E alone.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER L164815
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = -500.0 AC1 RATES(-3000.0,-3000.0) AC2 RATES(-3000.0,0.0)
 AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.05g @ CPA -30 AC1 CPA ALT 7520

 4815 6.04A NR L VS 6.04A R H 6 82.04 CROSSING_ENC

5 AC1: 4165042 TA :13 |TAUR| LD2 @34 [NX]| LD1 @45 | CL @46 | ICL @54
 ##NON-RESPONDING##
 10 AC2: 4265124 TA :13 |TAUR| MDES @34 [NX]| DES @38 | IDES @40

 4815 V7 25 FT NR L VS V7 25 FT R H 6 82.04 CROSSING_ENC

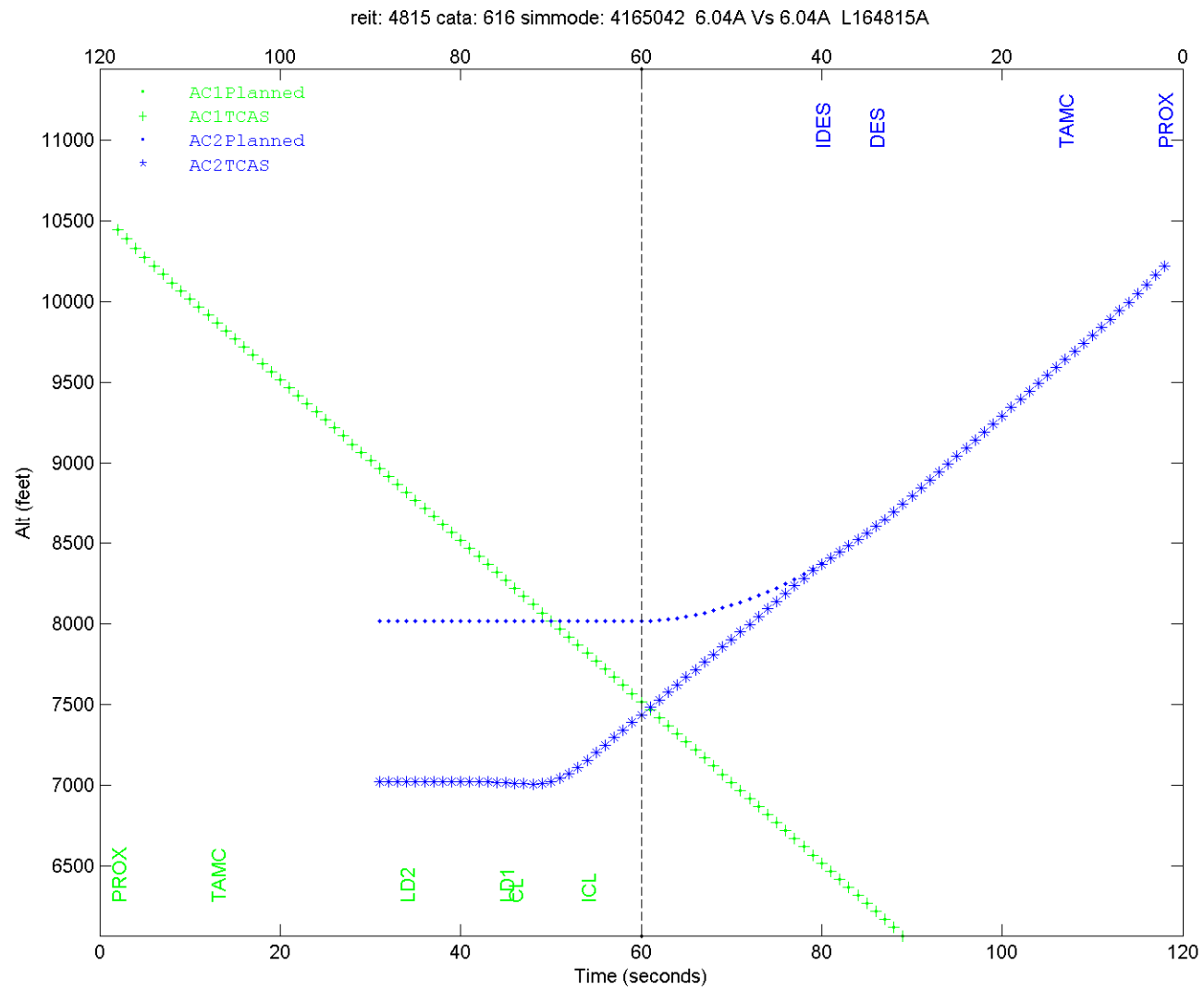
5 AC1: 4175053 TA :19 |TAUR| LD2 @34 [NX]| LD1 @36 | DDES @51 | CL @52 | ICL @54
 ##NON-RESPONDING##
 10 AC2: 4275135 TA :19 |TAUR| DES @34 [NX]

 4815 CP112EV1.2 25 FT NR L VS CP112EV1.2 25 FT R H 6 82.04 CROSSING_ENC

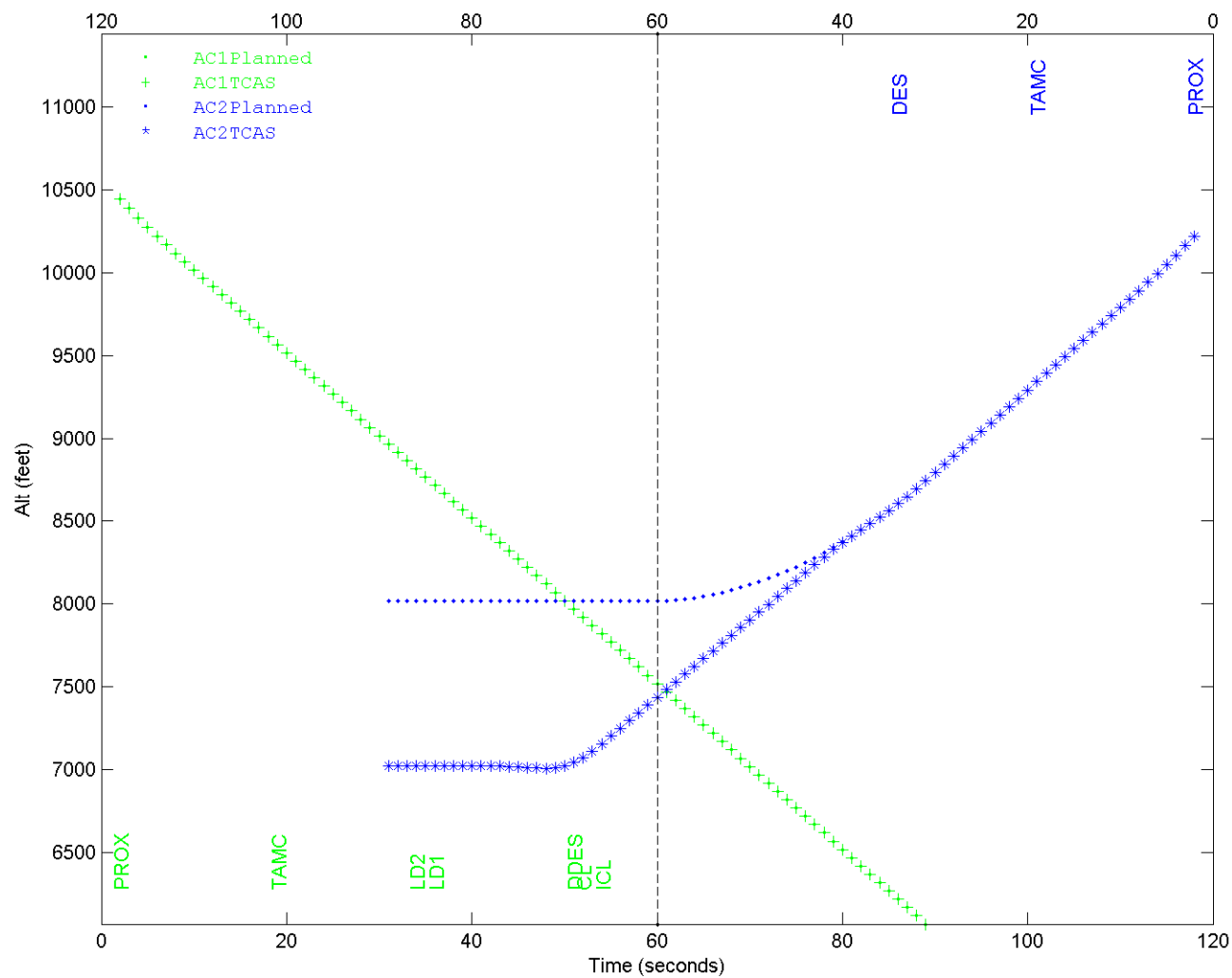
5 AC1: 8175053 TA :19 |TAUR| LD2 @34 [NX]| LD1 @36 | DDES @51 | CL @52 | ICL @54
 ##NON-RESPONDING##
 10 AC2: 8275135 TA :19 |TAUR| DES @34 [NX]

 4815 V7.1 25 FT NR L VS V7.1 25 FT R H 6 -631.70 CROSSING_ENC

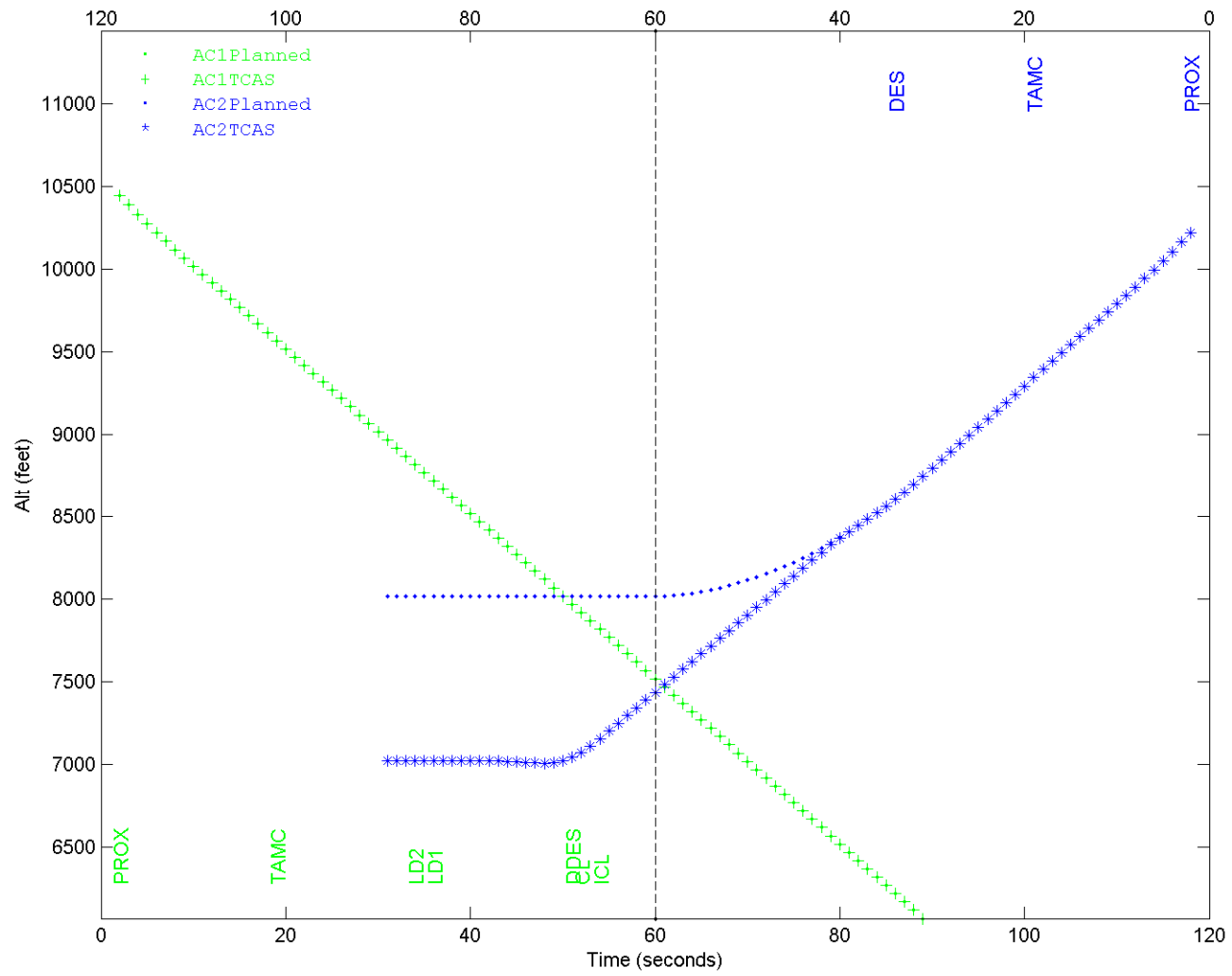
5 AC1:*REV*8175053 TA :19 |TAUR| DDES @34 [NX]| DES @46 | DCL @63
 ##NON-RESPONDING##
 10 AC2:*REV*8275135 TA :19 |TAUR| DES @34 [NX]| CL @46 | ICL @49 | DDES @63



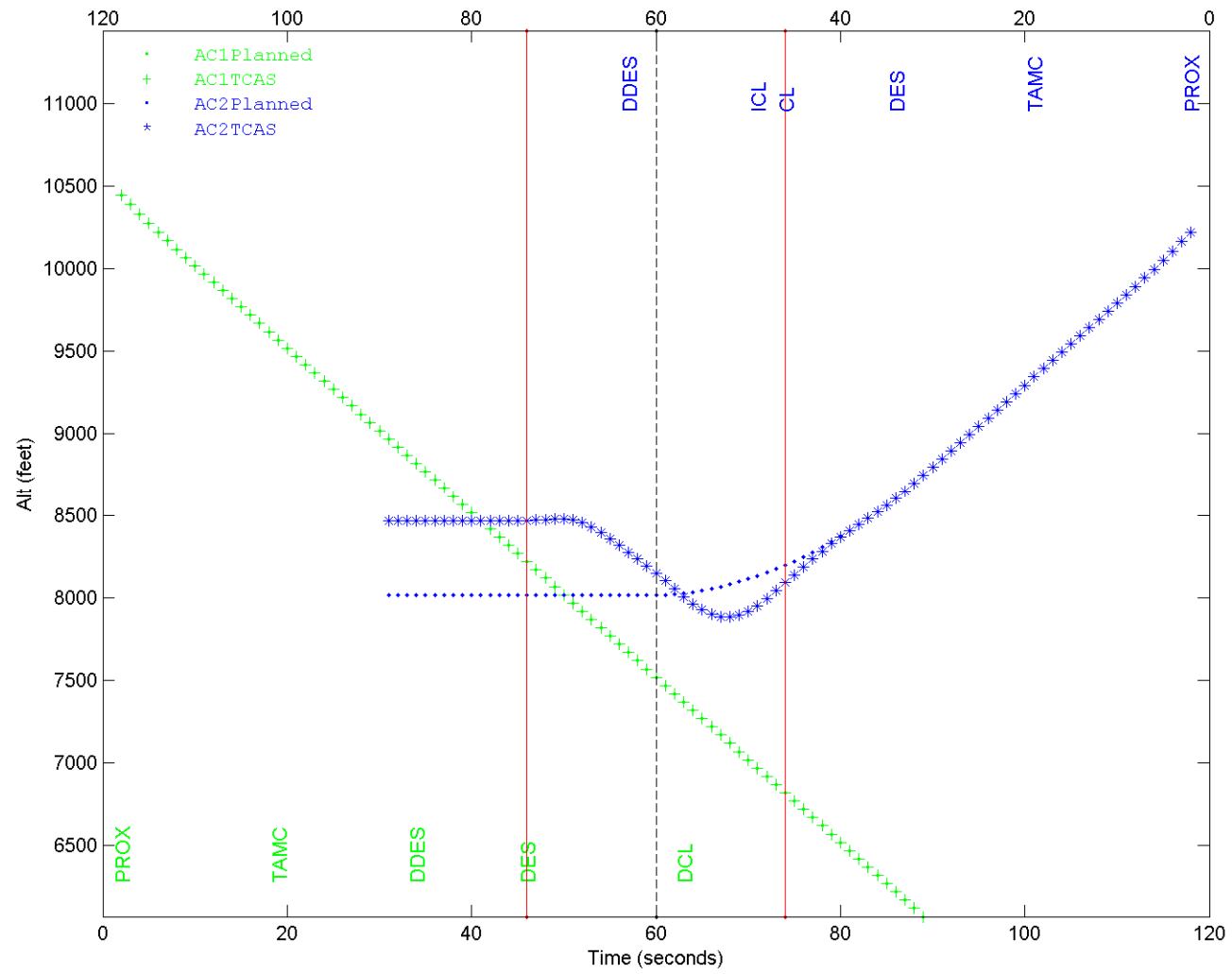
reit: 4815 cata: 616 simmode: 4175053 V7-25 Vs V7-25 L164815B



reit: 4815 cata: 616 simmode: 8175053 CP112EV1.2-25 Vs CP112EV1.2-25 L164815C



reit: 4815 cata: 616 simmode: 8175053 V7.1-25 Vs V7.1-25 L164815D



Change 7.1 Non-responding Representative Save 13

Encounter Class: 7

Reit Number : 8285

Encounter Characterization

Number of encounters in group	35	
AC1 low ID	yes	
Non-responding AC	1	
Vertical tracker	25	ft
Planned separation	0	ft
AC1 rates:	3000, 5000	fpm
AC2 rates:	3000, 5000	fpm
AC1 acceleration:	0.25	g
AC2 acceleration:	0.15	g
AC1 acceleration time	CPA – 25	sec
AC2 acceleration time	CPA – 25	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

Climbing vertical chase caused by response to initial RA and planned maneuver.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER L178285
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = 0.0 AC1 RATES(0.0,3000.0) AC2 RATES(0.0,3000.0)
 AC1 ACCEL 0.25g @ CPA -25 AC2 ACCEL 0.15g @ CPA -25 AC1 CPA ALT 7500

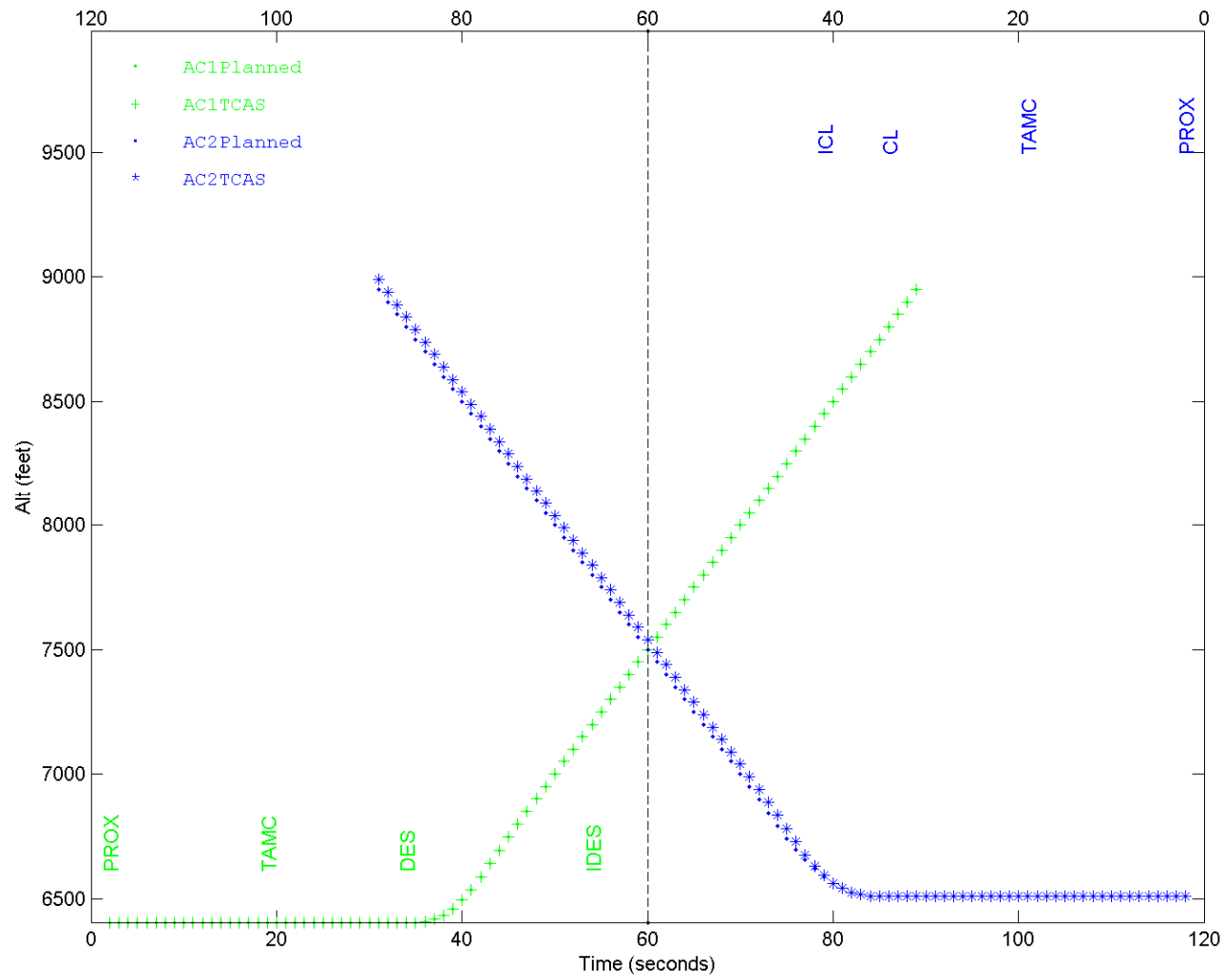
 8285 6.04A NR L VS 6.04A R H 7 -39.05 NON_CROSSING_ENC
 5 AC1: 4165042 TA :19 |TAUR| DES @34 [NX]| IDES @54 ##NON-RESPONDING##
 10 AC2: 4265124 TA :19 |TAUR| CL @34 [NX]| ICL @41

 8285 V7 25 FT NR L VS V7 25 FT R H 7 -39.05 NON_CROSSING_ENC
 5 AC1: 4175053 TA :19 |TAUR| DES @34 [NX]| IDES @51 ##NON-RESPONDING##
 10 AC2: 4275135 TA :19 |TAUR| CL @34 [NX]

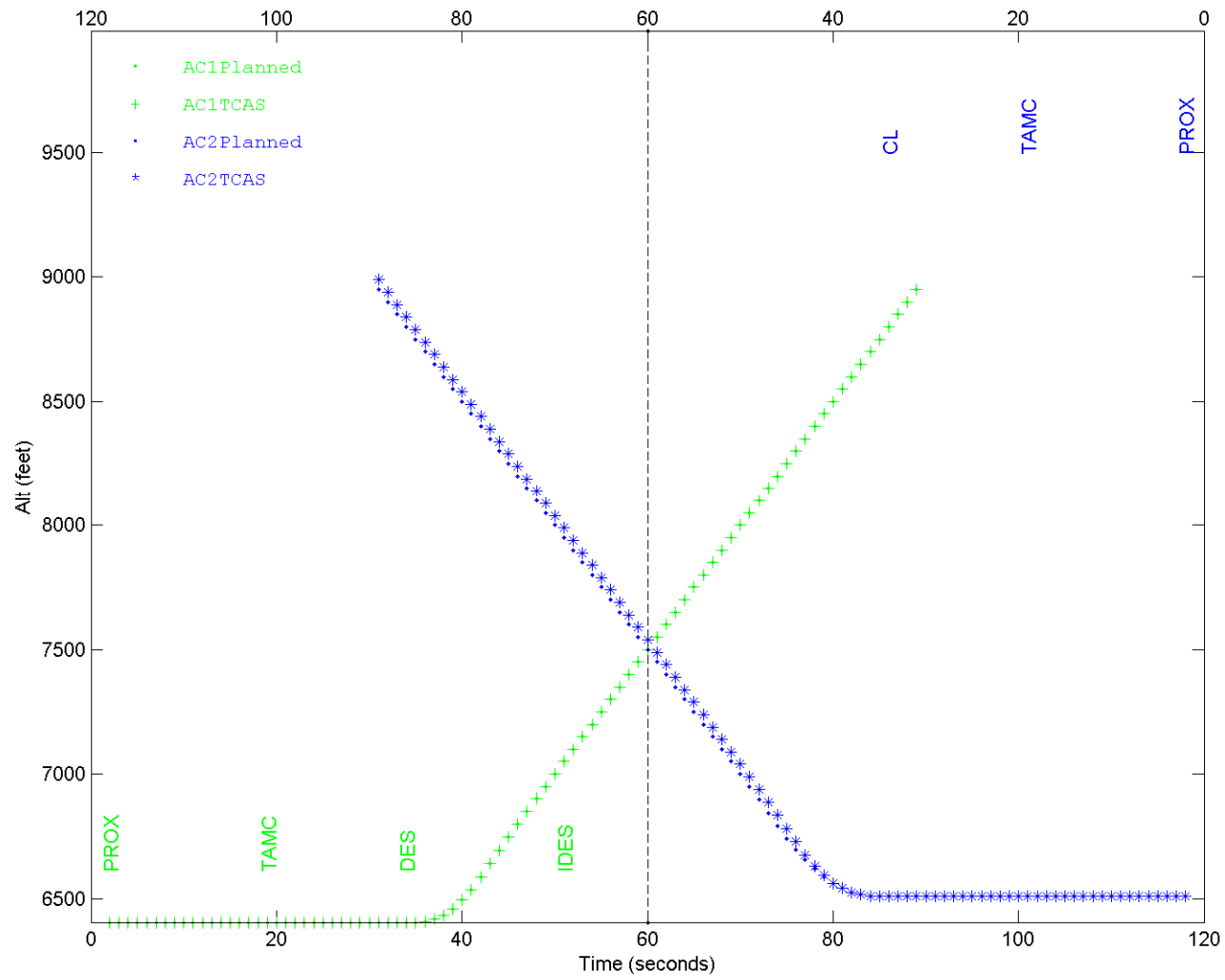
 8285 CP112EV1.2 25 FT NR L VS CP112EV1.2 25 FT R H 7 682.16 CROSSING_ENC
 5 AC1:*REV*8175053 TA :19 |TAUR| DES @34 [NX]| CL @45 ##NON-RESPONDING##
 10 AC2:*REV*8275135 TA :19 |TAUR| CL @34 [NX]| DES @45 | DCL @57

 8285 V7.1 25 FT NR L VS V7.1 25 FT R H 7 682.16 CROSSING_ENC
 5 AC1:*REV*8175053 TA :19 |TAUR| DES @34 [NX]| CL @45 ##NON-RESPONDING##
 10 AC2:*REV*8275135 TA :19 |TAUR| CL @34 [NX]| DES @45 | DCL @57

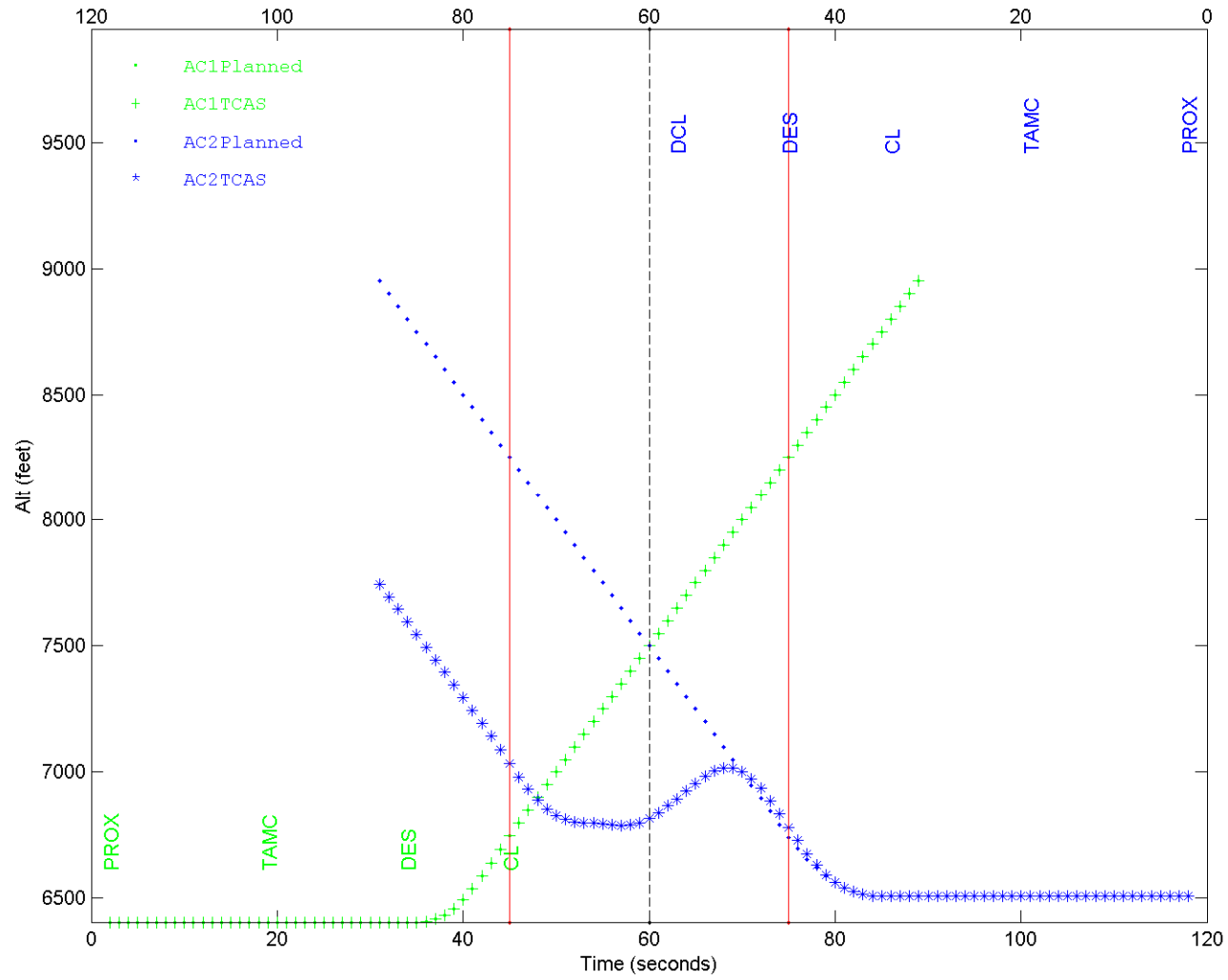
reit: 8285 cata: 717 simmode: 4165042 6.04A Vs 6.04A L178285A

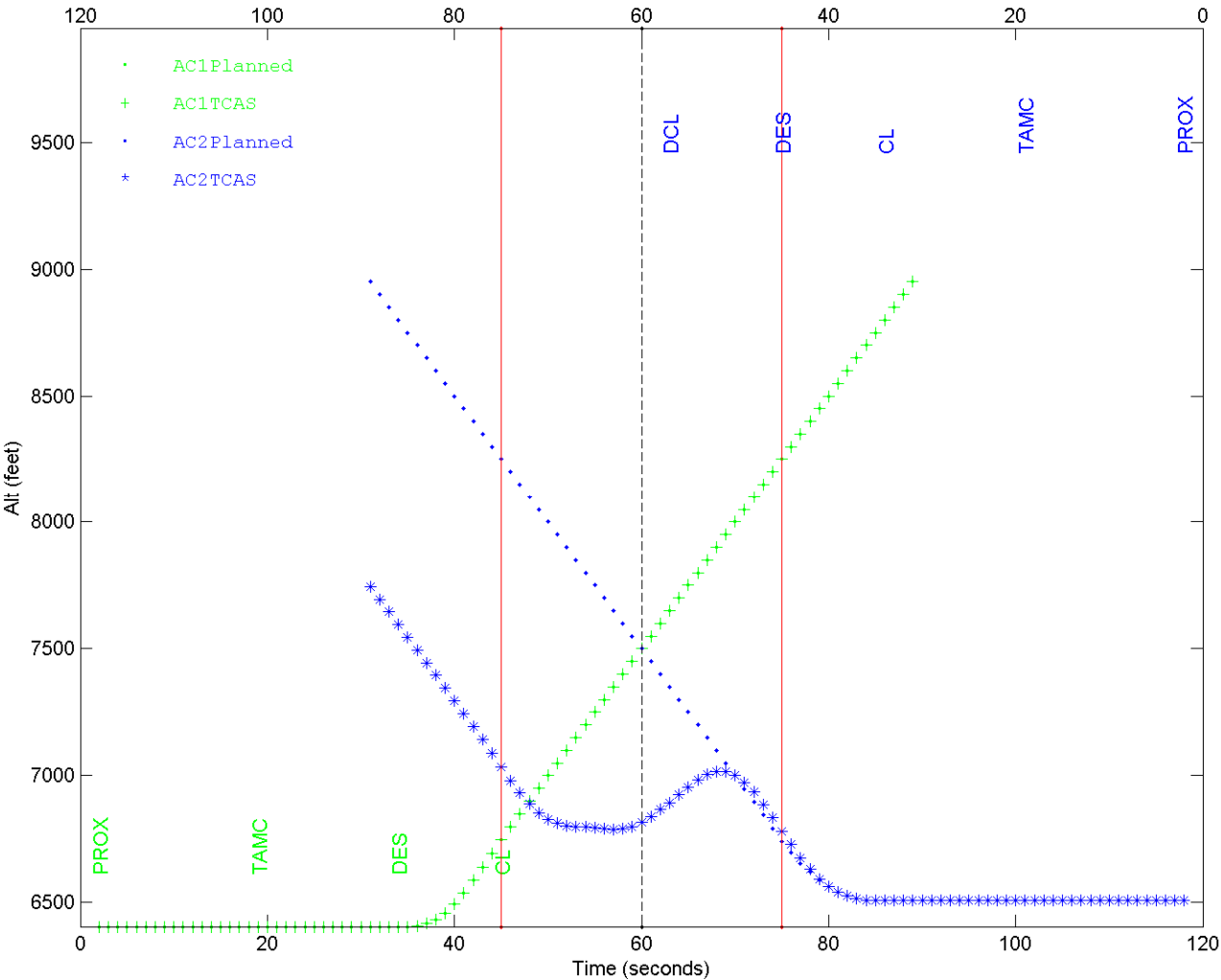


reit: 8285 cata: 717 simmode: 4175053 V7-25 Vs V7-25 L178285B



reit: 8285 cata: 717 simmode: 8175053 CP112EV1.2-25 Vs CP112EV1.2-25 L178285C





Change 7.1 Non-responding Representative Save 14

Encounter Class: 7

Reit Number : 1023

Encounter Characterization

Number of encounters in group	28	
AC1 low ID	no	
Non-responding AC	1	
Vertical tracker	25	ft
Planned separation	750	ft
AC1 rates:	1000, 3000, 5000	fpm
AC2 rates:	-1000, -3000, -5000	fpm
AC1 acceleration:	0.05	g
AC2 acceleration:	-0.05	g
AC1 acceleration time	CPA – 25	sec
AC2 acceleration time	CPA – 20	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

Climbing vertical chase caused by response to initial RA and planned maneuver.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER H171023
 LOGIC THRESHOLDS SL = 4 ZTHR = 600 TAUR = 20 TAUUV = 20 ALIM = 300
 PLANNED ENCOUNTER. SEP = 750.0 AC1 RATES(0.0,5000.0) AC2 RATES(0.0,-5000.0)
 AC1 ACCEL 0.05g @ CPA -25 AC2 ACCEL -0.05g @ CPA -20 AC1 CPA ALT 3700

```
-----
1023  6.04A NR H VS 6.04A NR L    7    3.59    CROSSING_ENC

10 AC1:    4165142 TA :30 |TAUR| POTRA@40 (DFD | DES @41 [NX]| IDES @49  ##NON-RESPONDING##

5 AC2:    4265024 TA :30 |TAUR| CL  @40 [NX]| ICL  @49

-----
1023  V7 25 FT NR H VS V7 25 FT R L    7    -34.63    CROSSING_ENC

10 AC1:    4275053 TA :30 |TAUR| DES  @40  [NX]##NON-RESPONDING##

5 AC2:    4175135 TA :30 |TAUR| CL   @40  [NX]| ICL  @46

-----
1023  CP112EV1.2 25 FT NR H VS CP112EV1.2 25 FT R L    7  241.25  CROSSING_ENC

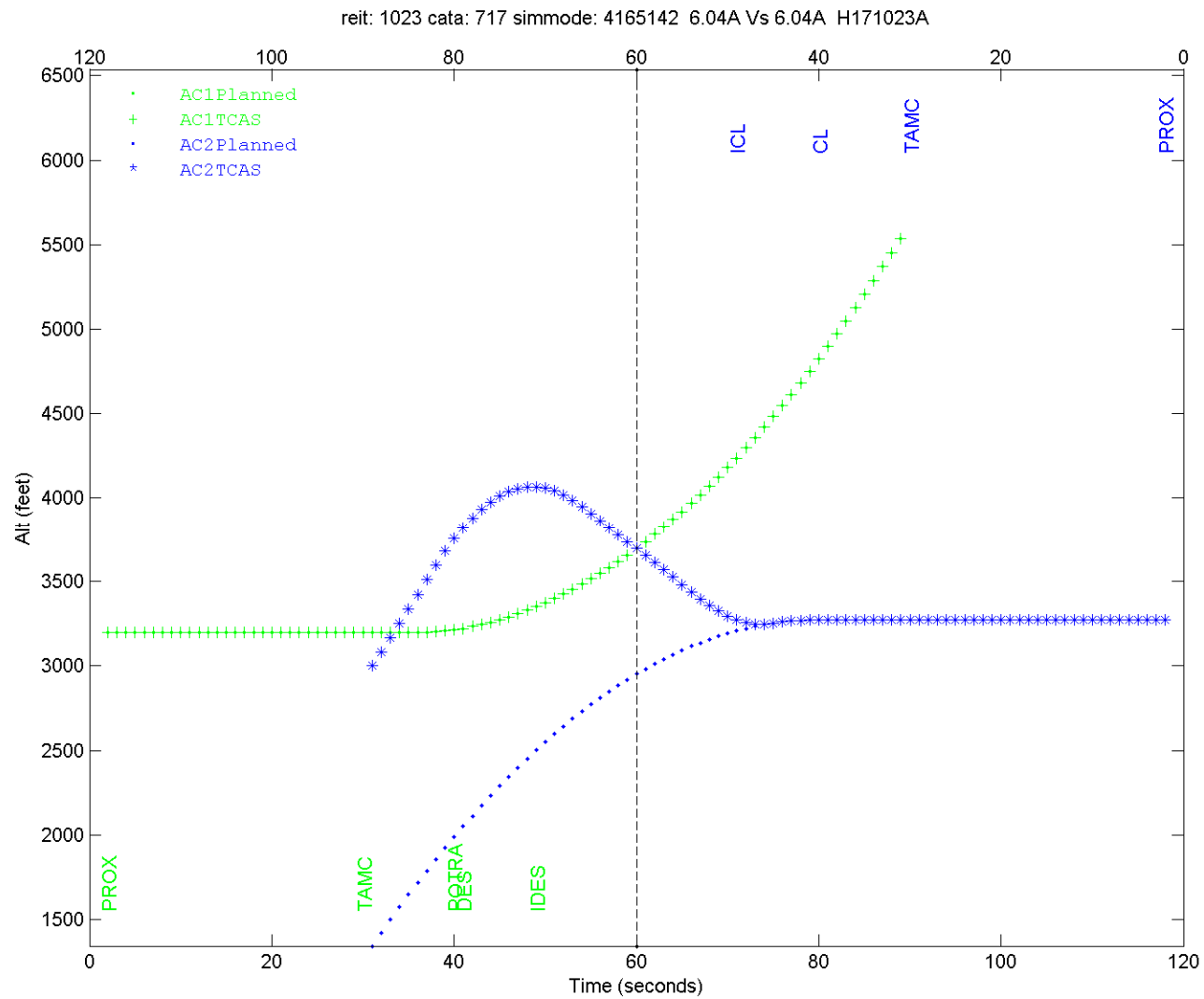
10 AC1:*REV*8275053 TA :30 |TAUR| DES  @40  [NX]| CL   @52  ##NON-RESPONDING##

5 AC2:*REV*8175135 TA :30 |TAUR| CL   @40  [NX]| ICL  @46  | DES  @51  | IDES @53

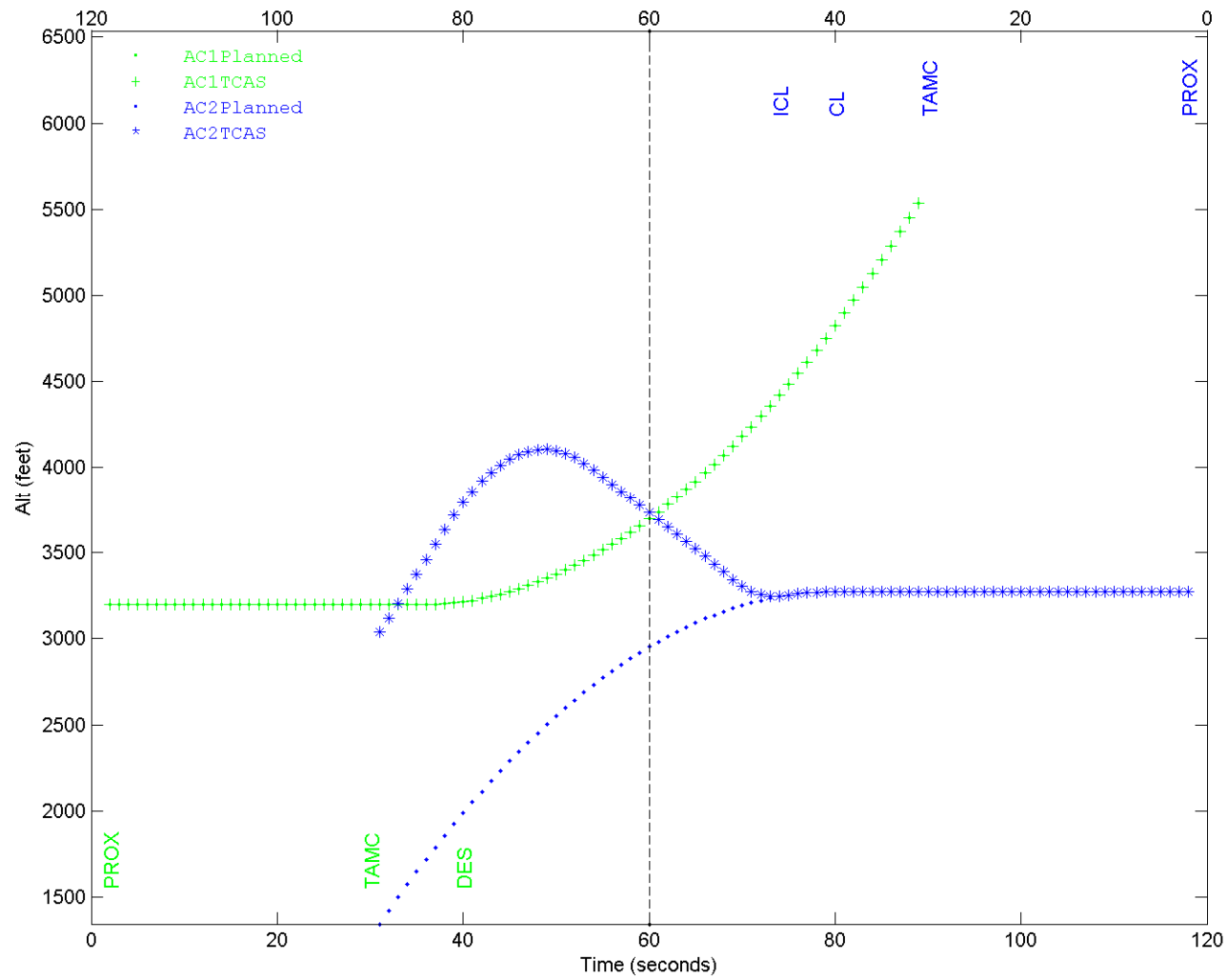
-----
1023  V7.1 25 FT NR H VS V7.1 25 FT R L    7    241.25    CROSSING_ENC

10 AC1:*REV*8275053 TA :30 |TAUR| DES  @40  [NX]| CL   @52  ##NON-RESPONDING##

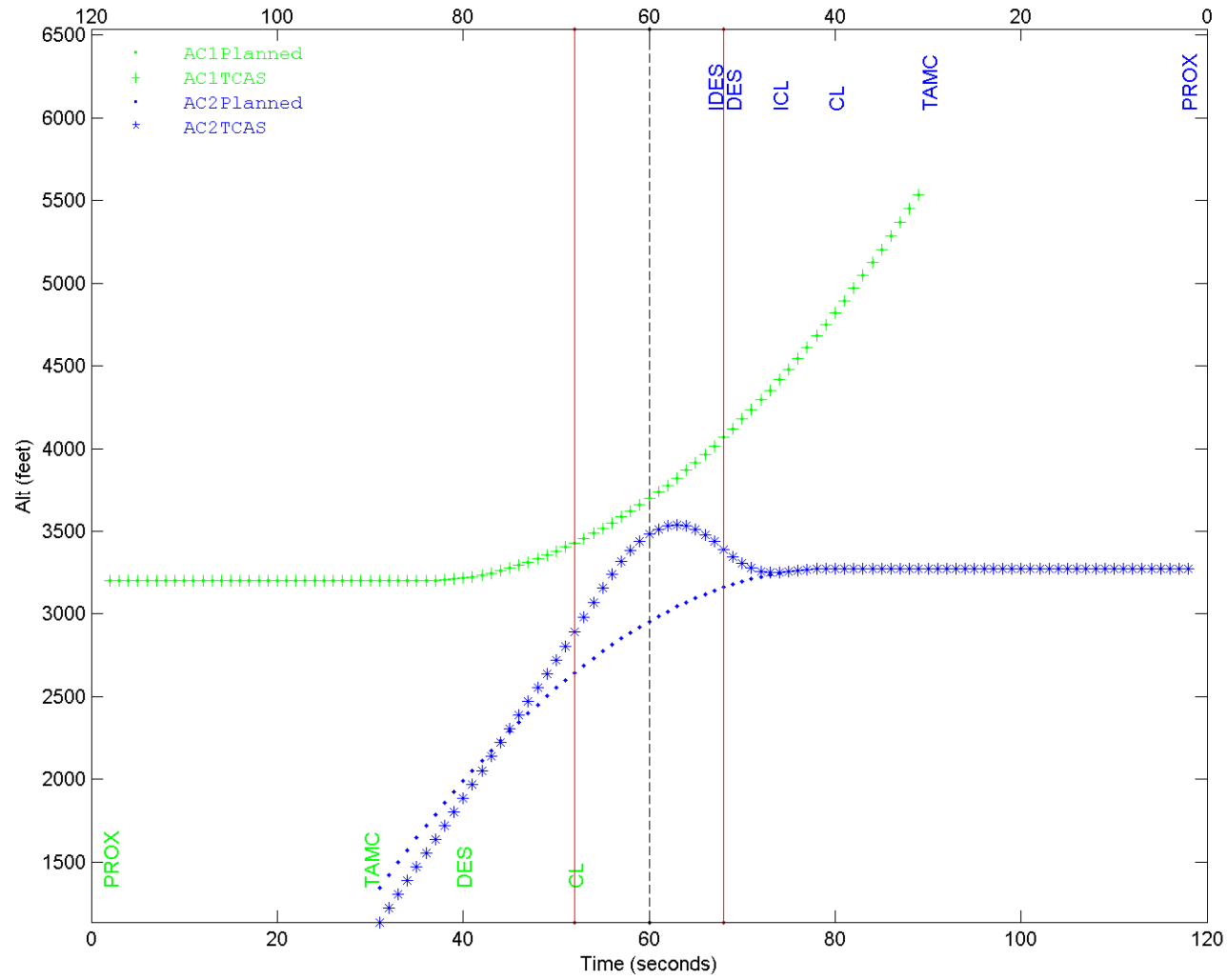
5 AC2:*REV*8175135 TA :30 |TAUR| CL   @40  [NX]| ICL  @46  | DES  @51  | IDES @53
```

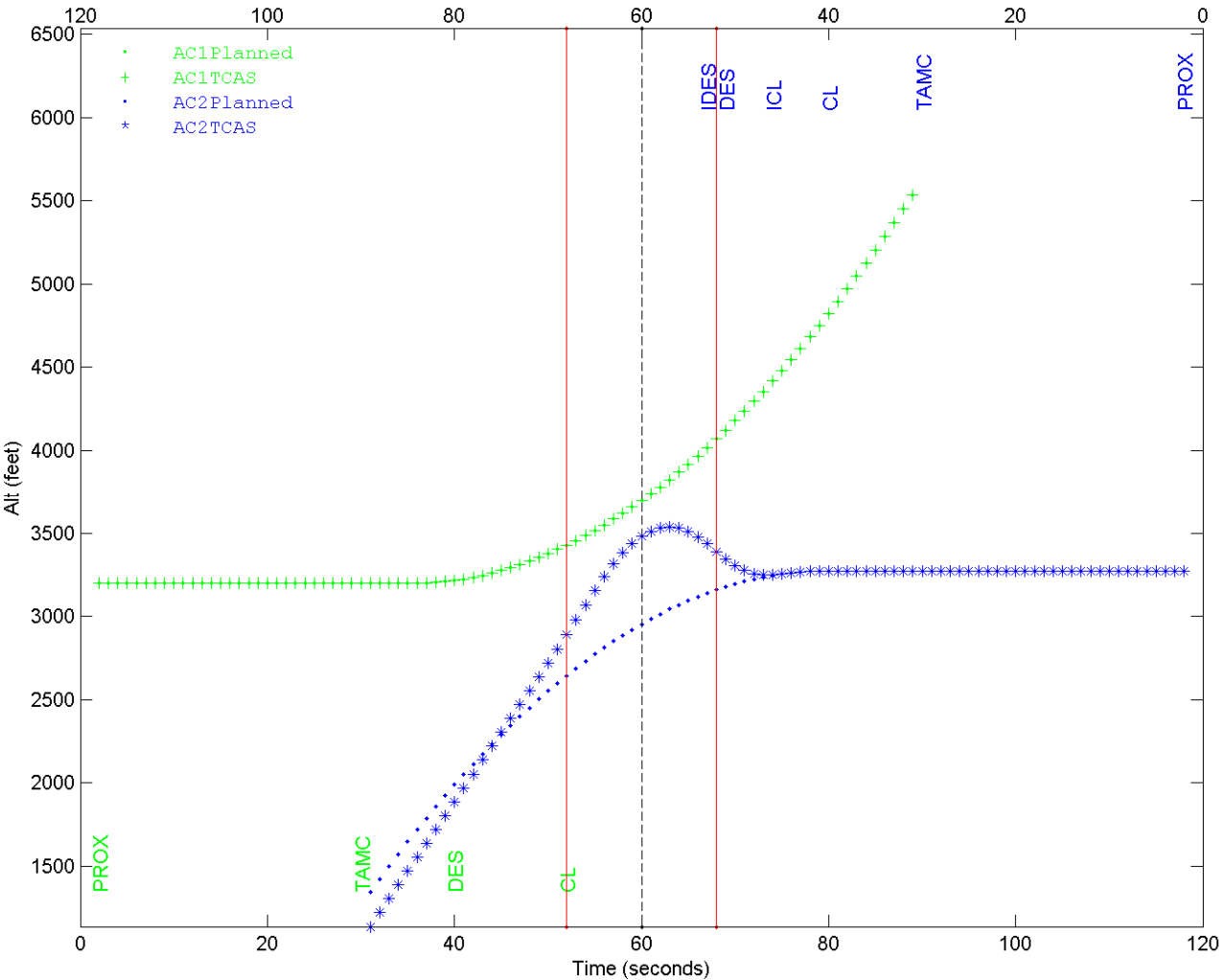


reit: 1023 cata: 717 simmode: 4275053 V7-25 Vs V7-25 H171023B



reit: 1023 cata: 717 simmode: 8275053 CP112EV1.2-25 Vs CP112EV1.2-25 H171023C





Change 7.1 Non-responding Representative Save 15

Encounter Class: 7

Reit Number : 8151

Encounter Characterization

Number of encounters in group	79	
AC1 low ID	yes	
Non-responding AC	1	
Vertical tracker	25	ft
Planned separation	+/-250, +/-500, +/-750	ft
AC1 rates:	1000, 3000, 5000	fpm
AC2 rates:	1000, 3000, 5000	fpm
AC1 acceleration:	0.25	g
AC2 acceleration:	0.05	g
AC1 acceleration time	CPA – 25	sec
AC2 acceleration time	CPA – 30	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

Climbing vertical chase caused by planned maneuvers.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER L178151
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = 250.0 AC1 RATES(0.0,3000.0) AC2 RATES(0.0,3000.0)
 AC1 ACCEL 0.25g @ CPA -25 AC2 ACCEL 0.05g @ CPA -30 AC1 CPA ALT 7500

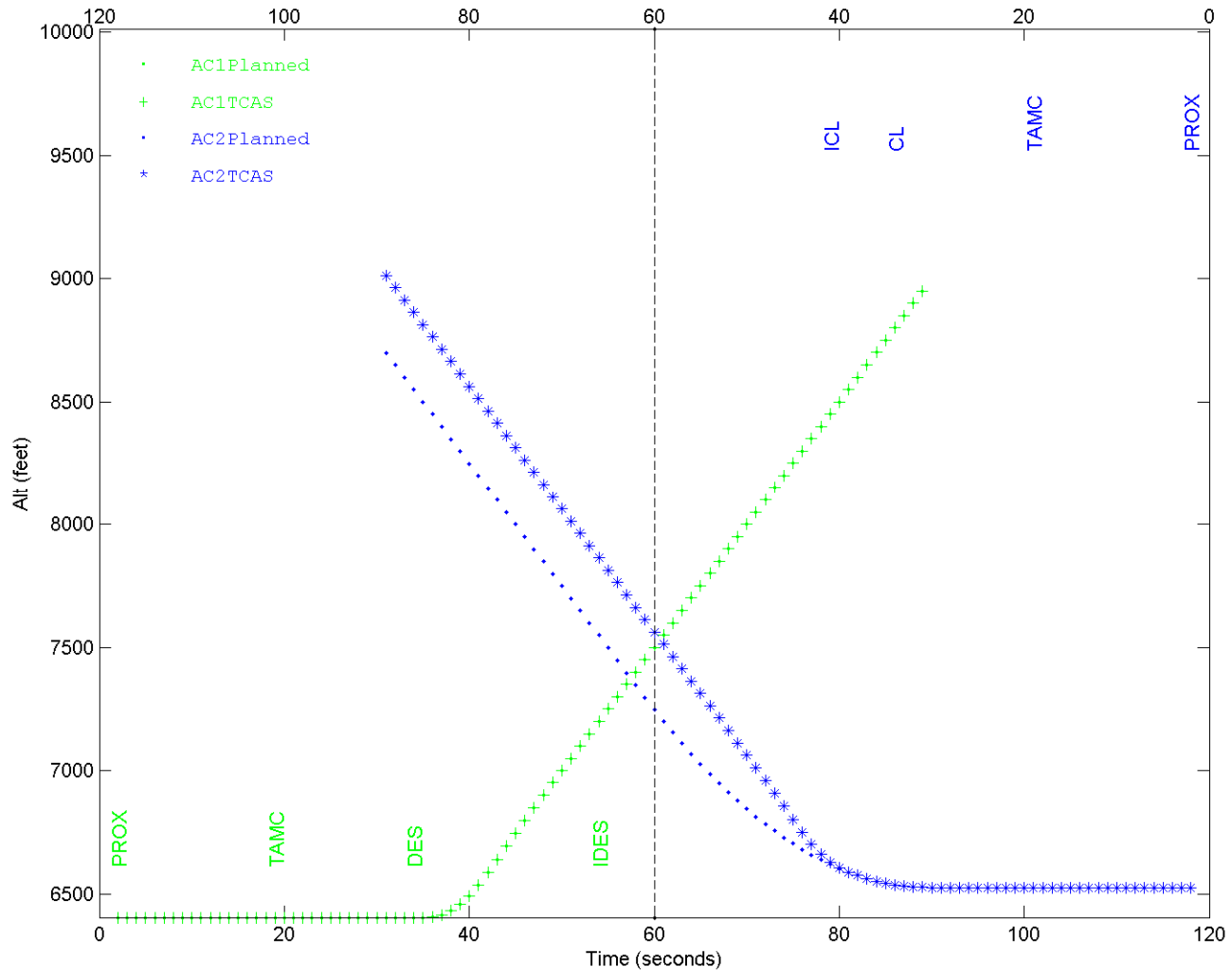
 8151 6.04A NR L VS 6.04A R H 7 -62.83 NON_CROSSING_ENC
 5 AC1: 4165042 TA :19 |TAUR| DES @34 [NX]| IDES @54 ##NON-RESPONDING##
 10 AC2: 4265124 TA :19 |TAUR| CL @34 [NX]| ICL @41

 8151 V7 25 FT NR L VS V7 25 FT R H 7 -62.83 NON_CROSSING_ENC
 5 AC1: 4175053 TA :19 |TAUR| DES @34 [NX]| IDES @52 ##NON-RESPONDING##
 10 AC2: 4275135 TA :19 |TAUR| CL @34 [NX]

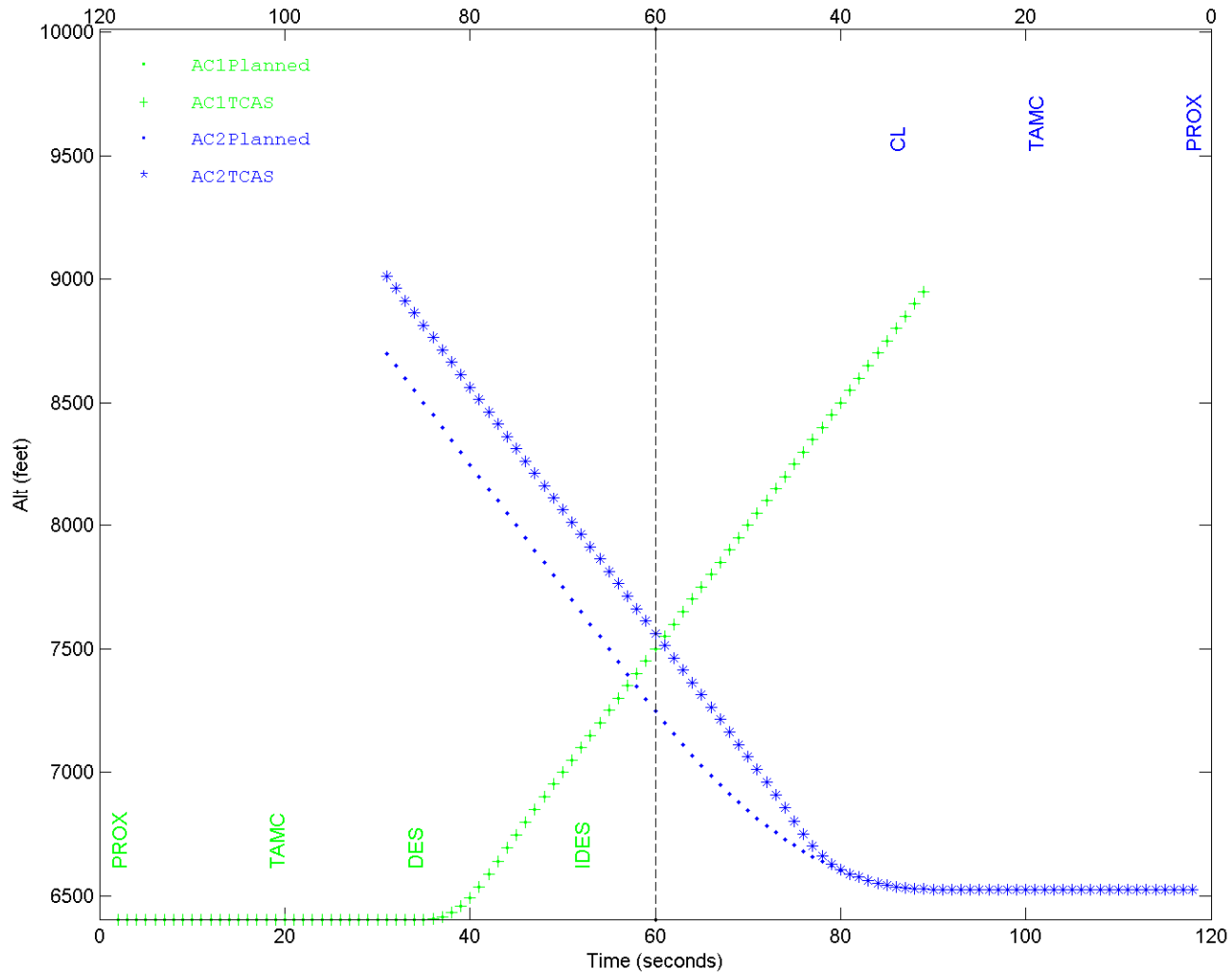
 8151 CP112EV1.2 25 FT NR L VS CP112EV1.2 25 FT R H 7 658.38 CROSSING_ENC
 5 AC1:*REV*8175053 TA :19 |TAUR| DES @34 [NX]| CL @45 ##NON-RESPONDING##
 10 AC2:*REV*8275135 TA :19 |TAUR| CL @34 [NX]| DES @45 | DCL @57

 8151 V7.1 25 FT NR L VS V7.1 25 FT R H 7 658.38 CROSSING_ENC
 5 AC1:*REV*8175053 TA :19 |TAUR| DES @34 [NX]| CL @45 ##NON-RESPONDING##
 10 AC2:*REV*8275135 TA :19 |TAUR| CL @34 [NX]| DES @45 | DCL @57

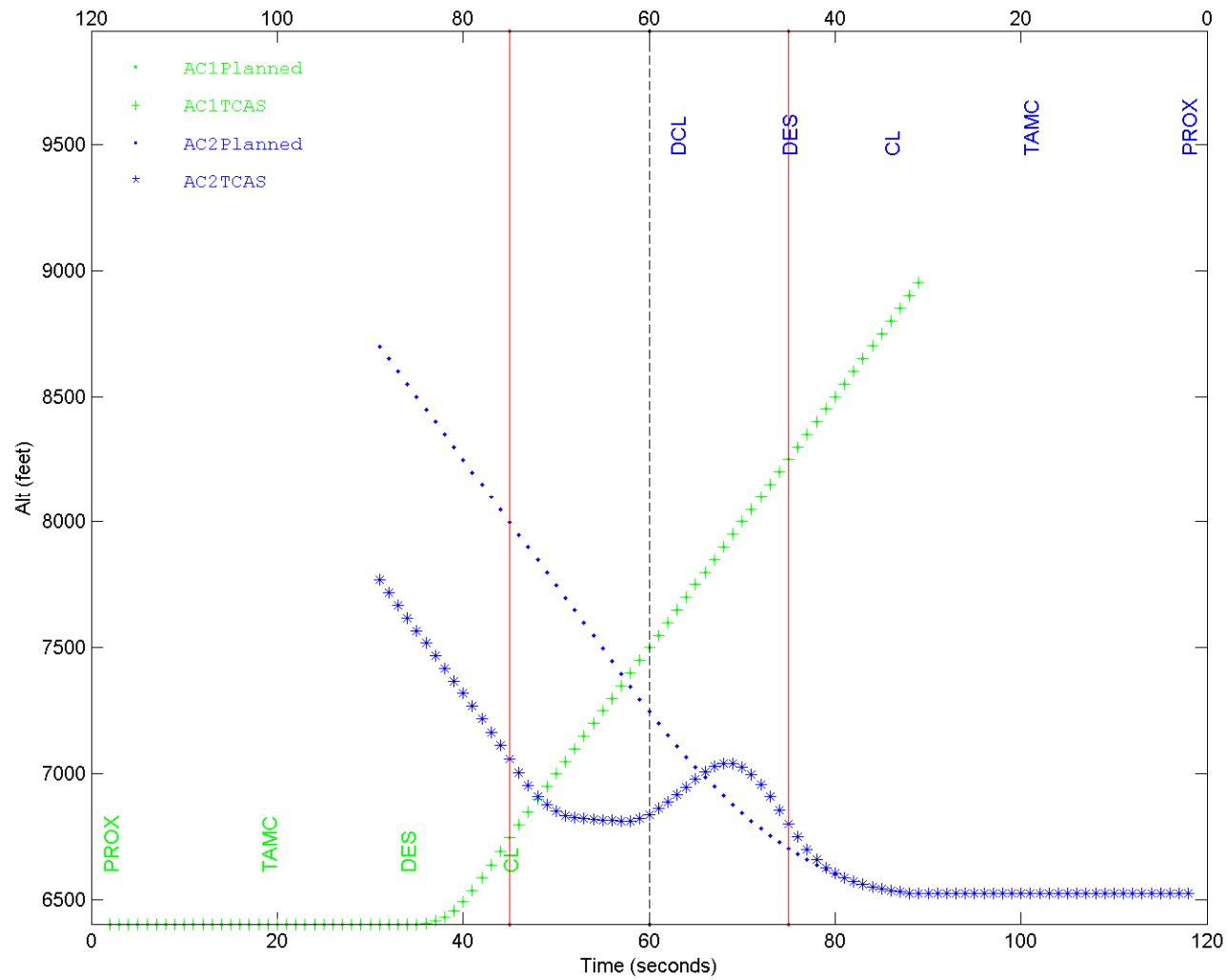
reit: 8151 cata: 717 simmode: 4165042 6.04A Vs 6.04A L178151A



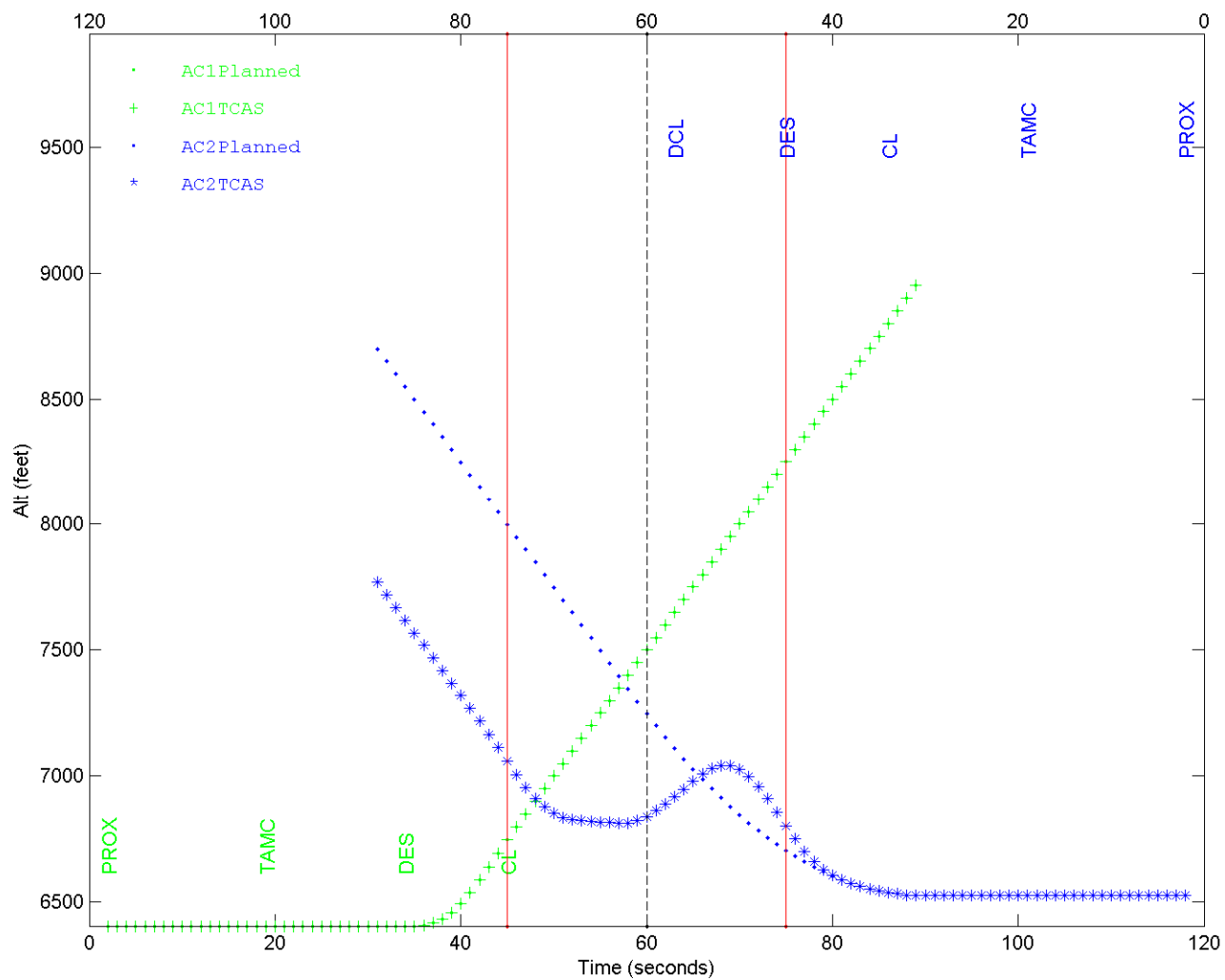
reit: 8151 cata: 717 simmode: 4175053 V7-25 Vs V7-25 L178151B



reit: 8151 cata: 717 simmode: 8175053 CP112EV1.2-25 Vs CP112EV1.2-25 L178151C



reit: 8151 cata: 717 simmode: 8175053 V7.1-25 Vs V7.1-25 L178151D



Change 7.1 Non-responding Representative Save 16

Encounter Class: 7

Reit Number : 3868

Encounter Characterization

Number of encounters in group	1	
AC1 low ID	yes	
Non-responding AC	2	
Vertical tracker	25	ft
Planned separation	0	ft
AC1 rates:	3000	fpm
AC2 rates:	3000	fpm
AC1 acceleration:	0.25	g
AC2 acceleration:	0.25	g
AC1 acceleration time	CPA – 25	sec
AC2 acceleration time	CPA – 30	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP115

Comments

Climbing vertical chase caused by planned maneuvers.
LOLO in non-responding low ID aircraft allowed reversal not observed with CP112E alone.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER L173868
 LOGIC THRESHOLDS SL = 4 ZTHR = 600 TAUR = 20 TAUUV = 20 ALIM = 300
 PLANNED ENCOUNTER. SEP = 0.0 AC1 RATES(0.0,3000.0) AC2 RATES(0.0,3000.0)
 AC1 ACCEL 0.25g @ CPA -25 AC2 ACCEL 0.25g @ CPA -30 AC1 CPA ALT 3700

```
-----
3868  6.04A NR L VS 6.04A R H      7      -19.40      CROSSING_ENC

5 AC1:      4165042 TA :30 |TAUR| LC1 @40 [NX]| LC5 @51 | DES @52 | IDES @56
      ##NON-RESPONDING##
10 AC2:      4265124 TA :30 |PVMD| MCL @41 [NX]| ICL @43
```

```
-----
3868  V7 25 FT NR L VS V7 25 FT R H      7      -19.40      CROSSING_ENC

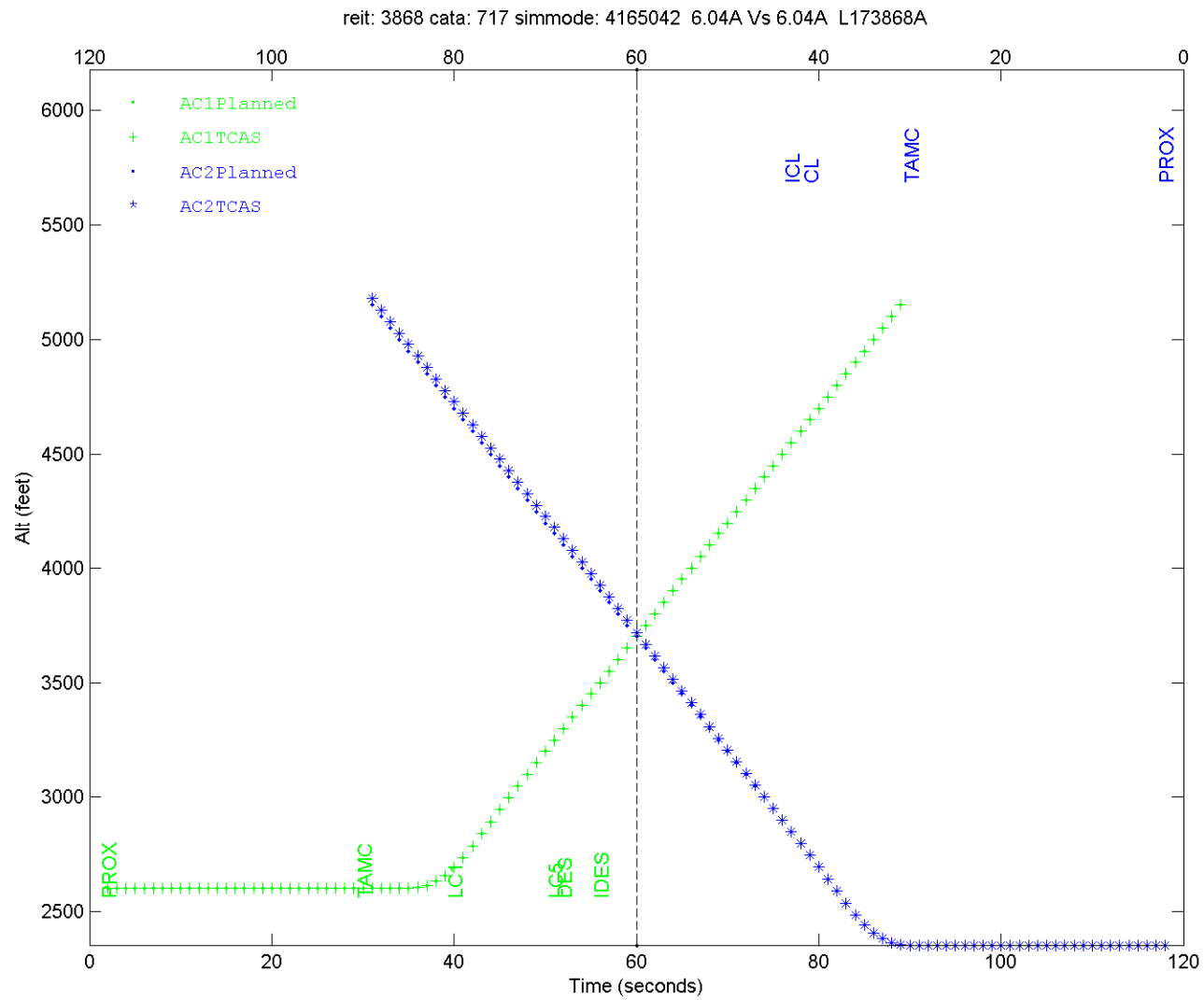
5 AC1:      4175053 TA :30 |TAUR| LC1 @40 [NX]| LC5 @51 | DES @52 | IDES @54
      ##NON-RESPONDING##
10 AC2:      4275135 TA :30 |PVMD| CL @41 [NX]
```

```
-----
3868  CP112EV1.2 25 FT NR L VS CP112EV1.2 25 FT R H      7      -19.40      CROSSING_ENC

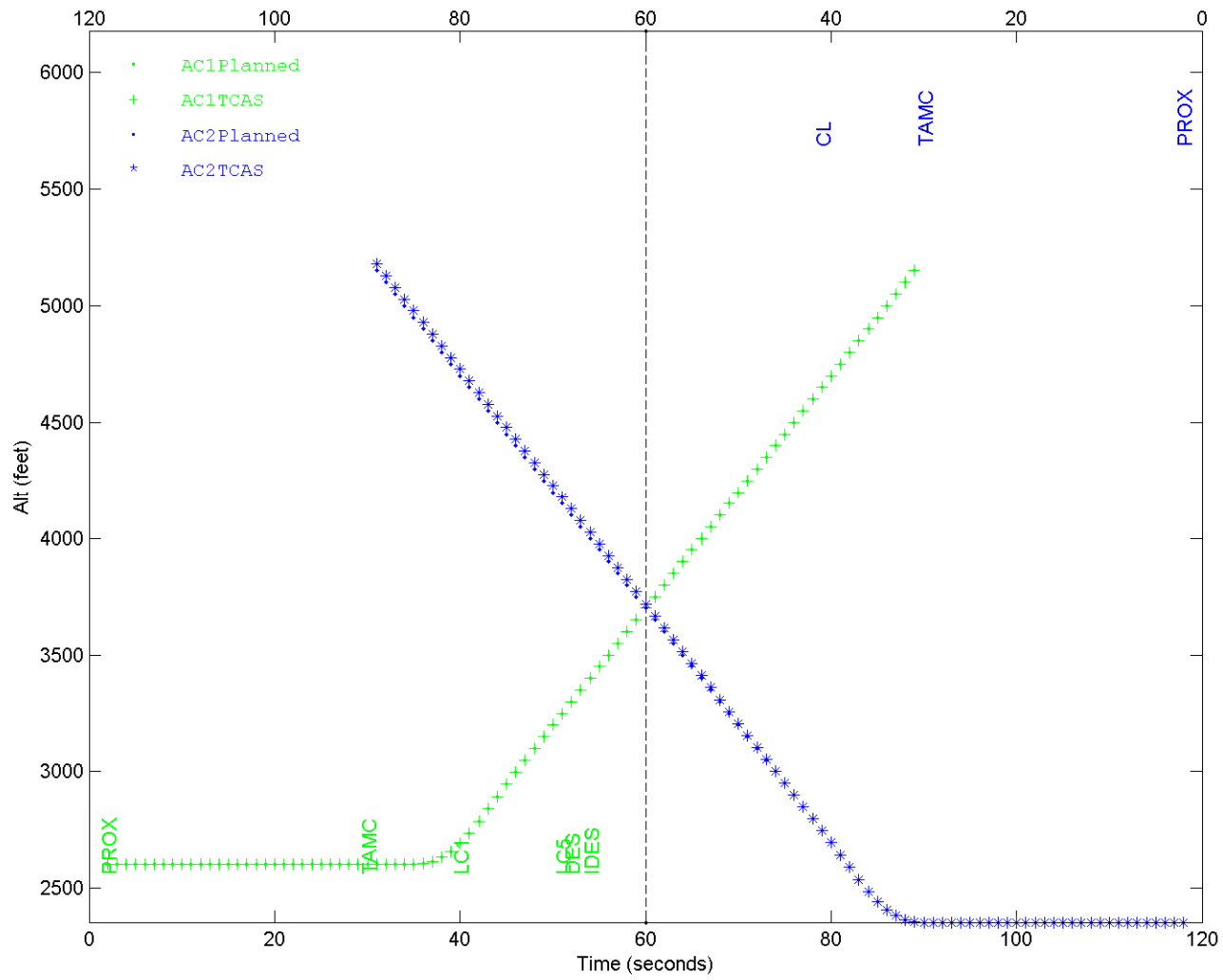
5 AC1:      8175053 TA :30 |TAUR| LC1 @40 [NX]| LC5 @51 | DES @52 | IDES @54
      ##NON-RESPONDING##
10 AC2:      8275135 TA :30 |PVMD| CL @41 [NX]
```

```
-----
3868  V7.1 25 FT NR L VS V7.1 25 FT R H      7      183.29      CROSSING_ENC

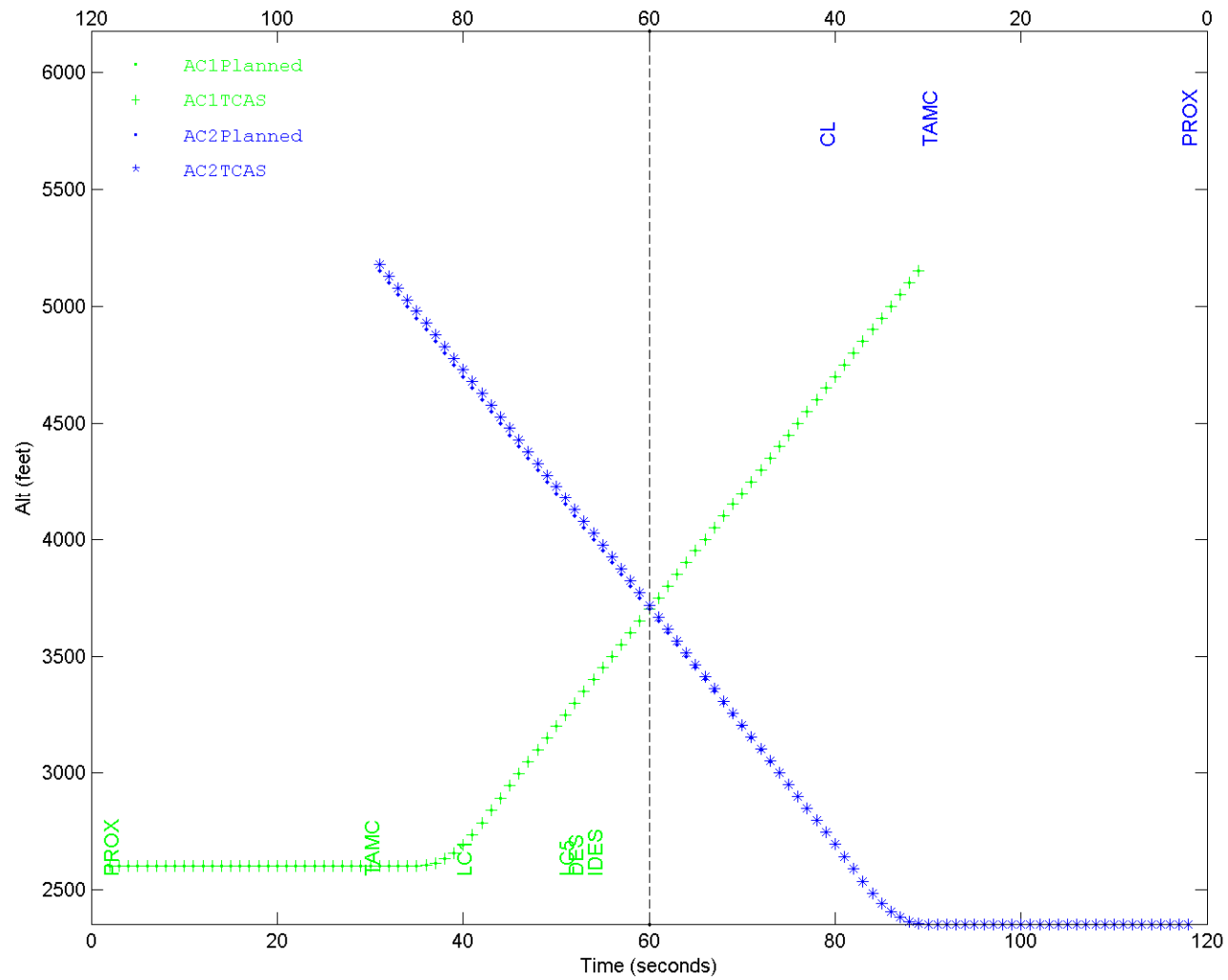
5 AC1:*REV*8175053 TA :30 |TAUR| DCL @40 [NX]| CL @52 ##NON-RESPONDING##
10 AC2:*REV*8275135 TA :30 |PVMD| CL @41 [NX]| DES @52 | IDES @54
```



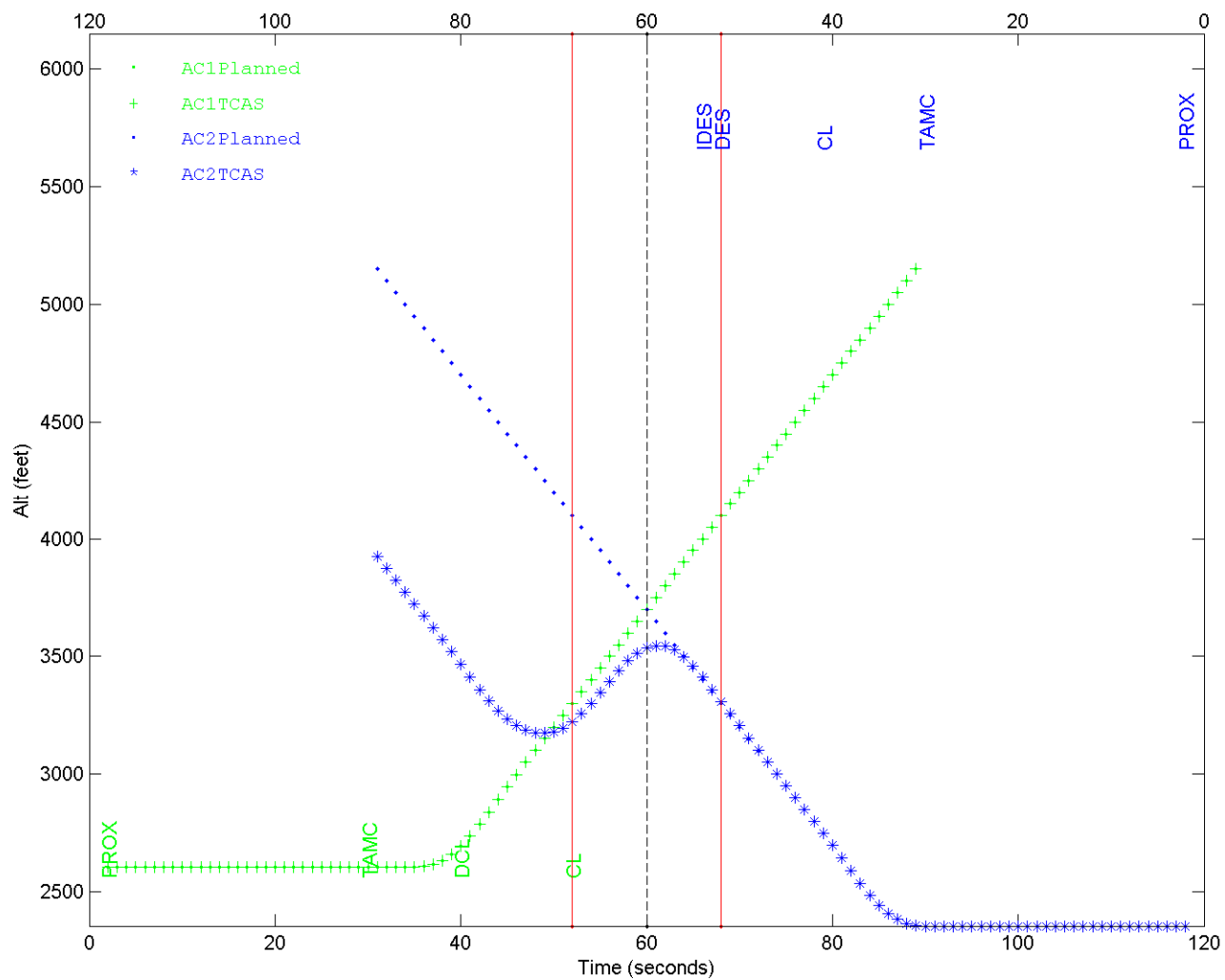
reit: 3868 cata: 717 simmode: 4175053 V7-25 Vs V7-25 L173868B



reit: 3868 cata: 717 simmode: 8175053 CP112EV1.2-25 Vs CP112EV1.2-25 L173868C



reit: 3868 cata: 717 simmode: 8175053 V7.1-25 Vs V7.1-25 L173868D



Change 7.1 Non-responding Representative Save 17

Encounter Class: 7

Reit Number : 8611

Encounter Characterization

Number of encounters in group	2	
AC1 low ID	yes	
Non-responding AC	2	
Vertical tracker	25	ft
Planned separation	750	ft
AC1 rates:	5000	fpm
AC2 rates:	-1000	fpm
AC1 acceleration:	0.25	g
AC2 acceleration:	-0.05	g
AC1 acceleration time	CPA – 25	sec
AC2 acceleration time	CPA – 30	sec
Encounters with reversed RAs	0	%
Vertical chase	no	

Save Mechanism

Logic change solving NMAC

CP115

Comments

LOLO in responding low ID aircraft allowed reversal not observed with CP112E alone.
IDES command came 5 seconds earlier with CP115.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER H278611
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = 750.0 AC1 RATES(0.0,5000.0) AC2 RATES(0.0,-1000.0)
 AC1 ACCEL 0.25g @ CPA -25 AC2 ACCEL -0.05g @ CPA -30 AC1 CPA ALT 7500

```
-----
8611 6.04A R H VS 6.04A NR L 7 205.47 CROSSING_ENC

10 AC1: 4165124 TA :41 |TAUV| POTRA@42 (DFD) | DES @44 [NX]| IDES @52
5 AC2: 4265042 TA :41 |TAUV| CL @43 [NX]| ICL @45 ##NON-RESPONDING##

-----
8611 V7 25 FT R H VS V7 25 FT NR L 7 -94.02 NON_CROSSING_ENC

10 AC1: 4275035 TA :40 |TAUV| LC1 @41 [NX]| LC5 @42 | DES @43 | IDES @52
5 AC2: 4175153 TA :40 |TAUV| DDES @41 [NX]| CL @42 ##NON-RESPONDING##

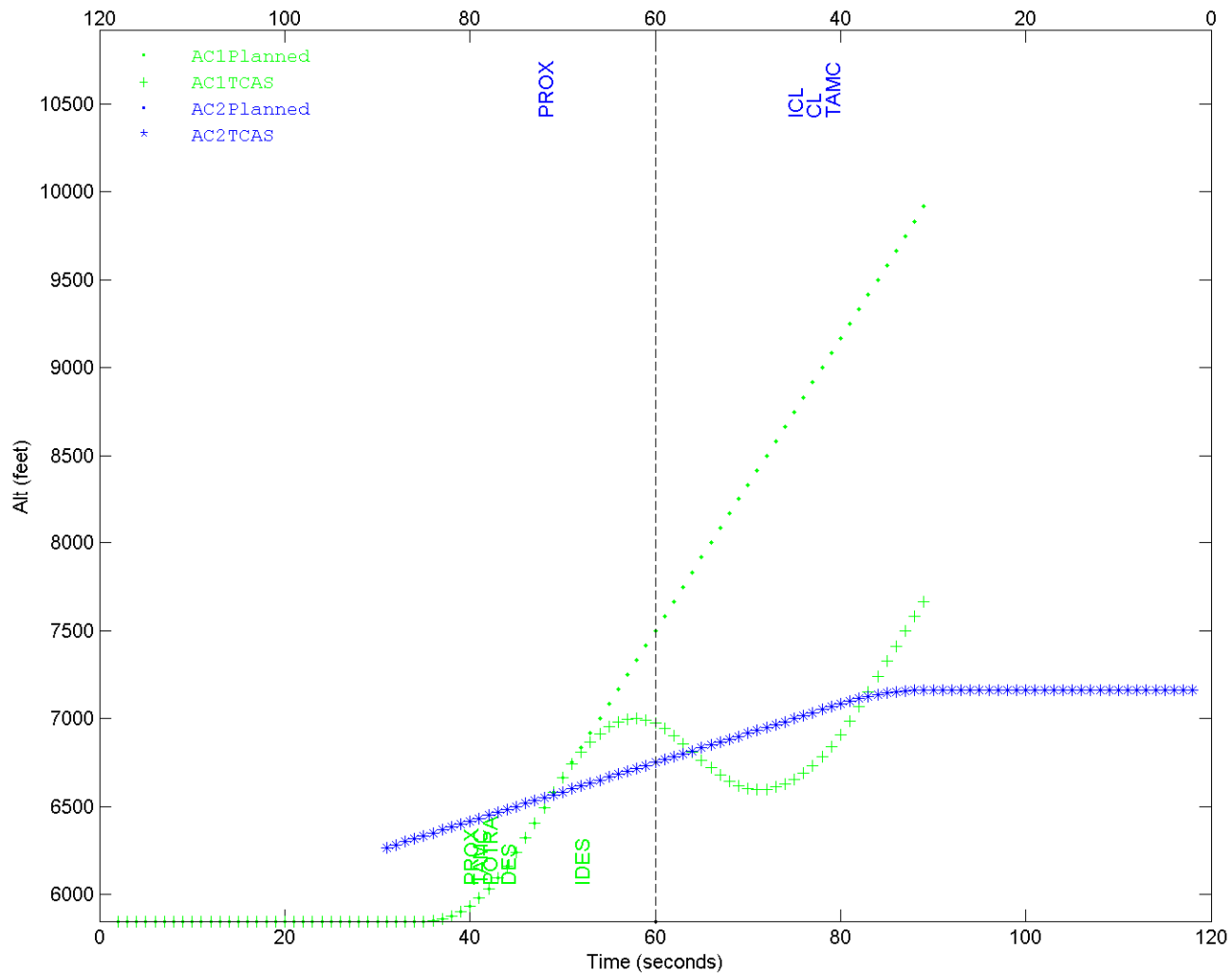
-----
8611 CP112EV1.2 25 FT R H VS CP112EV1.2 25 FT NR L 7 -94.02 NON_CROSSING_ENC

10 AC1: 8275035 TA :40 |TAUV| LC1 @41 [NX]| LC5 @42 | DES @43 | IDES @52
5 AC2: 8175153 TA :40 |TAUV| DDES @41 [NX]| CL @42 ##NON-RESPONDING##

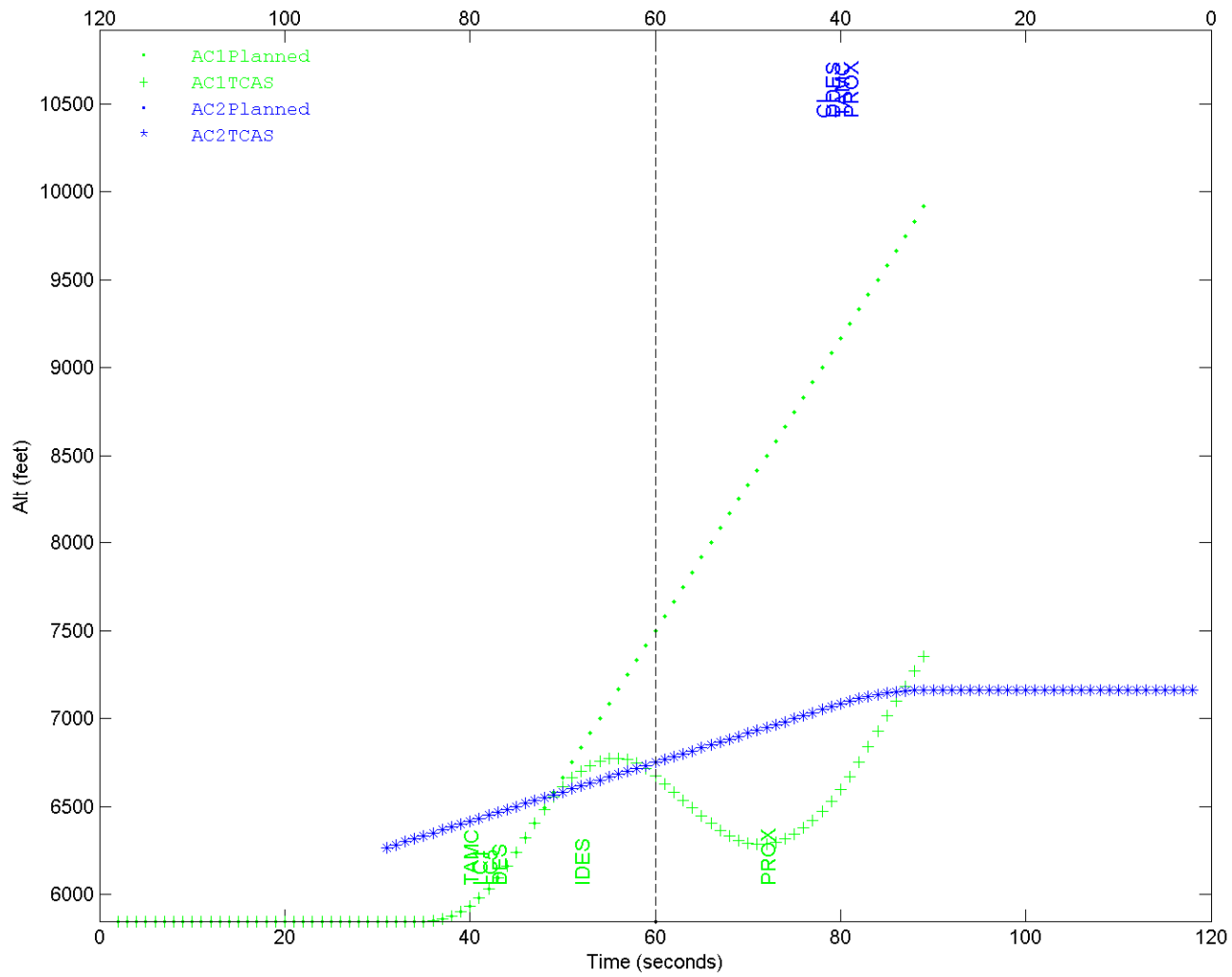
-----
8611 V7.1 25 FT R H VS V7.1 25 FT NR L 7 -209.40 NON_CROSSING_ENC

10 AC1: 8275035 TA :40 |TAUV| DCL @41 [NX]| DES @44 | IDES @47
5 AC2: 8175153 TA :40 |TAUV| DDES @41 [NX]| CL @42 ##NON-RESPONDING##
```

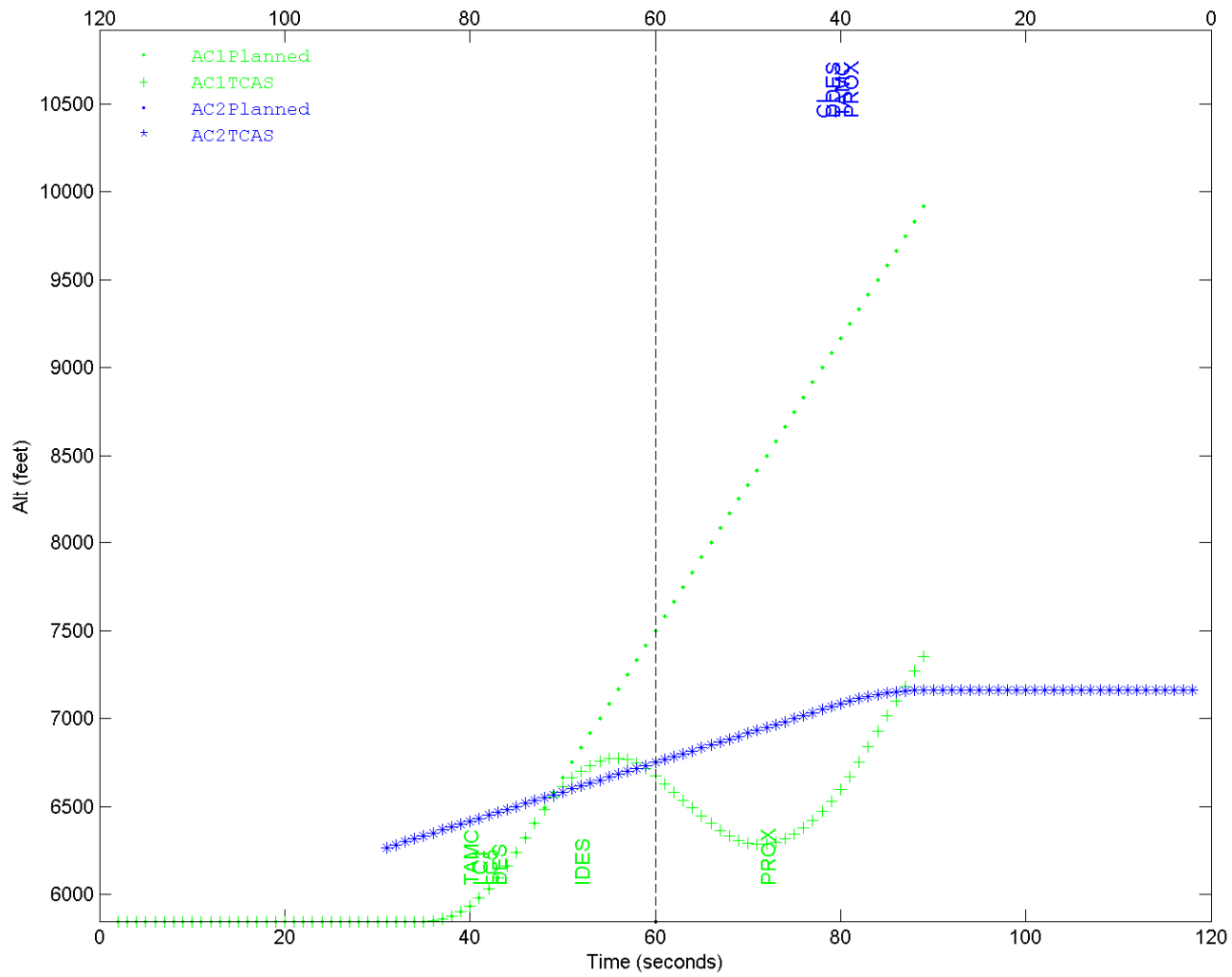
reit: 8611 cata: 717 simmode: 4165124 6.04A Vs 6.04A H278611A

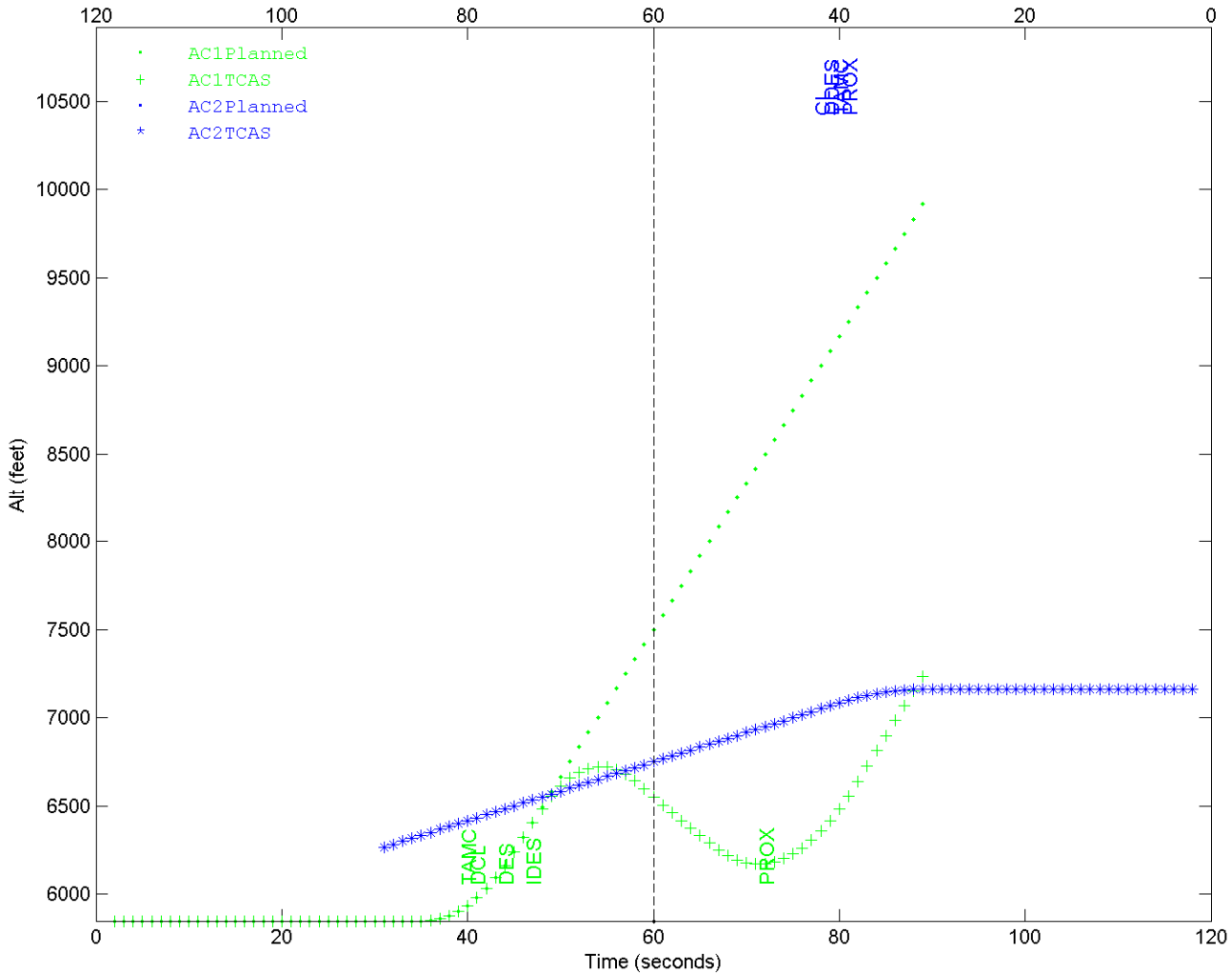


reit: 8611 cata: 717 simmode: 4275035 V7-25 Vs V7-25 H278611B



reit: 8611 cata: 717 simmode: 8275035 CP112EV1.2-25 Vs CP112EV1.2-25 H278611C





Change 7.1 Non-responding Representative Save 18

Encounter Class: 8

Reit Number : 4939

Encounter Characterization

Number of encounters in group	8	
AC1 low ID	no	
Non-responding AC	1	
Vertical tracker	25	ft
Planned separation	0	ft
AC1 rates:	-5000	fpm
AC2 rates:	-3000	fpm
AC1 acceleration:	0.05	g
AC2 acceleration:	-0.35	g
AC1 acceleration time	CPA – 25	sec
AC2 acceleration time	CPA – 30	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

Descending vertical chase caused by planned maneuver.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER H184939
 LOGIC THRESHOLDS SL = 6 ZTHR = 600 TAUR = 30 TAUUV = 30 ALIM = 350
 PLANNED ENCOUNTER. SEP = 0.0 AC1 RATES(-5000.0,0.0) AC2 RATES(0.0,-3000.0)
 AC1 ACCEL 0.05g @ CPA -25 AC2 ACCEL -0.35g @ CPA -30 AC1 CPA ALT 7500

4939 6.04A NR H VS 6.04A NR L 8 -444.17 CROSSING_ENC

10 AC1: 4165142 TA:13 |TAUR| POTRA@28 (6FT) | DES @40 [X]
 ##NON-RESPONDING##

5 AC2: 4265024 TA:13 |TAUR| LD2 @36 [X] | LD2 @49 | LD1 @52 | CL @53

4939 V7 25 FT NR H VS V7 25 FT R L 8 0.00 CROSSING_ENC

10 AC1: 4275053 TA:13 |TAUR| POTRA@28 | LD5 @37 [NX]| CL @49 | ICL @51
 ##NON-RESPONDING##

5 AC2: 4175135 TA:13 |TAUR| POTRA@28 (LVW) | DES @37 [NX]

4939 CP112EV1.2 25 FT NR H VS CP112EV1.2 25 FT R L 8 -543.55 CROSSING_ENC

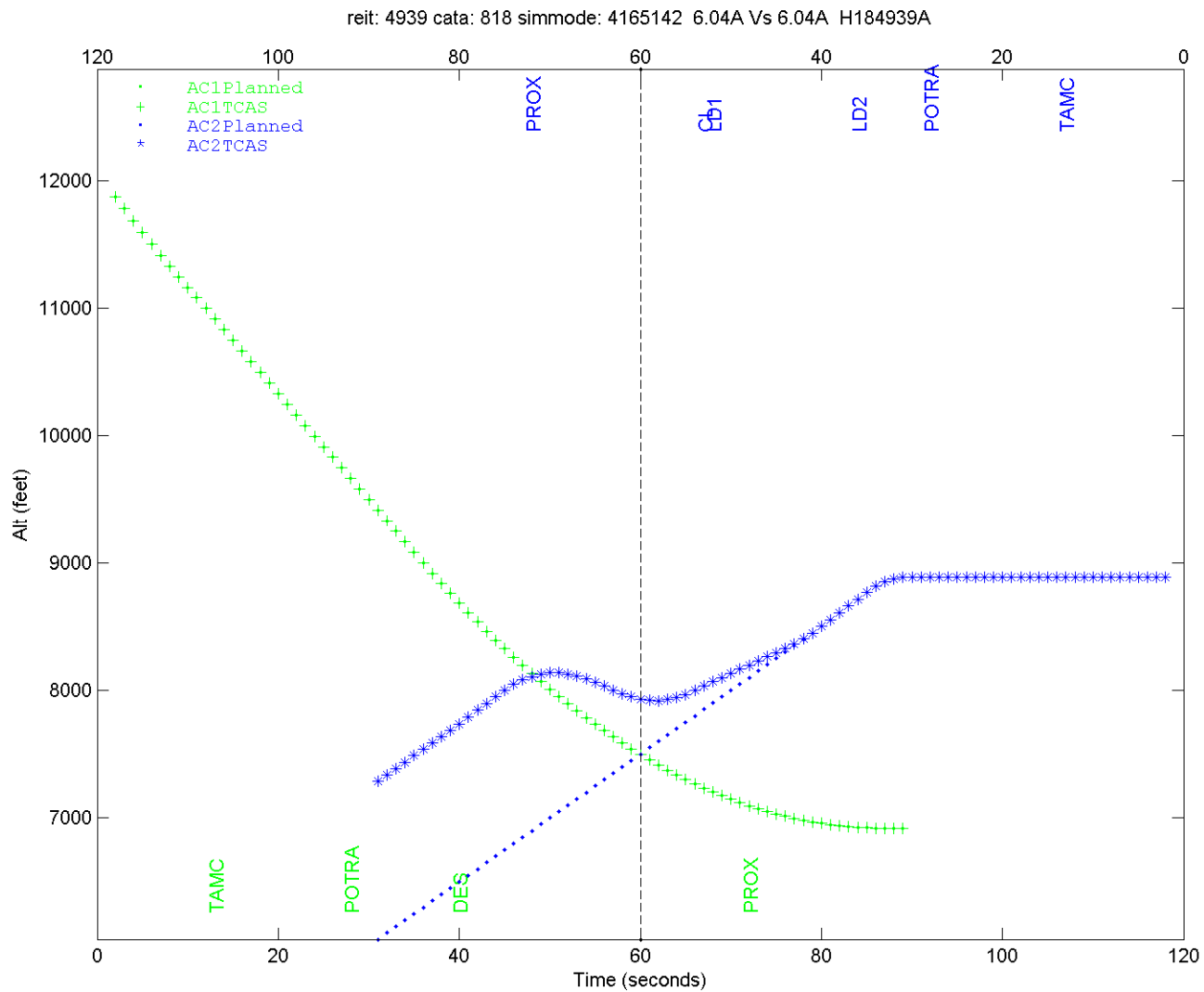
10 AC1:*REV*8275053 TA:13 |TAUR| POTRA@28 | LD5 @37 [NX]| DES @49| DCL @63
 ##NON-RESPONDING##

5 AC2:*REV*8175135 TA:13 |TAUR| POTRA@28(LVW)| DES @37[NX]| CL @48| ICL @51
 |DDES @63

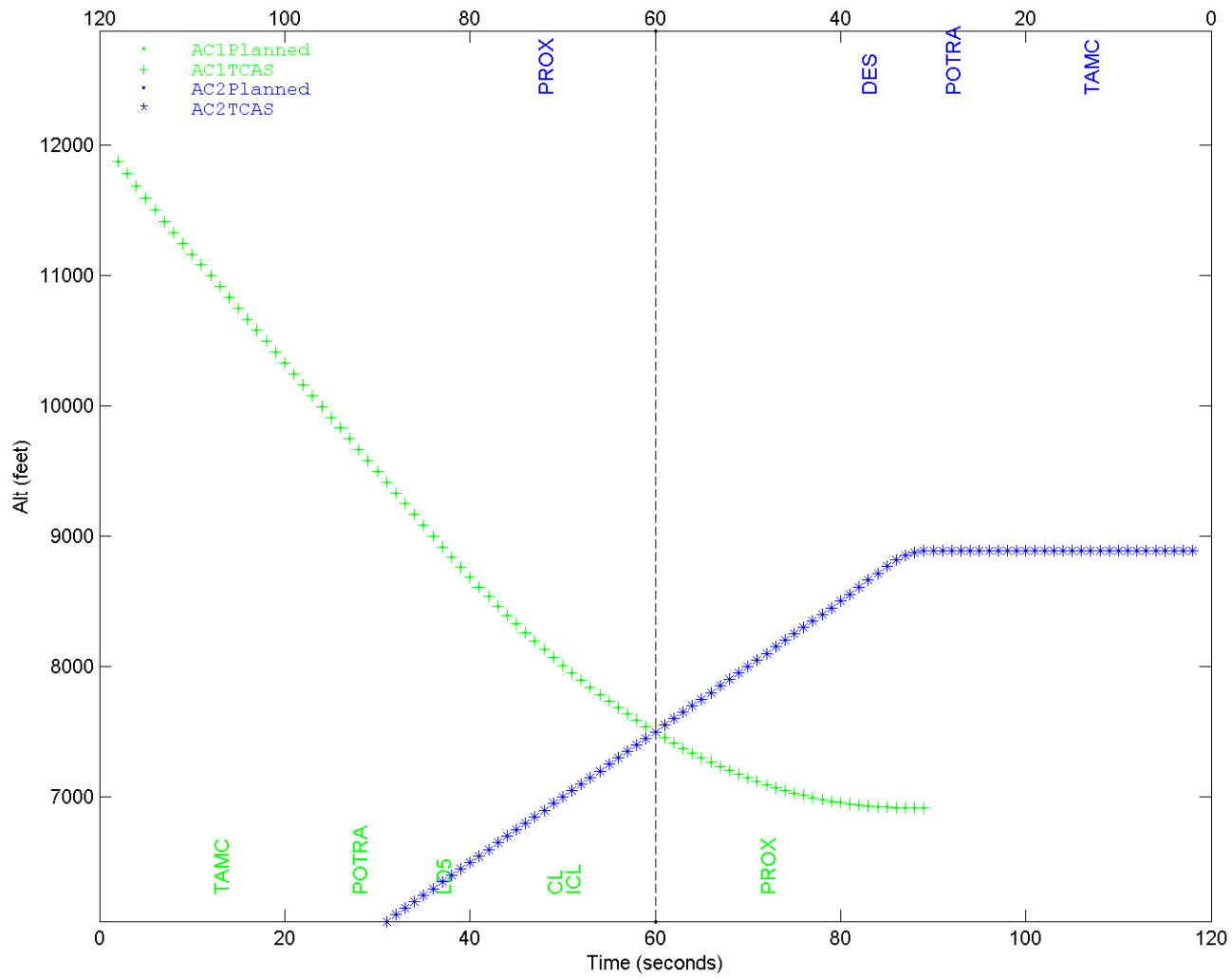
4939 V7.1 25 FT NR H VS V7.1 25 FT R L 8 -543.55 CROSSING_ENC

10 AC1:*REV*8275053 TA:13 |TAUR| POTRA@28 | DDES @37 [NX]| DES @49| DCL @63
 ##NON-RESPONDING##

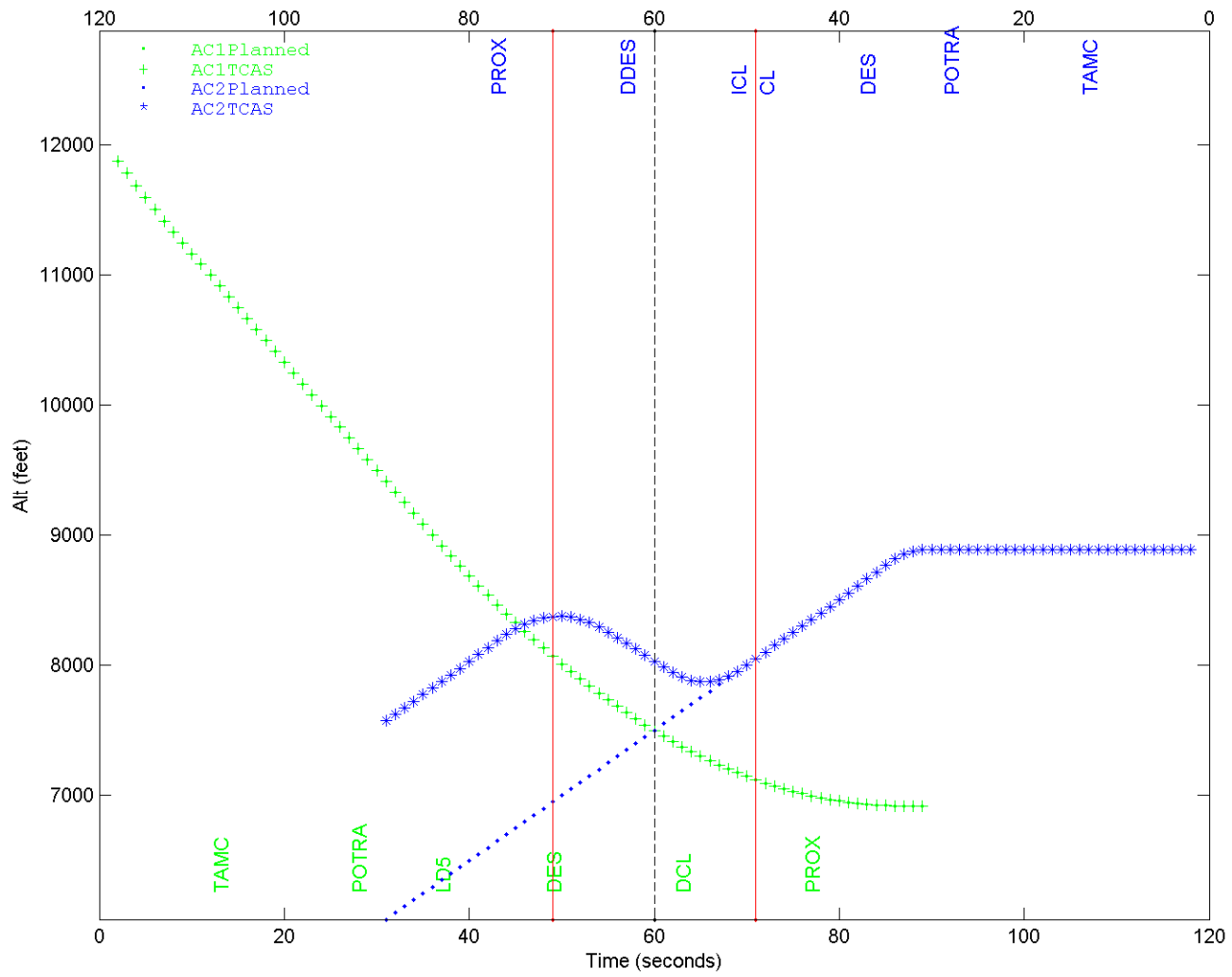
5 AC2:*REV*8175135 TA:13 |TAUR| POTRA@28 (LVW) | DES @37 [NX]| CL @48| ICL @51
 | DDES @63

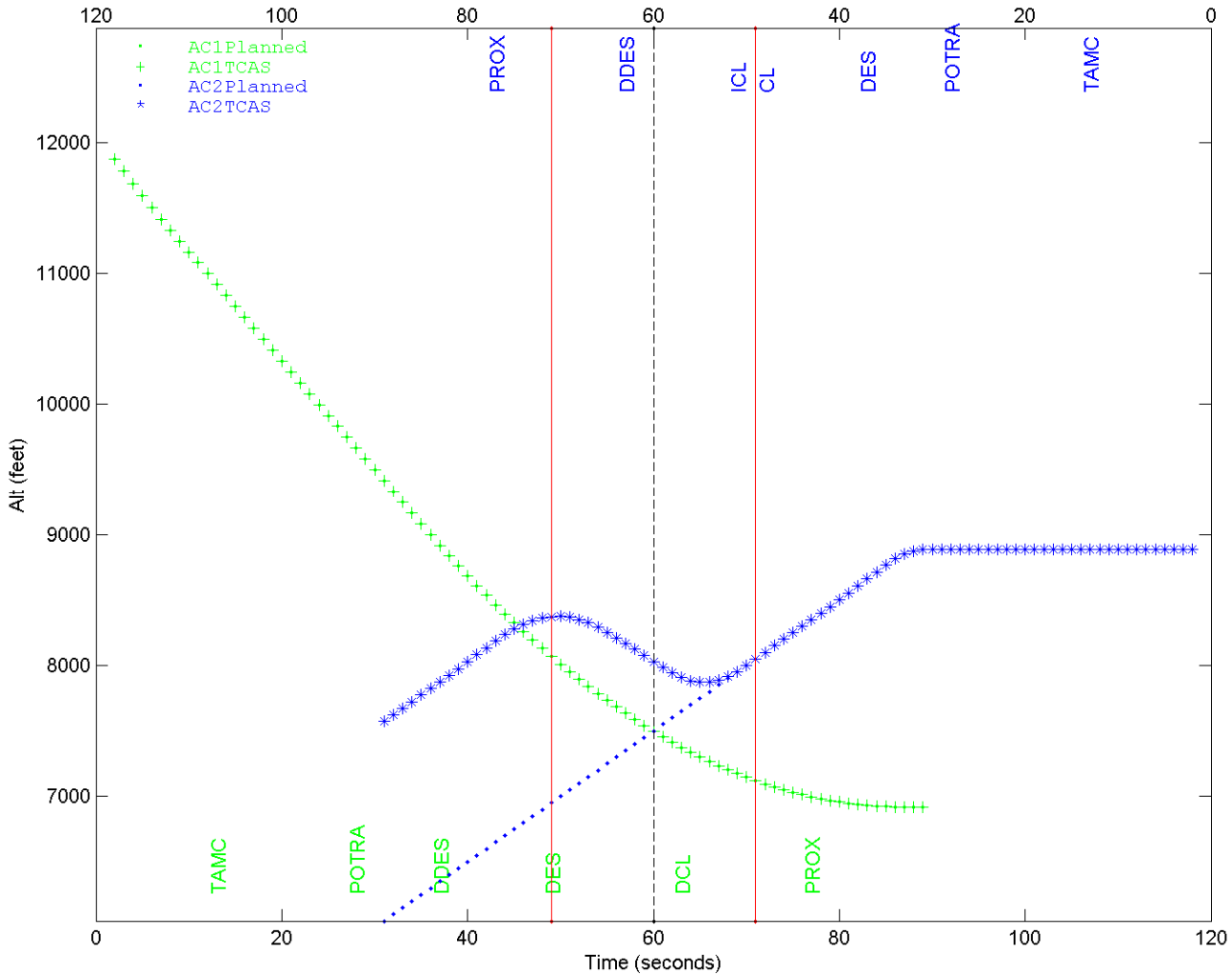


reit: 4939 cata: 818 simmode: 4275053 V7-25 Vs V7-25 H184939B



reit: 4939 cata: 818 simmode: 8275053 CP112EV1.2-25 Vs CP112EV1.2-25 H184939C





Change 7.1 Non-responding Representative Save 19

Encounter Class: 8

Reit Number : 3026

Encounter Characterization

Number of encounters in group	56	
AC1 low ID	yes	
Non-responding AC	2	
Vertical tracker	25	ft
Planned separation	-250, 500, +/-750	ft
AC1 rates:	-1000, -3000, -5000	fpm
AC2 rates:	-1000, -3000, -5000	fpm
AC1 acceleration:	0.25	g
AC2 acceleration:	-0.05	g
AC1 acceleration time	CPA – 25	sec
AC2 acceleration time	CPA – 30	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

Descending vertical chase caused by response to initial RA.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER L283026
 LOGIC THRESHOLDS SL = 4 ZTHR = 600 TAUR = 20 TAUUV = 20 ALIM = 300
 PLANNED ENCOUNTER. SEP = 500.0 AC1 RATES(-5000.0,0.0) AC2 RATES(0.0,-5000.0)
 AC1 ACCEL 0.25g @ CPA -25 AC2 ACCEL -0.05g @ CPA -30 AC1 CPA ALT 3700

 3026 6.04A R L VS 6.04A NR H 8 77.09 CROSSING_ENC

5 AC1: 4165024 TA :19 |PVMD| MDES @43 [NX]| DES @44 | IDES @45

10 AC2: 4265142 TA :19 |PVMD| CL @45 [NX]| ICL @49 ##NON-RESPONDING##

 3026 V7 25 FT R L VS V7 25 FT NR H 8 60.73 CROSSING_ENC

5 AC1: 4175035 TA :19 |PVMD| DES @42 [NX]

10 AC2: 4275153 TA :19 |PVMD| LD1 @42 [NX]| LD1 @43 | LD5 @44 | CL @45
 | ICL @49 ##NON-RESPONDING##

 3026 CP112EV1.2 25 FT R L VS CP112EV1.2 25 FT NR H 8 201.49 CROSSING_ENC

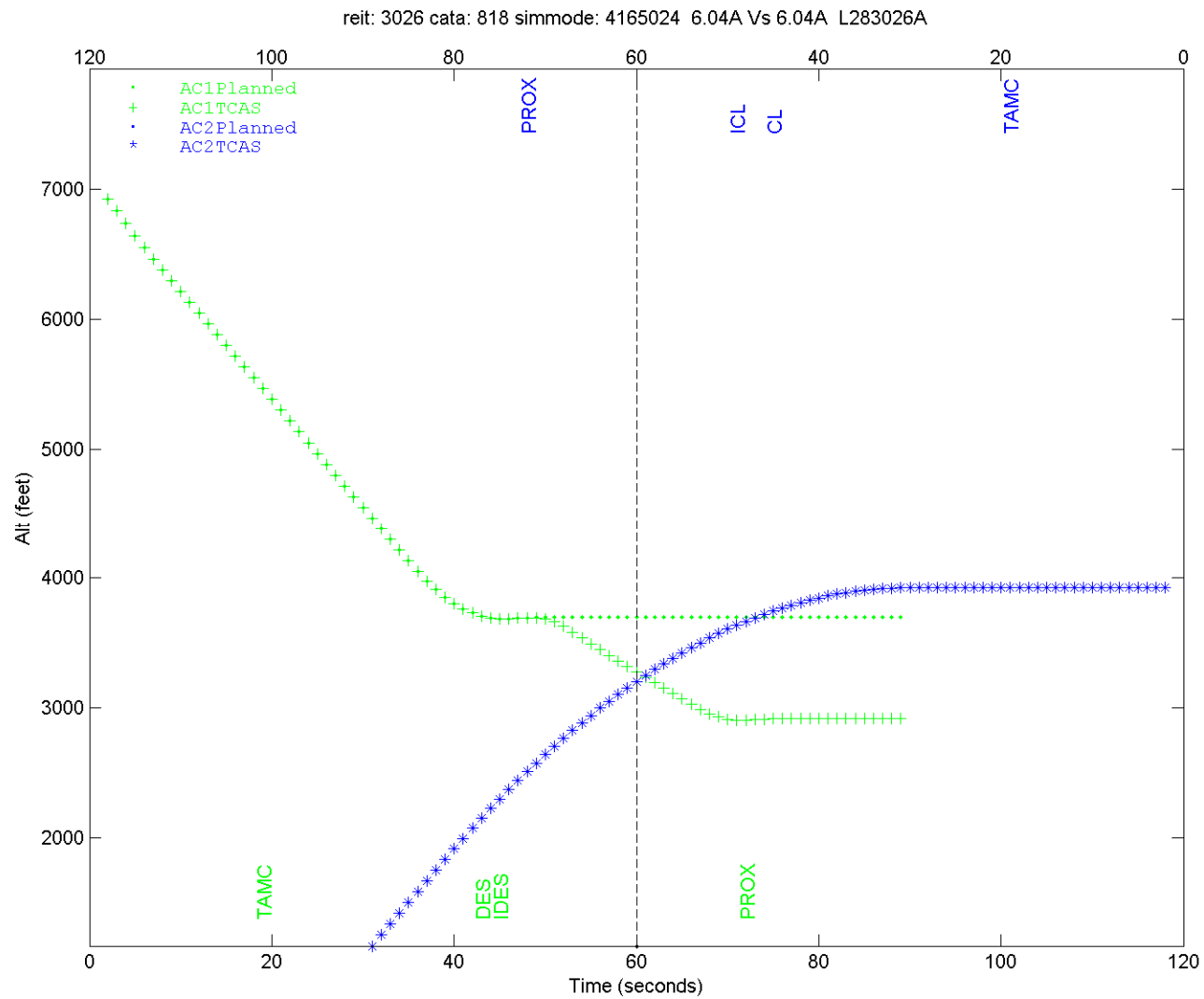
5 AC1:*REV*8175035 TA :19 |PVMD| DES @42 [NX]| CL @53

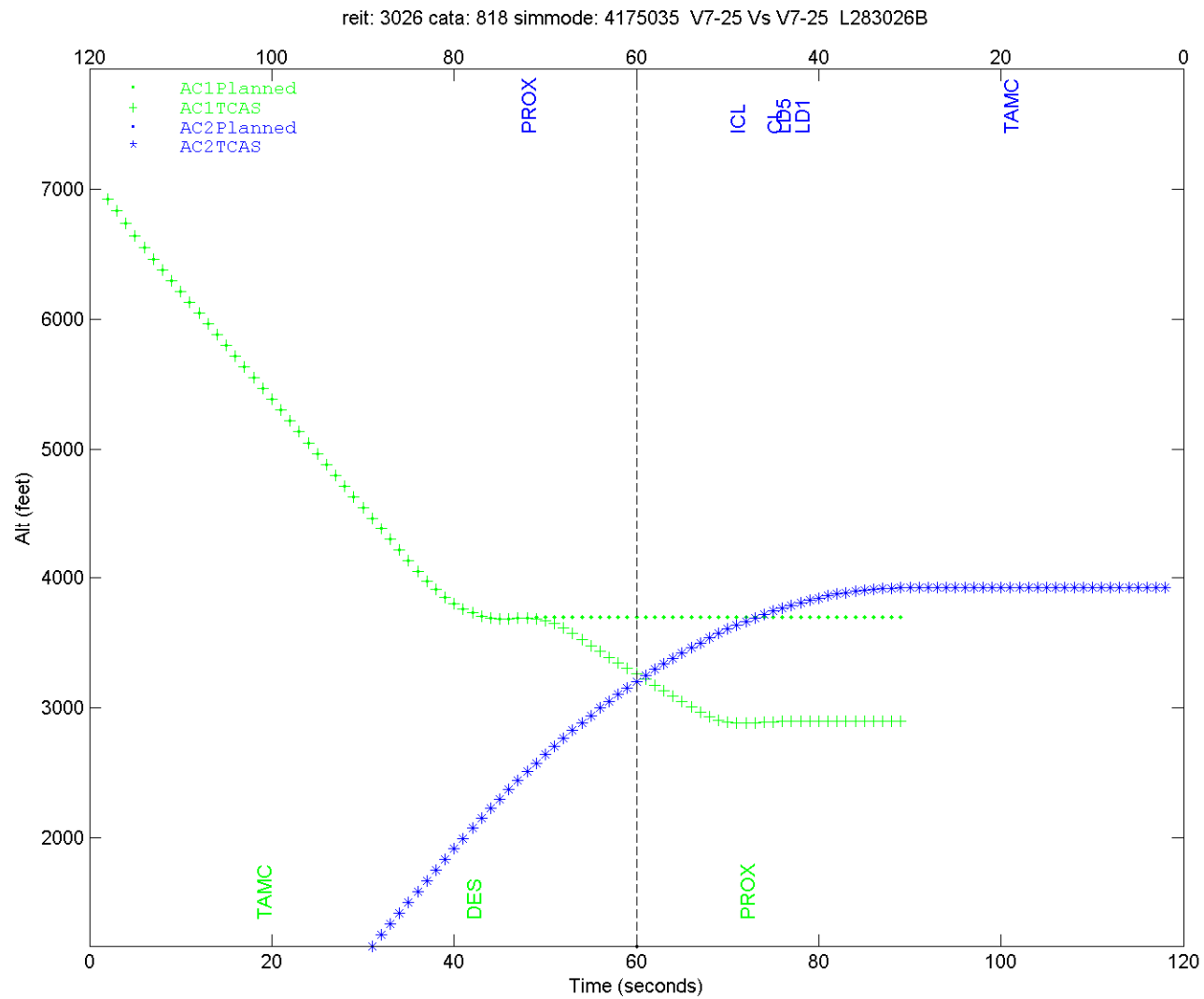
10 AC2:*REV*8275153 TA :19 |PVMD| LD1 @42 [NX]| LD1 @43 | LD5 @44 | CL @45
 | ICL @49 | DES @53 ##NON-RESPONDING##

 3026 V7.1 25 FT R L VS V7.1 25 FT NR H 8 201.49 CROSSING_ENC

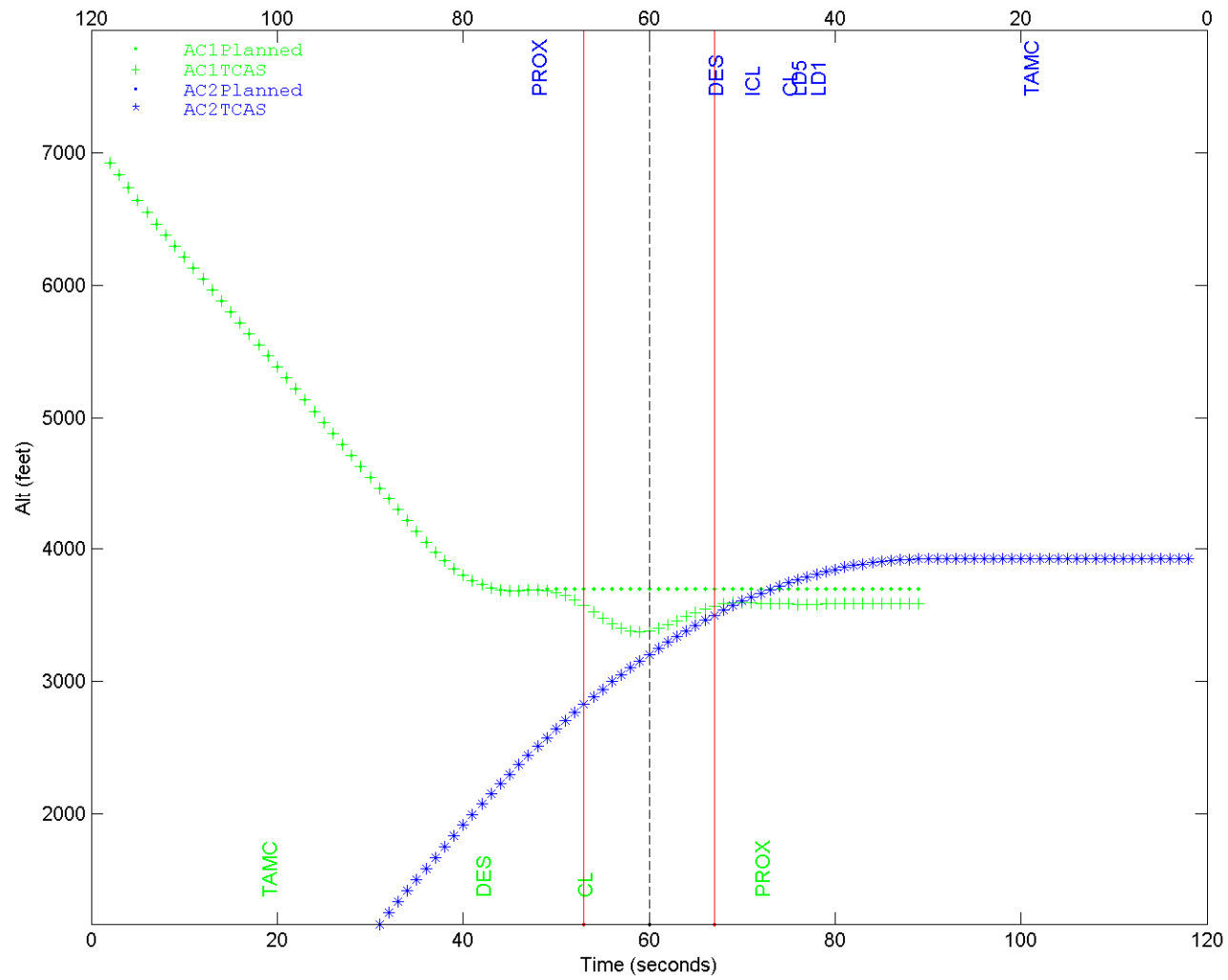
5 AC1:*REV*8175035 TA :19 |PVMD| DES @42 [NX]| CL @53

10 AC2:*REV*8275153 TA :19 |PVMD| LD1 @42 [NX]| DDES @43 | CL @45 | ICL @49
 | DES @53 ##NON-RESPONDING##

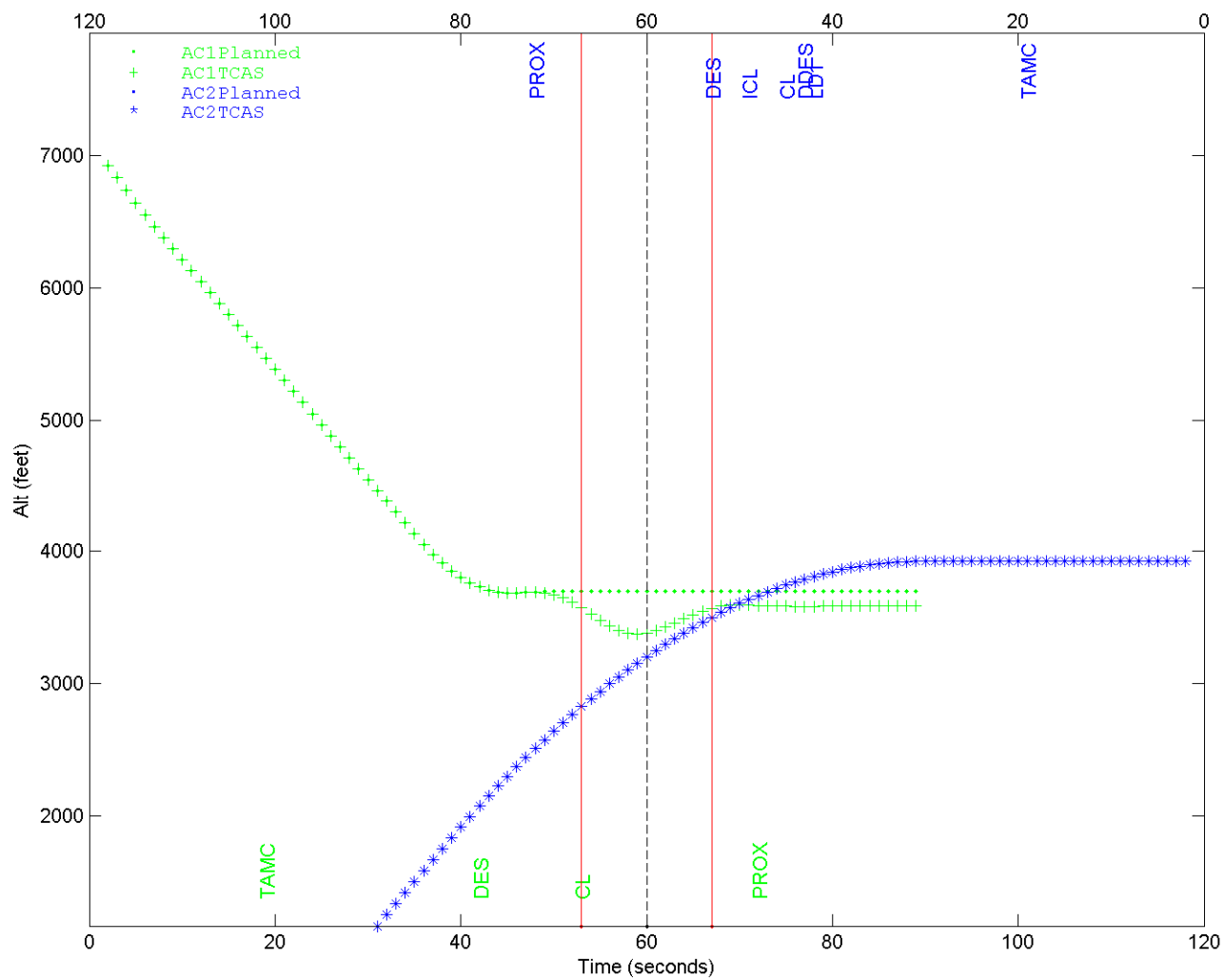




reit: 3026 cata: 818 simmode: 8175035 CP112EV1.2-25 Vs CP112EV1.2-25 L283026C



reit: 3026 cata: 818 simmode: 8175035 V7.1-25 Vs V7.1-25 L283026D



Change 7.1 Non-responding Representative Save 20

Encounter Class: 8

Reit Number : 8792

Encounter Characterization

Number of encounters in group	40	
AC1 low ID	no	
Non-responding AC	2	
Vertical tracker	25	ft
Planned separation	-500, -750	ft
AC1 rates:	-1000, -3000, -5000	fpm
AC2 rates:	+/-3000	fpm
AC1 acceleration:	0.25	g
AC2 acceleration:	0.15	g
AC1 acceleration time	CPA – 25	sec
AC2 acceleration time	CPA – 25	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

Climbing vertical chase caused by response to initial RA and planned maneuver.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER H288792
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = -750.0 AC1 RATES(-1000.0,0.0) AC2 RATES(0.0,3000.0)
 AC1 ACCEL 0.25g @ CPA -25 AC2 ACCEL 0.15g @ CPA -25 AC1 CPA ALT 7500

 8792 6.04A R H VS 6.04A NR L 8 -67.86 CROSSING_ENC

10 AC1: 4165124 TA :19 |TAUR| POTRA@34 (DFD) | CL @35 [NX]| ICL @44

5 AC2: 4265042 TA :19 |TAUR| DES @34 [NX]| IDES @53 ##NON-RESPONDING##

 8792 V7 25 FT R H VS V7 25 FT NR L 8 -76.19 CROSSING_ENC

10 AC1: 4275035 TA :19 |TAUR| CL @34 [NX]| ICL @46

5 AC2: 4175153 TA :19 |TAUR| DES @34 [NX]| IDES @49 ##NON-RESPONDING##

 8792 CP112EV1.2 25 FT R H VS CP112EV1.2 25 FT NR L 8 -641.58 CROSSING_ENC

10 AC1:*REV*8275035 TA :19 |TAUR| CL @34 [NX]| ICL @46 | DES @47 | DCL @63

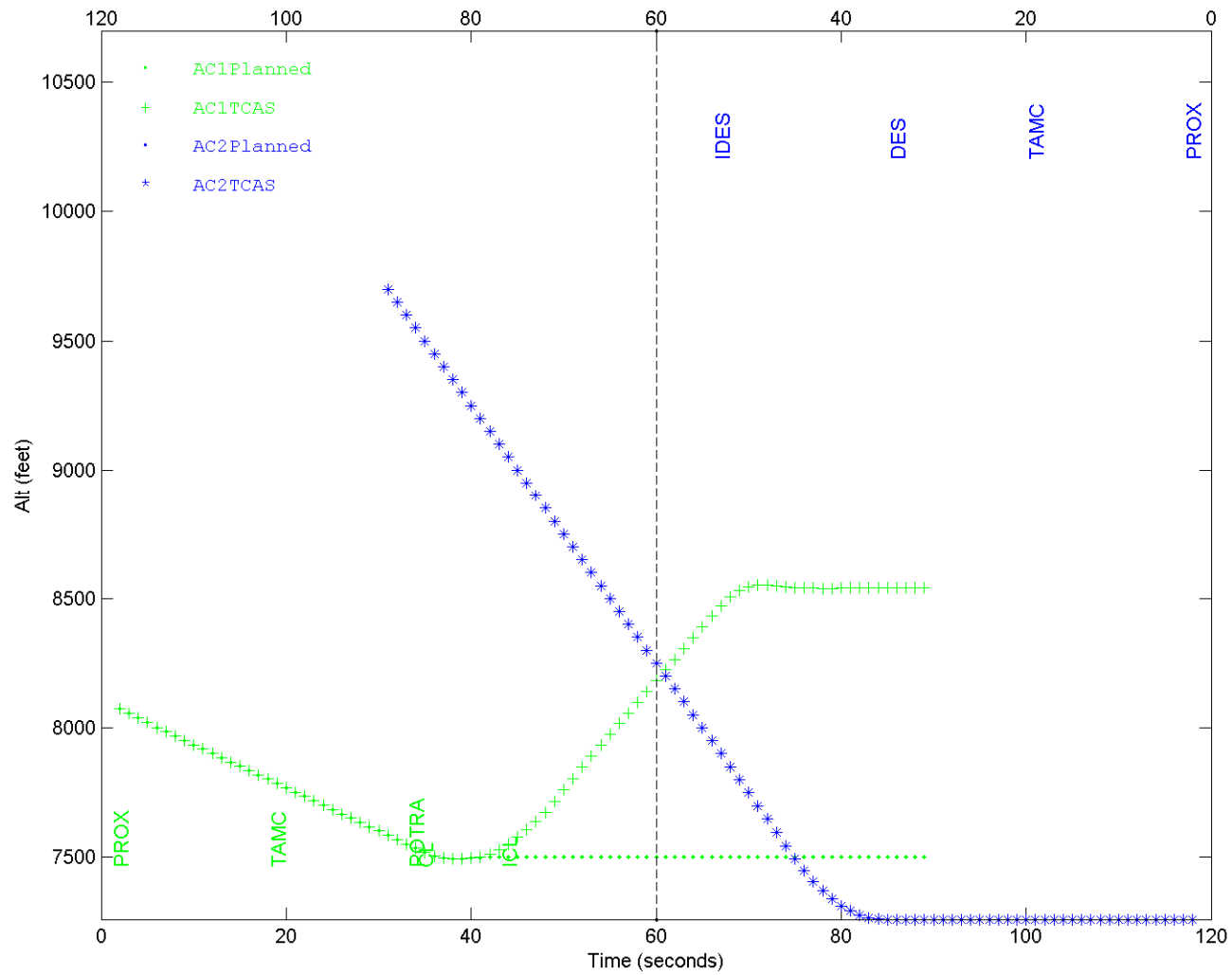
5 AC2:*REV*8175153 TA :19 |TAUR| DES @34 [NX]| CL @46 | DDES @63 ##NON-RESPONDING##

 8792 V7.1 25 FT R H VS V7.1 25 FT NR L 8 -641.58 CROSSING_ENC

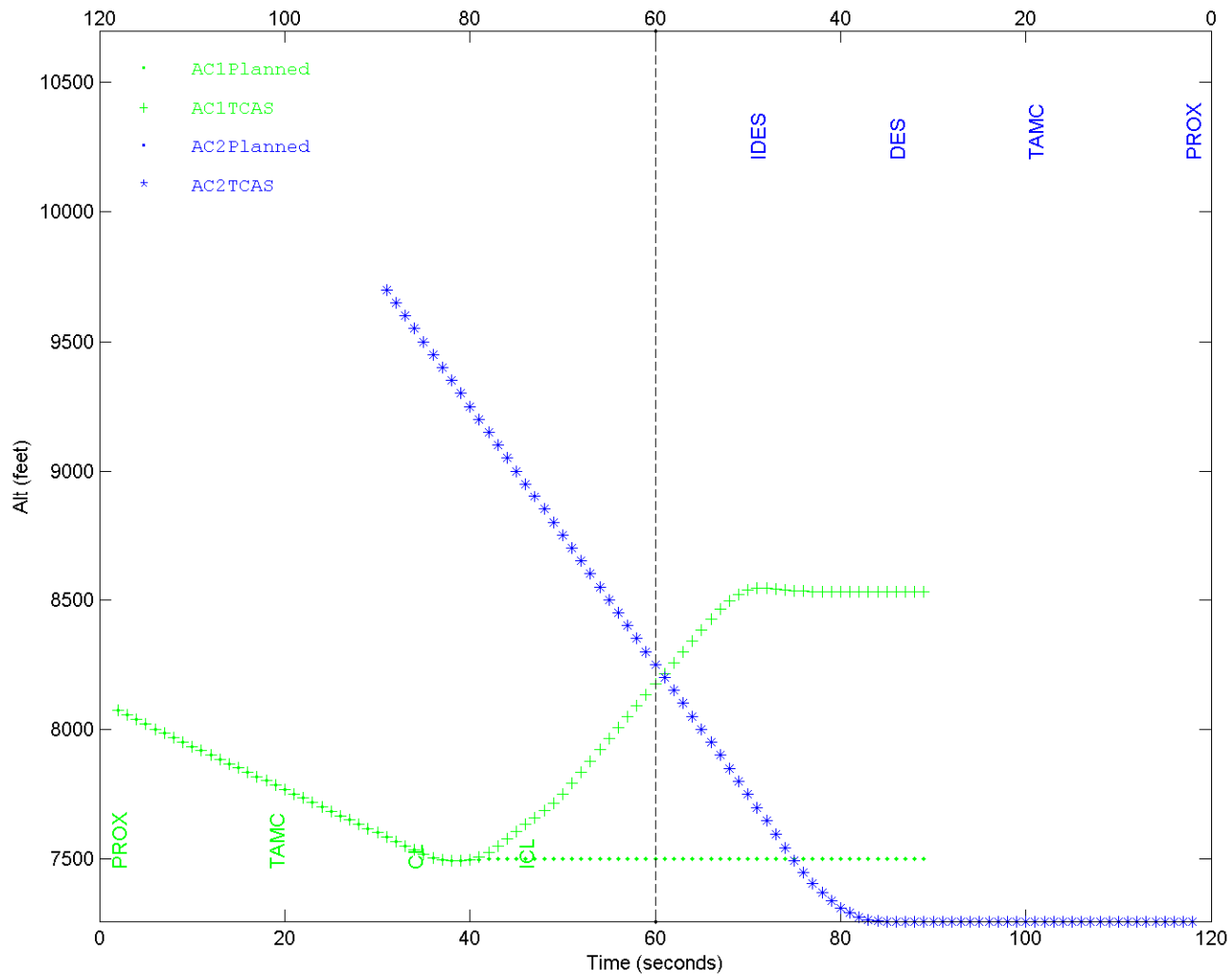
10 AC1:*REV*8275035 TA :19 |TAUR| CL @34 [NX]| ICL @46 | DES @47 | DCL @63

5 AC2:*REV*8175153 TA :19 |TAUR| DES @34 [NX]| CL @46 | DDES @63 ##NON-RESPONDING##

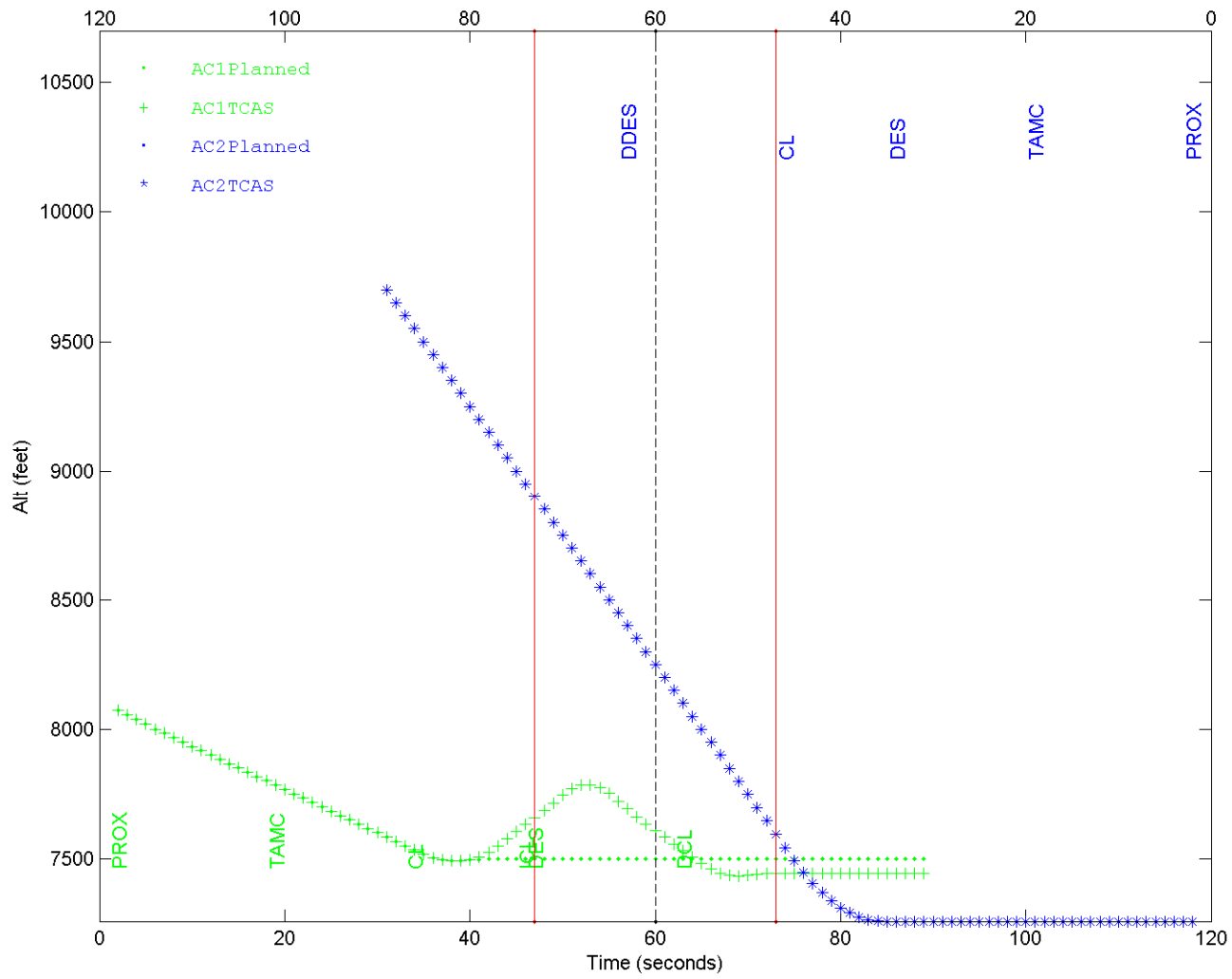
reit: 8792 cata: 818 simmode: 4165124 6.04A Vs 6.04A H288792A

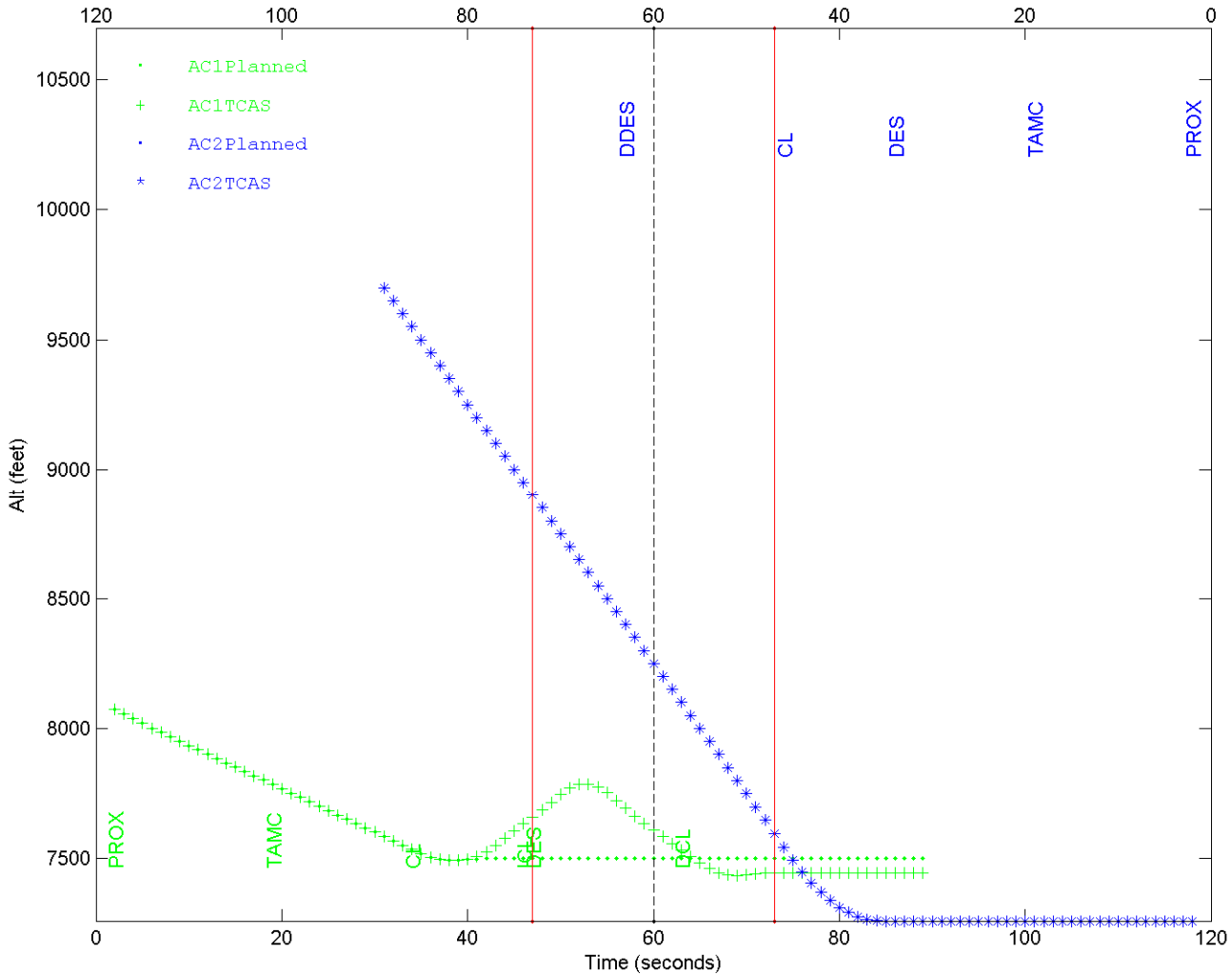


reit: 8792 cata: 818 simmode: 4275035 V7-25 Vs V7-25 H288792B



reit: 8792 cata: 818 simmode: 8275035 CP112EV1.2-25 Vs CP112EV1.2-25 H288792C





Change 7.1 Non-responding Representative Save 21

Encounter Class: 9

Reit Number : 4040

Encounter Characterization

Number of encounters in group	21	
AC1 low ID	yes	
Non-responding AC	2	
Vertical tracker	25	ft
Planned separation	250, +/-500, +/-750, +/-1000	ft
AC1 rates:	1000, 3000, 5000	fpm
AC2 rates:	1000, 3000, 5000	fpm
AC1 acceleration:	-0.05	g
AC2 acceleration:	-0.05	g
AC1 acceleration time	CPA – 25	sec
AC2 acceleration time	CPA – 25	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

Climbing vertical chase caused by response to initial RA.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER L294040
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = -750.0 AC1 RATES(1000.0,0.0) AC2 RATES(5000.0,0.0)
 AC1 ACCEL -0.05g @ CPA -25 AC2 ACCEL -0.05g @ CPA -25 AC1 CPA ALT 7500

 4040 6.04A R L VS 6.04A NR H 9 -35.70 CROSSING_ENC

5 AC1: 4165024 TA :19 |TAUR| POTRA@34 (6FT) | CL @36 [NX]| ICL @40

10 AC2: 4265142 TA :19 |TAUR| POTRA@34 (DFD) | DES @36 [NX]| IDES @53 ##NON-
 RESPONDING##

 4040 V7 25 FT R L VS V7 25 FT NR H 9 -18.79 CROSSING_ENC

5 AC1: 4175035 TA :19 |TAUR| POTRA@34 | CL @35 [NX]| ICL @41

10 AC2: 4275153 TA :19 |TAUR| DCL @34 [NX]| DES @38 | IDES @41 ##NON-RESPONDING##

 4040 CP112EV1.2 25 FT R L VS CP112EV1.2 25 FT NR H 9 -543.77 CROSSING_ENC

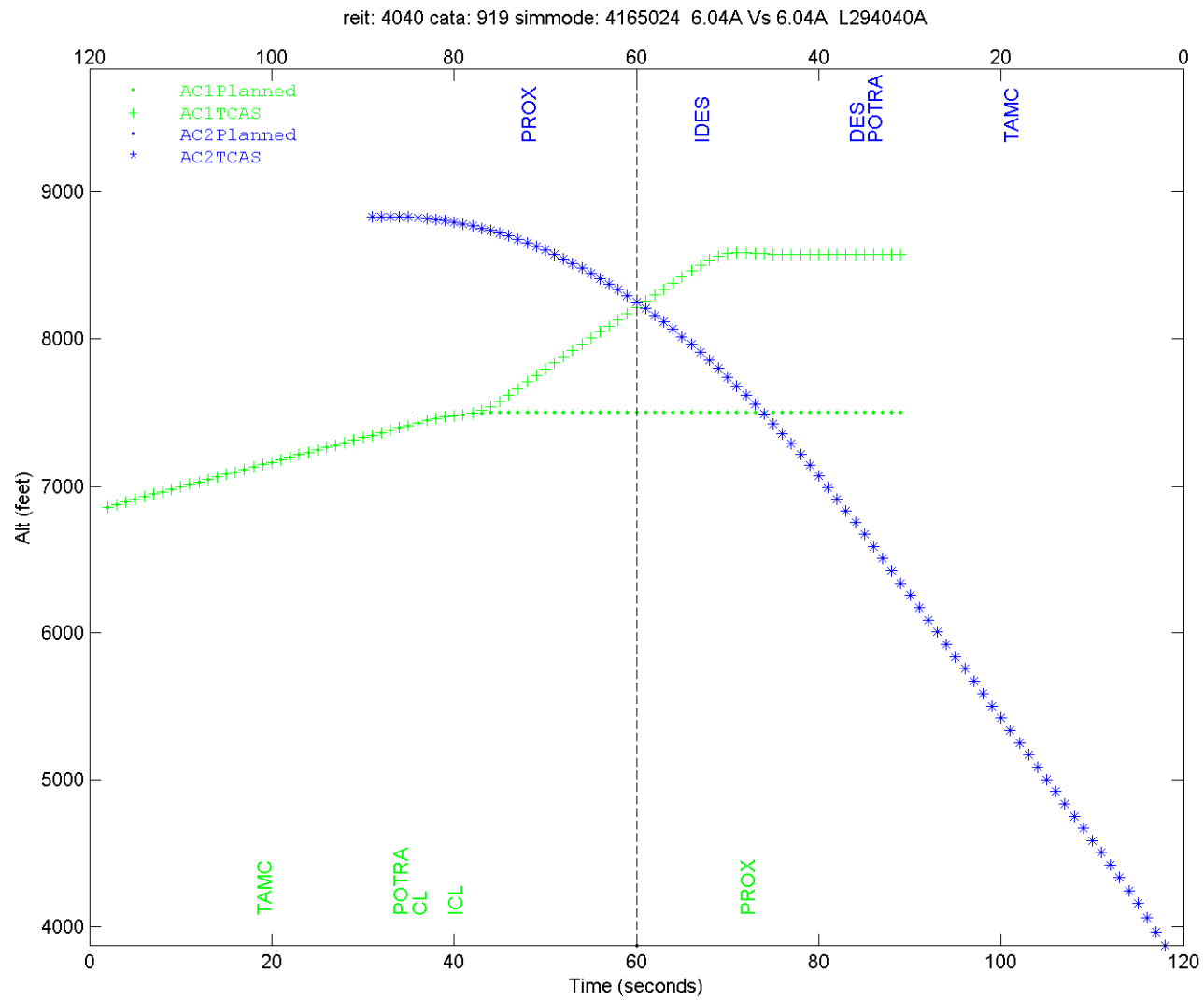
5 AC1:*REV*8175035 TA :19 |TAUR| POTRA@34 | CL @35 [NX]| ICL @41 | DES @48 | IDES @51 | DCL @63

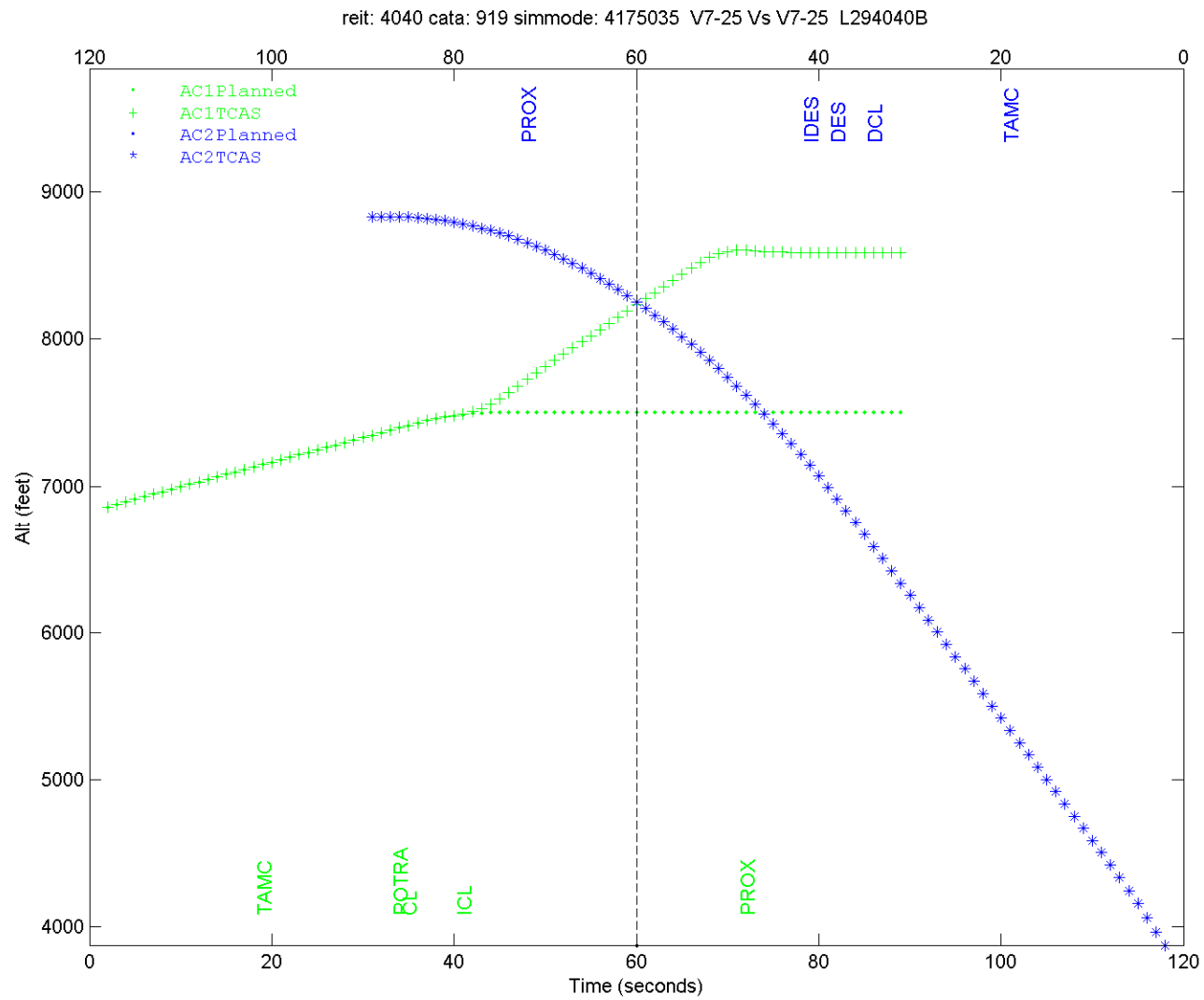
10 AC2:*REV*8275153 TA :19 |TAUR| DCL @34[NX]| DES @38| IDES @41| CL @48| DDES @63 ##NON-
 RESPONDING##

 4040 V7.1 25 FT R L VS V7.1 25 FT NR H 9 -543.77 CROSSING_ENC

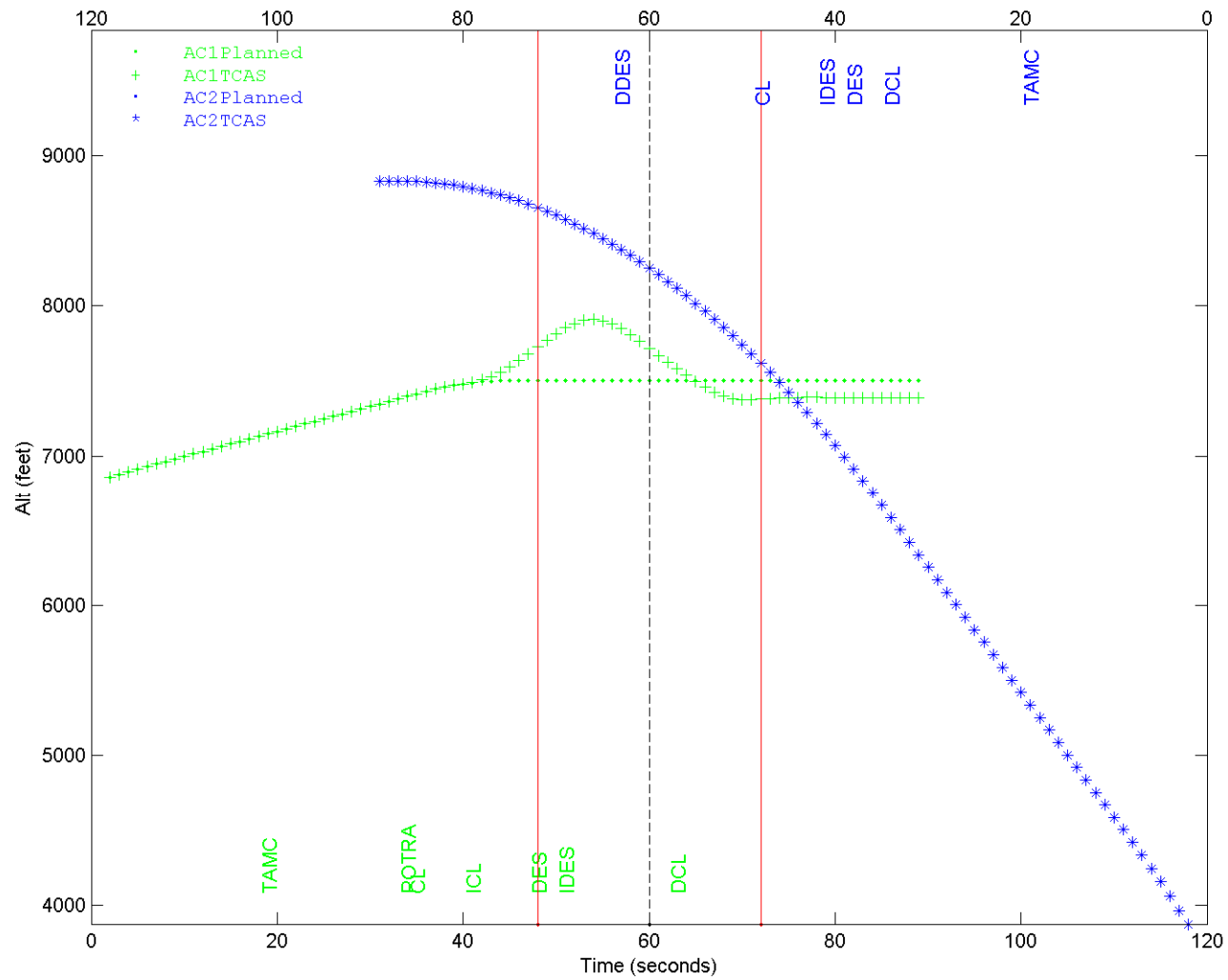
5 AC1:*REV*8175035 TA :19 |TAUR| POTRA@34 | CL @35[NX]| ICL @41| DES @48| IDES @51 | DCL @63

10 AC2:*REV*8275153 TA :19 |TAUR| DCL @34 [NX]| DES @38| IDES @41| CL @48| DDES @63 ##NON-
 RESPONDING##

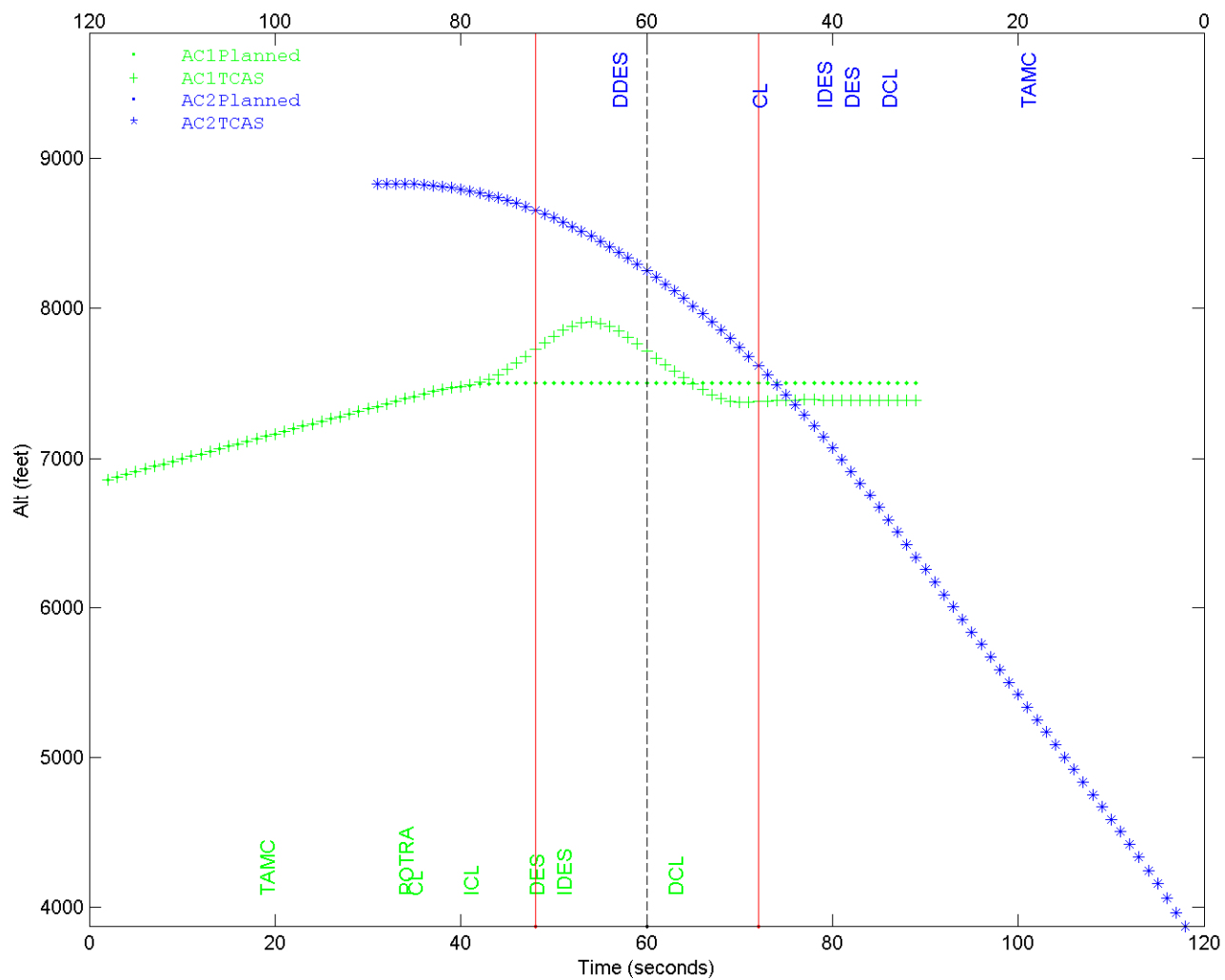




reit: 4040 cata: 919 simmode: 8175035 CP112EV1.2-25 Vs CP112EV1.2-25 L294040C



reit: 4040 cata: 919 simmode: 8175035 V7.1-25 Vs V7.1-25 L294040D



Change 7.1 Non-responding Representative Save 22

Encounter Class: 14

Reit Number : 473

Encounter Characterization

Number of encounters in group	7	
AC1 low ID	no	
Non-responding AC	1	
Vertical tracker	25	ft
Planned separation	0	ft
AC1 rates:	3000, 5000	fpm
AC2 rates:	3000, 5000	fpm
AC1 acceleration:	none	
AC2 acceleration:	none	
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

Pre-existing climbing vertical chase.
Low ID aircraft initiated reversal.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER H14473
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = 0.0 AC1 RATES(3000.0,3000.0) AC2 RATES(3000.0,3000.0)
 AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.00g @ CPA 0 AC1 CPA ALT 7520

 473 6.04A NR H VS 6.04A NR L 14 0.00 NON_CROSSING_ENC

10 AC1: 4165142 TA :20 |TAUR| POTRA@34 (DFD) | DES @35 [NX]| IDES @54 ##NON-RESPONDING##

5 AC2: 4265024 TA :20 |TAUR| MCL @34 [NX]| ICL @41

 473 V7 25 FT NR H VS V7 25 FT R L 14 0.00 NON_CROSSING_ENC

10 AC1: 4275053 TA :20 |TAUR| LC1 @34 [NX]| LC5 @48 | DES @49 | IDES @51 ##NON-RESPONDING##

5 AC2: 4175135 TA :20 |TAUR| CL @34 [NX]

 473 CP112EV1.2 25 FT NR H VS CP112EV1.2 25 FT R L 14 721.21 NON_CROSSING_ENC

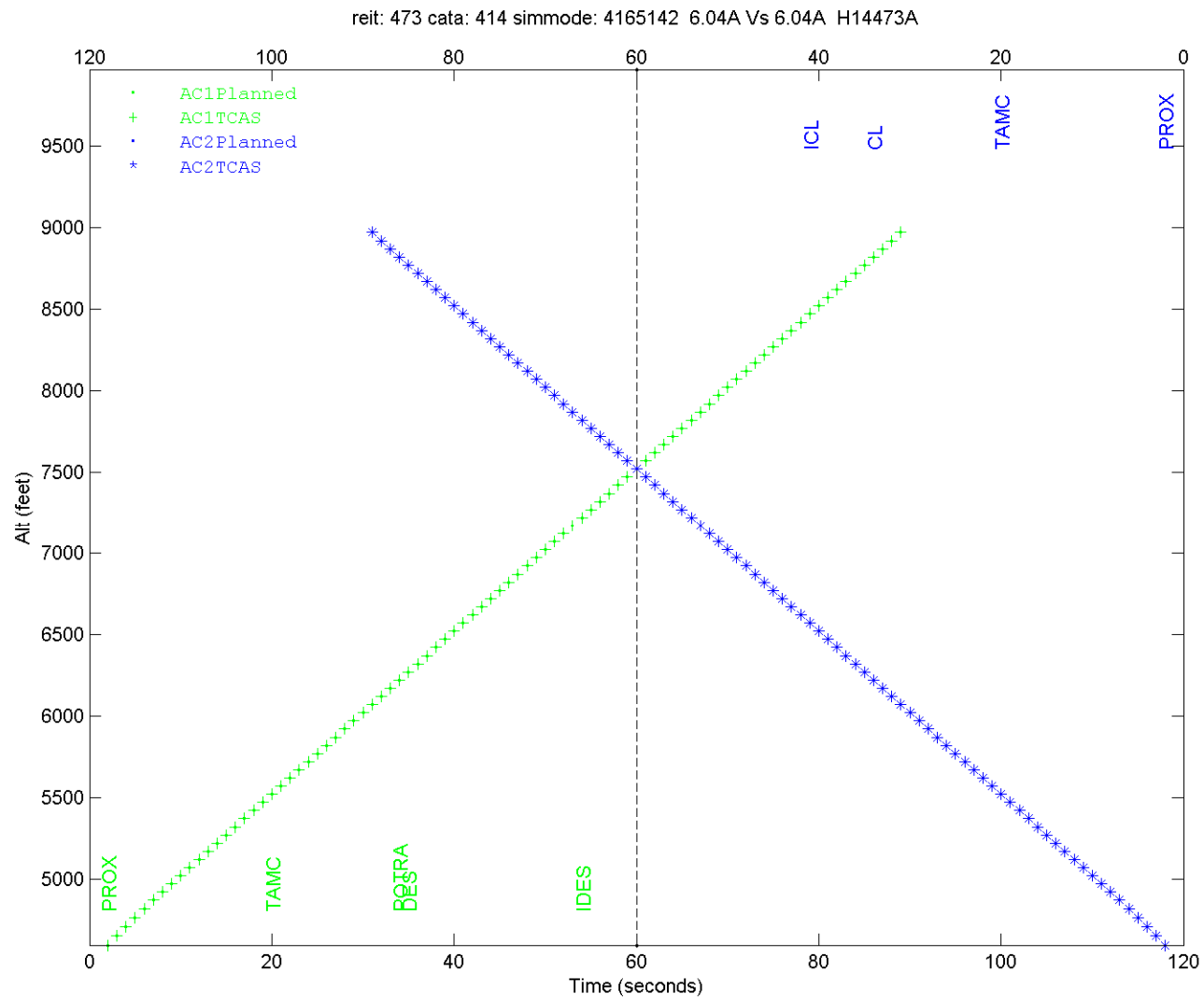
10 AC1:*REV*8275053 TA :20 |TAUR| LC1 @34 [NX]| CL @46 ##NON-RESPONDING##

5 AC2:*REV*8175135 TA :20 |TAUR| CL @34 [NX]| DES @45 | DCL @57

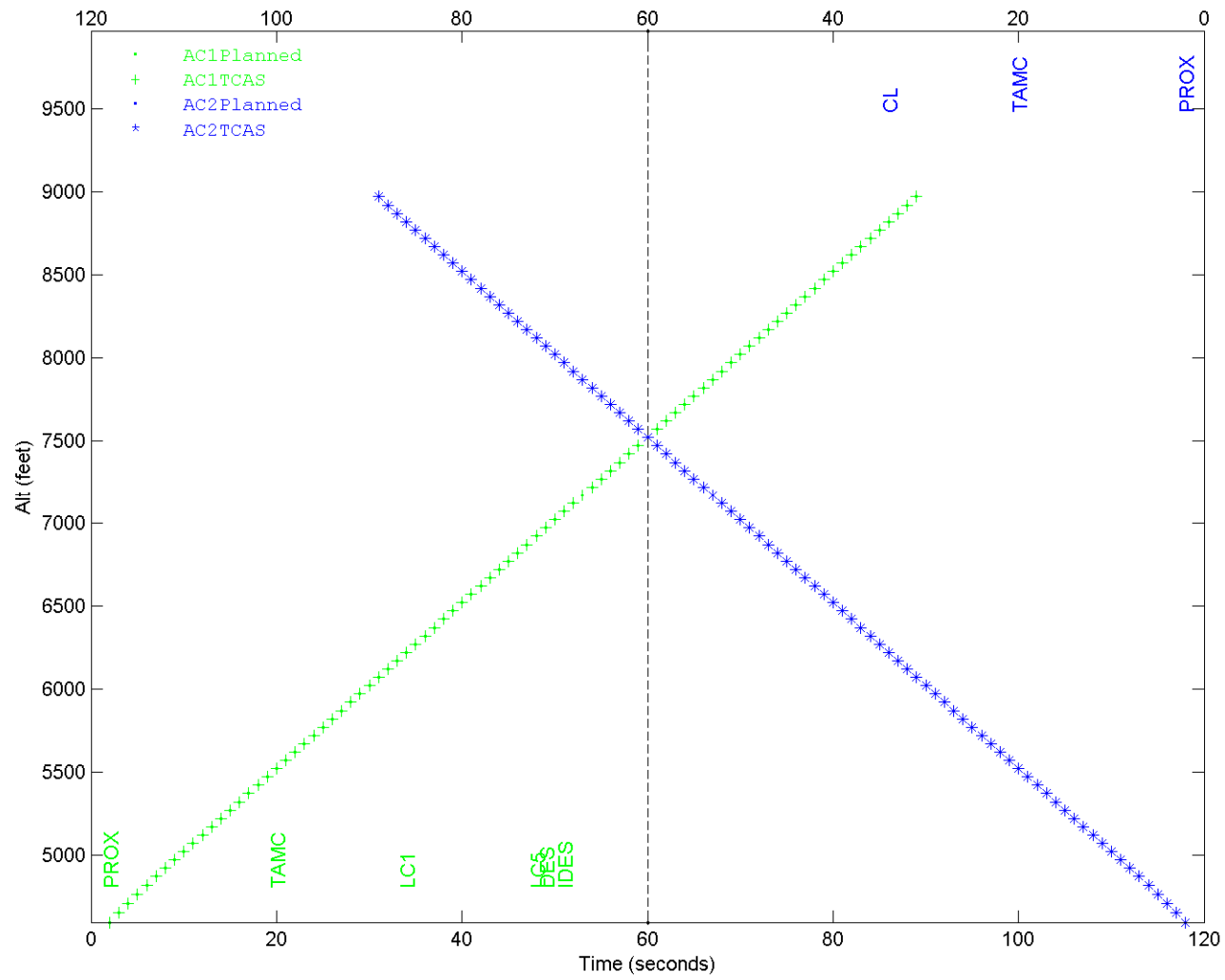
 473 V7.1 25 FT NR H VS V7.1 25 FT R L 14 721.21 NON_CROSSING_ENC

10 AC1:*REV*8275053 TA :20 |TAUR| DCL @34 [NX]| CL @46 ##NON-RESPONDING##

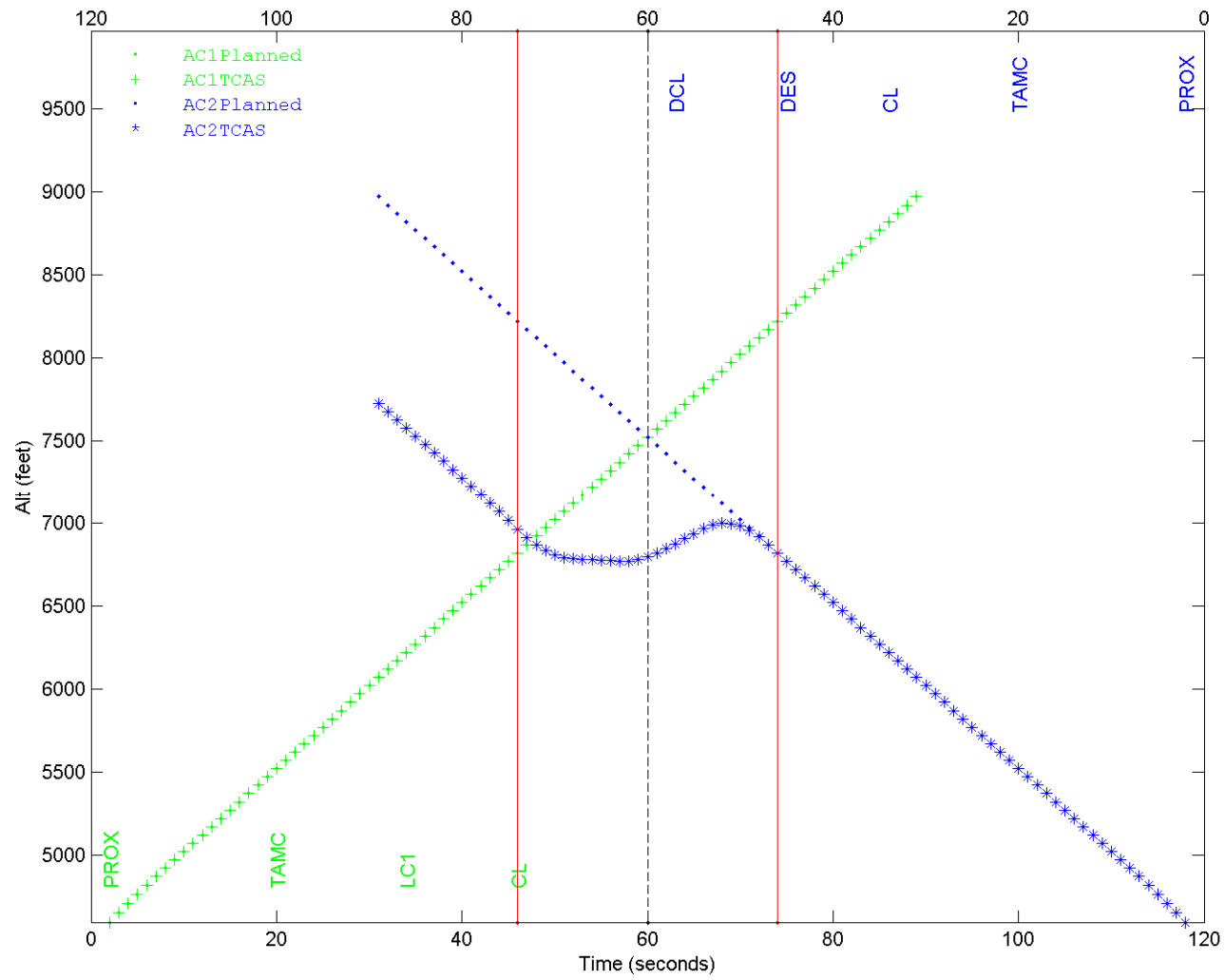
5 AC2:*REV*8175135 TA :20 |TAUR| CL @34 [NX]| DES @45 | DCL @57



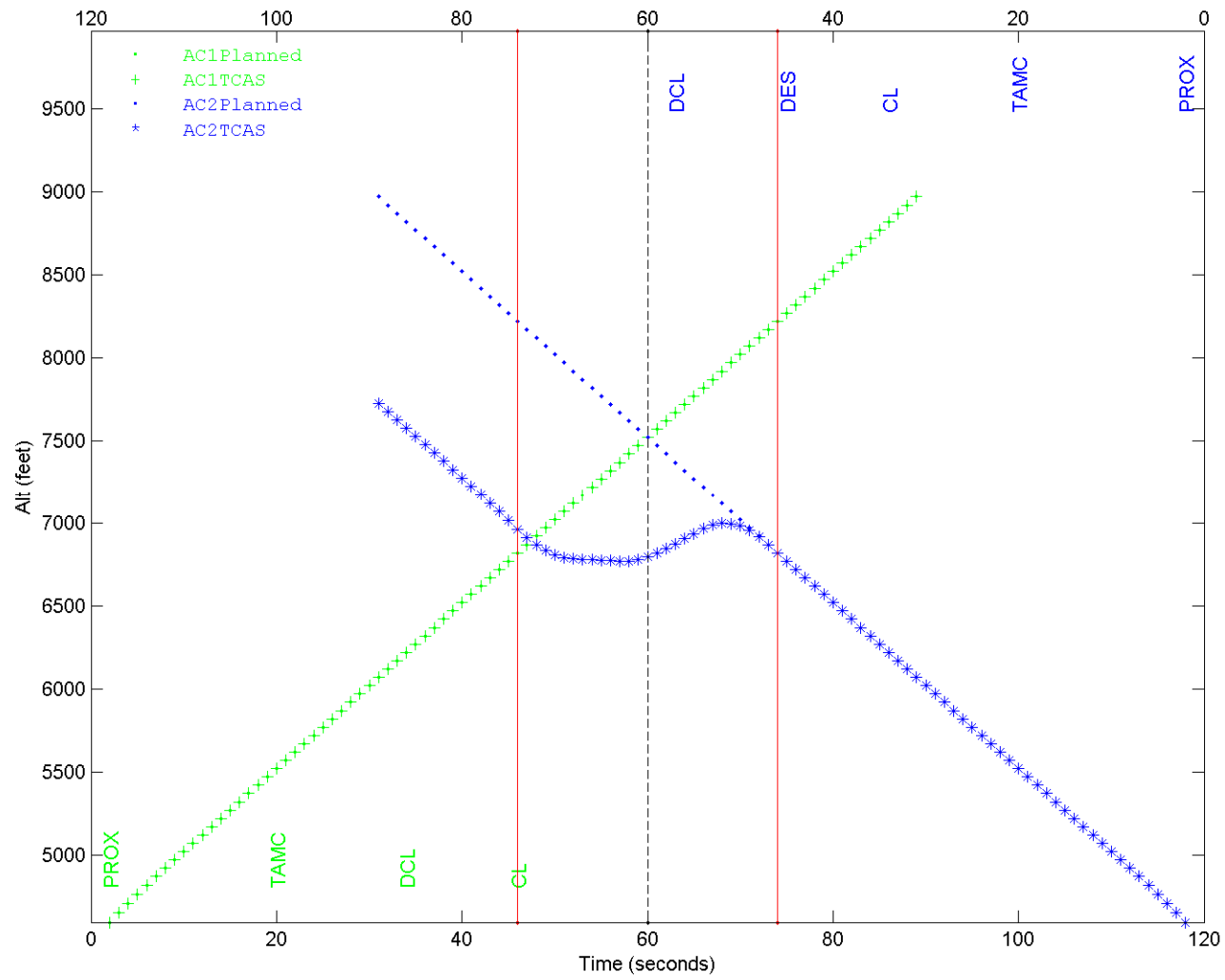
reit: 473 cata: 414 simmode: 4275053 V7-25 Vs V7-25 H14473B



reit: 473 cata: 414 simmode: 8275053 CP112EV1.2-25 Vs CP112EV1.2-25 H14473C



reit: 473 cata: 414 simmode: 8275053 V7.1-25 Vs V7.1-25 H14473D



Change 7.1 Non-responding Representative Save 23

Encounter Class: 14

Reit Number : 473

Encounter Characterization

Number of encounters in group	1	
AC1 low ID	yes	
Non-responding AC	1	
Vertical tracker	25	ft
Planned separation	0	ft
AC1 rates:	3000	fpm
AC2 rates:	3000	fpm
AC1 acceleration:	none	
AC2 acceleration:	none	
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP115

Comments

Pre-existing climbing vertical chase.
Non-responding aircraft received LOLO instead of AVSA. RA reversal solved NMAC.
CP112E only did not resolve this encounter.

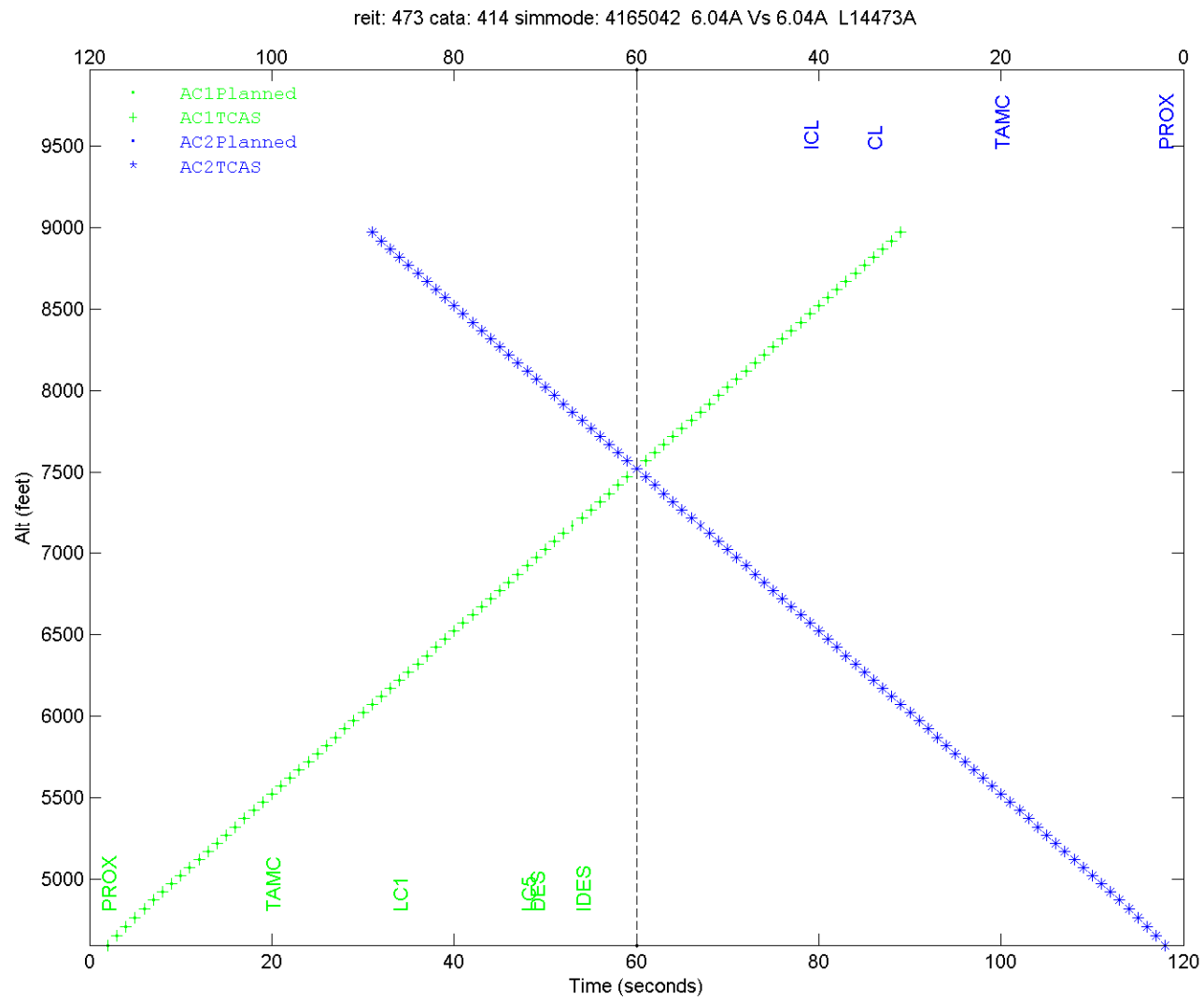
SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER L14473
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = 0.0 AC1 RATES(3000.0,3000.0) AC2 RATES(3000.0,3000.0)
 AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.00g @ CPA 0 AC1 CPA ALT 7520

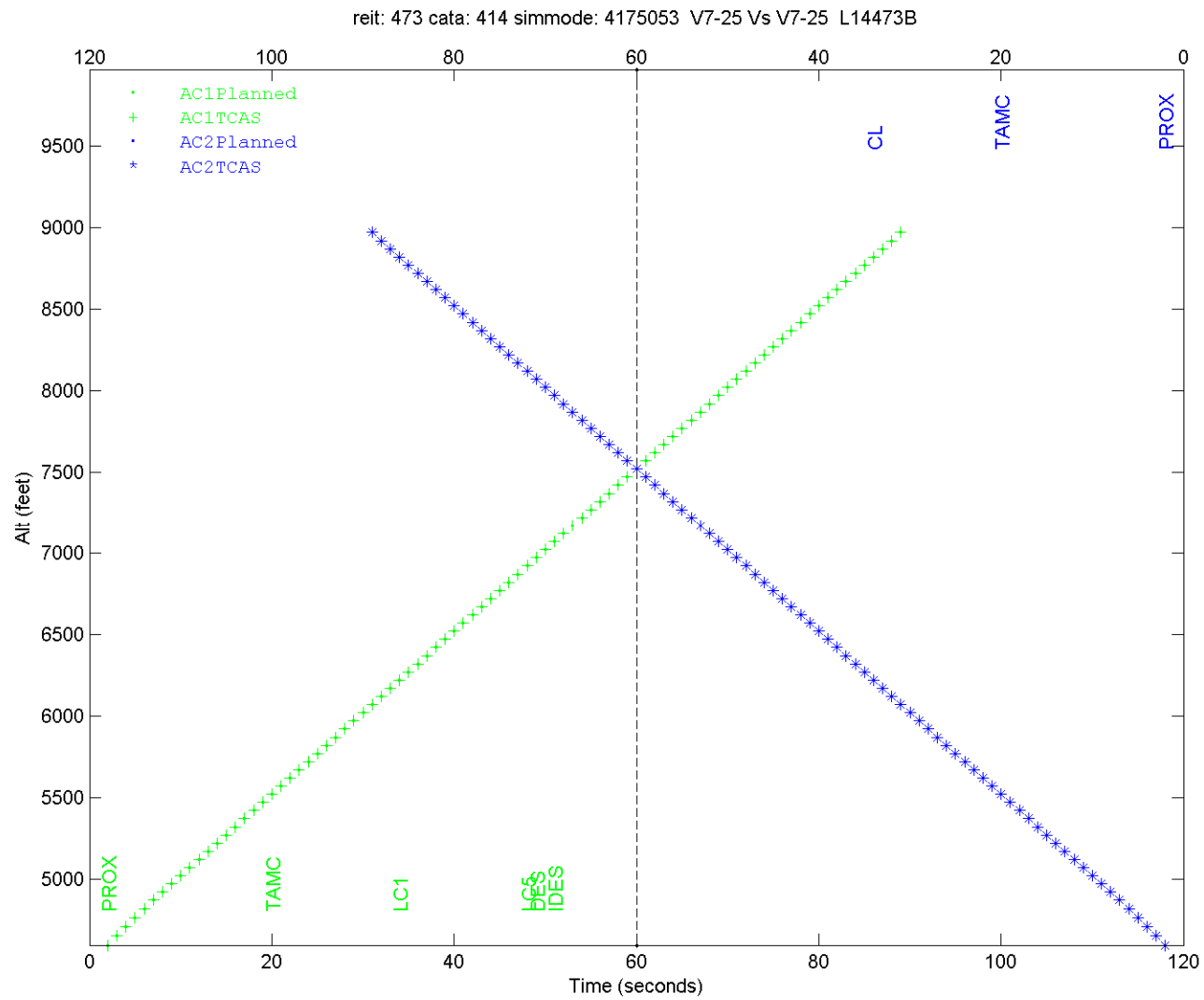
 473 6.04A NR L VS 6.04A R H 14 0.00 NON_CROSSING_ENC
 5 AC1: 4165042 TA :20 |TAUR| LC1 @34 [NX]| LC5 @48 | DES @49 | IDES @54 ##NON-RESPONDING##
 10 AC2: 4265124 TA :20 |TAUR| MCL @34 [NX]| ICL @41

 473 V7 25 FT NR L VS V7 25 FT R H 14 0.00 NON_CROSSING_ENC
 5 AC1: 4175053 TA :20 |TAUR| LC1 @34 [NX]| LC5 @48 | DES @49 | IDES @51 ##NON-RESPONDING##
 10 AC2: 4275135 TA :20 |TAUR| CL @34 [NX]

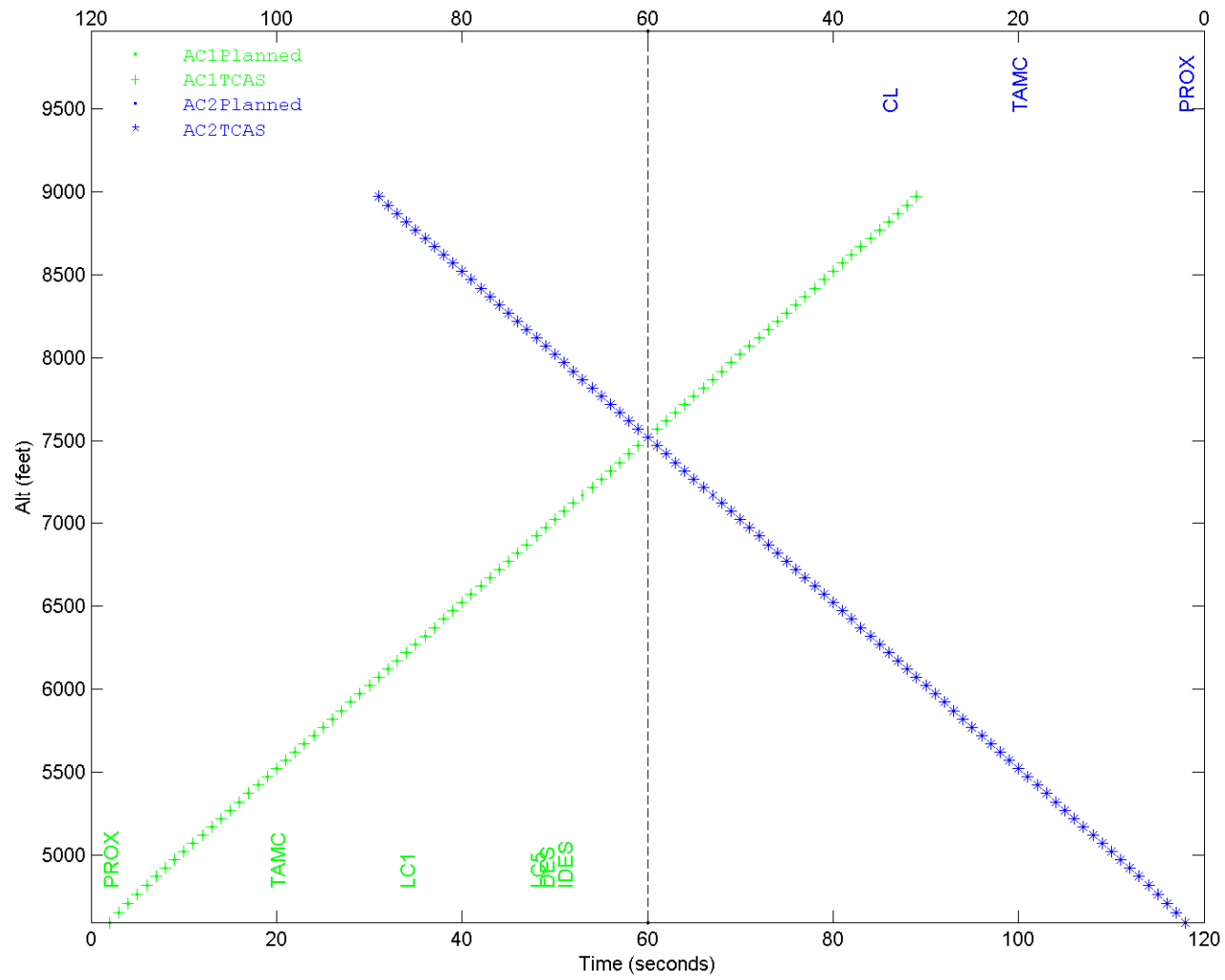
 473 CP112EV1.2 25 FT NR L VS CP112EV1.2 25 FT R H 14 0.00 NON_CROSSING_ENC
 5 AC1: 8175053 TA :20 |TAUR| LC1 @34 [NX]| LC5 @48 | DES @49 | IDES @51 ##NON-RESPONDING##
 10 AC2: 8275135 TA :20 |TAUR| CL @34 [NX]

 473 V7.1 25 FT NR L VS V7.1 25 FT R H 14 722.87 NON_CROSSING_ENC
 5 AC1:*REV*8175053 TA :20 |TAUR| DCL @34 [NX]| CL @46 | DDES @63 ##NON-RESPONDING##
 10 AC2:*REV*8275135 TA :20 |TAUR| CL @34 [NX]| DES @46 | IDES @49 | DCL @57

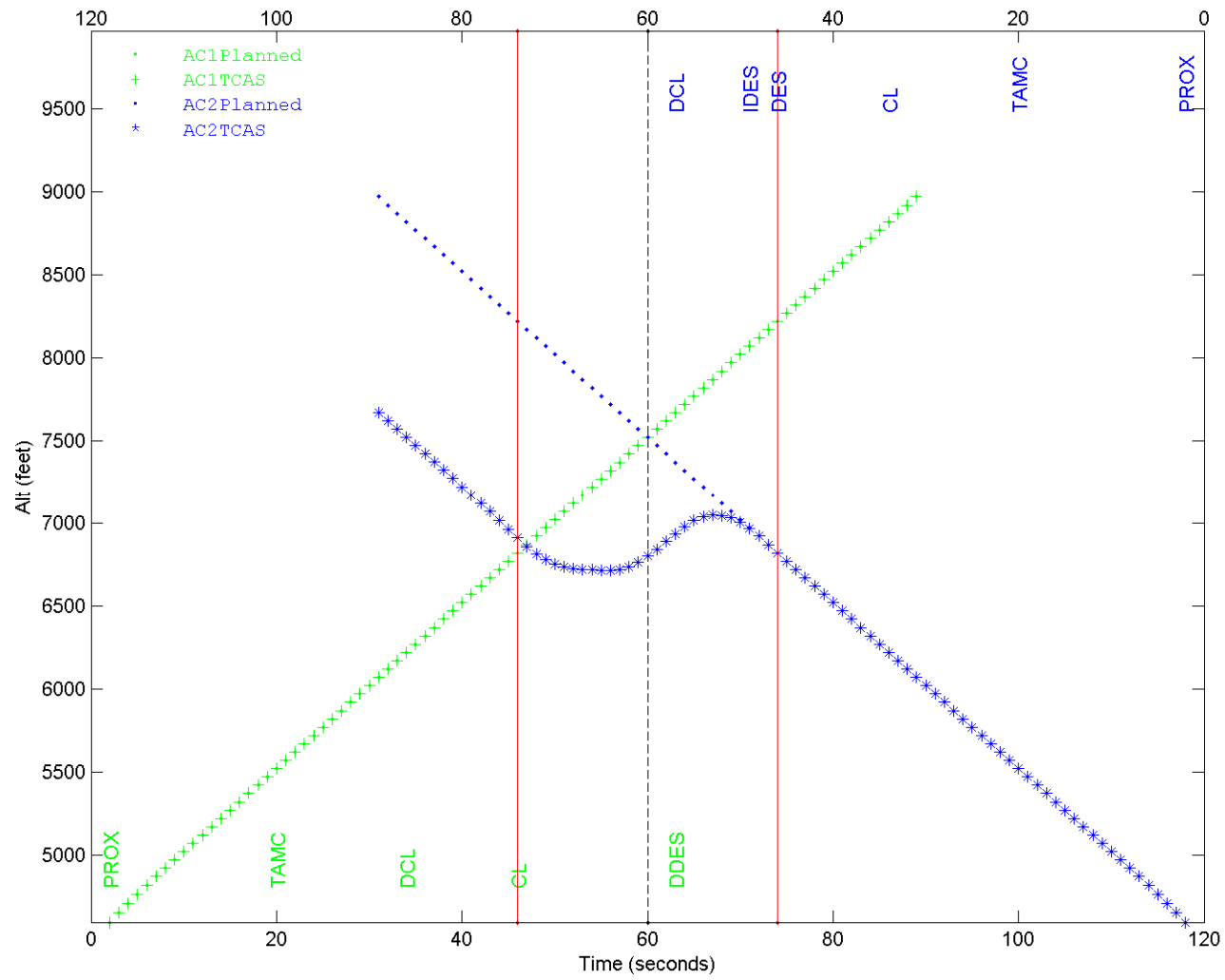




reit: 473 cata: 414 simmode: 8175053 CP112EV1.2-25 Vs CP112EV1.2-25 L14473C



reit: 473 cata: 414 simmode: 8175053 V7.1-25 Vs V7.1-25 L14473D



Change 7.1 Non-responding Representative Save 24

Encounter Class: 15

Reit Number : 5632

Encounter Characterization

Number of encounters in group	17	
AC1 low ID	yes	
Non-responding AC	2	
Vertical tracker	25	ft
Planned separation	0, -250	ft
AC1 rates:	1000, 3000, 5000	fpm
AC2 rates:	3000, 5000	fpm
AC1 acceleration:	none	
AC2 acceleration:	0.15	g
AC2 acceleration time:	CPA – 30	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

Climbing vertical chase caused by planned maneuver.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER L255632
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = 0.0 AC1 RATES(3000.0,3000.0) AC2 RATES(0.0,3000.0)
 AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.15g @ CPA -30 AC1 CPA ALT 7520

 5632 6.04A R L VS 6.04A NR H 15 0.00 NON_CROSSING_ENC

5 AC1: 4165024 TA :19 |PVMD| MCL @39 [NX]| ICL @41

10 AC2: 4265142 TA :19 |PVMD| POTRA@37 (DFD) | DES @39 [NX]| IDES @54 ##NON-RESPONDING##

 5632 V7 25 FT R L VS V7 25 FT NR H 15 0.00 NON_CROSSING_ENC

5 AC1: 4175035 TA :19 |PVMD| CL @37 [NX]

10 AC2: 4275153 TA :19 |PVMD| LC1 @37 [NX]| LC5 @48 | DES @49 | IDES @51 ##NON-RESPONDING##

 5632 CP112EV1.2 25 FT R L VS CP112EV1.2 25 FT NR H 15 -543.55 NON_CROSSING_ENC

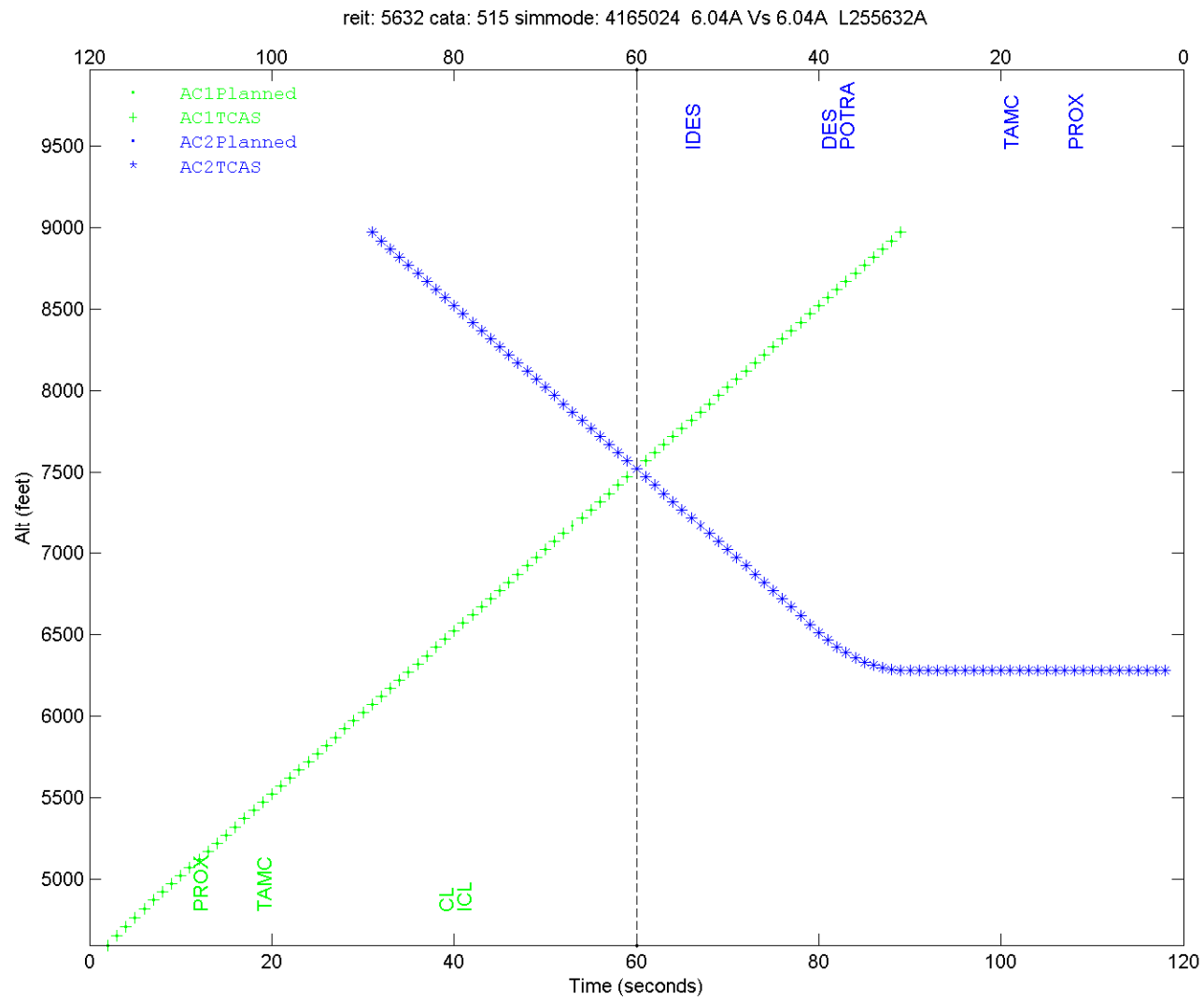
5 AC1:*REV*8175035 TA :19 |PVMD| CL @37 [NX]| DES @48 | IDES @51 | DCL @63

10 AC2:*REV*8275153 TA :19 |PVMD| LC1 @37 [NX]| CL @48 ##NON-RESPONDING##

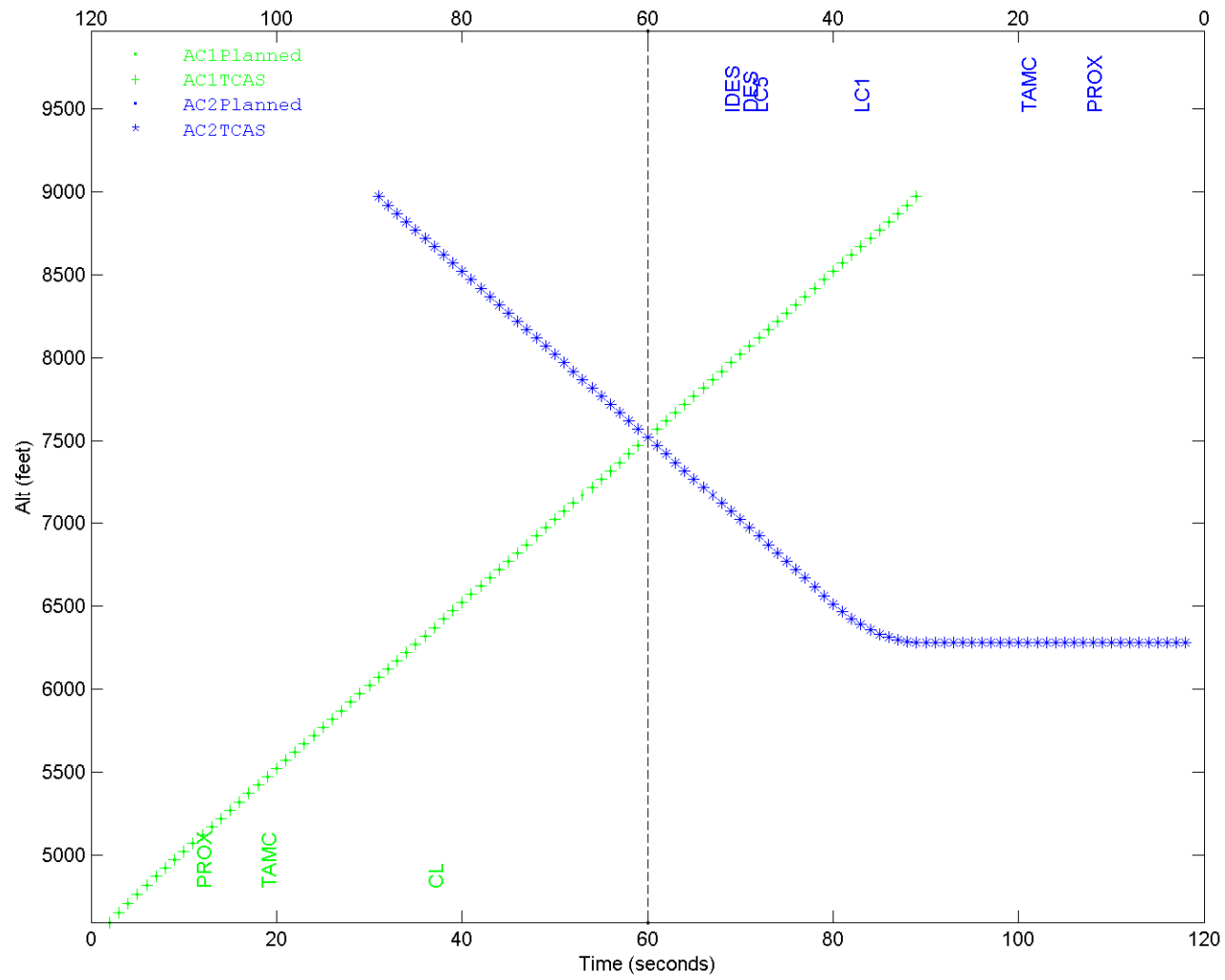
 5632 V7.1 25 FT R L VS V7.1 25 FT NR H 15 -543.55 NON_CROSSING_ENC

5 AC1:*REV*8175035 TA :19 |PVMD| CL @37 [NX]| DES @48 | IDES @51 | DCL @63

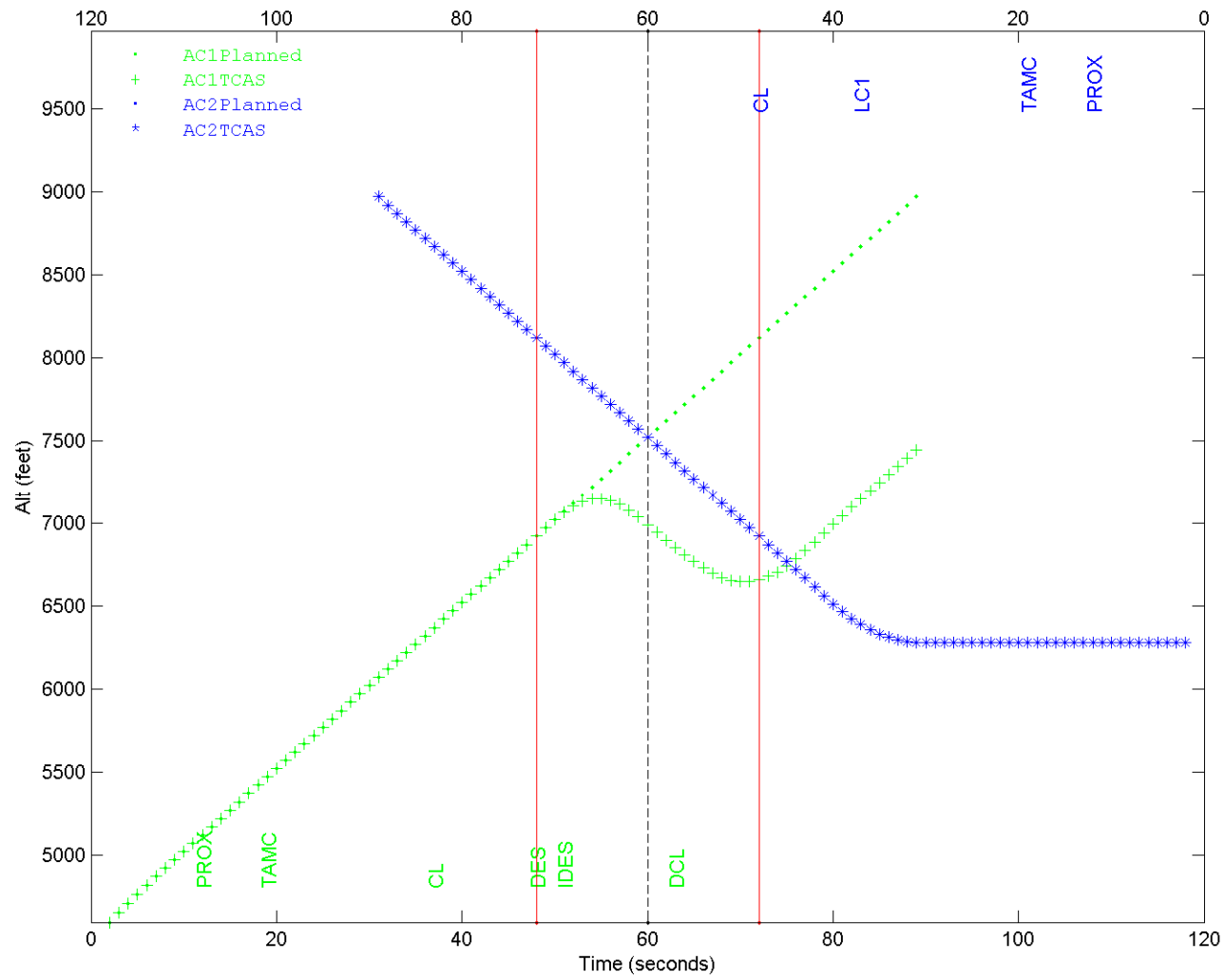
10 AC2:*REV*8275153 TA :19 |PVMD| DCL @37 [NX]| CL @48 ##NON-RESPONDING##



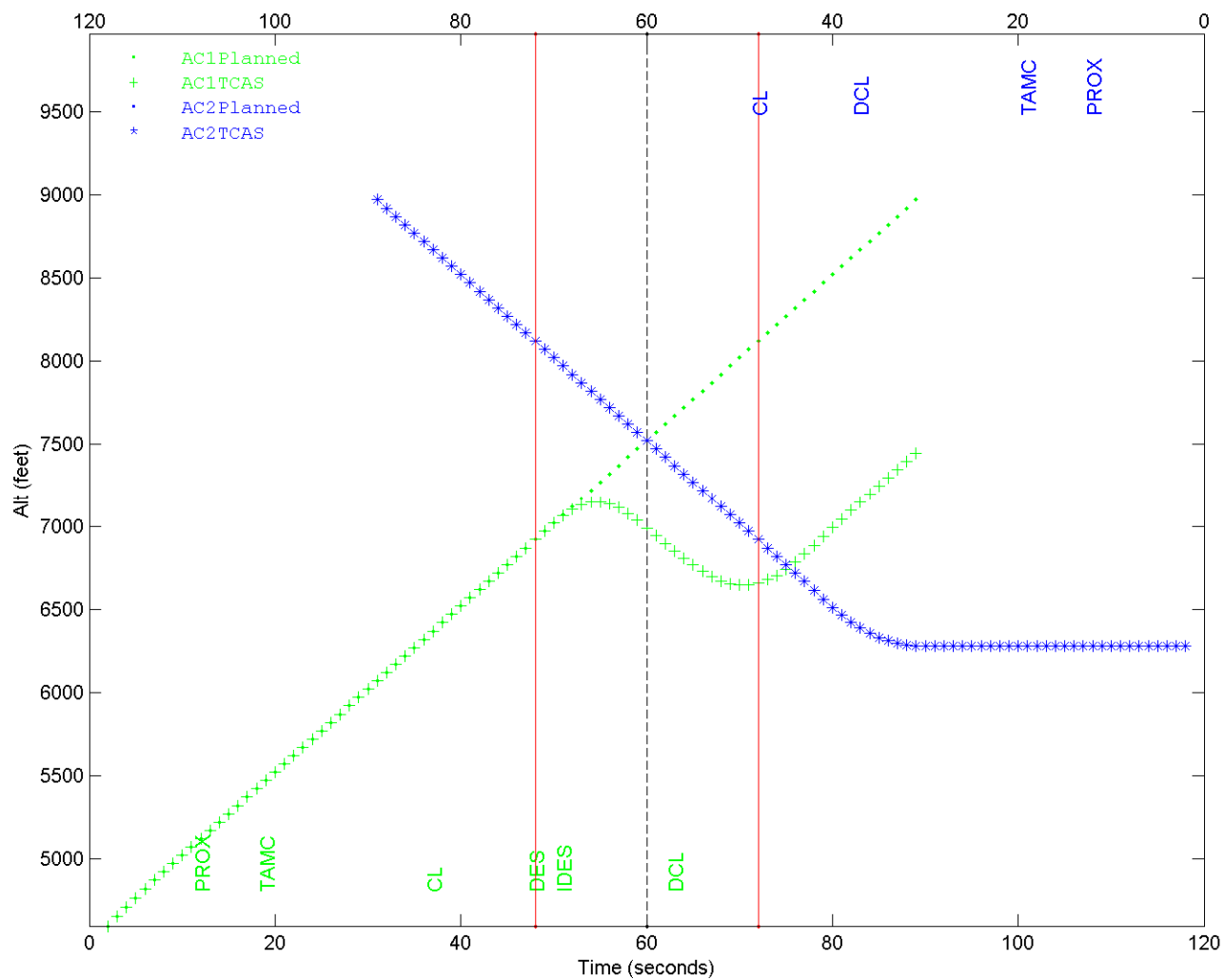
reit: 5632 cata: 515 simmode: 4175035 V7-25 Vs V7-25 L255632B



reit: 5632 cata: 515 simmode: 8175035 CP112EV1.2-25 Vs CP112EV1.2-25 L255632C



reit: 5632 cata: 515 simmode: 8175035 V7.1-25 Vs V7.1-25 L255632D



Change 7.1 Non-responding Representative Save 25

Encounter Class: 15

Reit Number : 5632

Encounter Characterization

Number of encounters in group	3	
AC1 low ID	no	
Non-responding AC	2	
Vertical tracker	25	ft
Planned separation	0	ft
AC1 rates:	3000	fpm
AC2 rates:	3000	fpm
AC1 acceleration:	none	
AC2 acceleration:	0.25	g
AC2 acceleration time:	CPA – 30	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP115

Comments

Climbing vertical chase caused by planned maneuver.
CP112E-only did not reverse, did not resolve NMAC.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER H255632
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = 0.0 AC1 RATES(3000.0,3000.0) AC2 RATES(0.0,3000.0)
 AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.15g @ CPA -30 AC1 CPA ALT 7520

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5632 6.04A R H VS 6.04A NR L 15 0.00 NON_CROSSING_ENC

10 AC1: 4165124 TA :19 |PVMD| MCL @39 [NX]| ICL @41

5 AC2: 4265042 TA :19 |PVMD| LC1 @37 [NX]| LC5 @48 | DES @49 | IDES @54
      ##NON-RESPONDING##
-----
5632 V7 25 FT R H VS V7 25 FT NR L 15 0.00 NON_CROSSING_ENC

10 AC1: 4275035 TA :19 |PVMD| CL @37 [NX]

5 AC2: 4175153 TA :19 |PVMD| LC1 @37 [NX]| LC5 @48 | DES @49 | IDES @51
      ##NON-RESPONDING##
-----
5632 CP112EV1.2 25 FT R H VS CP112EV1.2 25 FT NR L 15 0.00 NON_CROSSING_ENC

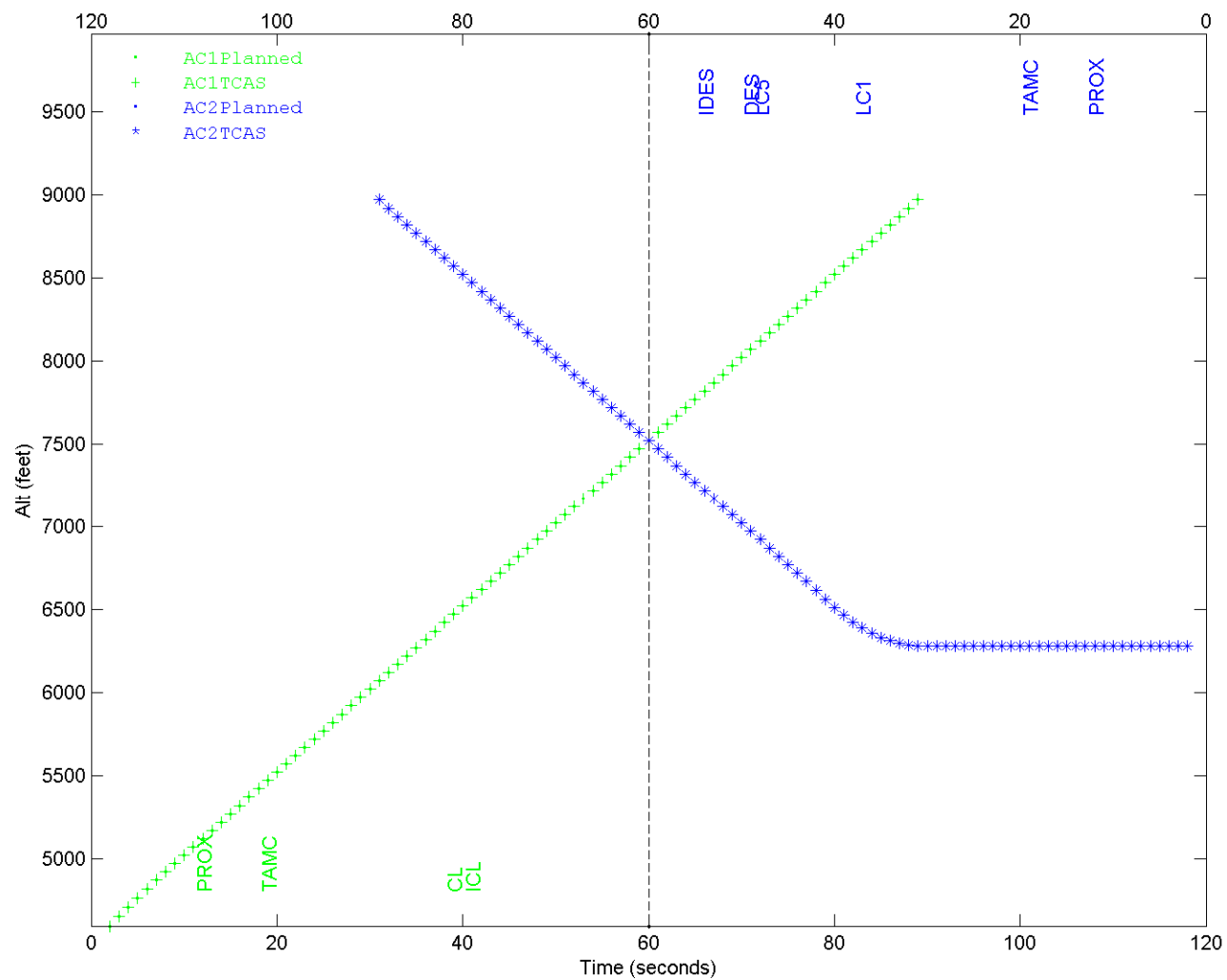
10 AC1: 8275035 TA :19 |PVMD| CL @37 [NX]

5 AC2: 8175153 TA :19 |PVMD| LC1 @37 [NX]| LC5 @48 | DES @49 | IDES @51
      ##NON-RESPONDING##
-----
5632 V7.1 25 FT R H VS V7.1 25 FT NR L 15 -451.89 NON_CROSSING_ENC

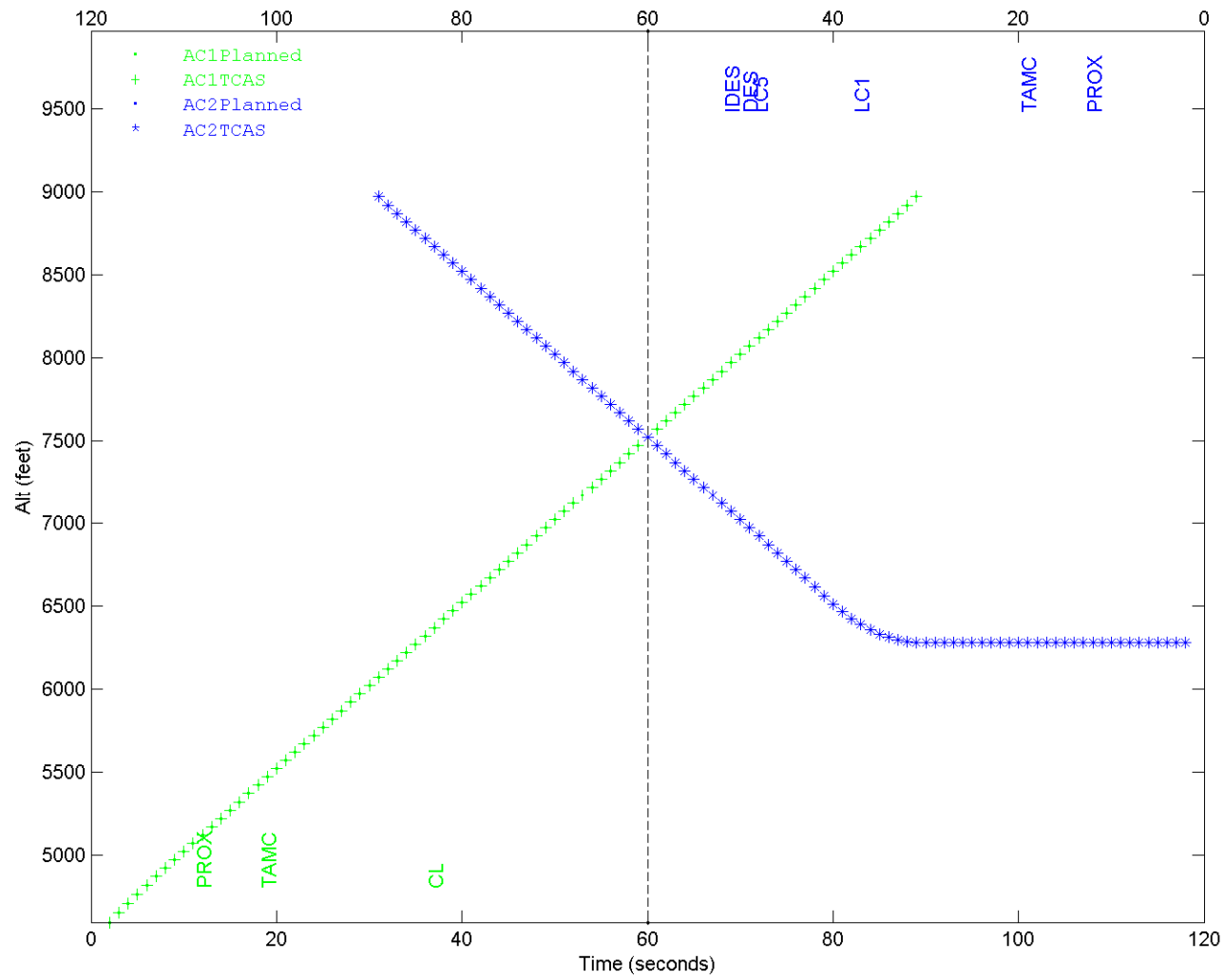
10 AC1:*REV*8275035 TA :19 |PVMD| CL @37 [NX]| DES @49 | IDES @51 | DCL @63

5 AC2:*REV*8175153 TA :19 |PVMD| DCL @37 [NX]| CL @48 ##NON-RESPONDING##
```

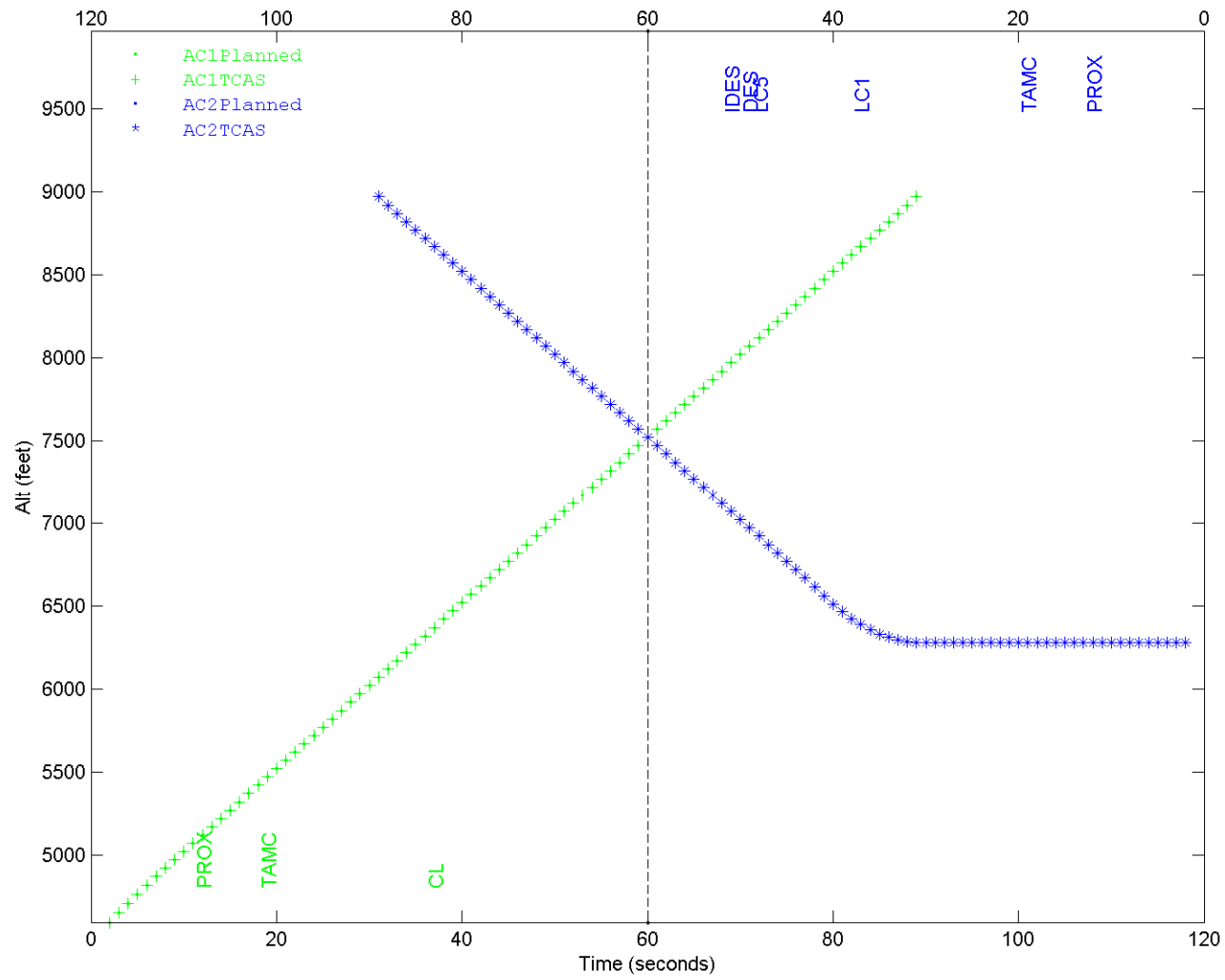
reit: 5632 cata: 515 simmode: 4165124 6.04A Vs 6.04A H255632A

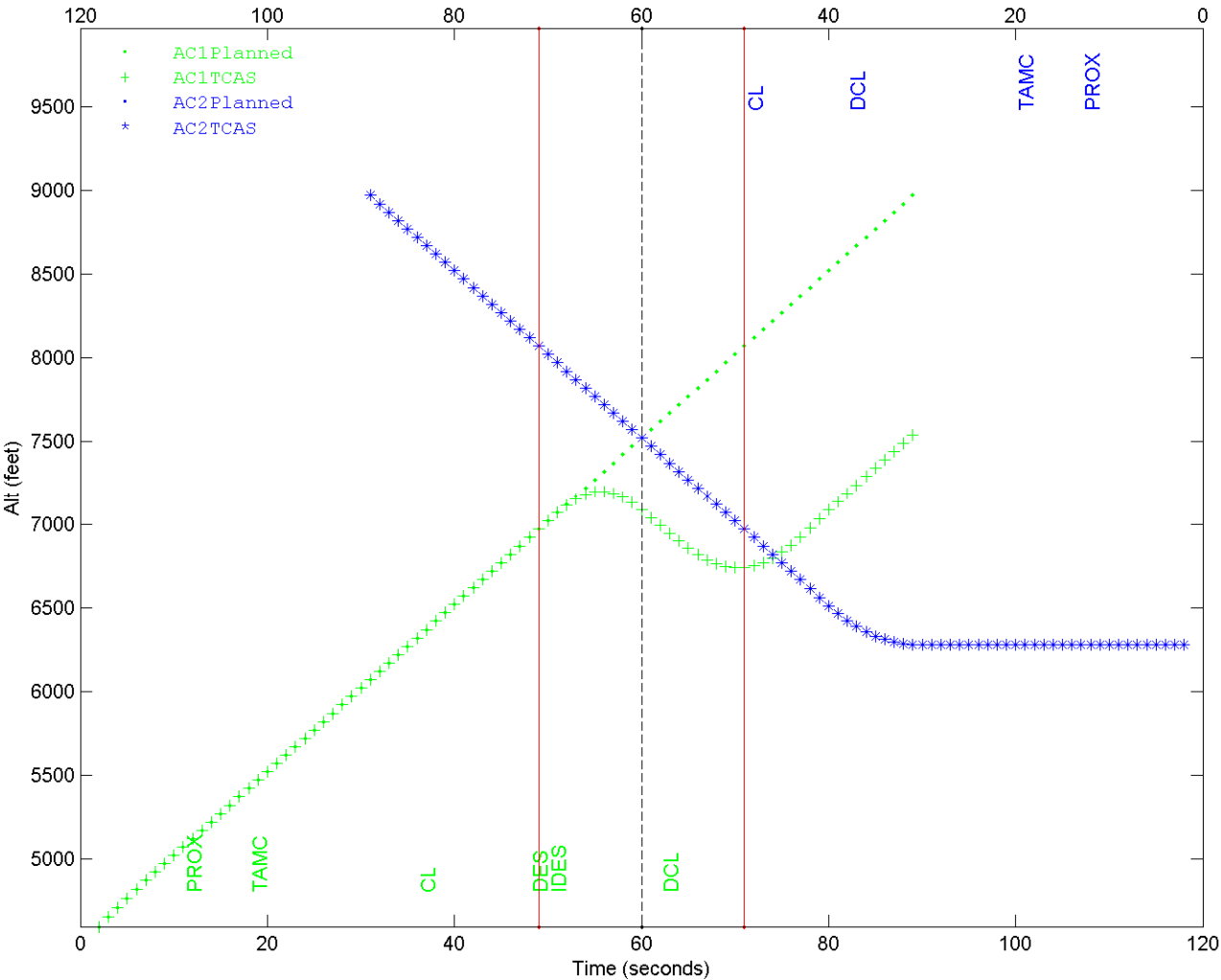


reit: 5632 cata: 515 simmode: 4275035 V7-25 Vs V7-25 H255632B



reit: 5632 cata: 515 simmode: 8275035 CP112EV1.2-25 Vs CP112EV1.2-25 H255632C





Change 7.1 Non-responding Representative Save 26

Encounter Class: 15

Reit Number : 4253

Encounter Characterization

Number of encounters in group	3	
AC1 low ID	no	
Non-responding AC	2	
Vertical tracker	25	ft
Planned separation	0	ft
AC1 rates:	3000	fpm
AC2 rates:	3000	fpm
AC1 acceleration:	none	
AC2 acceleration:	0.35	g
AC2 acceleration time:	CPA – 25	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP115

Comments

Climbing vertical chase caused by planned maneuver.
CP112E-only reversed one second later, did not resolve NMAC.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER H254253
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = 0.0 AC1 RATES(3000.0,3000.0) AC2 RATES(0.0,3000.0)
 AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.35g @ CPA -25 AC1 CPA ALT 7480

4253 6.04A R H VS 6.04A NR L 15 0.00 NON_CROSSING_ENC

10 AC1: 4165124 TA :19 |PVMD| MCL @40 [NX]| ICL @42

5 AC2: 4265042 TA :19 |PVMD| LC1 @39 [NX]| LC5 @48 | DES @49 | IDES @53
 ##NON-RESPONDING##

4253 V7 25 FT R H VS V7 25 FT NR L 15 0.00 NON_CROSSING_ENC

10 AC1: 4275035 TA :19 |PVMD| CL @40 [NX]

5 AC2: 4175153 TA :19 |PVMD| LC1 @39 [NX]| LC5 @48 | DES @49 | IDES @51
 ##NON-RESPONDING##

4253 CP112EV1.2 25 FT R H VS CP112EV1.2 25 FT NR L 15 -90.08 NON_CROSSING_ENC

10 AC1:*REV*8275035 TA :19 |PVMD| CL @40 [NX]| DES @54

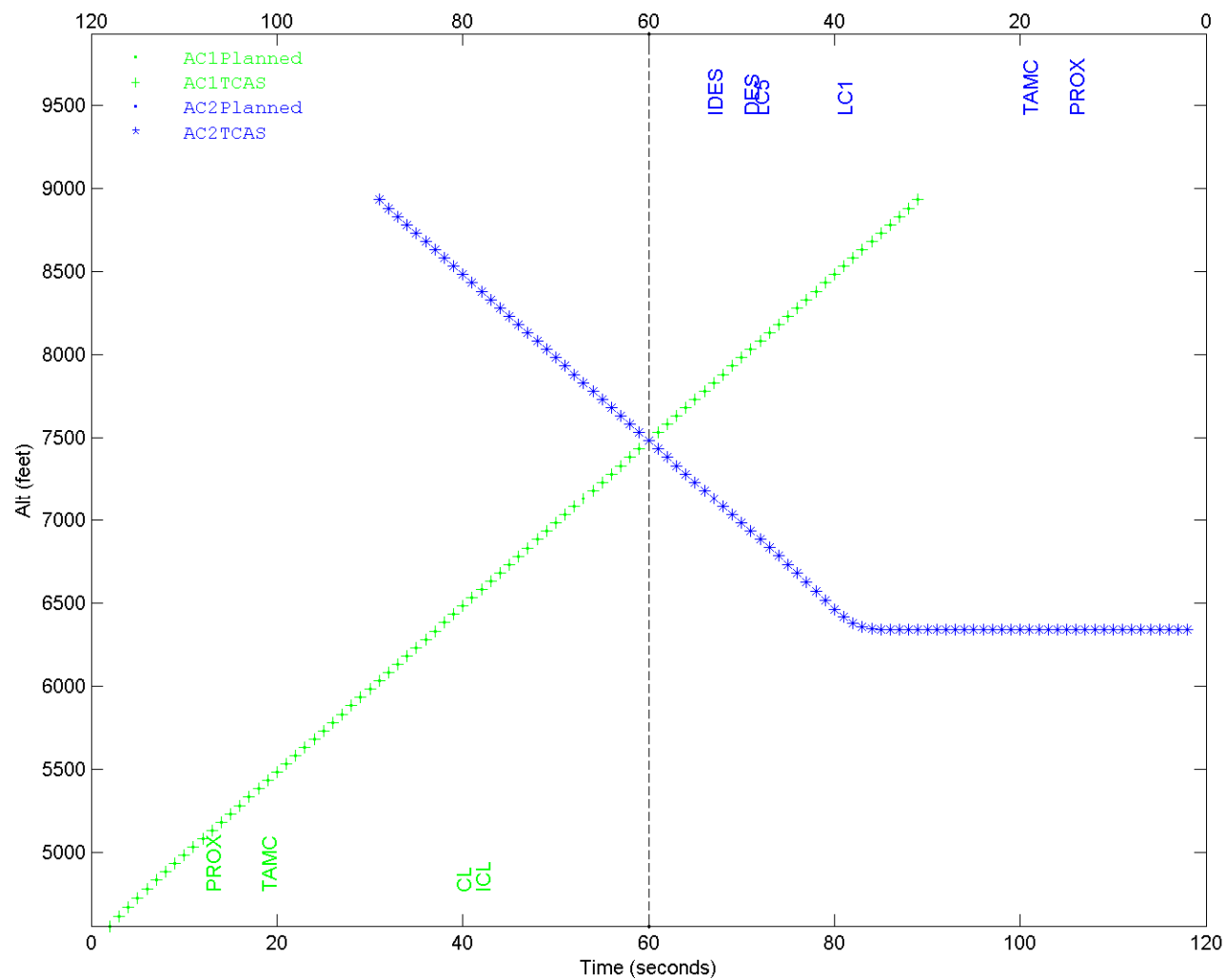
5 AC2:*REV*8175153 TA :19 |PVMD| LC1 @39 [NX]| LC5 @48| DES @49| IDES @51| CL @53
 ##NON-RESPONDING##

4253 V7.1 25 FT R H VS V7.1 25 FT NR L 15 -140.75 NON_CROSSING_ENC

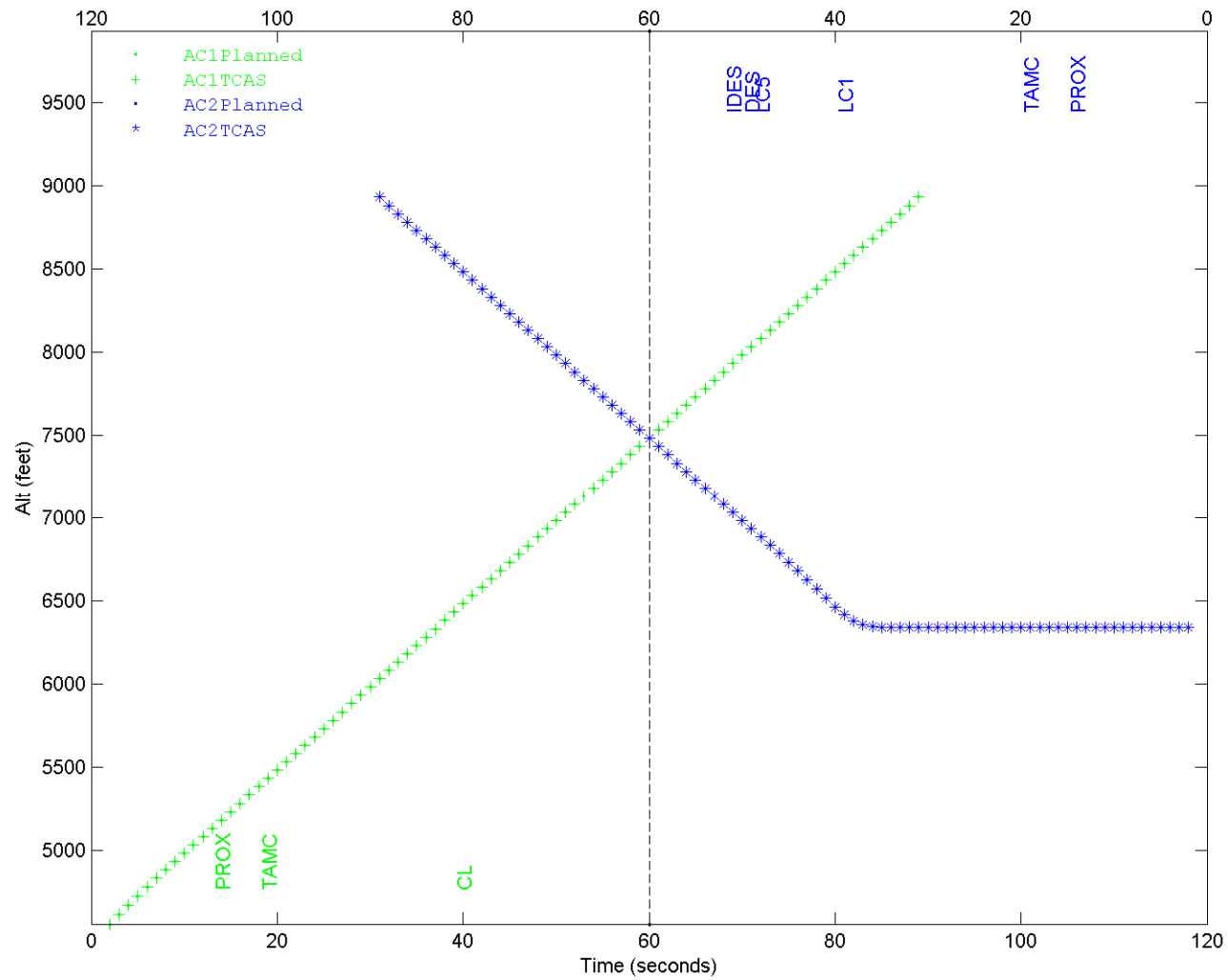
10 AC1:*REV*8275035 TA :19 |PVMD| CL @40 [NX]| DES @53

5 AC2:*REV*8175153 TA :19 |PVMD| DCL @39 [NX]| DES @50 | CL @52
 ##NON-RESPONDING##

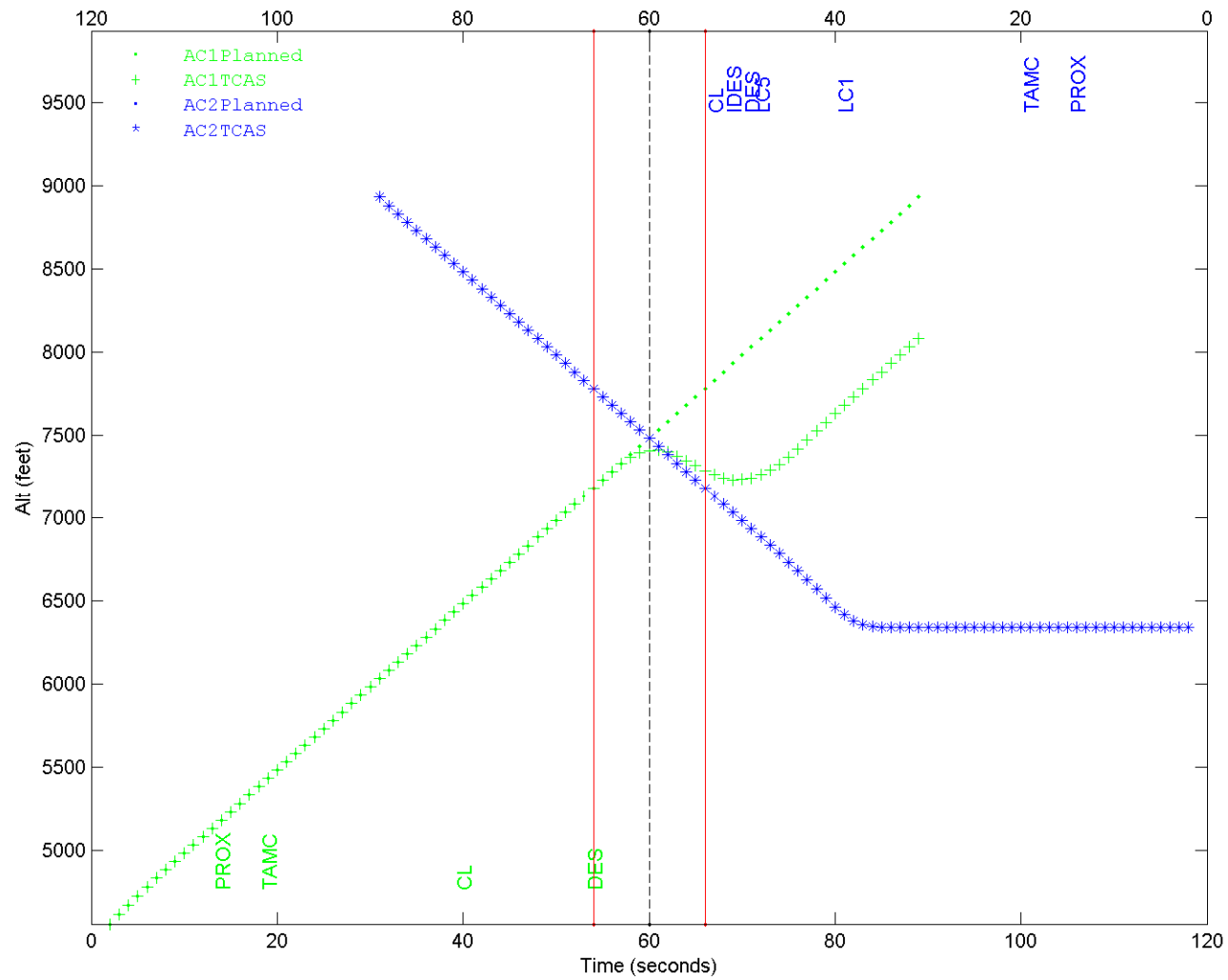
reit: 4253 cata: 515 simmode: 4165124 6.04A Vs 6.04A H254253A

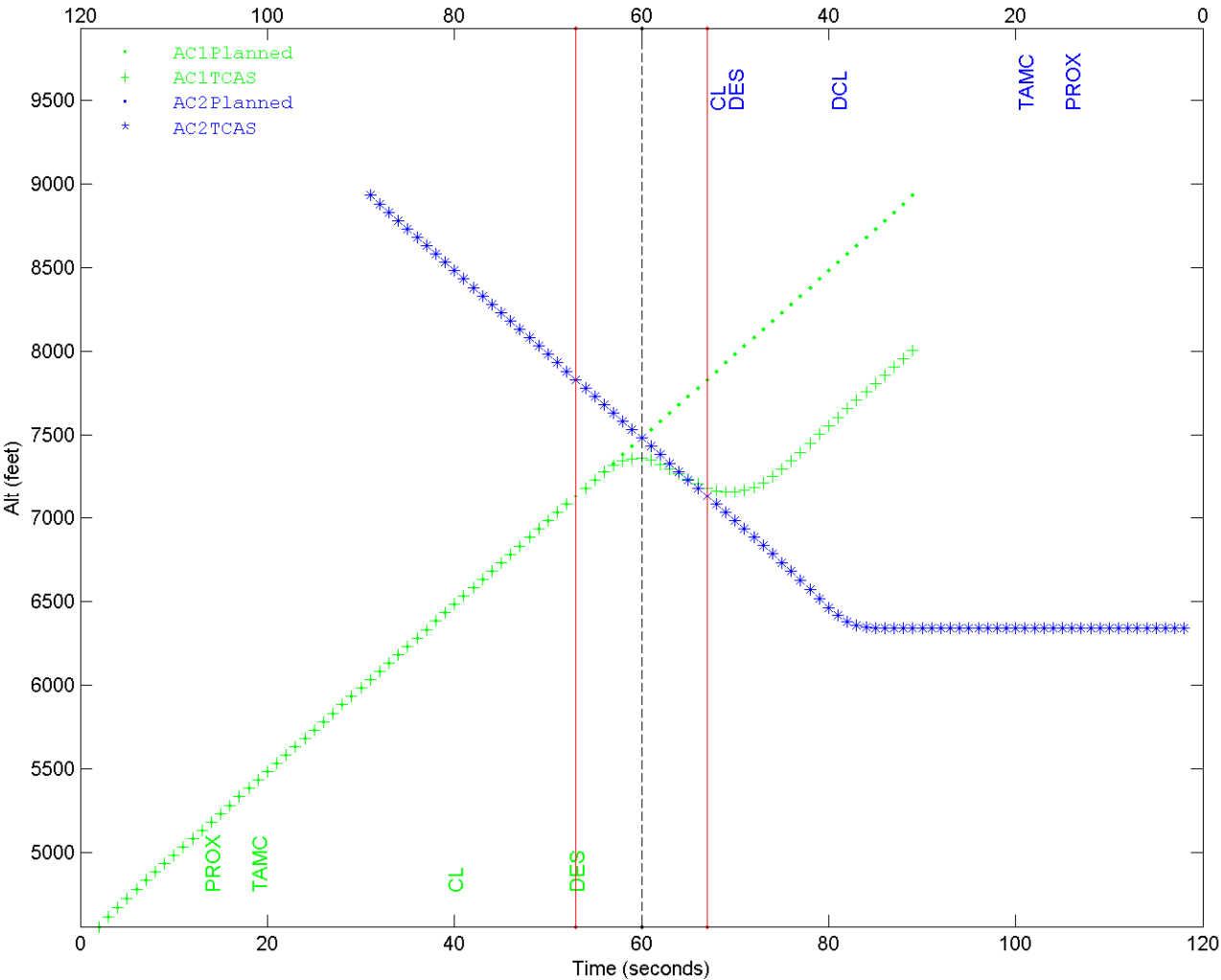


reit: 4253 cata: 515 simmode: 4275035 V7-25 Vs V7-25 H254253B



reit: 4253 cata: 515 simmode: 8275035 CP112EV1.2-25 Vs CP112EV1.2-25 H254253C





Change 7.1 Non-responding Representative Save 27

Encounter Class: 16

Reit Number : 357

Encounter Characterization

Number of encounters in group	7	
AC1 low ID	no	
Non-responding AC	1	
Vertical tracker	25	ft
Planned separation	-750	ft
AC1 rates:	-3000	fpm
AC2 rates:	-3000	fpm
AC1 acceleration:	none	
AC2 acceleration:	0.15	g
AC2 acceleration time:	CPA – 20	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

Pre-existing descending vertical chase.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER H16357
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = -750.0 AC1 RATES(-3000.0,-3000.0) AC2 RATES(-3000.0,0.0)
 AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.15g @ CPA -20 AC1 CPA ALT 3680

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-----
357 6.04A NR H VS 6.04A NR L 16 -9.02 NON_CROSSING_ENC

10 AC1: 4165142 TA :19 |TAUR| POTRA@34 (DFD)| CL @35 [NX]| ICL @55 ##NON-RESPONDING##
5 AC2: 4265024 TA :19 |TAUR| MDES @34 [NX]| IDES @41

-----
357 V7 25 FT NR H VS V7 25 FT R L 16 -9.02 NON_CROSSING_ENC

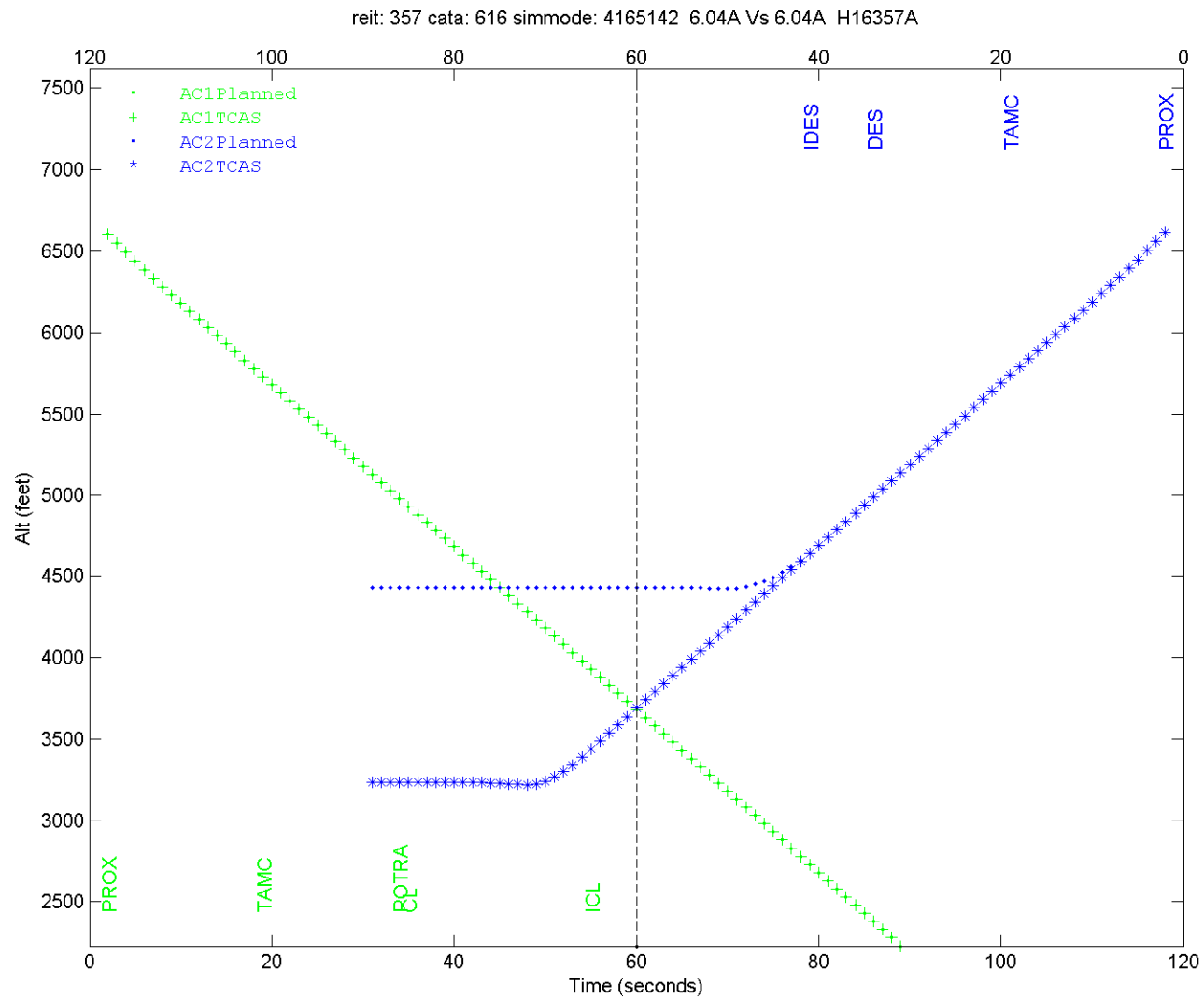
10 AC1: 4275053 TA :19 |TAUR| LD1 @34 [NX]| LD5 @49 | CL @50 | ICL @52 ##NON-RESPONDING##
5 AC2: 4175135 TA :19 |TAUR| DES @34 [NX]

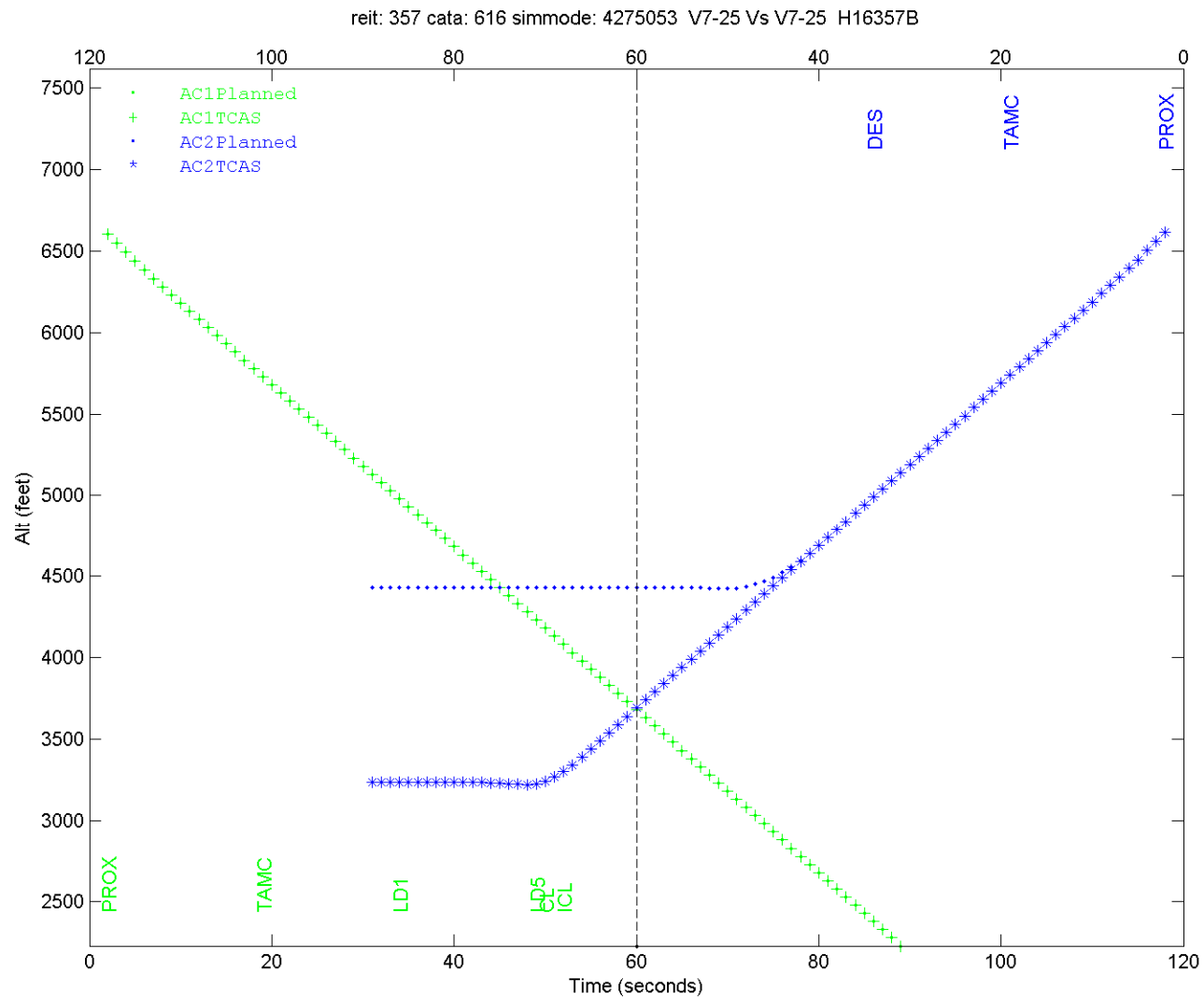
-----
357 CP112EV1.2 25 FT NR H VS CP112EV1.2 25 FT R L 16 -718.17 NON_CROSSING_ENC

10 AC1:*REV*8275053 TA :19 |TAUR| LD1 @34 [NX]| DES @46 | DCL @57 ##NON-RESPONDING##
5 AC2:*REV*8175135 TA :19 |TAUR| DES @34 [NX]| CL @45 | DDES @56

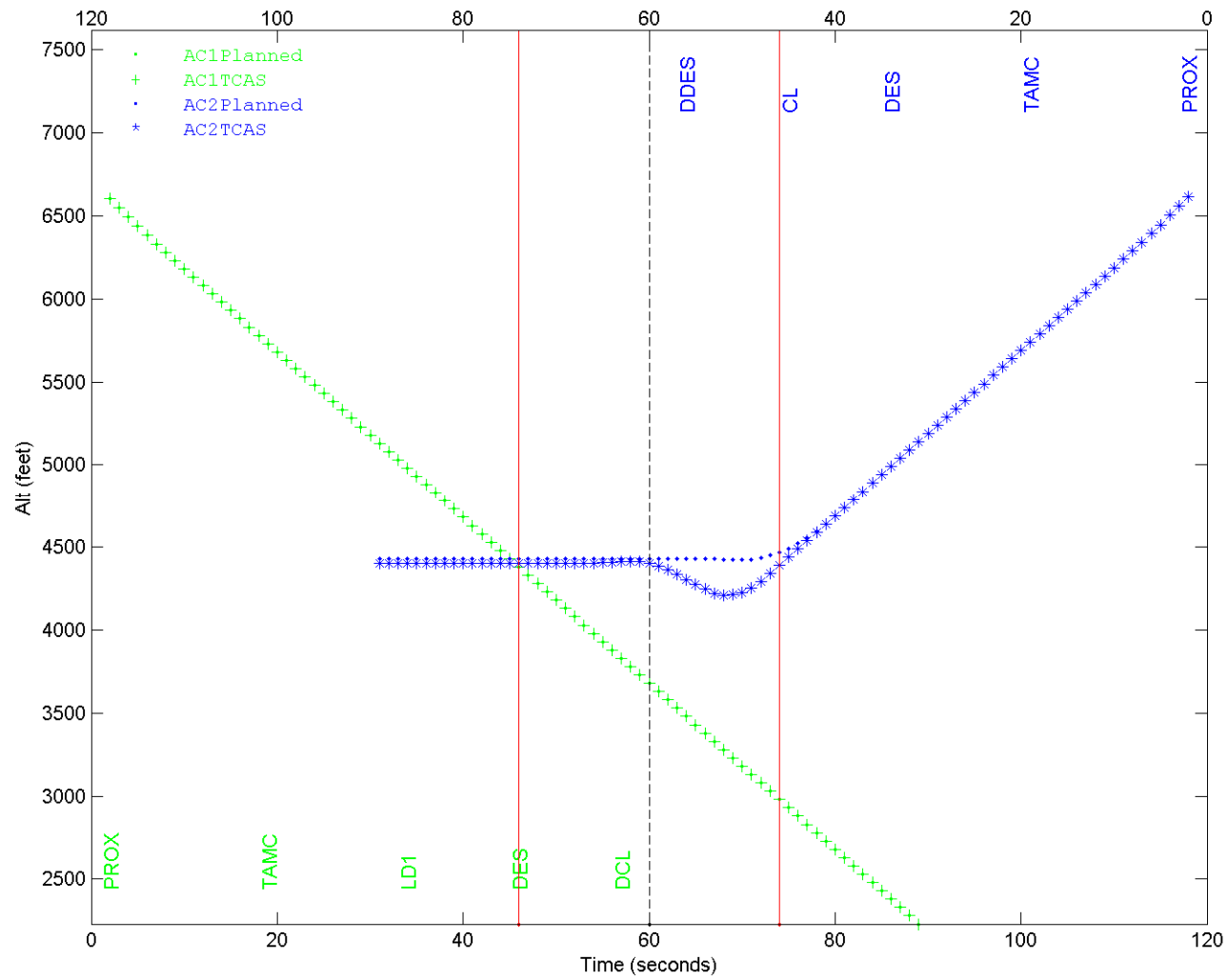
-----
357 V7.1 25 FT NR H VS V7.1 25 FT R L 16 -718.17 NON_CROSSING_ENC

10 AC1:*REV*8275053 TA :19 |TAUR| DDES @34 [NX]| DES @46 | DCL @57 ##NON-RESPONDING##
5 AC2:*REV*8175135 TA :19 |TAUR| DES @34 [NX]| CL @45 | DDES @56
```

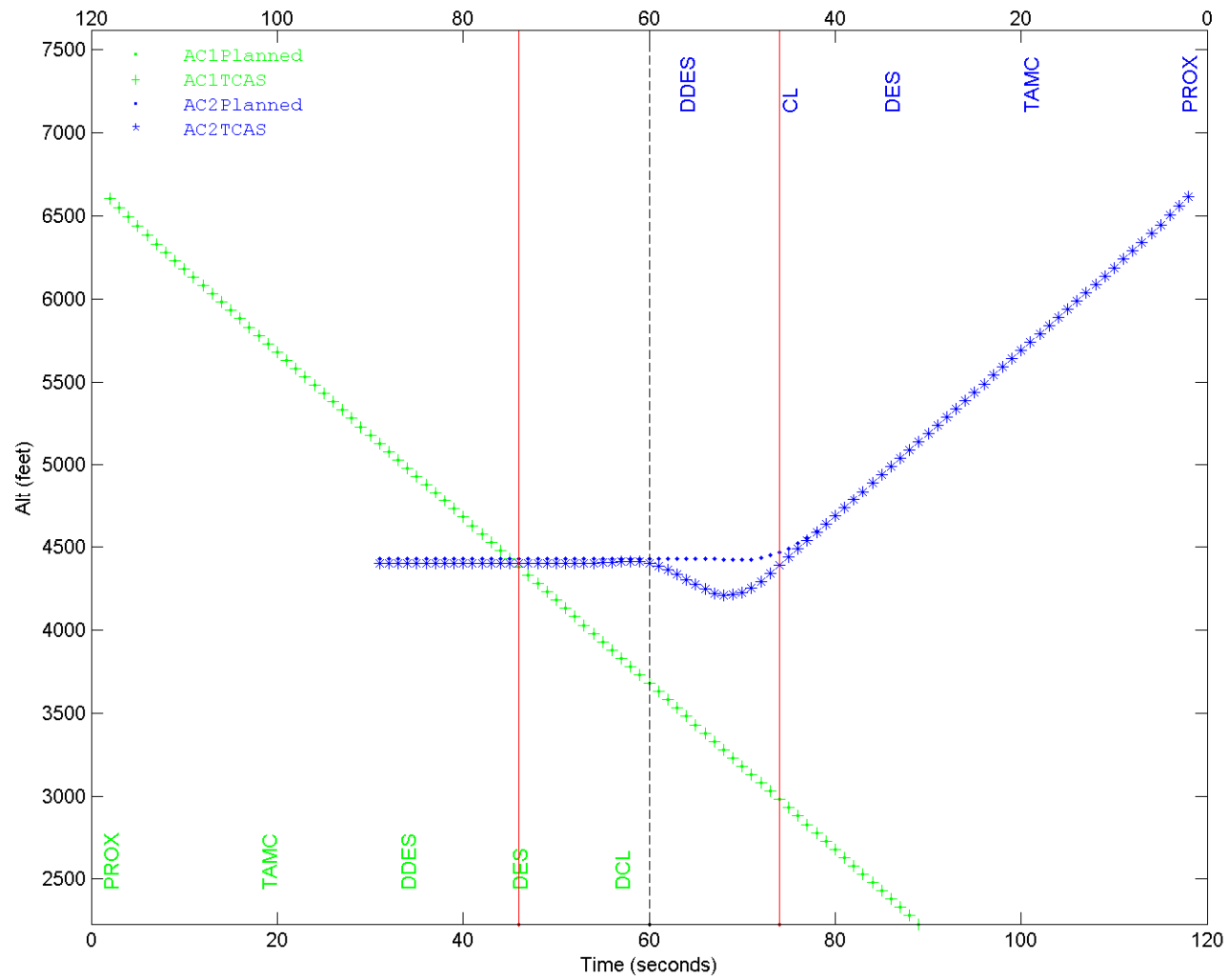





reit: 357 cata: 616 simmode: 8275053 CP112EV1.2-25 Vs CP112EV1.2-25 H16357C



reit: 357 cata: 616 simmode: 8275053 V7.1-25 Vs V7.1-25 H16357D



Change 7.1 Non-responding Representative Save 28

Encounter Class: 17

Reit Number : 7025

Encounter Characterization

Number of encounters in group	37	
AC1 low ID	yes	
Non-responding AC	2	
Vertical tracker	25	ft
Planned separation	0, -500	ft
AC1 rates:	3000	fpm
AC2 rates:	3000	fpm
AC1 acceleration:	0.15	g
AC2 acceleration:	0.35	g
AC1 acceleration time:	CPA – 25	sec
AC2 acceleration time:	CPA – 25	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

Climbing vertical chase caused by planned maneuvers.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER L277025
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = 0.0 AC1 RATES(0.0,3000.0) AC2 RATES(0.0,3000.0)
 AC1 ACCEL 0.15g @ CPA -25 AC2 ACCEL 0.35g @ CPA -25 AC1 CPA ALT 7500

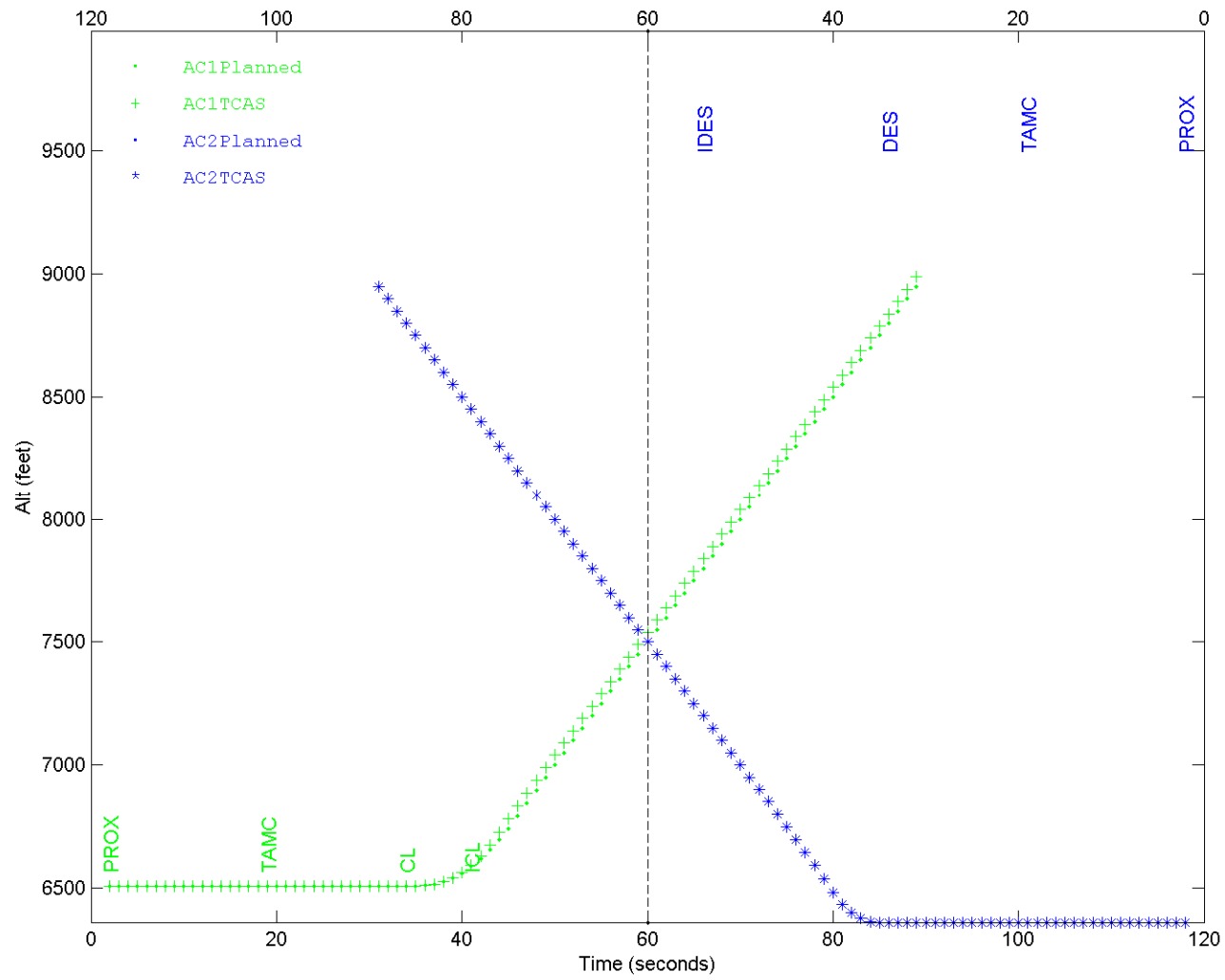
 7025 6.04A R L VS 6.04A NR H 17 39.05 NON_CROSSING_ENC
 5 AC1: 4165024 TA :19 |TAUR| CL @34 [NX]| ICL @41
 10 AC2: 4265142 TA :19 |TAUR| DES @34 [NX]| IDES @54 ##NON-RESPONDING##

 7025 V7 25 FT R L VS V7 25 FT NR H 17 39.05 NON_CROSSING_ENC
 5 AC1: 4175035 TA :19 |TAUR| CL @34 [NX]| ICL @43
 10 AC2: 4275153 TA :19 |TAUR| DES @34 [NX]| IDES @51 ##NON-RESPONDING##

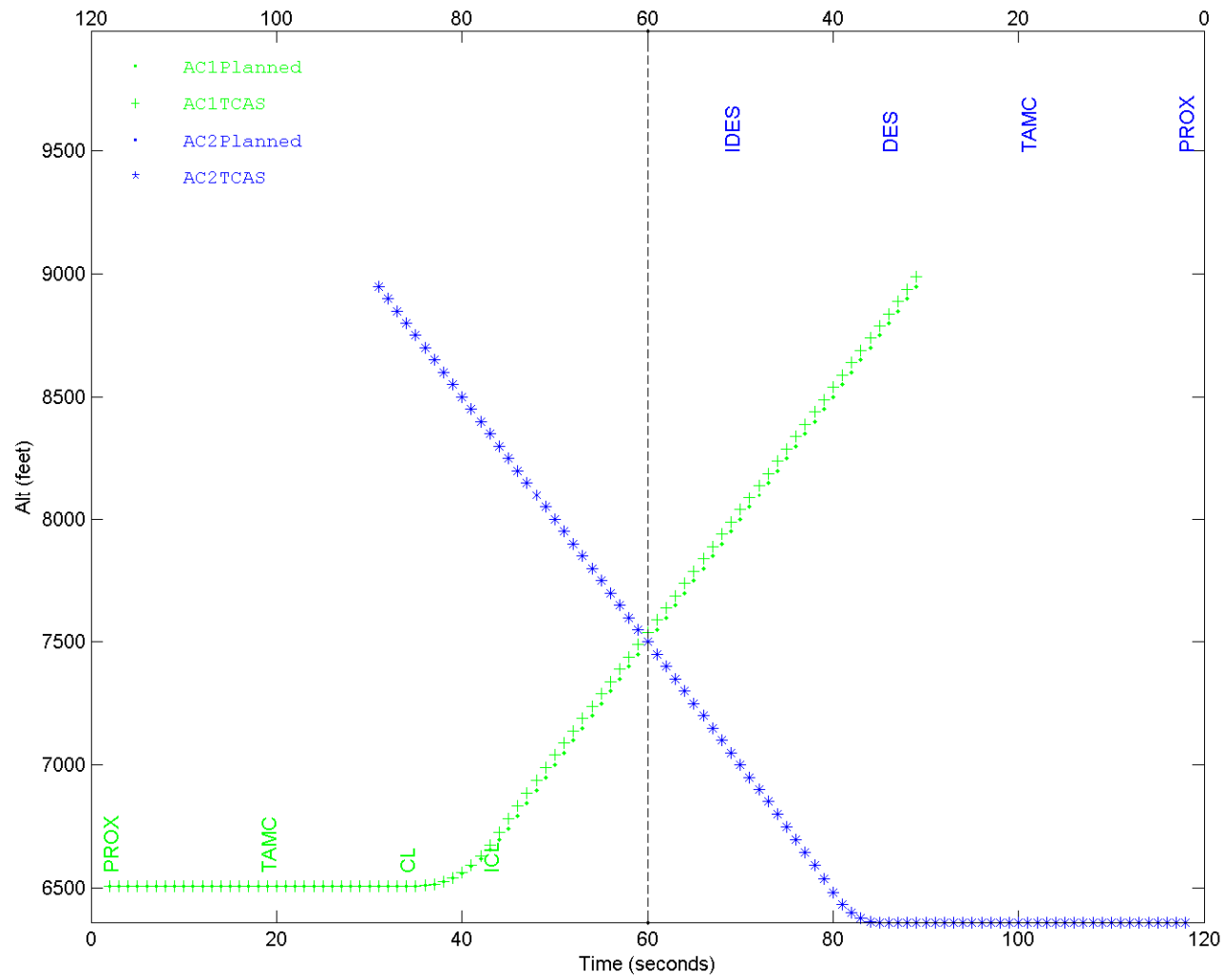
 7025 CP112EV1.2 25 FT R L VS CP112EV1.2 25 FT NR H 17 -682.16 CROSSING_ENC
 5 AC1:*REV*8175035 TA :19 |TAUR| CL @34 [NX]| ICL @43 | DES @45 | DCL @57
 10 AC2:*REV*8275153 TA :19 |TAUR| DES @34 [NX]| CL @45 ##NON-RESPONDING##

 7025 V7.1 25 FT R L VS V7.1 25 FT NR H 17 -682.16 CROSSING_ENC
 5 AC1:*REV*8175035 TA :19 |TAUR| CL @34 [NX]| ICL @43 | DES @45 | DCL @57
 10 AC2:*REV*8275153 TA :19 |TAUR| DES @34 [NX]| CL @45 ##NON-RESPONDING##

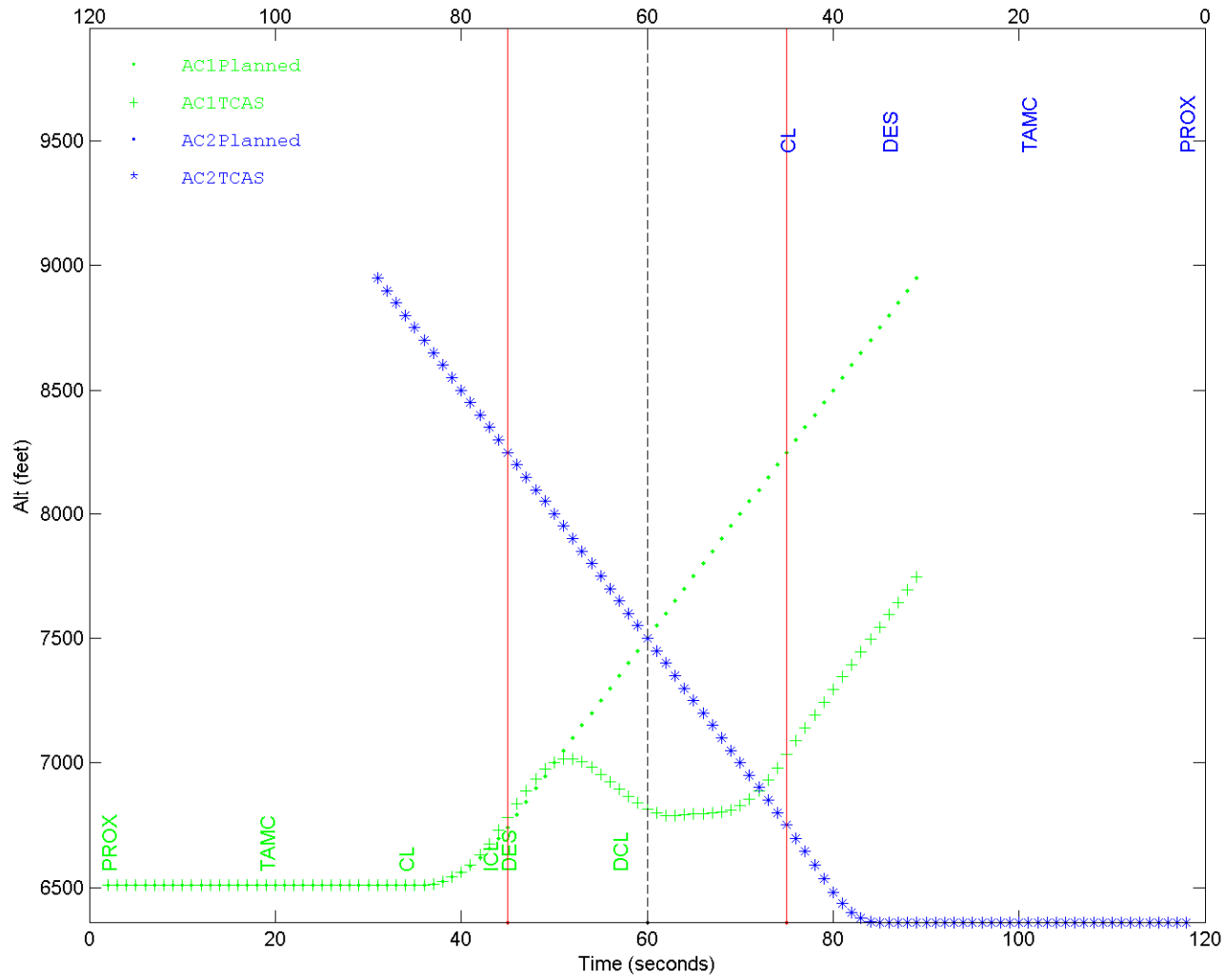
reit: 7025 cata: 717 simmode: 4165024 6.04A Vs 6.04A L277025A



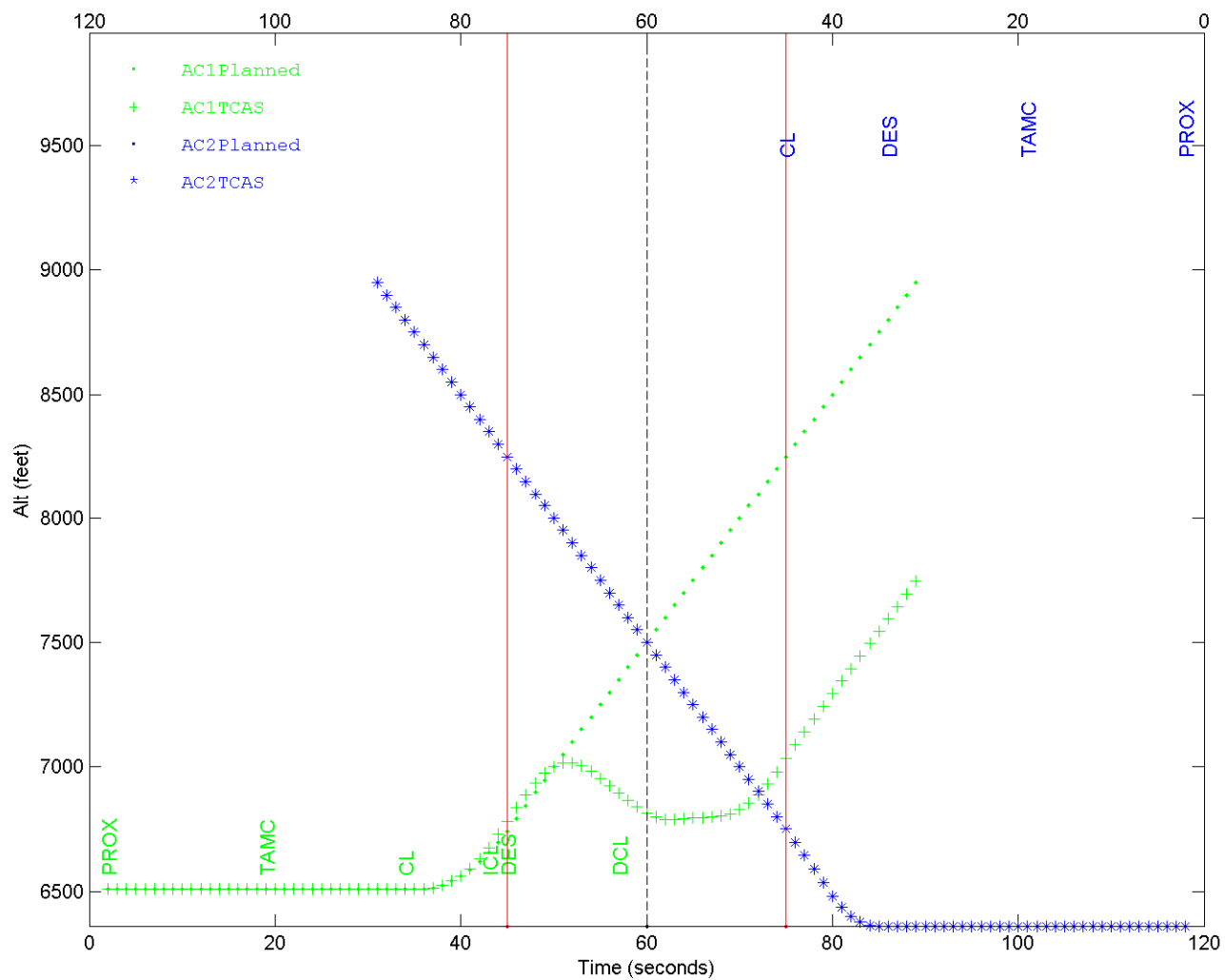
reit: 7025 cata: 717 simmode: 4175035 V7-25 Vs V7-25 L277025B



reit: 7025 cata: 717 simmode: 8175035 CP112EV1.2-25 Vs CP112EV1.2-25 L277025C



reit: 7025 cata: 717 simmode: 8175035 V7.1-25 Vs V7.1-25 L277025D



Change 7.1 Non-responding Representative Save 29

Encounter Class: 18

Reit Number : 6574

Encounter Characterization

Number of encounters in group	13	
AC1 low ID	no	
Non-responding AC	2	
Vertical tracker	25	ft
Planned separation	250, 500, 750	ft
AC1 rates:	-3000, -5000	fpm
AC2 rates:	-3000, -5000	fpm
AC1 acceleration:	0.15	g
AC2 acceleration:	-0.05	g
AC1 acceleration time:	CPA – 25	sec
AC2 acceleration time:	CPA – 30	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

Descending vertical chase caused by response to initial RA.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER H286574
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = 750.0 AC1 RATES(-3000.0,0.0) AC2 RATES(0.0,-3000.0)
 AC1 ACCEL 0.15g @ CPA -25 AC2 ACCEL -0.05g @ CPA -30 AC1 CPA ALT 7500

 6574 6.04A R H VS 6.04A NR L 18 243.76 NON_CROSSING_ENC

10 AC1: 4165124 TA:19 |PVMD| DES @41 [X]| IDES @43

5 AC2: 4265042 TA:19 |PVMD| LD1 @39 [X]| CL @44 | ICL @48 ##NON-RESPONDING##

 6574 V7 25 FT R H VS V7 25 FT NR L 18 77.74 NON_CROSSING_ENC

10 AC1: 4275035 TA:19 |PVMD| DES @38 [X]

5 AC2: 4175153 TA:19 |PVMD| POTRA@37(LVW)| LD5 @38[X]| DDES @40| CL @41| ICL @51
 ##NON-RESPONDING##

 6574 CP112EV1.2 25 FT R H VS CP112EV1.2 25 FT NR L 18 437.32 NON_CROSSING_ENC

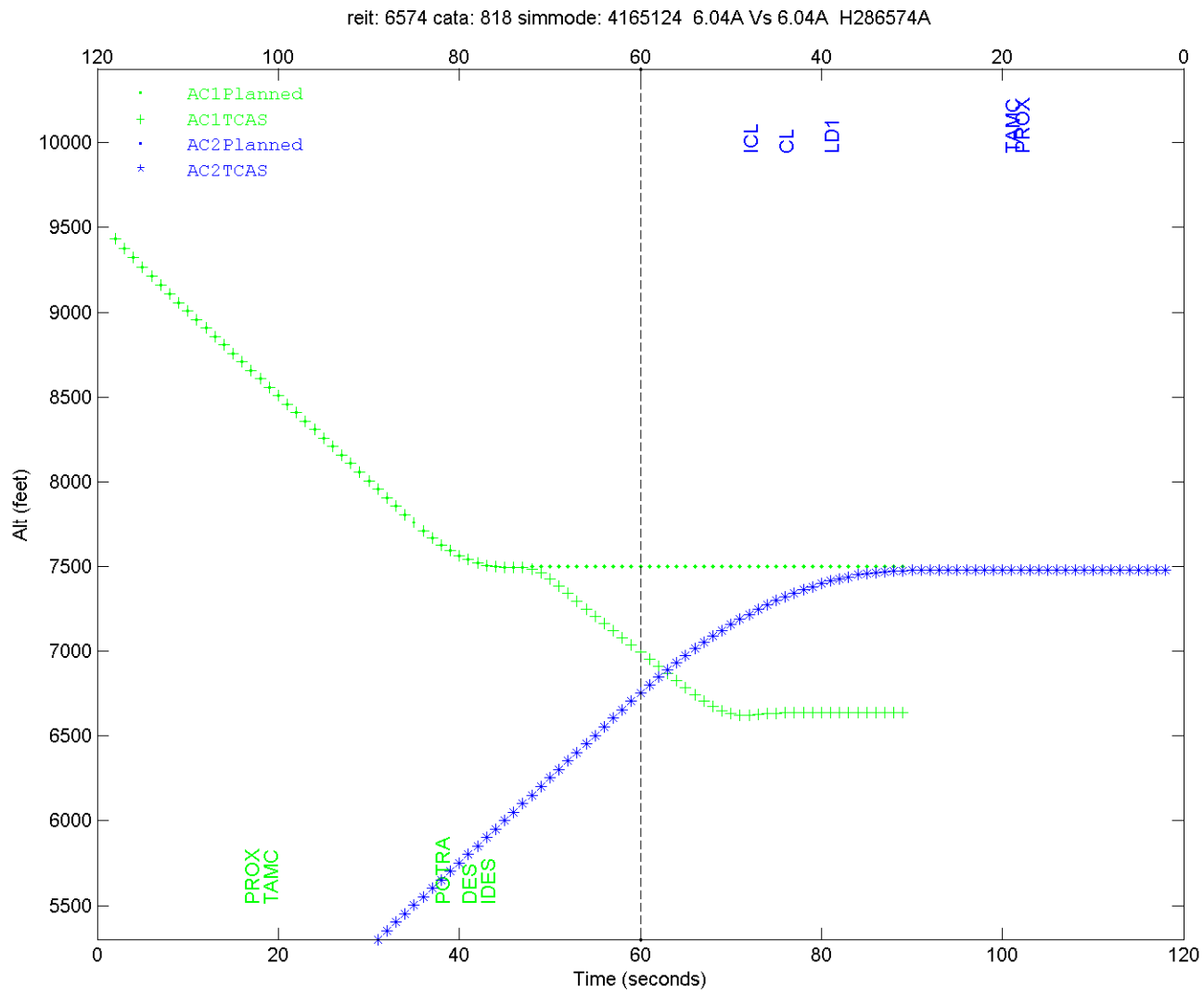
10 AC1:*REV*8275035 TA:19 |PVMD| DES @38 [X] | CL @50 | ICL @52 | DDES @63

5 AC2:*REV*8175153 TA:19 |PVMD| POTRA@37 (LVW)| LD5 @38 [X] | DDES @40 | CL @41
 | DES @49 | IDES @51 | DCL @63 ##NON-RESPONDING##

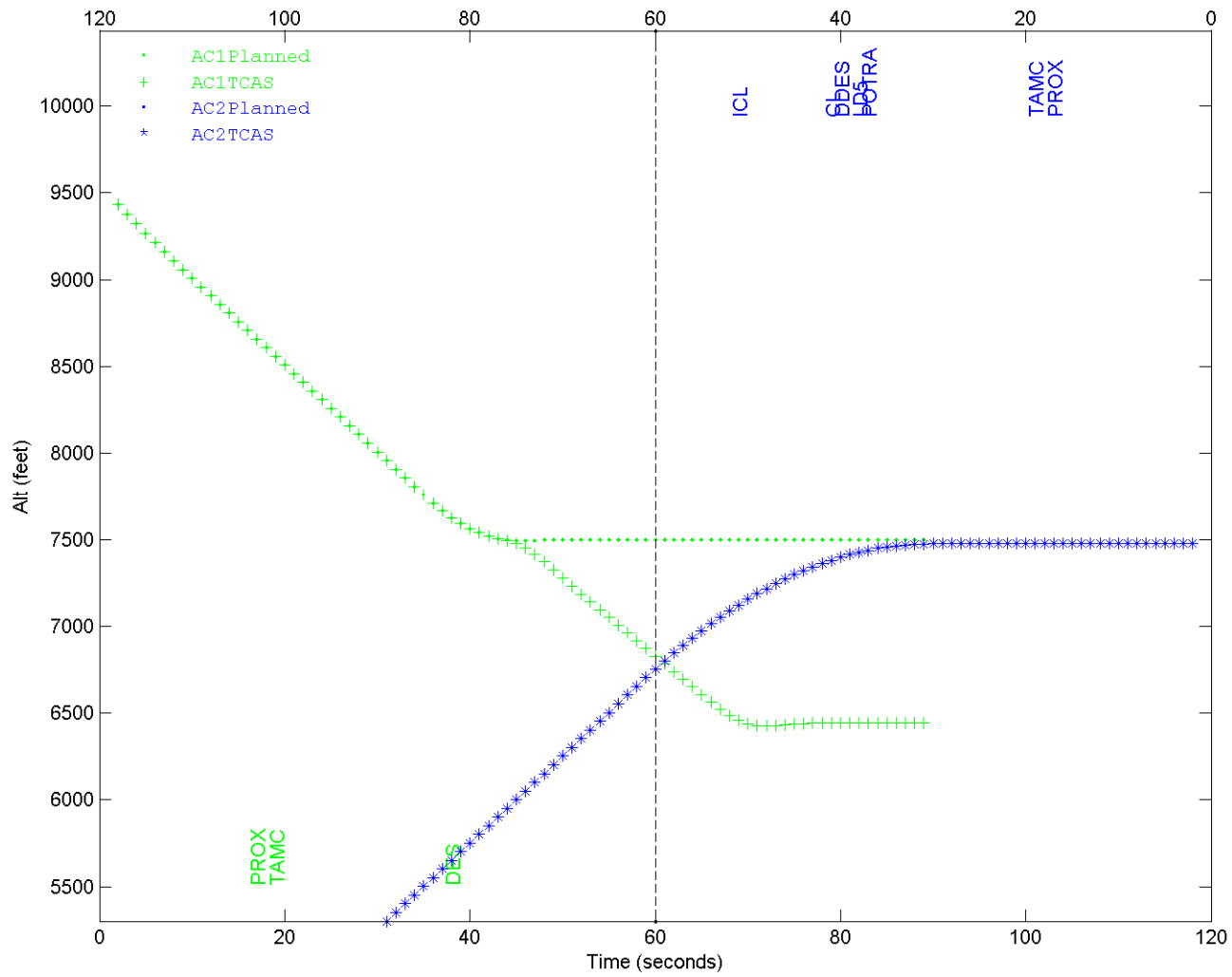
 6574 V7.1 25 FT R H VS V7.1 25 FT NR L 18 437.32 NON_CROSSING_ENC

10 AC1:*REV*8275035 TA:19 |PVMD| DES @38 [X] | CL @50 | ICL @52 | DDES @63

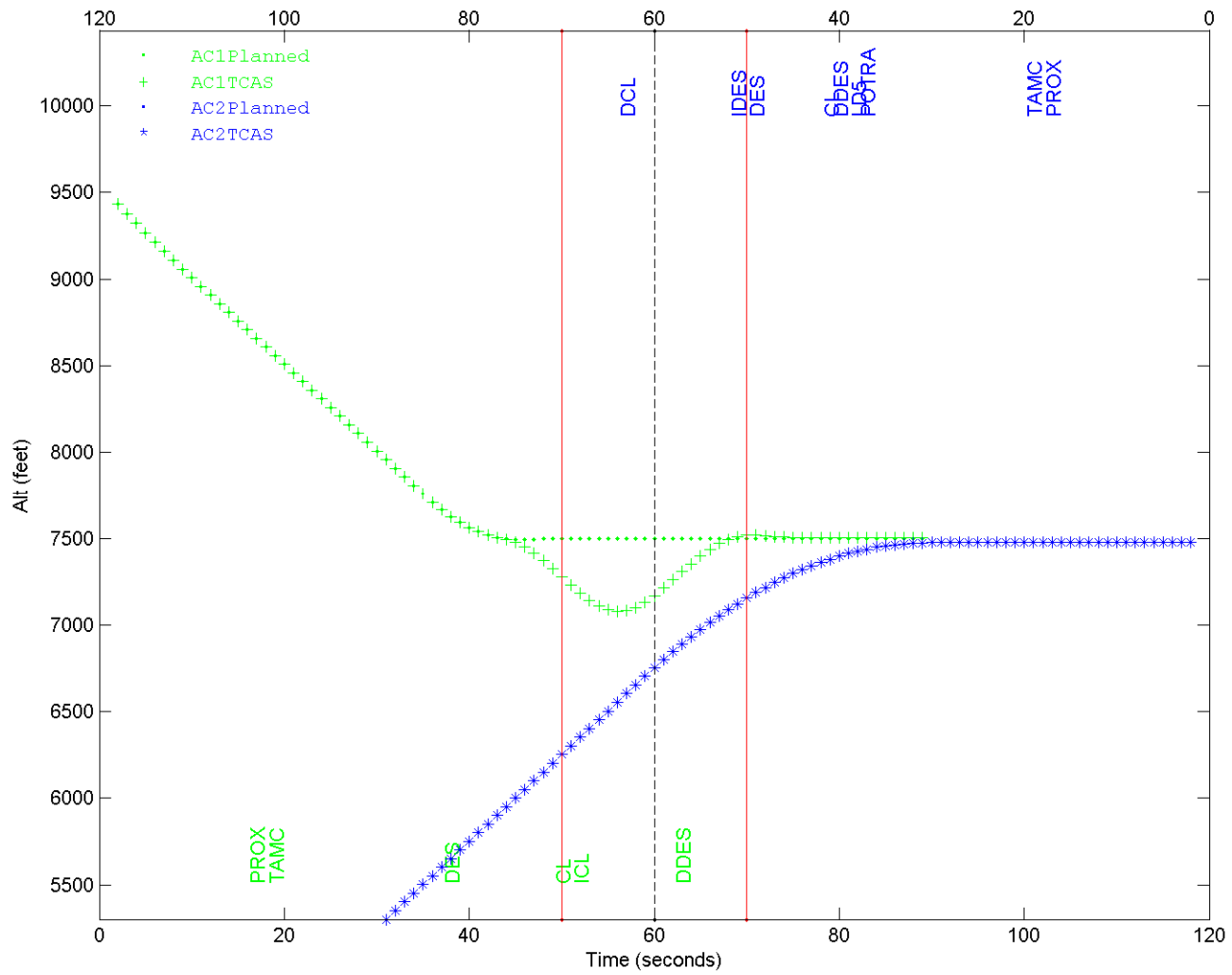
5 AC2:*REV*8175153 TA:19 |PVMD| POTRA@37 (LVW) | DDES @38 [X]| CL @41 | DES @49
 | IDES @51 | DCL @63 ##NON-RESPONDING##



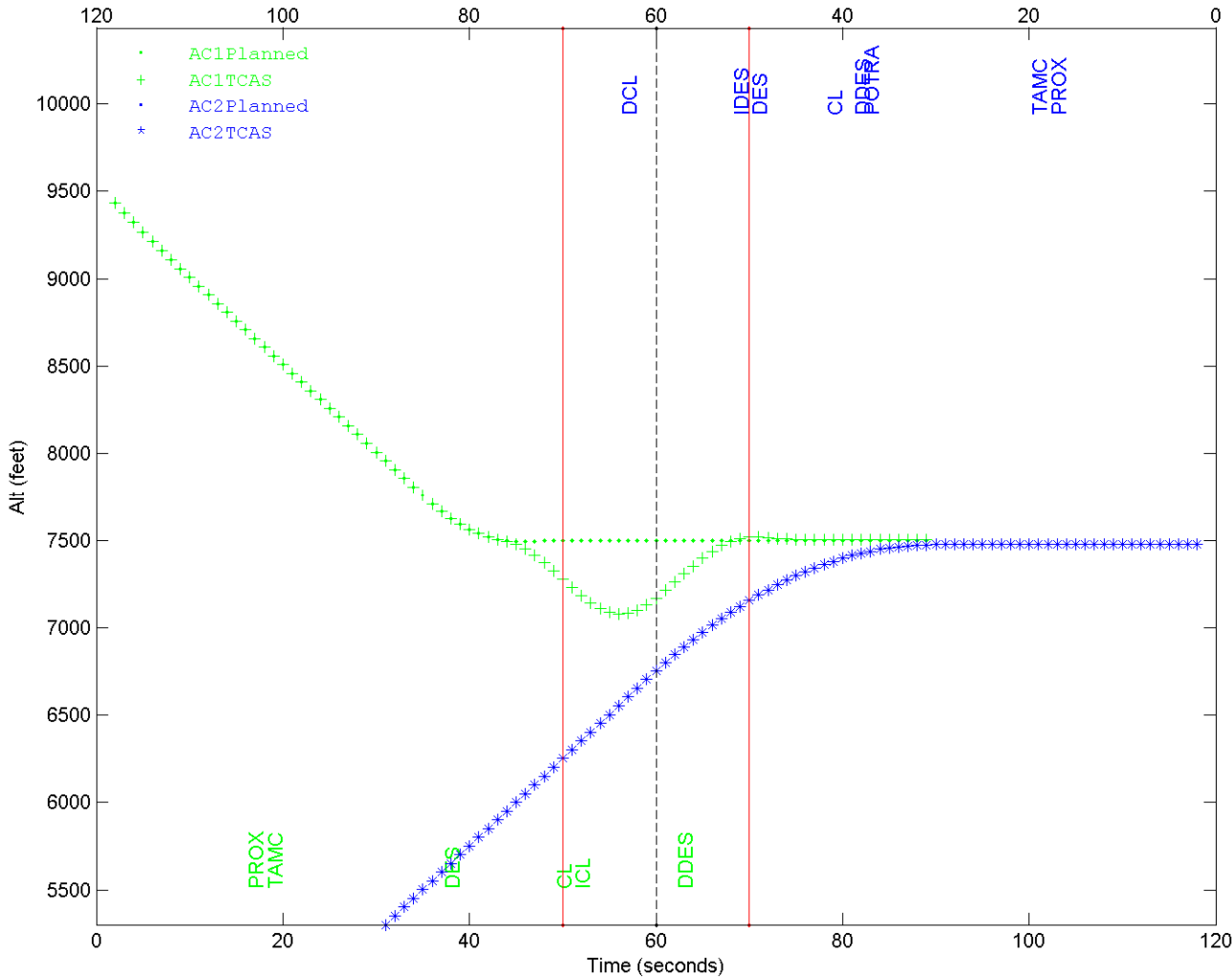
reit: 6574 cata: 818 simmode: 4275035 V7-25 Vs V7-25 H286574B



reit: 6574 cata: 818 simmode: 8275035 CP112EV1.2-25 Vs CP112EV1.2-25 H286574C



reit: 6574 cata: 818 simmode: 8275035 V7.1-25 Vs V7.1-25 H286574D



Change 7.1 Non-responding Representative Save 30

Encounter Class: 19

Reit Number : 5662

Encounter Characterization

Number of encounters in group	7	
AC1 low ID	yes	
Non-responding AC	1	
Vertical tracker	25	ft
Planned separation	250, 500, 750, 1000	ft
AC1 rates:	3000, 5000	fpm
AC2 rates:	3000, 5000	fpm
AC1 acceleration:	-0.05	g
AC2 acceleration:	-0.25	g
AC1 acceleration time:	CPA – 25	sec
AC2 acceleration time:	CPA – 20	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

Pre-existing climbing vertical chase made worse by response to initial RA.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER L195662
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = 1000.0 AC1 RATES(5000.0,0.0) AC2 RATES(5000.0,0.0)
 AC1 ACCEL -0.05g @ CPA -25 AC2 ACCEL -0.25g @ CPA -20 AC1 CPA ALT 7500

```
-----
5662  6.04A NR L VS 6.04A R H    19   -234.97   CROSSING_ENC

  5 AC1:      4165042 TA :30 |TAUR| LC2  @34  [X] | LC1  @49  | DES  @50  | IDES @54
                    ##NON-RESPONDING##
 10 AC2:      4265124 TA :30 |TAUR| CL   @34  [X] | ICL  @41

-----
5662  V7 25 FT NR L VS V7 25 FT R H    19   -41.19   CROSSING_ENC

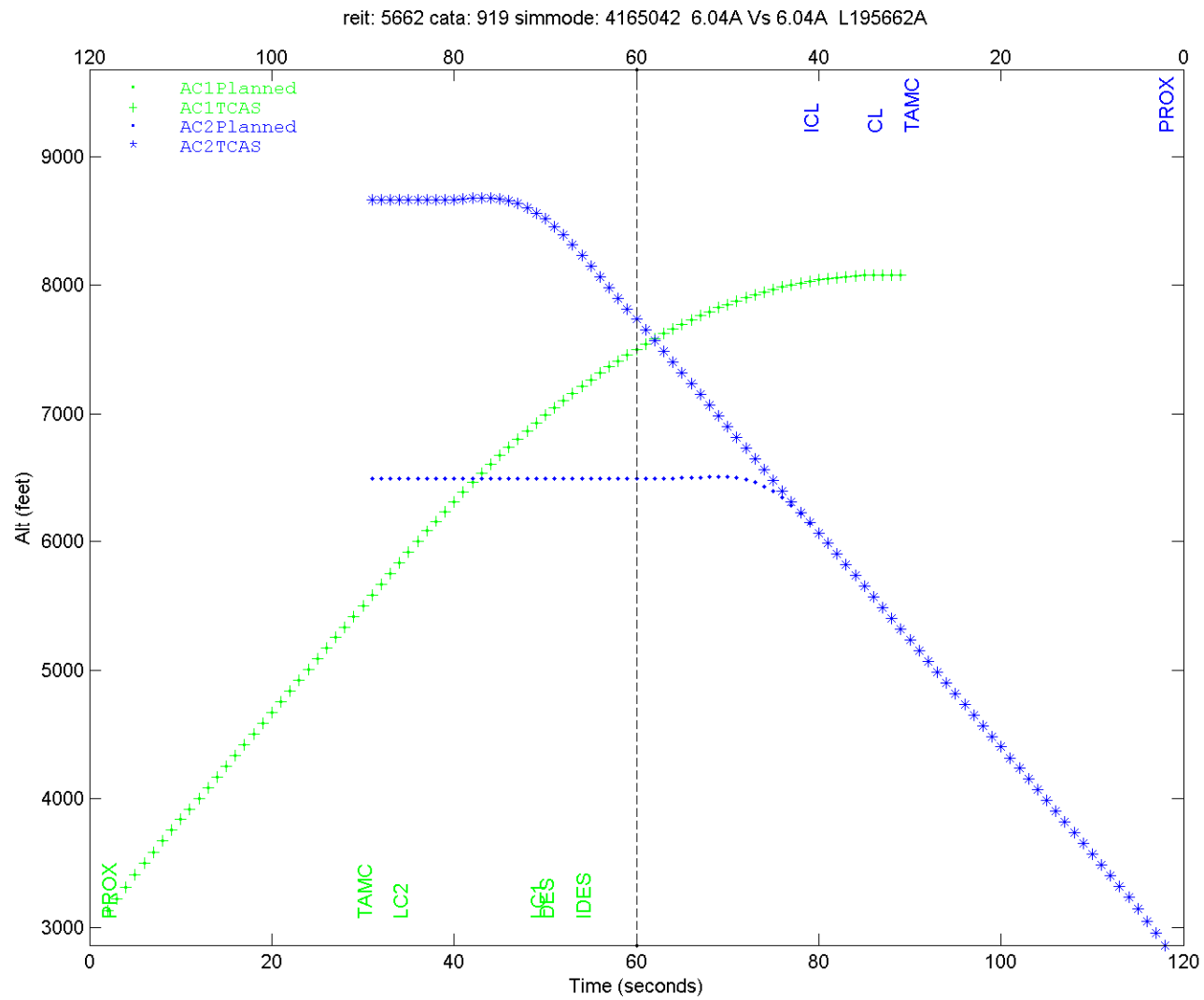
  5 AC1:      4175053 TA :30 |TAUR| LC2  @34  [X] | LC1  @46  | DES  @47  | IDES @51
                    ##NON-RESPONDING##
 10 AC2:      4275135 TA :30 |TAUR| CL   @34  [X]

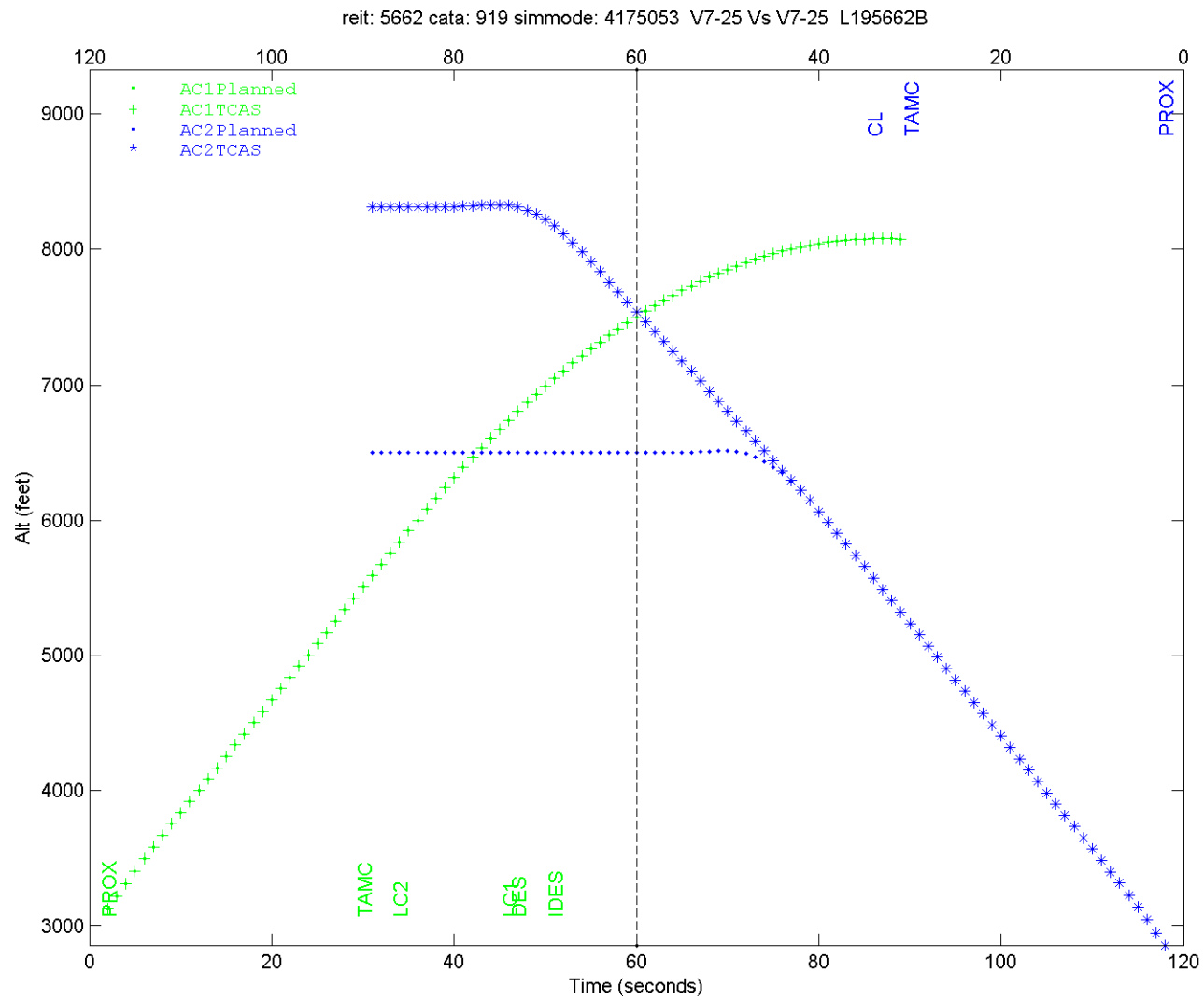
-----
5662  CP112EV1.2 25 FT NR L VS CP112EV1.2 25 FT R H 19 319.14 NON_CROSSING_ENC

  5 AC1:*REV*8175053 TA :30 |TAUR| LC2  @34  [X] | LC1  @46  | DES  @47  | CL   @50
                    ##NON-RESPONDING##
 10 AC2:*REV*8275135 TA :30 |TAUR| CL   @34  [X] | DES  @50  | IDES @52

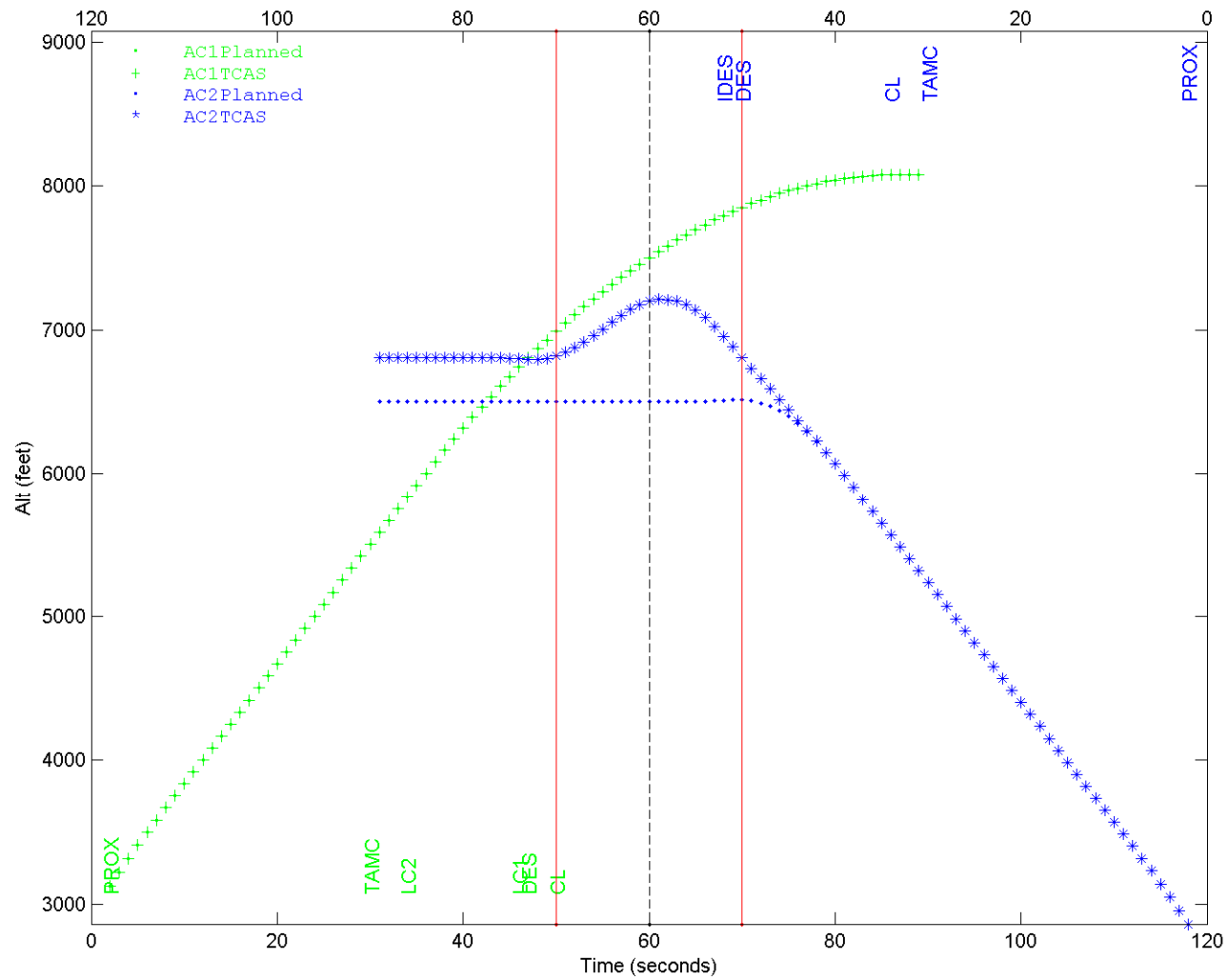
-----
5662  V7.1 25 FT NR L VS V7.1 25 FT R H    19   319.14   NON_CROSSING_ENC

  5 AC1:*REV*8175053 TA :30 |TAUR| DCL  @34  [X] | DES  @48  | CL   @50
                    ##NON-RESPONDING##
 10 AC2:*REV*8275135 TA :30 |TAUR| CL   @34  [X] | DES  @50  | IDES @52
```

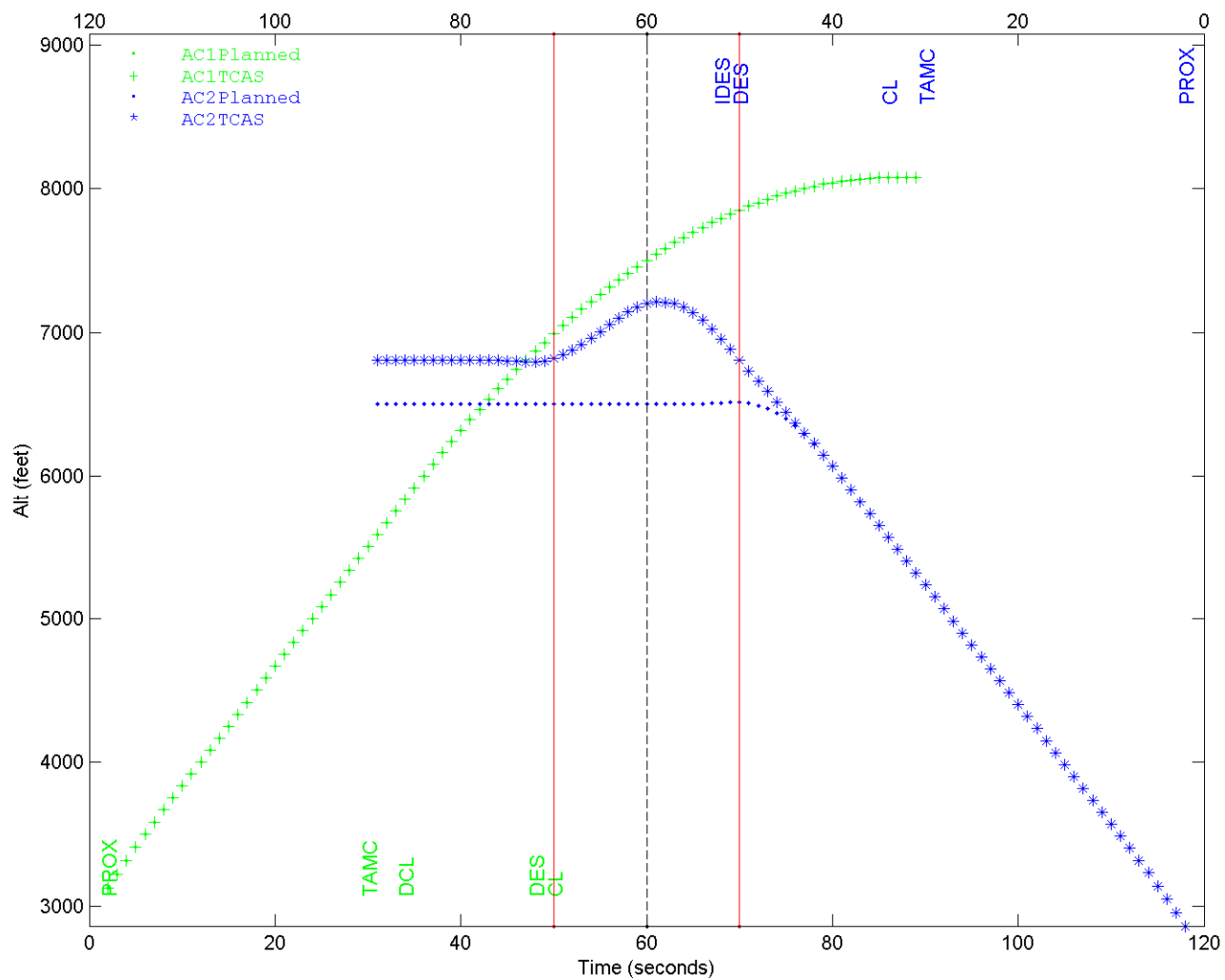




reit: 5662 cata: 919 simmode: 8175053 CP112EV1.2-25 Vs CP112EV1.2-25 L195662C



reit: 5662 cata: 919 simmode: 8175053 V7.1-25 Vs V7.1-25 L195662D



Appendix O V7.1 REPRESENTATIVE NMACs (One Pilot Non-responding)

Unresolved NMACs

Change 7.1 Non-responding Representative NMAC Unres1

Encounter Class: 6

Reit Number : 6585

NMAC Characterization

Number of encounters in group	2
AC1 low ID	yes
Non-responding AC	2
Vertical tracker	25 ft
Planned separation	0 ft
AC1 rates:	-1000 fpm
AC2 rates:	-5000 fpm
AC1 acceleration:	none
AC2 acceleration:	0.15 g
AC2 acceleration time:	CPA – 20 sec
Encounters with reversed RAs	100 %

Performance Statistics for entire encounter class

<u>25 ft</u>	
85	% of RAs were non-crossing
67	% of NMACs were non-crossing
96	% of RAs were not reversed
78	% of NMACs were not reversed

Comments

Caused by CP112E. Aircraft 2 planned level-off maneuver defeated the new reversal.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER L26585
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = 0.0 AC1 RATES(-1000.0,-1000.0) AC2 RATES(-5000.0,0.0)
 AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.15g @ CPA -20 AC1 CPA ALT 3680

585 6.04A R L VS 6.04A NR H 6 -408.34 NON_CROSSING_ENC

5 AC1: 4165024 TA :19 |TAUR| POTRA@34 (6FT)| DES @36 [NX]| IDES @42| MDES @60

10 AC2: 4265142 TA :19 |TAUR| POTRA@34 (DFD)| CL @36 [NX] ##NON-RESPONDING##

585 V7 25 FT R L VS V7 25 FT NR H 6 -433.34 NON_CROSSING_ENC

5 AC1: 4175035 TA :19 |TAUR| POTRA@34 | DES @35 [NX]| IDES @41

10 AC2: 4275153 TA :19 |TAUR| CL @34 [NX] ##NON-RESPONDING##

585 CP112EV1.2 25 FT R L VS CP112EV1.2 25 FT NR H 6 91.64 CROSSING_ENC

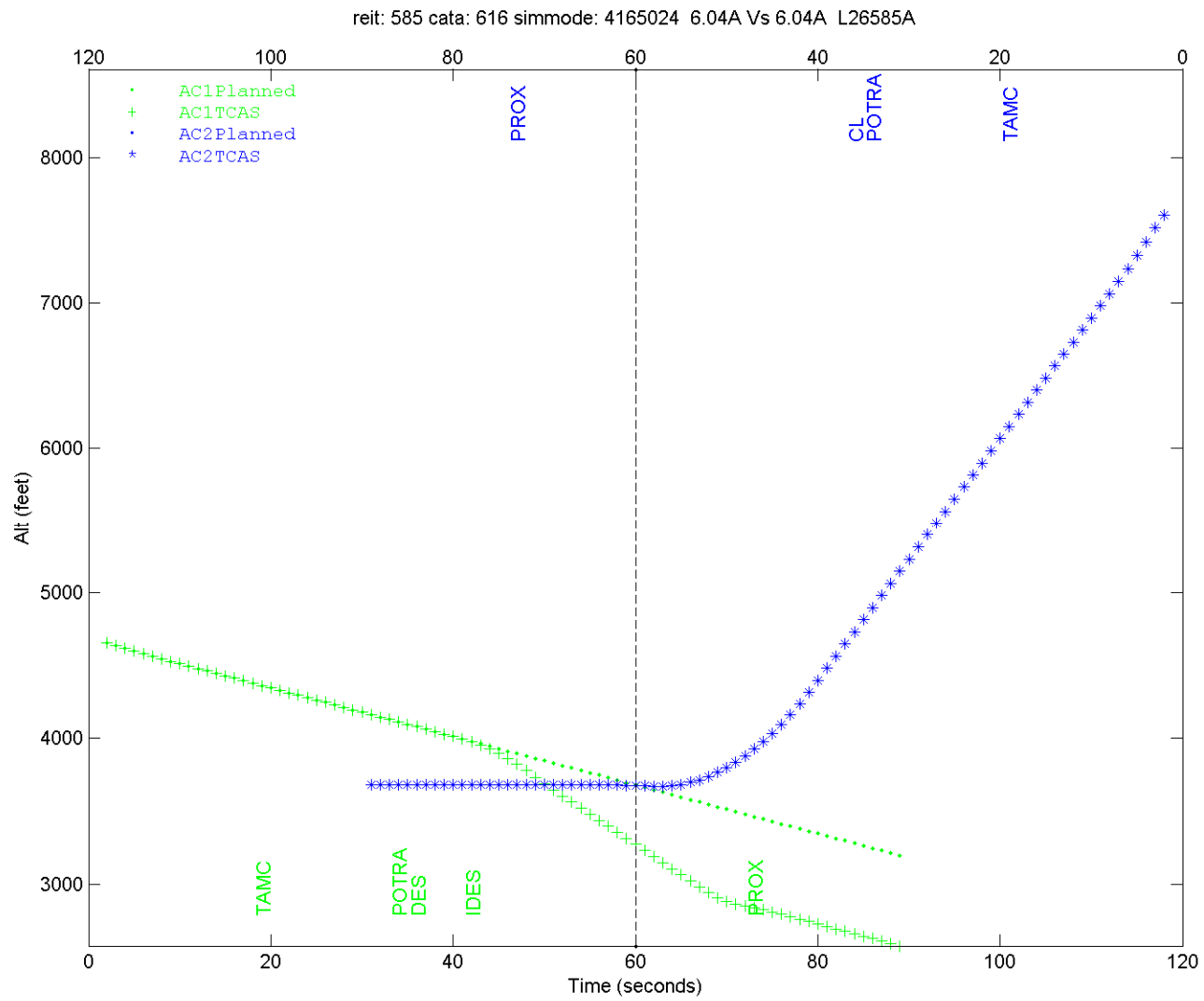
5 AC1:*REV*8175035 TA :19 |TAUR| POTRA@34 | DES @35[NX]| IDES @41| CL @48| ICL@51

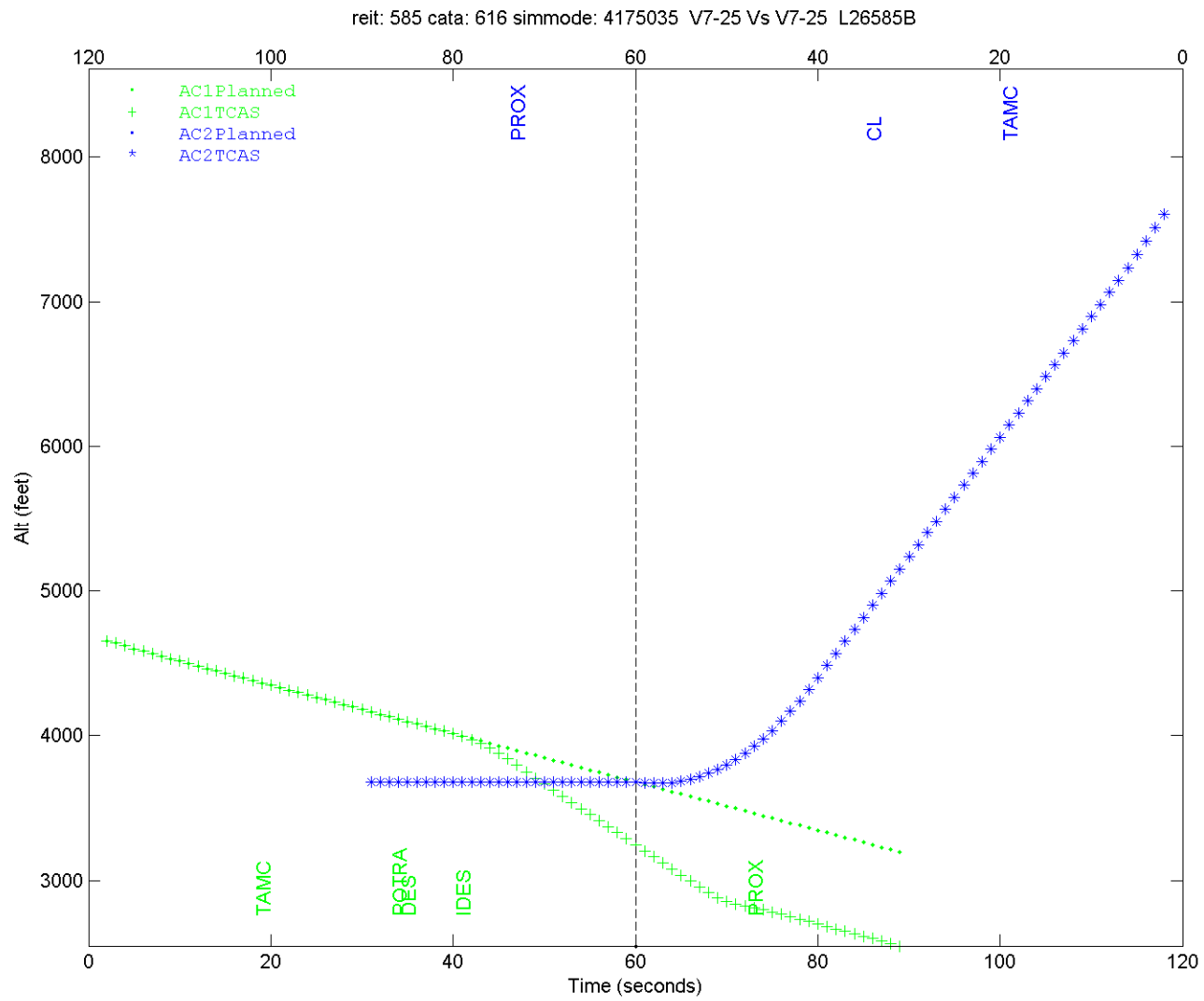
10 AC2:*REV*8275153 TA :19 |TAUR| CL @34[NX]| DES @48 ##NON-RESPONDING##

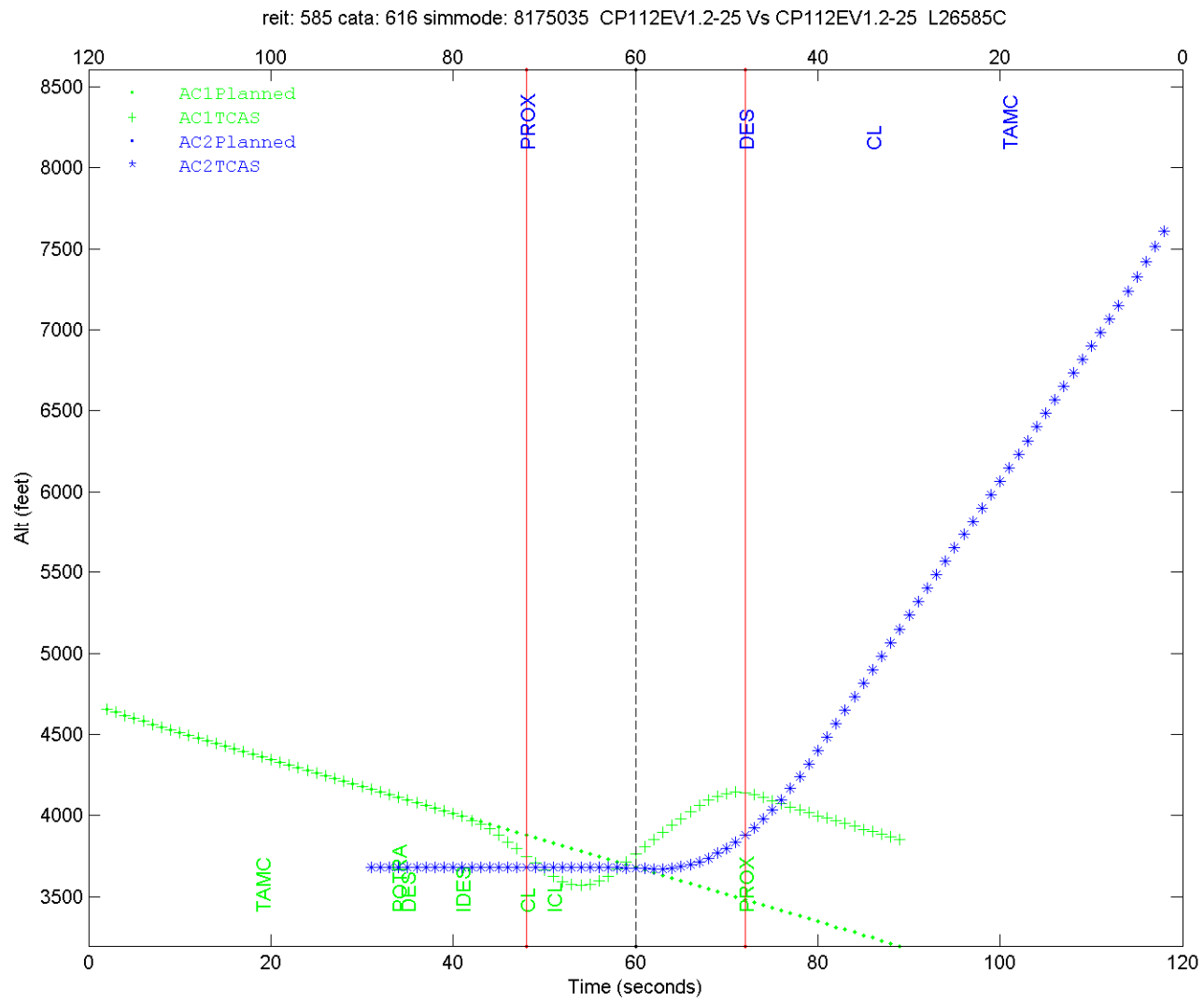
585 V7.1 25 FT R L VS V7.1 25 FT NR H 6 91.64 CROSSING_ENC

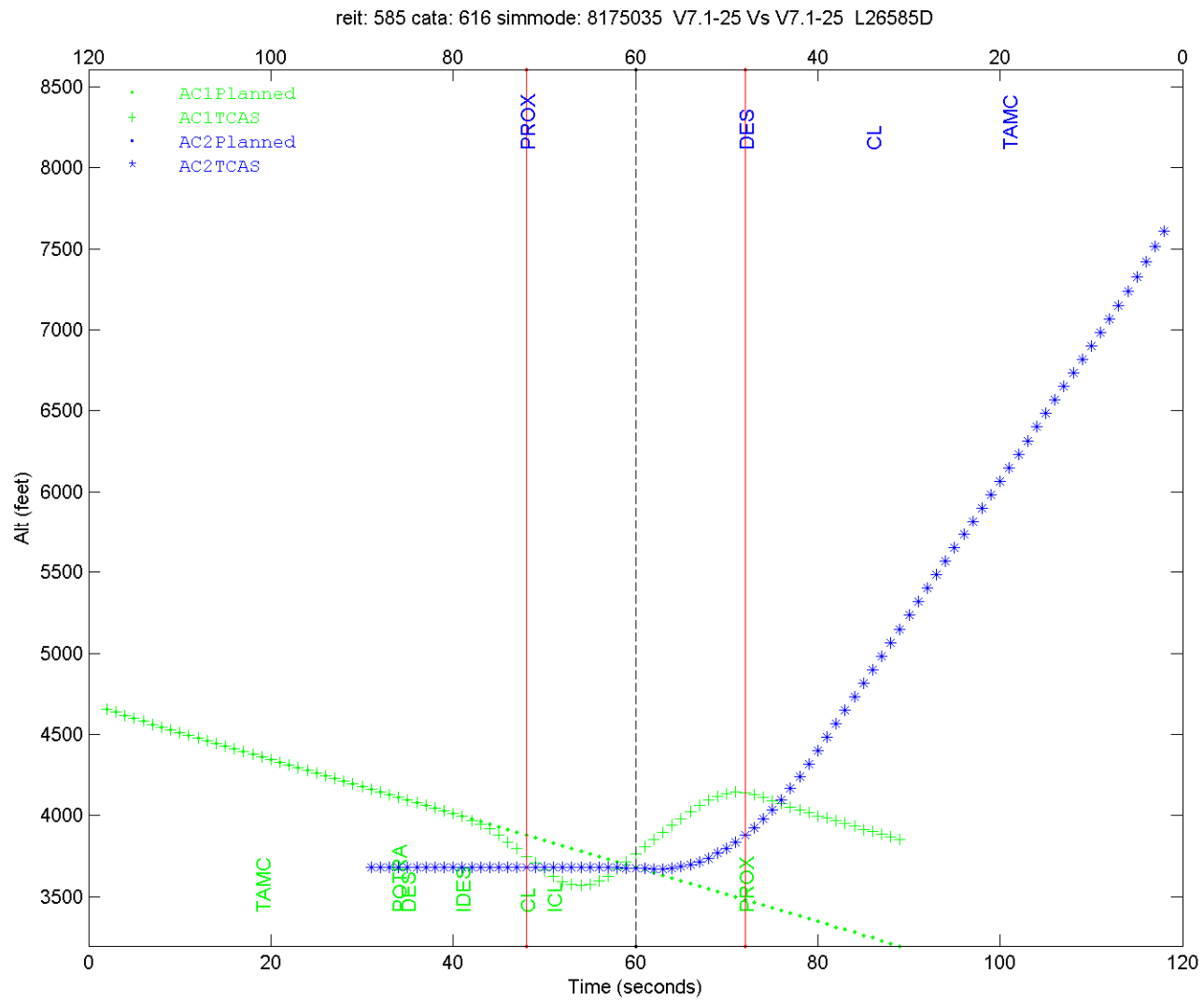
5 AC1:*REV*8175035 TA :19 |TAUR| POTRA@34 | DES @35[NX]| IDES @41| CL @48| ICL@51

10 AC2:*REV*8275153 TA :19 |TAUR| CL @34 [NX]| DES @48 ##NON-RESPONDING##









Change 7.1 Non-responding Representative NMAC Unres2

Encounter Class: 9

Reit Number : 7421

NMAC Characterization

Number of encounters in group	1	
AC1 low ID	no	
Non-responding AC	1	
Vertical tracker	25	ft
Planned separation	0	ft
AC1 rates:	5000	fpm
AC2 rates:	3000	fpm
AC1 acceleration:	-0.15	g
AC2 acceleration:	-0.15	g
AC1 acceleration time:	CPA – 25	sec
AC2 acceleration time:	CPA – 20	sec
Encounters with reversed RAs	100	%

Performance Statistics for entire encounter class

<u>25 ft</u>	
72	% of RAs were non-crossing
0	% of NMACs were non-crossing
98	% of RAs were not reversed
95	% of NMACs were not reversed

Comments

New reversal is triggered by responding aircraft. Aircraft 1 planned level-off maneuver defeats new reversal.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER H197421
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = 0.0 AC1 RATES(5000.0,0.0) AC2 RATES(3000.0,0.0)
 AC1 ACCEL -0.15g @ CPA -25 AC2 ACCEL -0.15g @ CPA -20 AC1 CPA ALT 7500

```
-----
7421 6.04A NR H VS 6.04A NR L 19 -704.79 NON_CROSSING_ENC

10 AC1: 4165142 TA :19 |TAUR| POTRA@34 (DFD)| DES @35 [NX]| LC1 @53 ##NON-RESPONDING##

5 AC2: 4265024 TA :19 |TAUR| MCL @34 [NX]| ICL @40 | LD5 @55

-----
7421 V7 25 FT NR H VS V7 25 FT R L 19 -704.79 NON_CROSSING_ENC

10 AC1: 4275053 TA :19 |TAUR| LC1 @34 [NX] ##NON-RESPONDING##

5 AC2: 4175135 TA :19 |TAUR| CL @34 [NX]| DDES @55

-----
7421 CP112EV1.2 25 FT NR H VS CP112EV1.2 25 FT R L 19 77.57 CROSSING_ENC

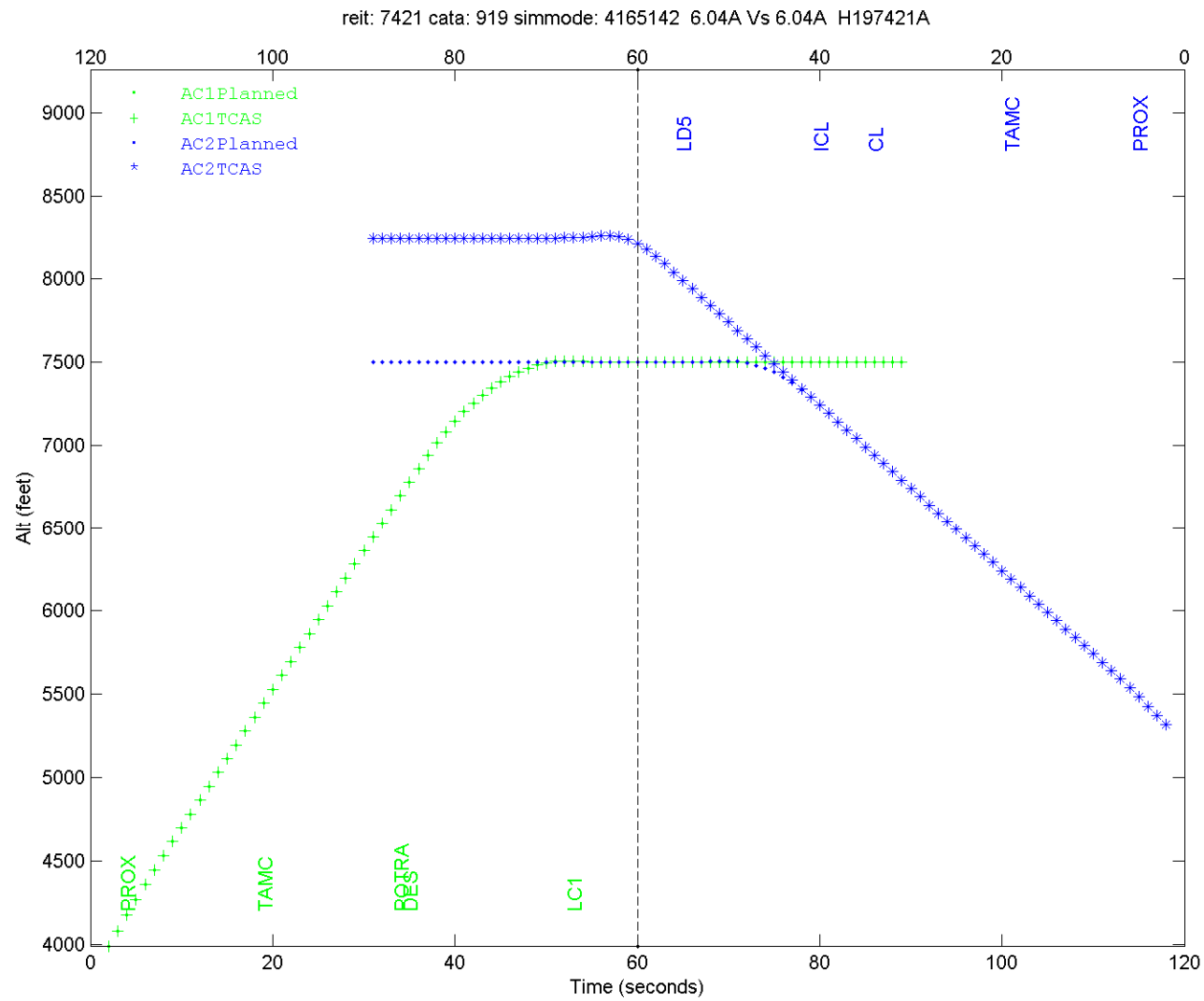
10 AC1:*REV*8275053 TA :19 |TAUR| LC1 @34 [NX]| CL @46 | ICL @49 ##NON-RESPONDING##

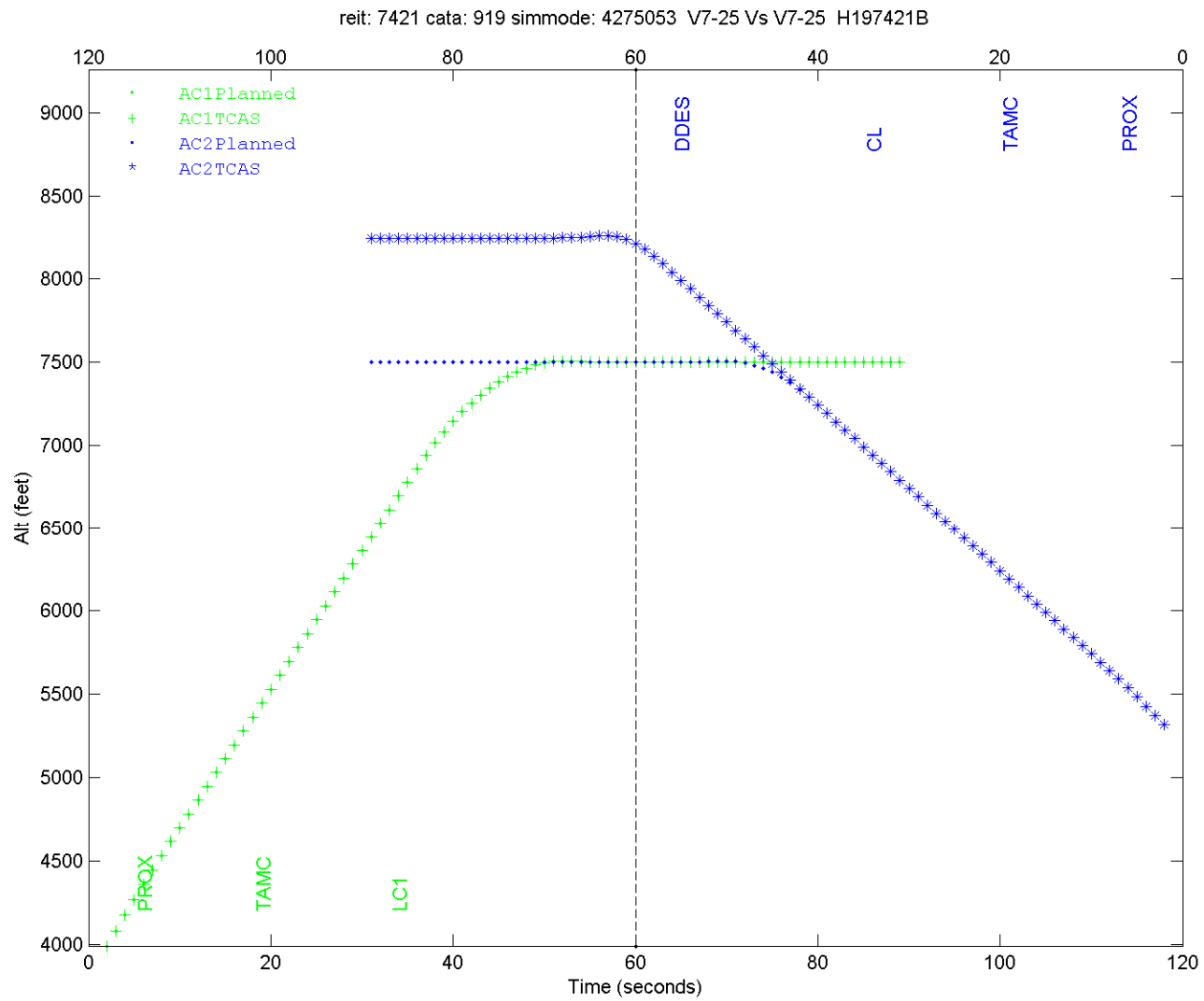
5 AC2:*REV*8175135 TA :19 |TAUR| CL @34 [NX]| DES @45 | IDES @48

-----
7421 V7.1 25 FT NR H VS V7.1 25 FT R L 19 77.57 CROSSING_ENC

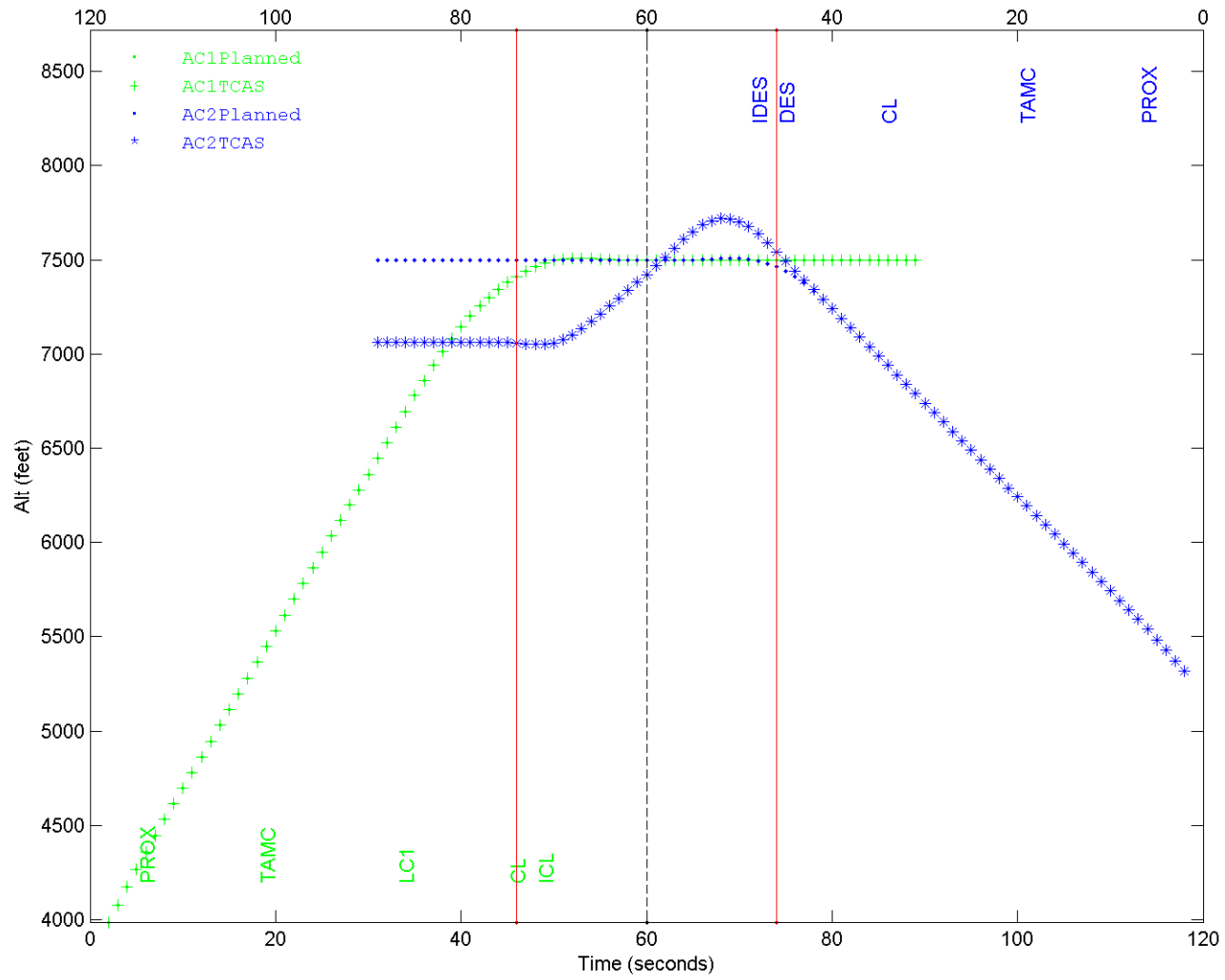
10 AC1:*REV*8275053 TA :19 |TAUR| DCL @34 [NX]| CL @46 | ICL @49 ##NON-RESPONDING##

5 AC2:*REV*8175135 TA :19 |TAUR| CL @34 [NX]| DES @45 | IDES @48
```

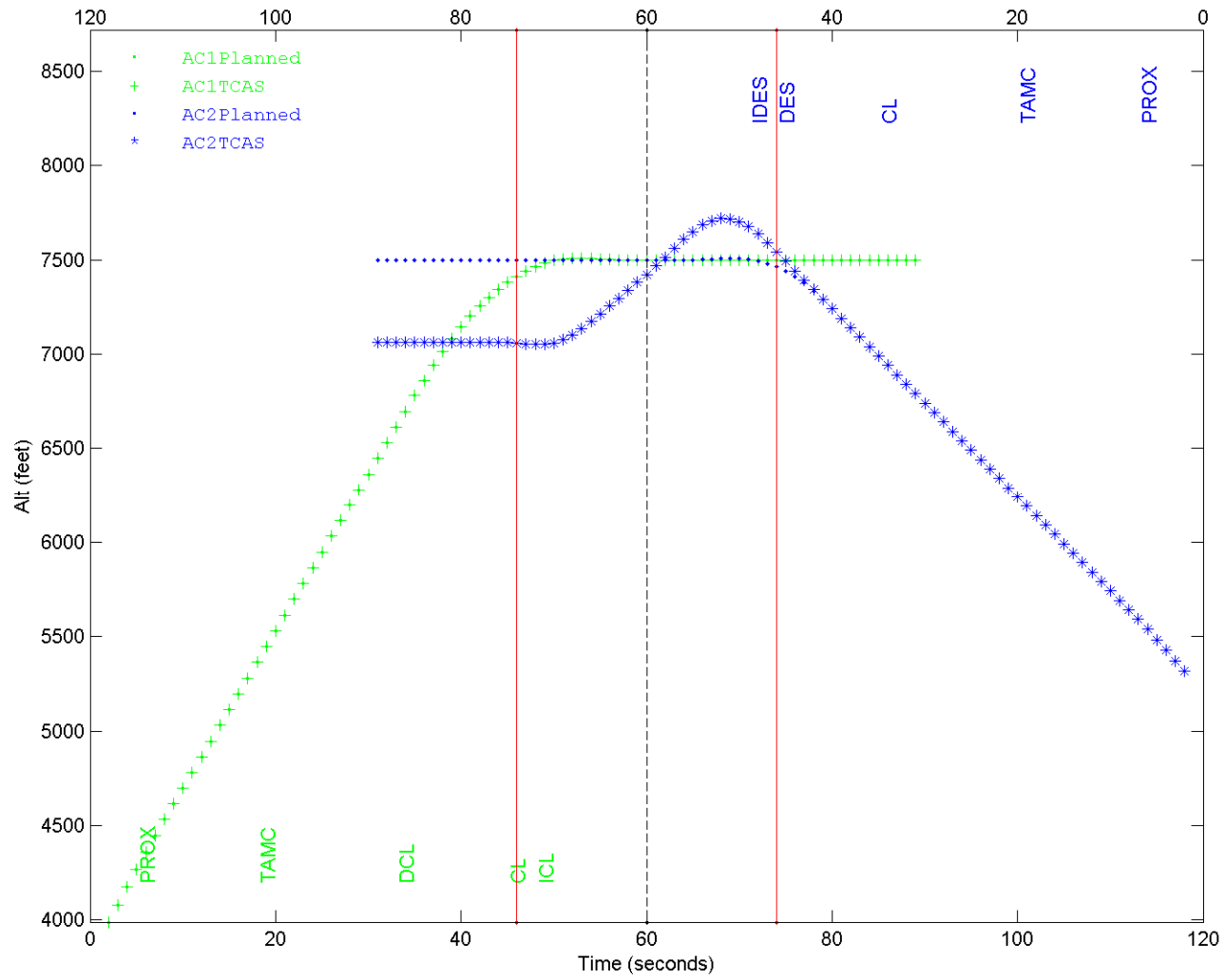




reit: 7421 cata: 919 simmode: 8275053 CP112EV1.2-25 Vs CP112EV1.2-25 H197421C



reit: 7421 cata: 919 simmode: 8275053 V7.1-25 Vs V7.1-25 H197421D



Induced NMACs

Change 7.1 Non-responding Representative NMAC Ind01

Encounter Class: 5

Reit Number : 4496

NMAC Characterization

Number of encounters in group	3
AC1 low ID	no
Non-responding AC	2
Vertical tracker	25 ft
Planned separation	+/-500 ft
AC1 rates:	5000 fpm
AC2 rates:	3000 fpm
AC1 acceleration:	none
AC2 acceleration:	0.35 g
AC2 acceleration time:	CPA – 30 sec
Encounters with reversed RAs	100 %

Performance Statistics for entire encounter class

<u>25 ft</u>	
95	% of RAs were non-crossing
100	% of NMACs were non-crossing
96	% of RAs were not reversed
78	% of NMACs were not reversed

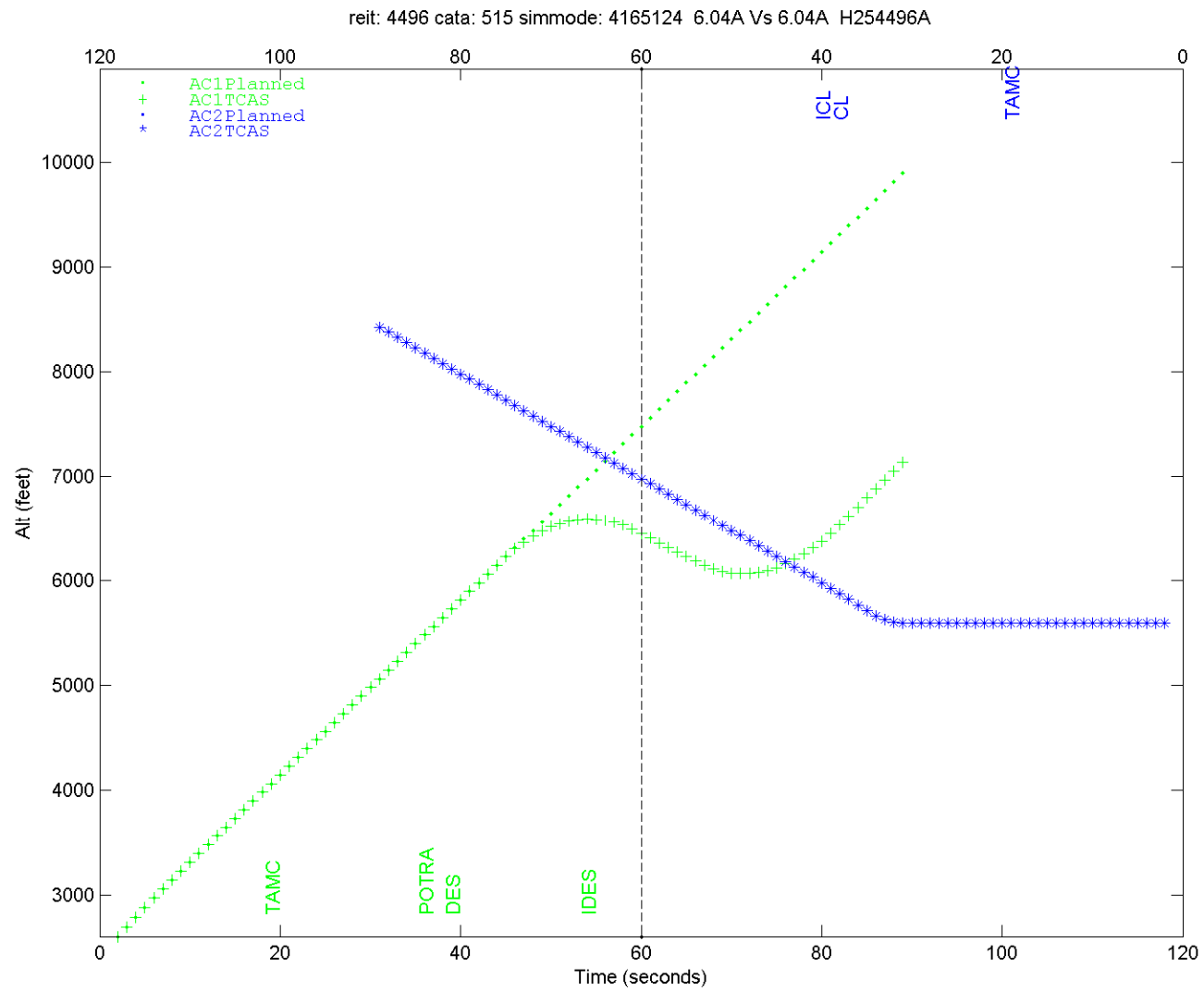
Comments

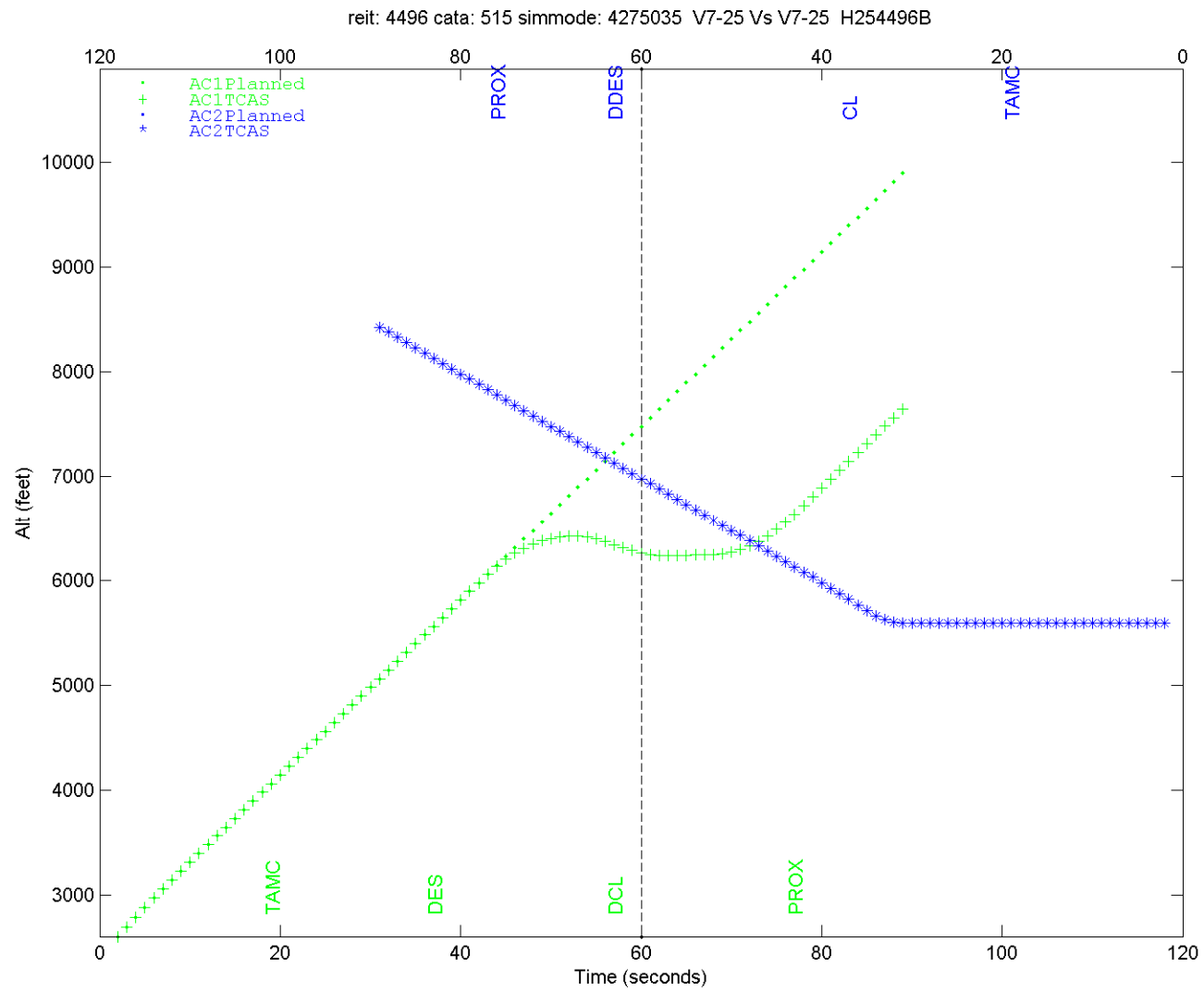
New reversal. Caused by CP112E. Non-responding aircraft 2 triggers reversal. Aircraft 1 climbing at 5000 fpm just beginning to show response to initial DES RA when reversal is forced by aircraft 2.

```

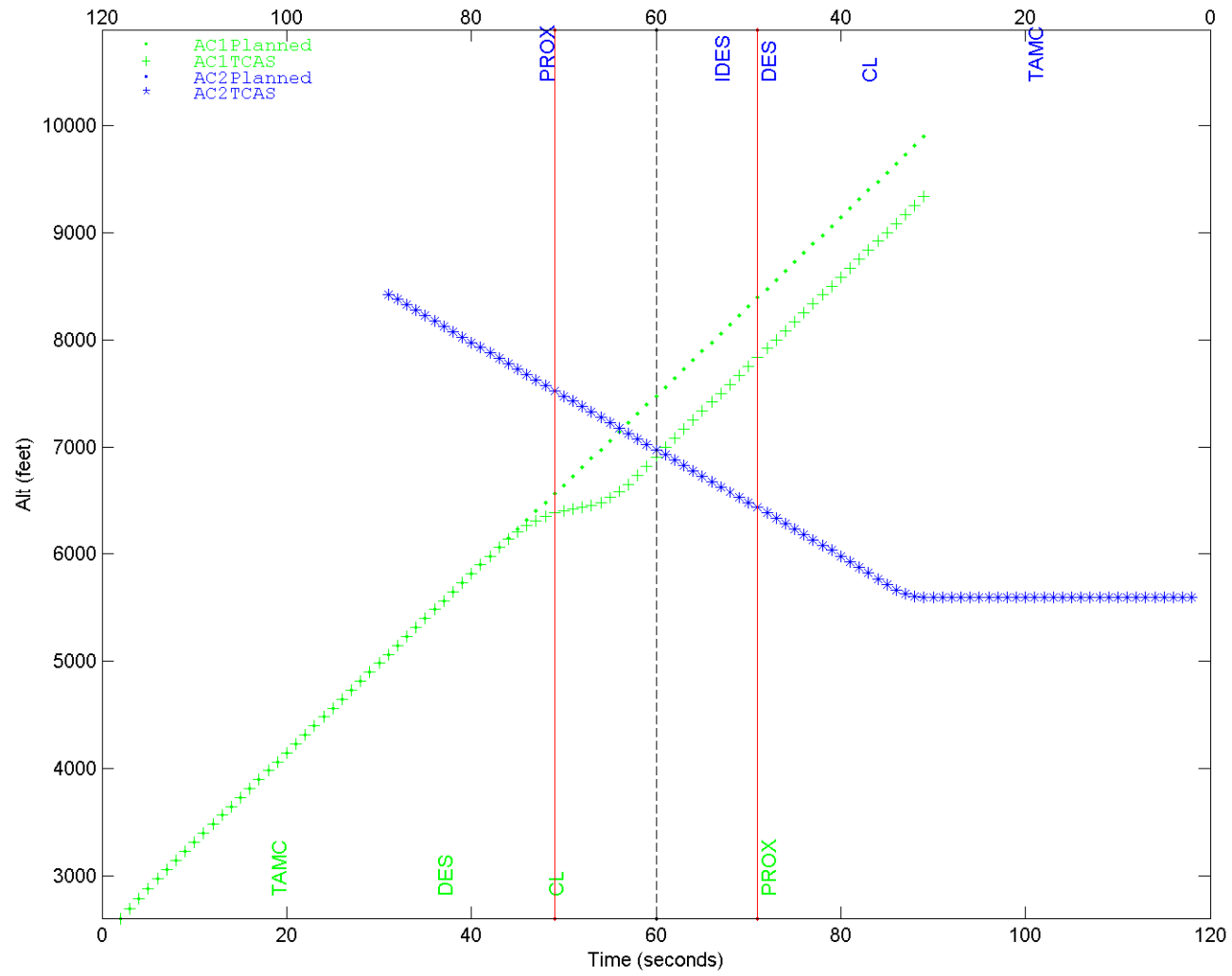
SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER H254496
LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUV = 25 ALIM = 350
PLANNED ENCOUNTER. SEP = 500.0 AC1 RATES(5000.0,5000.0) AC2 RATES(0.0,3000.0)
      AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.35g @ CPA -30 AC1 CPA ALT 7480
-----
4496 6.04A R H VS 6.04A NR L 5 -543.08 CROSSING_ENC
10 AC1: 4165124 TA :19 |PVMD| POTRA@36 (DFD)| DES @39 [NX]| IDES @54
5 AC2: 4265042 TA :19 |PVMD| MCL @38 [NX]| ICL @40 | MCL @60 ###NON-RESPONDING##
-----
4496 V7 25 FT R H VS V7 25 FT NR L 5 -716.41 NON_CROSSING_ENC
10 AC1: 4275035 TA :19 |PVMD| DES @37 [NX]| DCL @57
5 AC2: 4175153 TA :19 |PVMD| CL @37 [NX]| DDES @63 ###NON-RESPONDING##
-----
4496 CP112EV1.2 25 FT R H VS CP112EV1.2 25 FT NR L 5 -58.43 CROSSING_ENC
10 AC1:*REV*8275035 TA :19 |PVMD| DES @37 [NX]| CL @49
5 AC2:*REV*8175153 TA :19 |PVMD| CL @37 [NX]| DES @48 | IDES @53 ###NON-RESPONDING##
-----
4496 V7.1 25 FT R H VS V7.1 25 FT NR L 5 -58.43 CROSSING_ENC
10 AC1:*REV*8275035 TA :19 |PVMD| DES @37 [NX]| CL @49
5 AC2:*REV*8175153 TA :19 |PVMD| CL @37 [NX]| DES @48 | IDES @53 ###NON-RESPONDING##

```

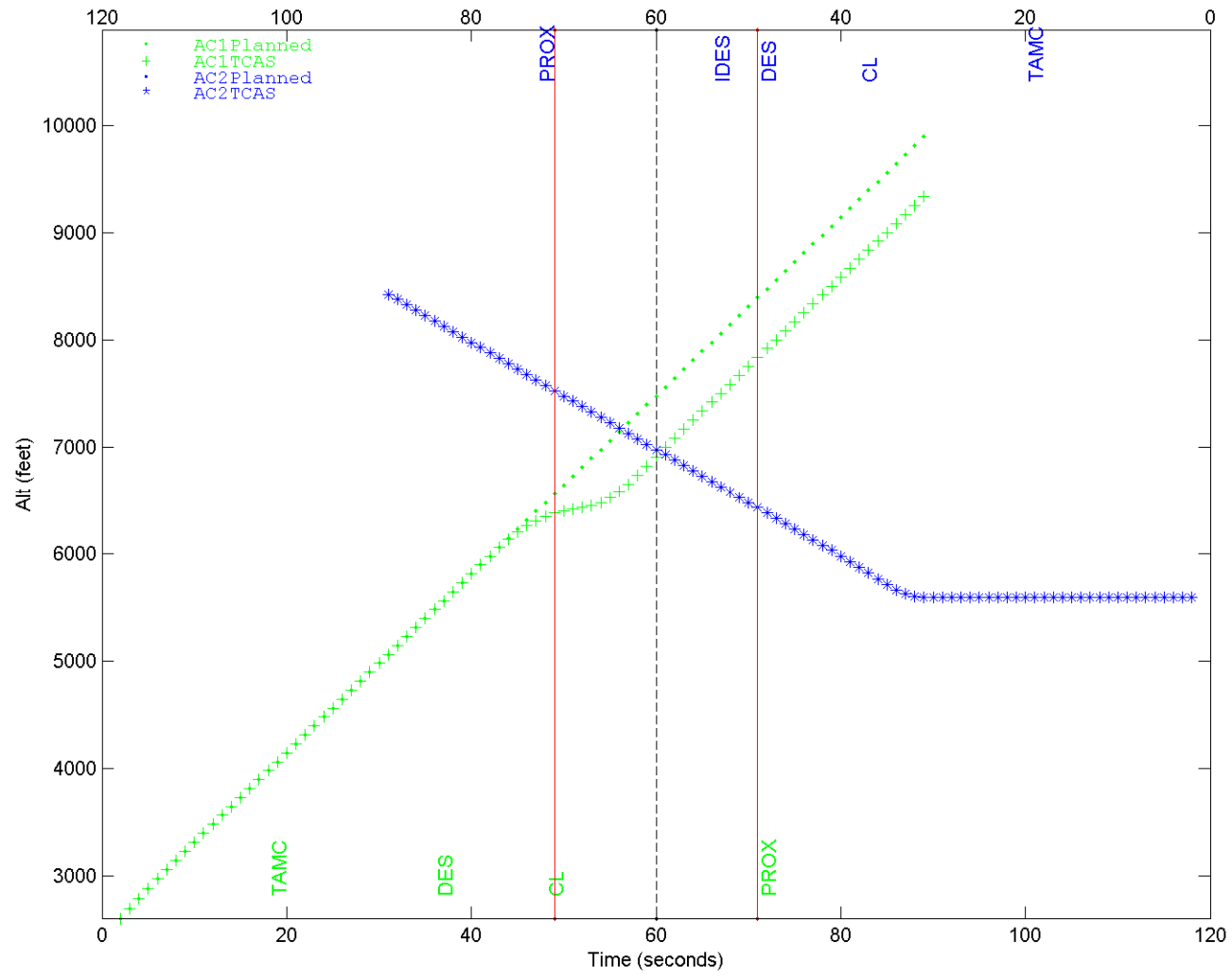




reit: 4496 cata: 515 simmode: 8275035 CP112EV1.2-25 Vs CP112EV1.2-25 H254496C



reit: 4496 cata: 515 simmode: 8275035 V7.1-25 Vs V7.1-25 H254496D



Change 7.1 Non-responding Representative NMAC Ind02

Encounter Class: 5

Reit Number : 650

NMAC Characterization

Number of encounters in group	2
AC1 low ID	no
Non-responding AC	2
Vertical tracker	25 ft
Planned separation	-500 ft
AC1 rates:	-1000 fpm
AC2 rates:	1000 fpm
AC1 acceleration:	none
AC2 acceleration:	0.25 g
AC2 acceleration time:	CPA – 20 sec
Encounters with reversed RAs	100 %

Performance Statistics for entire encounter class

<u>25 ft</u>	
95	% of RAs were non-crossing
100	% of NMACs were non-crossing
96	% of RAs were not reversed
78	% of NMACs were not reversed

Comments

New NMAC is caused by CP112E. Aircraft 1 and aircraft 2 are essentially co-altitude when initial RA occurs.

Level aircraft gets DES RA and descending aircraft gets CL.

With 6.04a level aircraft gets CL RA and descending aircraft gets DES RA with much better outcome.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER L25650
 LOGIC THRESHOLDS SL = 4 ZTHR = 600 TAUR = 20 TAUV = 20 ALIM = 300
 PLANNED ENCOUNTER. SEP = -500.0 AC1 RATES(-1000.0,-1000.0) AC2 RATES(0.0,1000.0)
 AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.25g @ CPA -20 AC1 CPA ALT 3680

```
-----
650 6.04A R L VS 6.04A NR H 5 -583.33 CROSSING_ENC

5 AC1: 4165024 TA :30 |TAUR| DES @40 [X] | DCL @53

10 AC2: 4265142 TA :30 |TAUR| CL @40 [X] | LD5 @53 ##NON-RESPONDING##

-----
650 V7 25 FT R L VS V7 25 FT NR H 5 175.62 CROSSING_ENC

5 AC1: 4175035 TA :30 |TAUR| CL @40 [NX]| ICL @47

10 AC2: 4275153 TA :30 |TAUR| DES @40 [NX]| IDES @43 ##NON-RESPONDING##

-----
650 CP112EV1.2 25 FT R L VS CP112EV1.2 25 FT NR H 5 -27.06 CROSSING_ENC

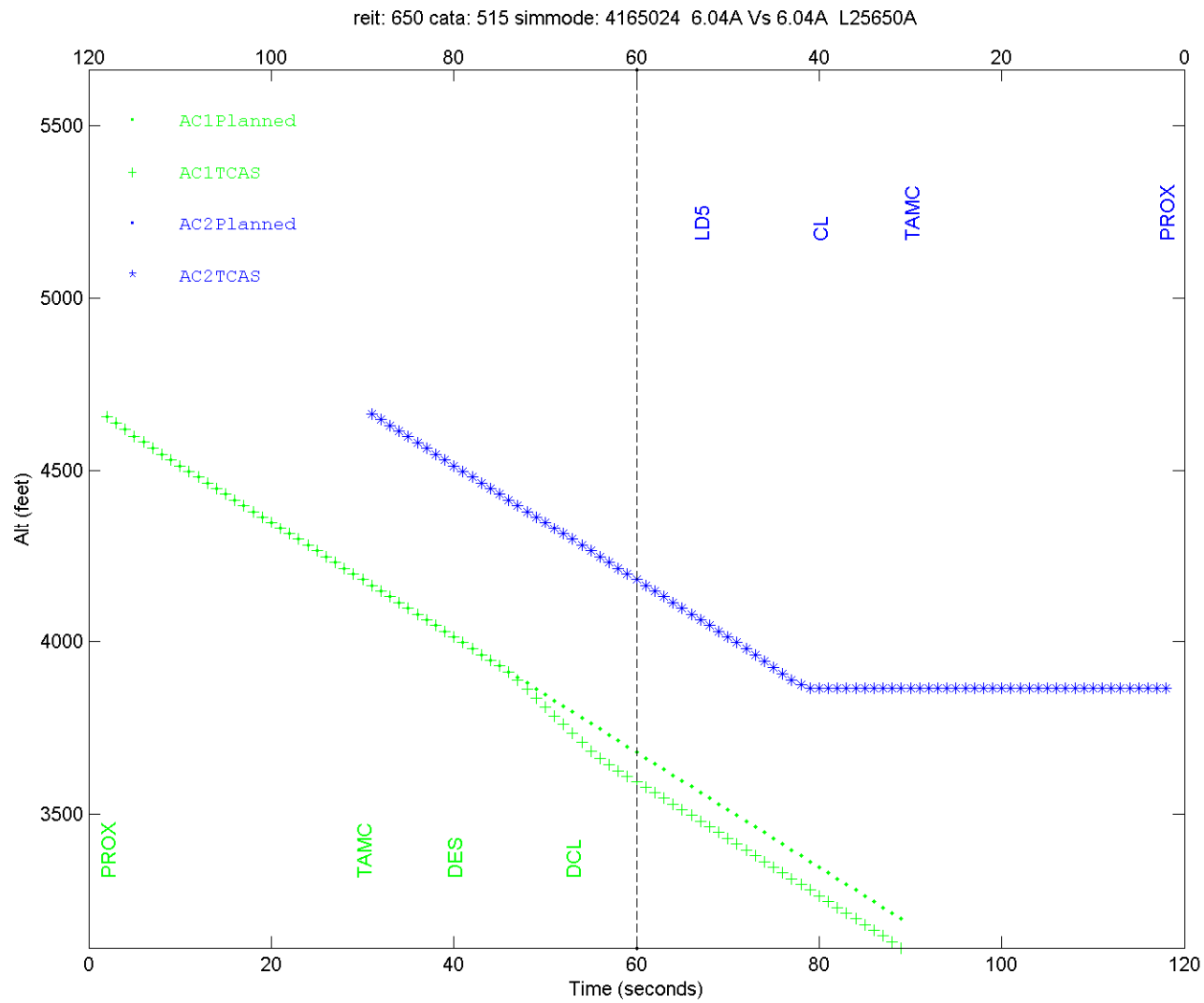
5 AC1:*REV*8175035 TA :30 |TAUR| CL @40 [NX]| ICL @47 | DES @52 | IDES @54

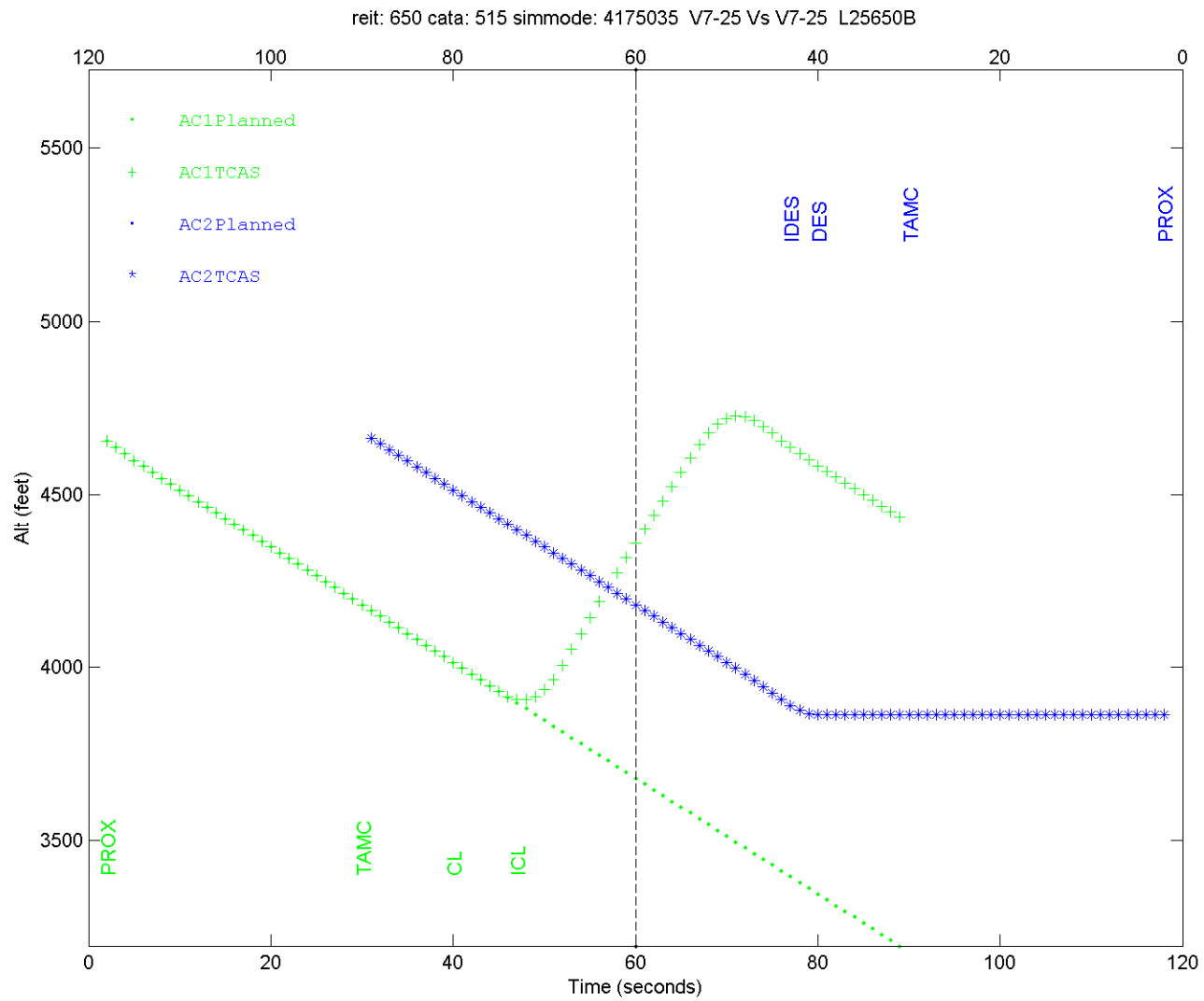
10 AC2:*REV*8275153 TA :30 |TAUR| DES @40 [NX]| IDES @43 | CL @52 ##NON-RESPONDING##

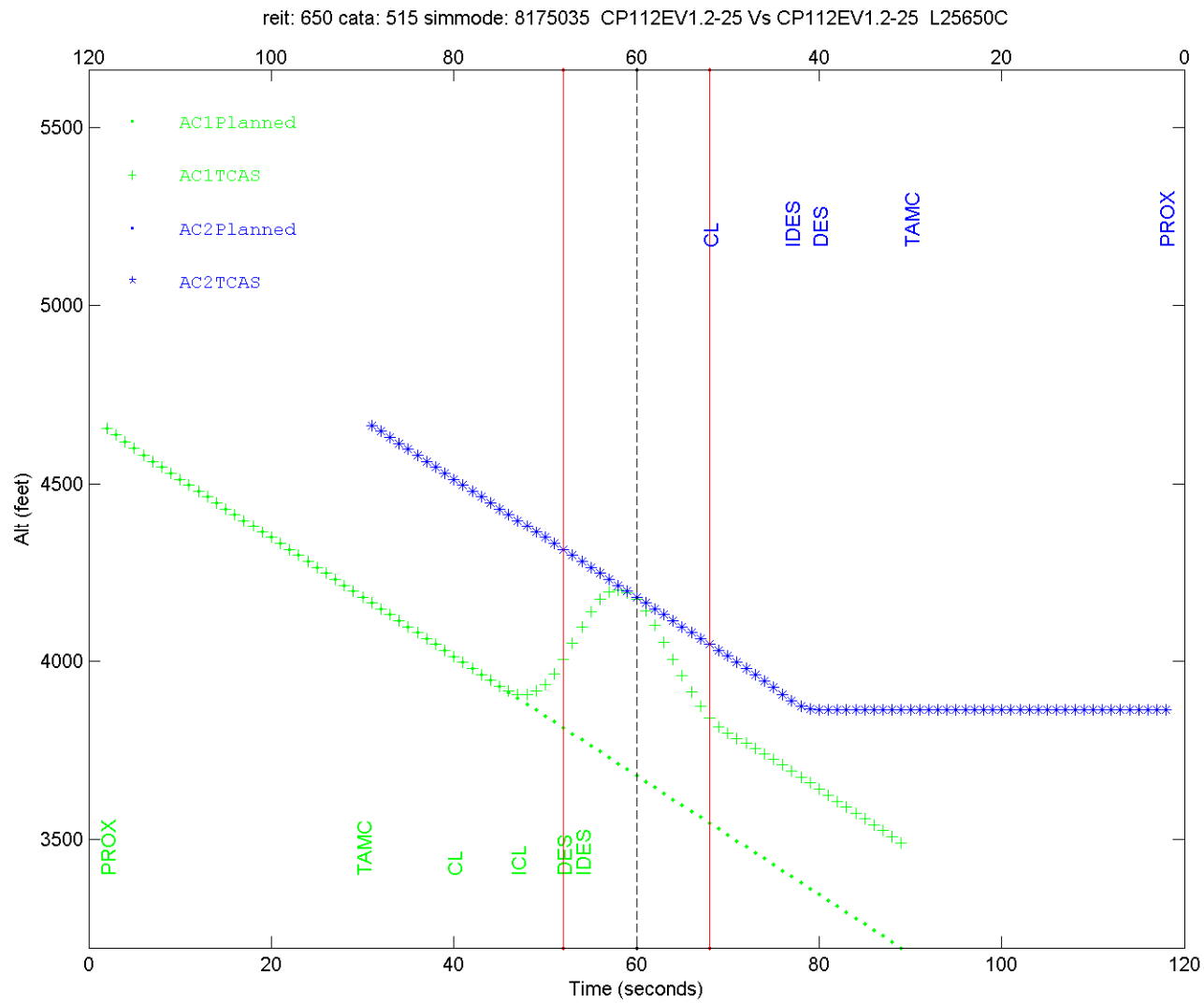
-----
650 V7.1 25 FT R L VS V7.1 25 FT NR H 5 -27.06 CROSSING_ENC

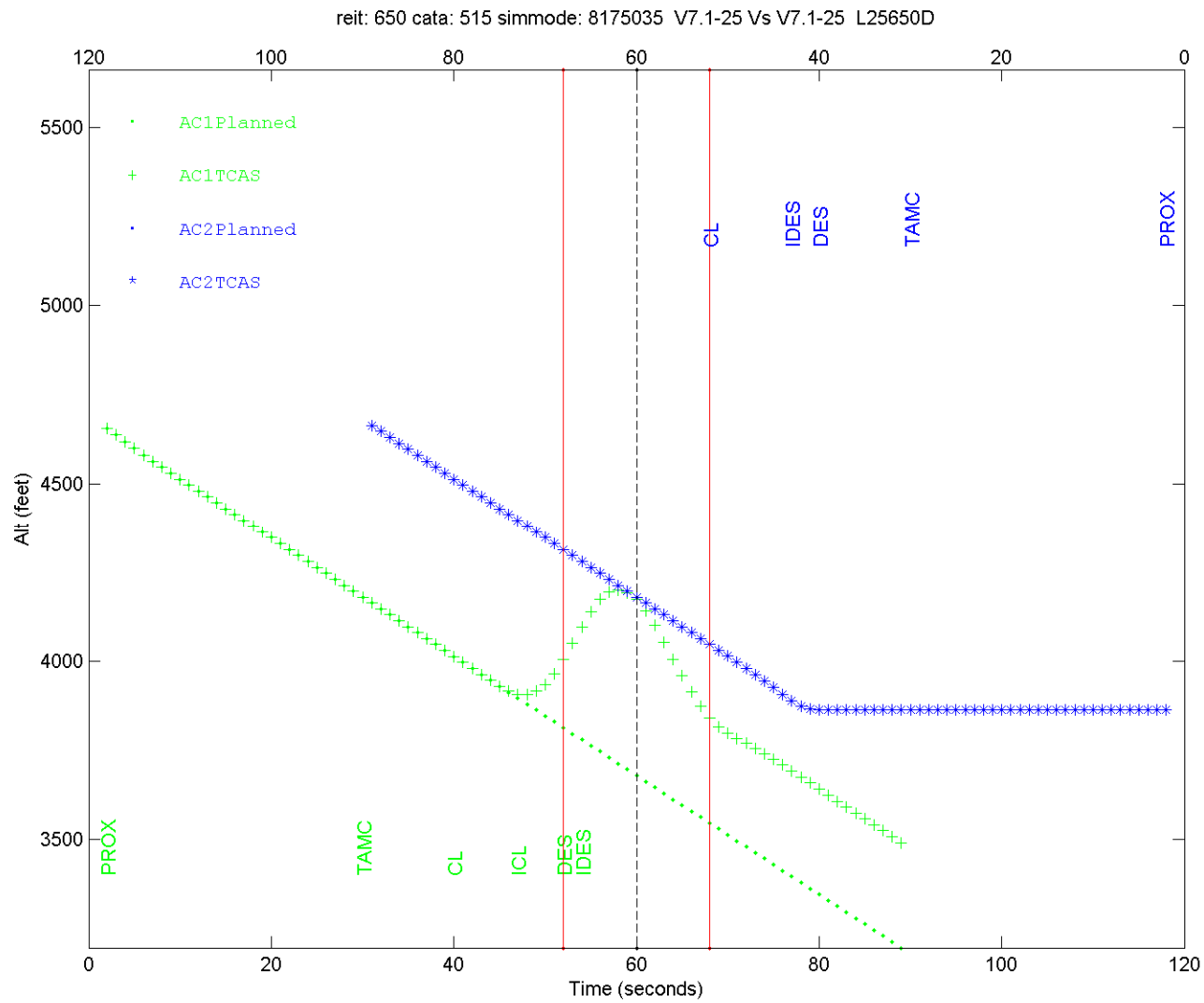
5 AC1:*REV*8175035 TA :30 |TAUR| CL @40 [NX]| ICL @47 | DES @52 | IDES @54

10 AC2:*REV*8275153 TA :30 |TAUR| DES @40 [NX]| IDES @43 | CL @52 ##NON-RESPONDING##
```









Change 7.1 Non-responding Representative NMAC Ind03

Encounter Class: 5

Reit Number : 5718

NMAC Characterization

Number of encounters in group	2
AC1 low ID	yes
Non-responding AC	1
Vertical tracker	25 ft
Planned separation	-500 ft
AC1 rates:	3000 fpm
AC2 rates:	5000 fpm
AC1 acceleration:	none
AC2 acceleration:	0.25 g
AC2 acceleration time:	CPA – 30 sec
Encounters with reversed RAs	100 %

Performance Statistics for entire encounter class

<u>25 ft</u>	
95	% of RAs were non-crossing
100	% of NMACs were non-crossing
96	% of RAs were not reversed
78	% of NMACs were not reversed

Comments

New NMAC is caused by CP115. This encounter is not an NMAC for CP112E.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER L155718
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = -500.0 AC1 RATES(3000.0,3000.0) AC2 RATES(0.0,5000.0)
 AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.25g @ CPA -30 AC1 CPA ALT 7520

5718 6.04A NR L VS 6.04A R H 5 612.09 CROSSING_ENC

5 AC1: 4165042 TA :19 |PVMD| MCL @38 [NX]| ICL @41 | MCL @60 ##NON-RESPONDING##

10 AC2: 4265124 TA :19 |PVMD| POTRA@37 (DFD) | DES @38 [NX]

5718 V7 25 FT NR L VS V7 25 FT R H 5 870.16 CROSSING_ENC

5 AC1: 4175053 TA :19 |PVMD| POTRA@37 | CL @38 [NX] ##NON-RESPONDING##

10 AC2: 4275135 TA :19 |PVMD| LC2 @37 [NX]| LC1 @41| DES @42| IDES @45 | DCL @55

5718 CP112EV1.2 25 FT NR L VS CP112EV1.2 25 FT R H 5 174.24 CROSSING_ENC

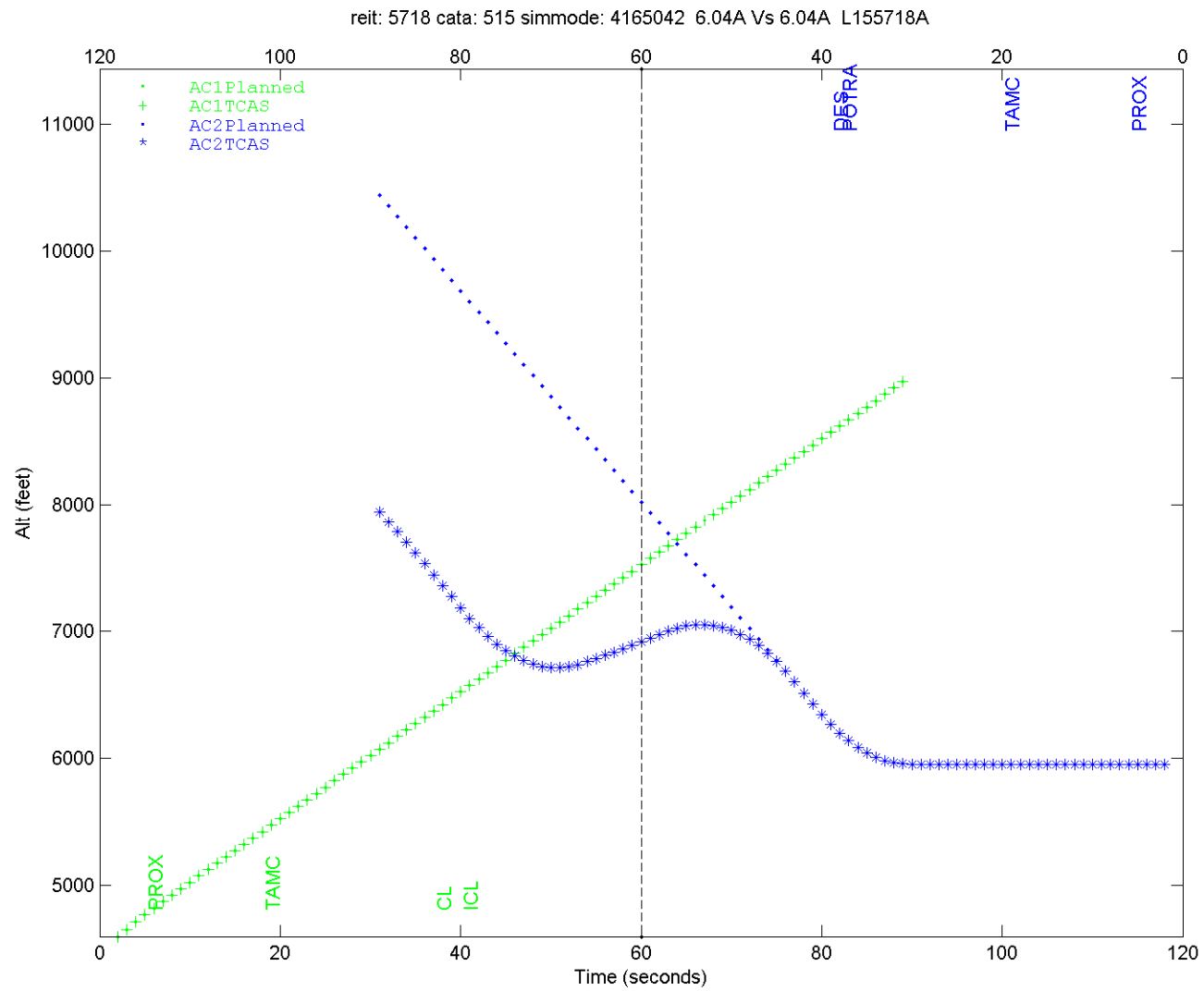
5 AC1:*REV*8175053 TA :19 |PVMD| POTRA@37 | CL @38 [NX]| DES @49 ##NON-RESPONDING##

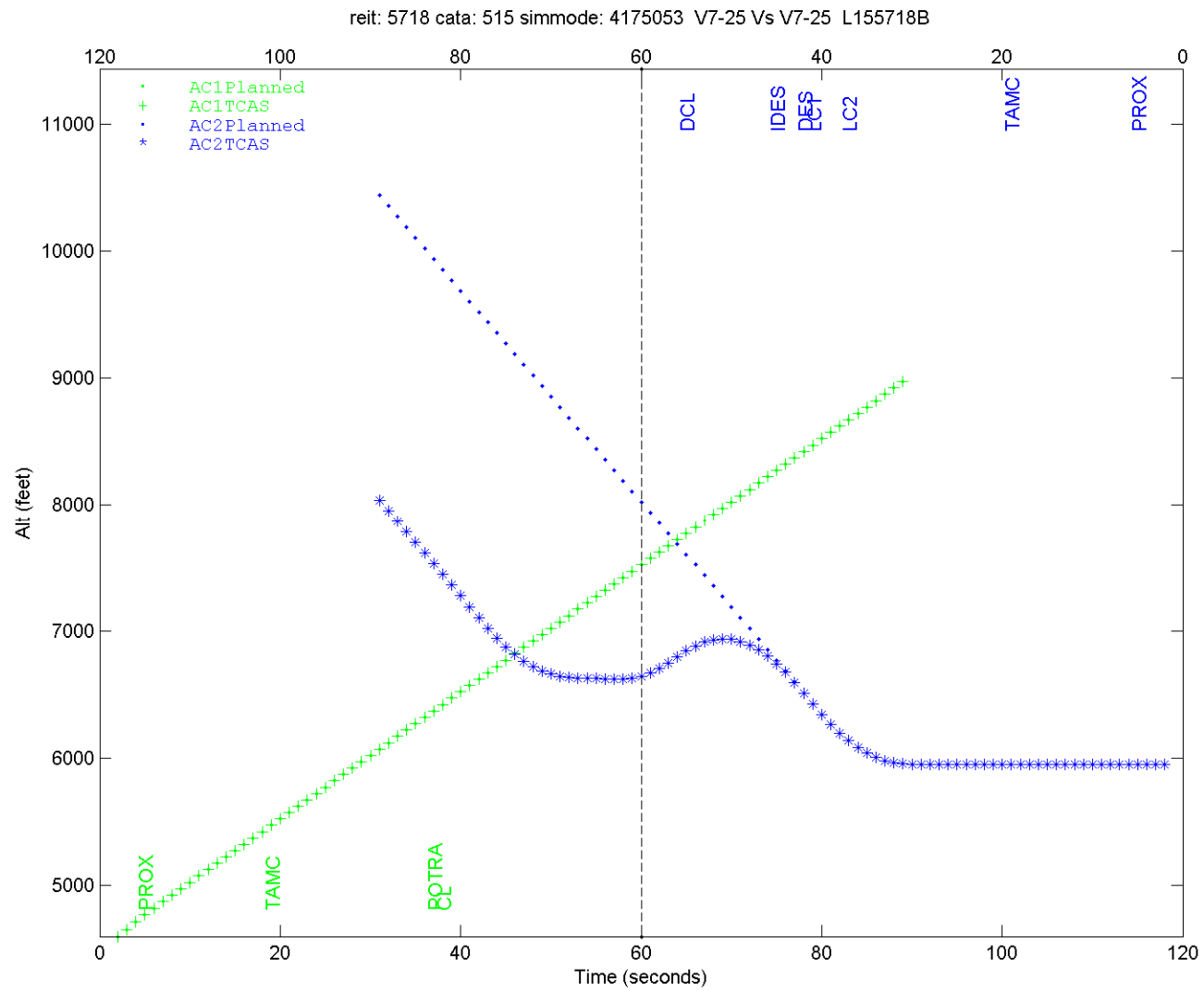
10 AC2:*REV*8275135 TA :19 |PVMD| LC2 @37[NX]| LC1 @41| DES @42| IDES @45| CL @49
 | ICL @51

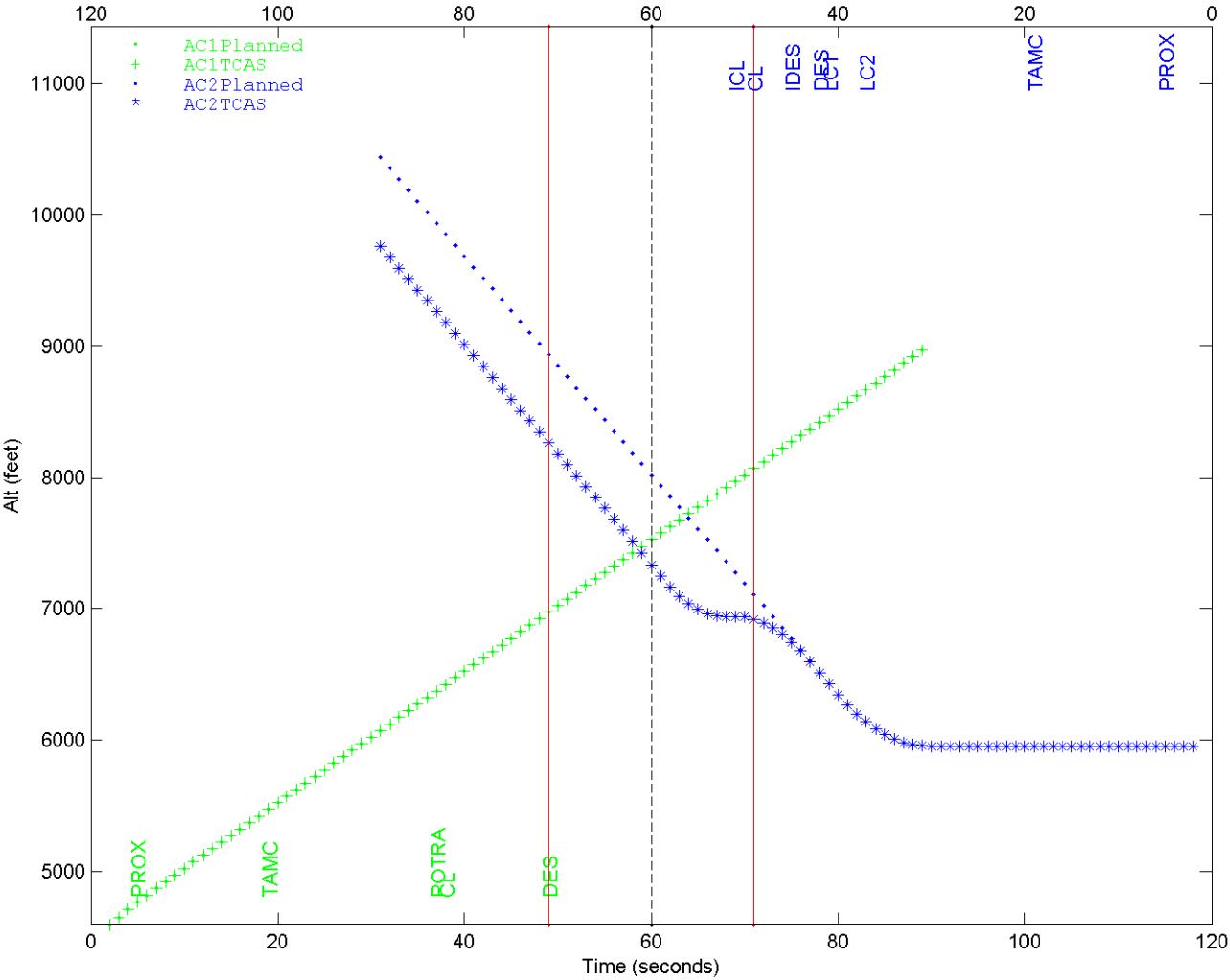
5718 V7.1 25 FT NR L VS V7.1 25 FT R H 5 58.42 CROSSING_ENC

5 AC1:*REV*8175053 TA :19 |PVMD| POTRA@37 | CL @38 [NX]| DES @49 | IDES @51 ##NON-RESPONDING##

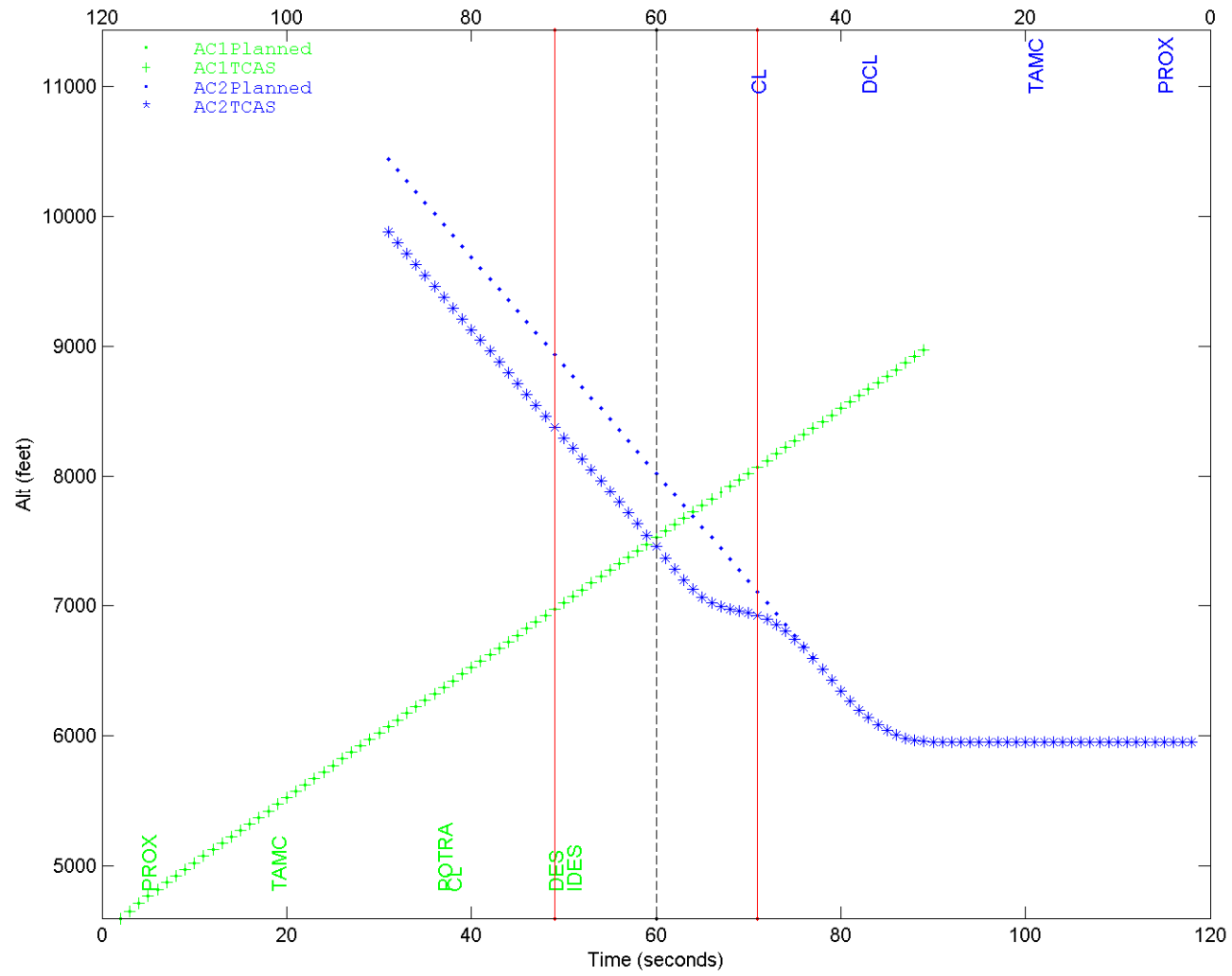
10 AC2:*REV*8275135 TA :19 |PVMD| DCL @37 [NX]| CL @49







reit: 5718 cata: 515 simmode: 8175053 V7.1-25 Vs V7.1-25 L155718D



Change 7.1 Non-responding Representative NMAC Ind04

Encounter Class: 6

Reit Number : 3352

NMAC Characterization

Number of encounters in group	1
AC1 low ID	no
Non-responding AC	2
Vertical tracker	25 ft
Planned separation	-500 ft
AC1 rates:	-3000 fpm
AC2 rates:	-5000 fpm
AC1 acceleration:	none
AC2 acceleration:	0.15 g
AC2 acceleration time:	CPA – 25 sec
Encounters with reversed RAs	100 %

Performance Statistics for entire encounter class

<u>25 ft</u>	
85	% of RAs were non-crossing
67	% of NMACs were non-crossing
96	% of RAs were not reversed
78	% of NMACs were not reversed

Comments

New NMAC caused by CP112E. CP115 + CP112E better than just CP112E, but still NMAC.
Non-responding aircraft 2 planned level-off maneuver triggers reversal to climb.
6.04a was NMAC also.

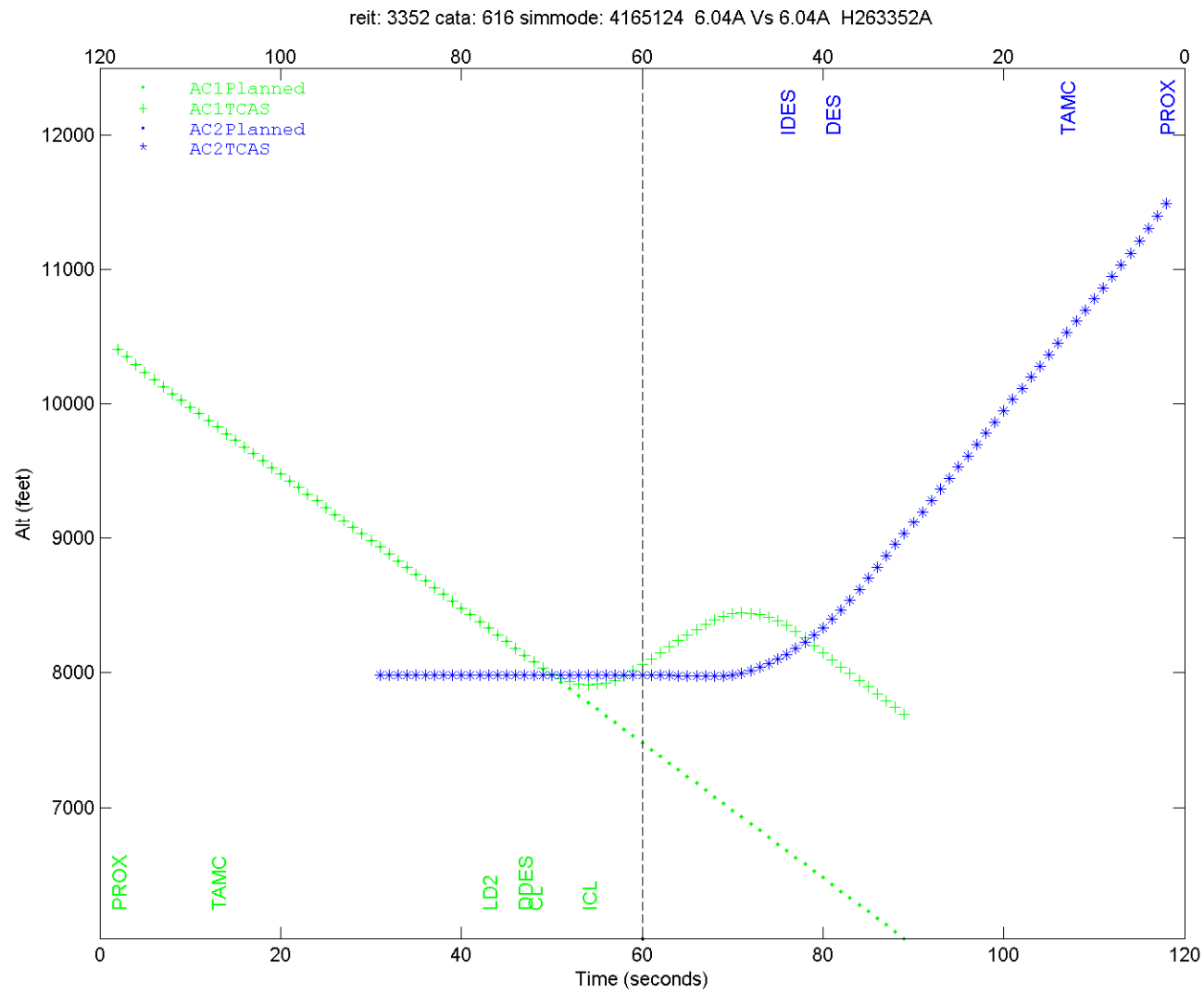
SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER H263352
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = -500.0 AC1 RATES(-3000.0,-3000.0) AC2 RATES(-5000.0,0.0)
 AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.15g @ CPA -25 AC1 CPA ALT 7480

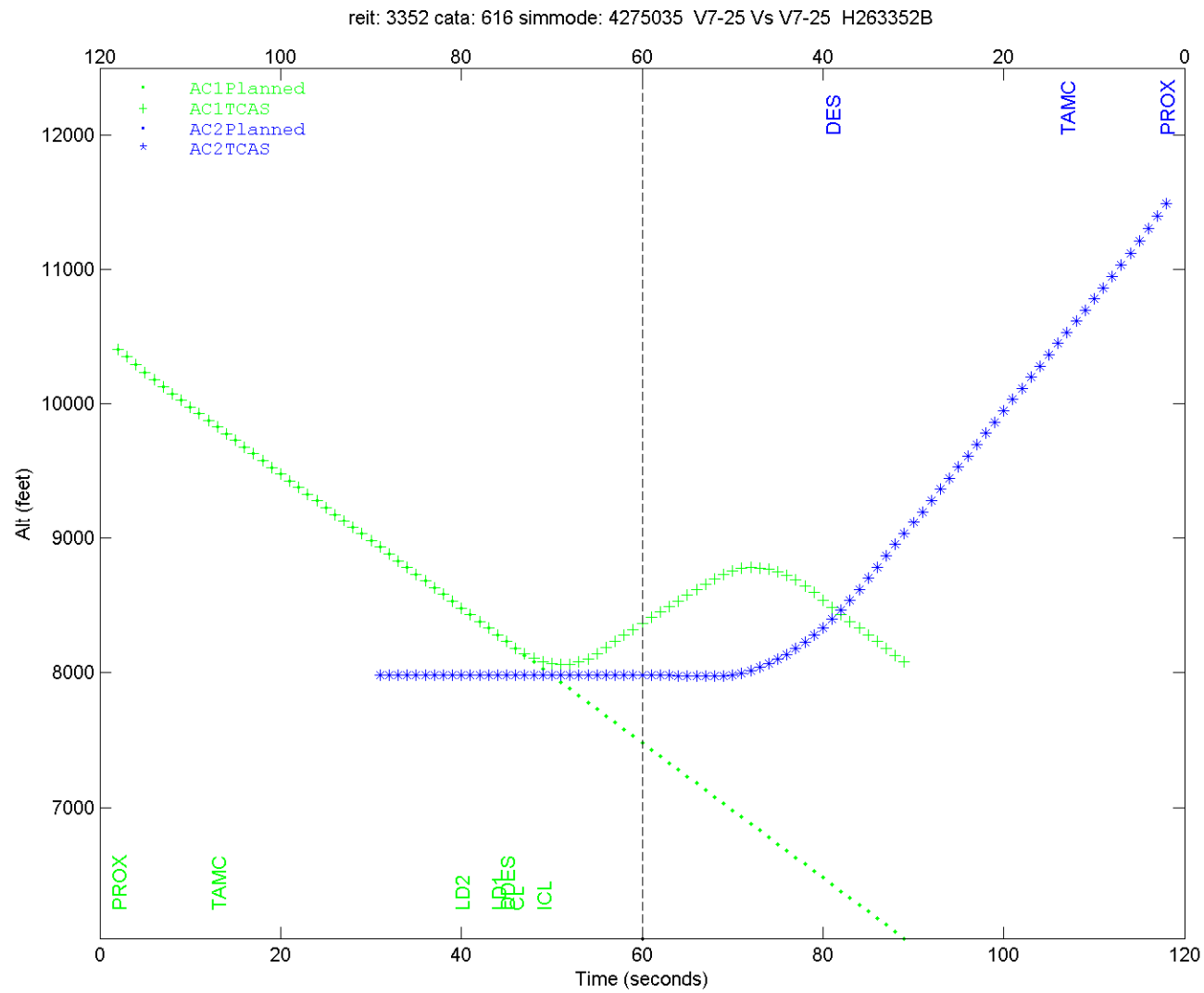
 3352 6.04A R H VS 6.04A NR L 6 90.89 CROSSING_ENC
 10 AC1: 4165124 TA :13 |PVMD| LD2 @43 [NX]| DDES @47 | CL @48 | ICL @54
 5 AC2: 4265042 TA :13 |PVMD| MDES @39 [NX]| DES @41 | IDES @44 ##NON-
 RESPONDING##

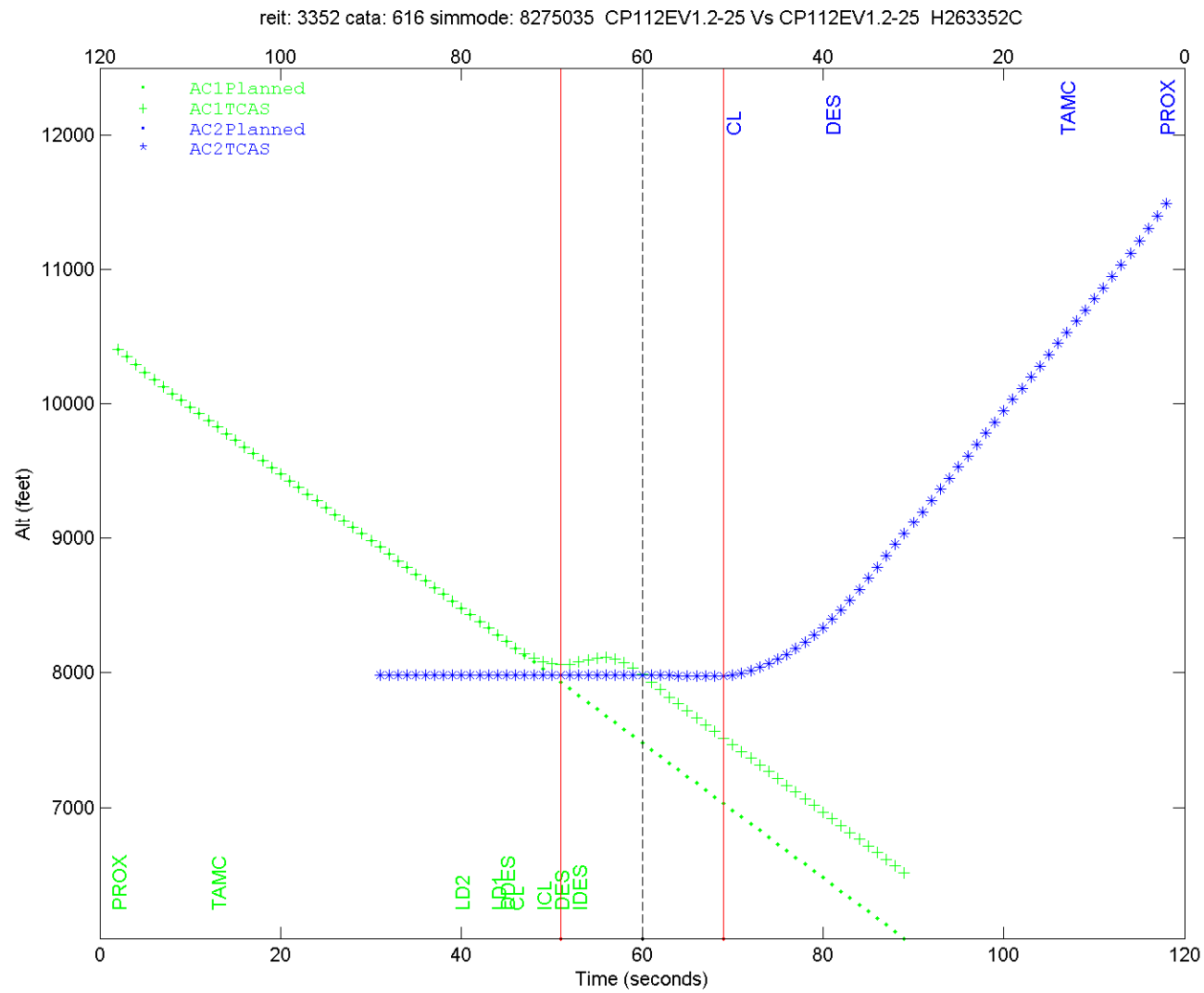
 3352 V7 25 FT R H VS V7 25 FT NR L 6 386.10 CROSSING_ENC
 10 AC1: 4275035 TA :13 |PVMD| LD2 @40 [NX]| LD1 @44 | DDES @45 | CL @46 | ICL
 @49
 5 AC2: 4175153 TA :13 |PVMD| DES @39 [NX]##NON-RESPONDING##

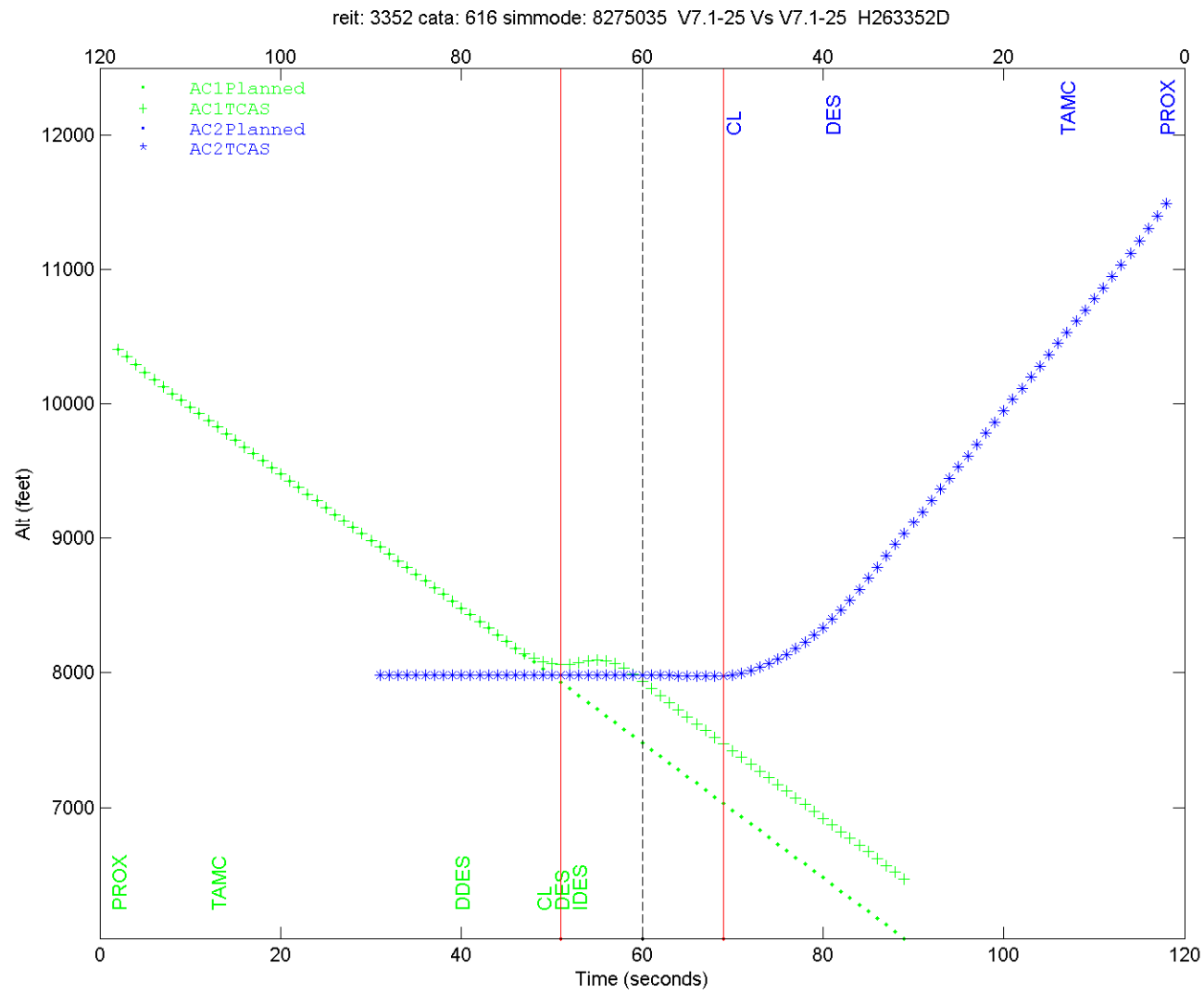
 3352 CP112EV1.2 25 FT R H VS CP112EV1.2 25 FT NR L 6 -13.75 CROSSING_ENC
 10 AC1:*REV*8275035 TA :13 |PVMD| LD2 @40 [NX]| LD1 @44 | DDES @45 | CL @46
 | ICL @49 | DES @51 | IDES @53
 5 AC2:*REV*8175153 TA :13 |PVMD| DES @39 [NX]| CL @50 ##NON-RESPONDING##

 3352 V7.1 25 FT R H VS V7.1 25 FT NR L 6 -58.79 CROSSING_ENC
 10 AC1:*REV*8275035 TA :13 |PVMD| DDES @40 [NX]| CL @49 | DES @51 | IDES @53
 5 AC2:*REV*8175153 TA :13 |PVMD| DES @39 [NX]| CL @50 ##NON-RESPONDING##









Change 7.1 Non-responding Representative NMAC Ind05

Encounter Class: 7

Reit Number : 184

NMAC Characterization

Number of encounters in group	10
AC1 low ID	no
Non-responding AC	1
Vertical tracker	25 ft
Planned separation	250, 500 ft
AC1 rates:	1000 fpm
AC2 rates:	-1000 fpm
AC1 acceleration:	0.05 g
AC2 acceleration:	-0.15 g
AC1 acceleration time:	CPA – 25 sec
AC2 acceleration time:	CPA – 20 sec
Encounters with reversed RAs	100 %

Performance Statistics for entire encounter class

<u>25 ft</u>	
98	% of RAs were non-crossing
100	% of NMACs were non-crossing
91	% of RAs were not reversed
76	% of NMACs were not reversed

Comments

New reversal at CPA – 7 or 8 seconds. Benign vertical rates. CP112E caused NMAC.
Planned descend by initially level responding aircraft at time of CL RA causes delay in response.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER H17184
 LOGIC THRESHOLDS SL = 4 ZTHR = 600 TAUR = 20 TAUV = 20 ALIM = 300
 PLANNED ENCOUNTER. SEP = 500.0 AC1 RATES(0.0,1000.0) AC2 RATES(0.0,-1000.0)
 AC1 ACCEL 0.05g @ CPA -25 AC2 ACCEL -0.15g @ CPA -20 AC1 CPA ALT 3700

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-----
184 6.04A NR H VS 6.04A NR L 7 -121.41 CROSSING_ENC

10 AC1: 4165142 TA :30 |TAUR| POTRA@40 (DFD)| DES @41 [NX]| IDES @50 ##NON-RESPONDING##

5 AC2: 4265024 TA :30 |TAUR| CL @40 [NX]| ICL @51

-----
184 V7 25 FT NR H VS V7 25 FT R L 7 -175.62 CROSSING_ENC

10 AC1: 4275053 TA :30 |TAUR| DES @40 [NX] ##NON-RESPONDING##

5 AC2: 4175135 TA :30 |TAUR| CL @40 [NX]| ICL @47

-----
184 CP112EV1.2 25 FT NR H VS CP112EV1.2 25 FT R L 7 27.03 CROSSING_ENC

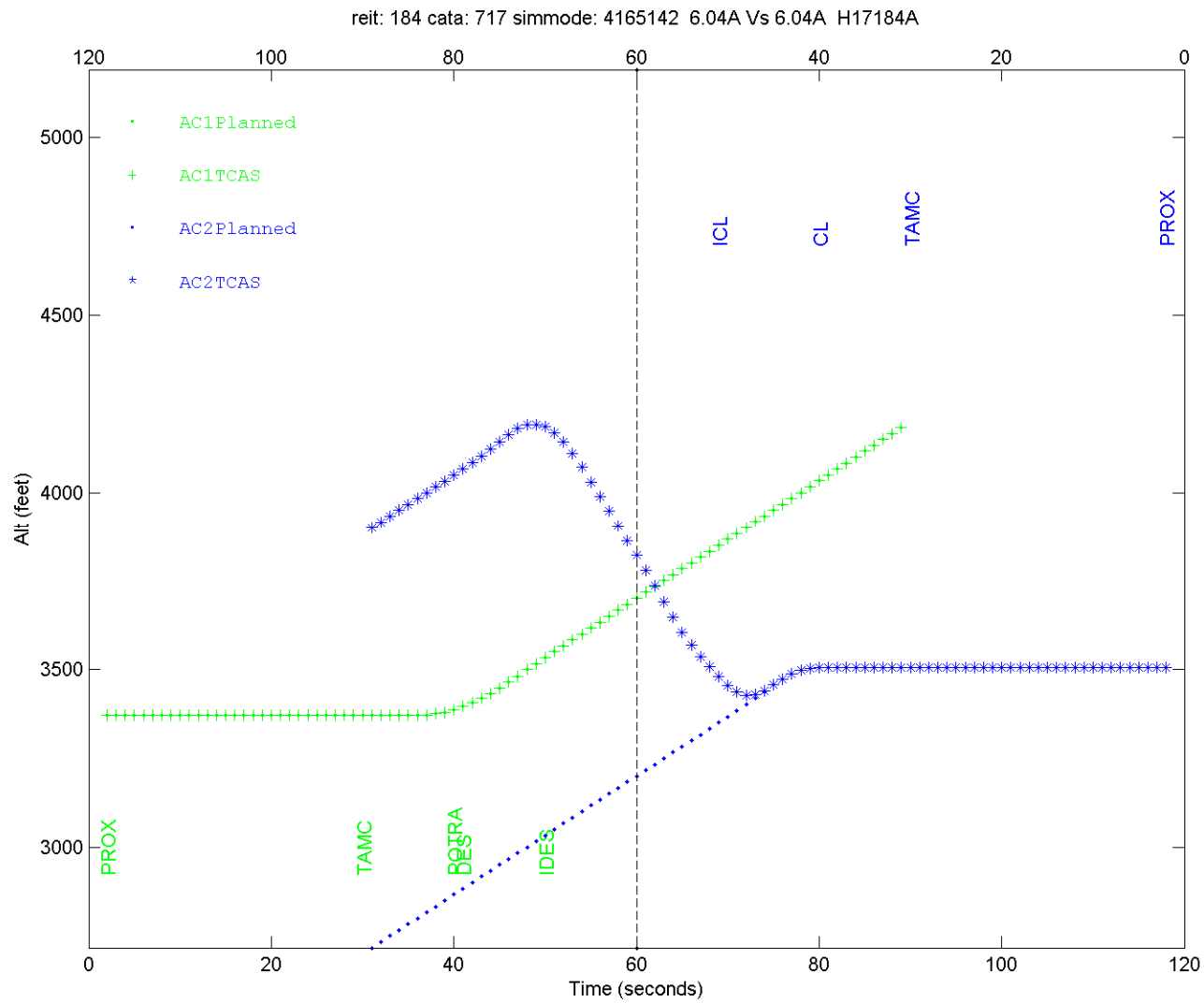
10 AC1:*REV*8275053 TA :30 |TAUR| DES @40 [NX]| CL @53 ##NON-RESPONDING##

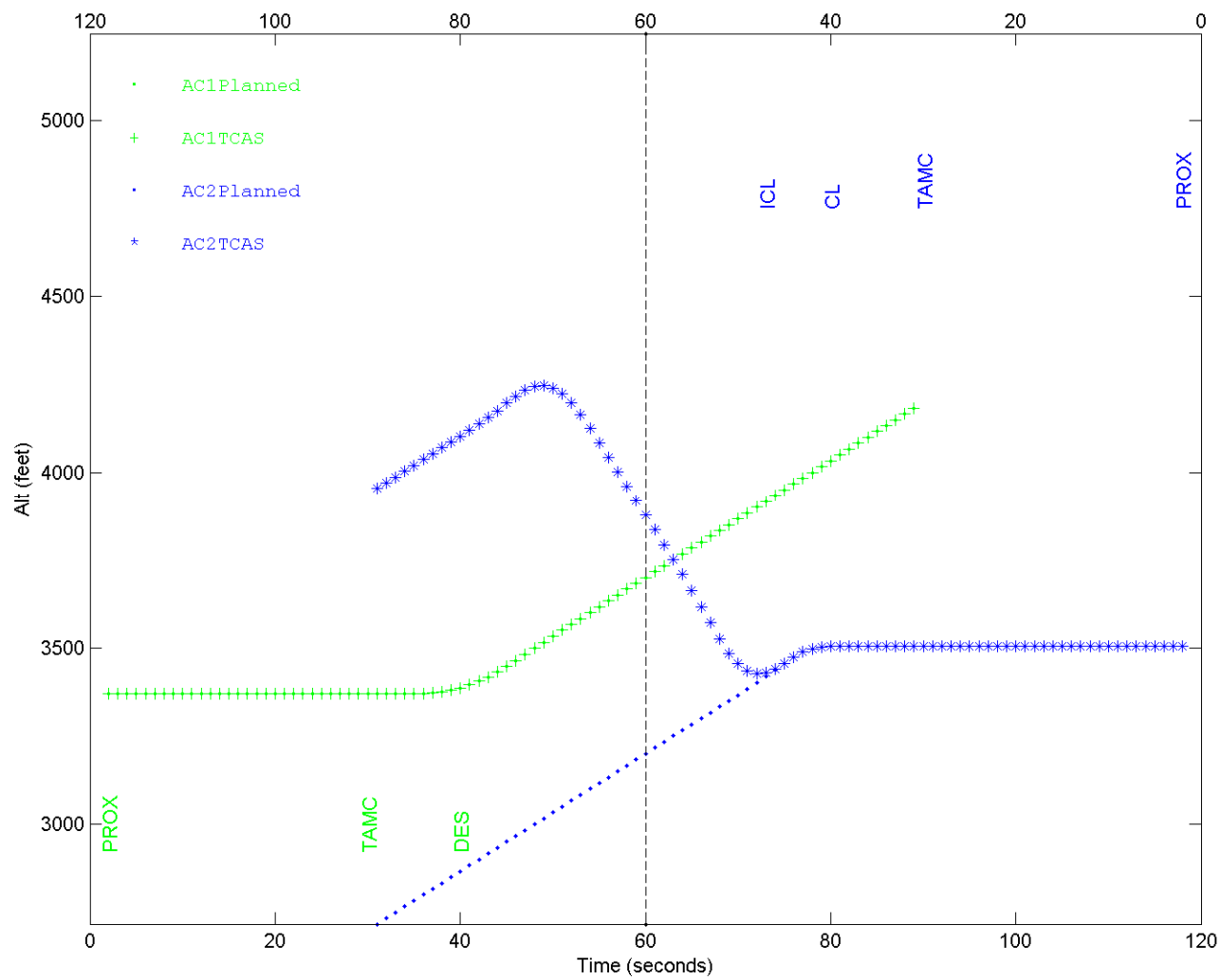
5 AC2:*REV*8175135 TA :30 |TAUR| CL @40 [NX]| ICL @47 | DES @52

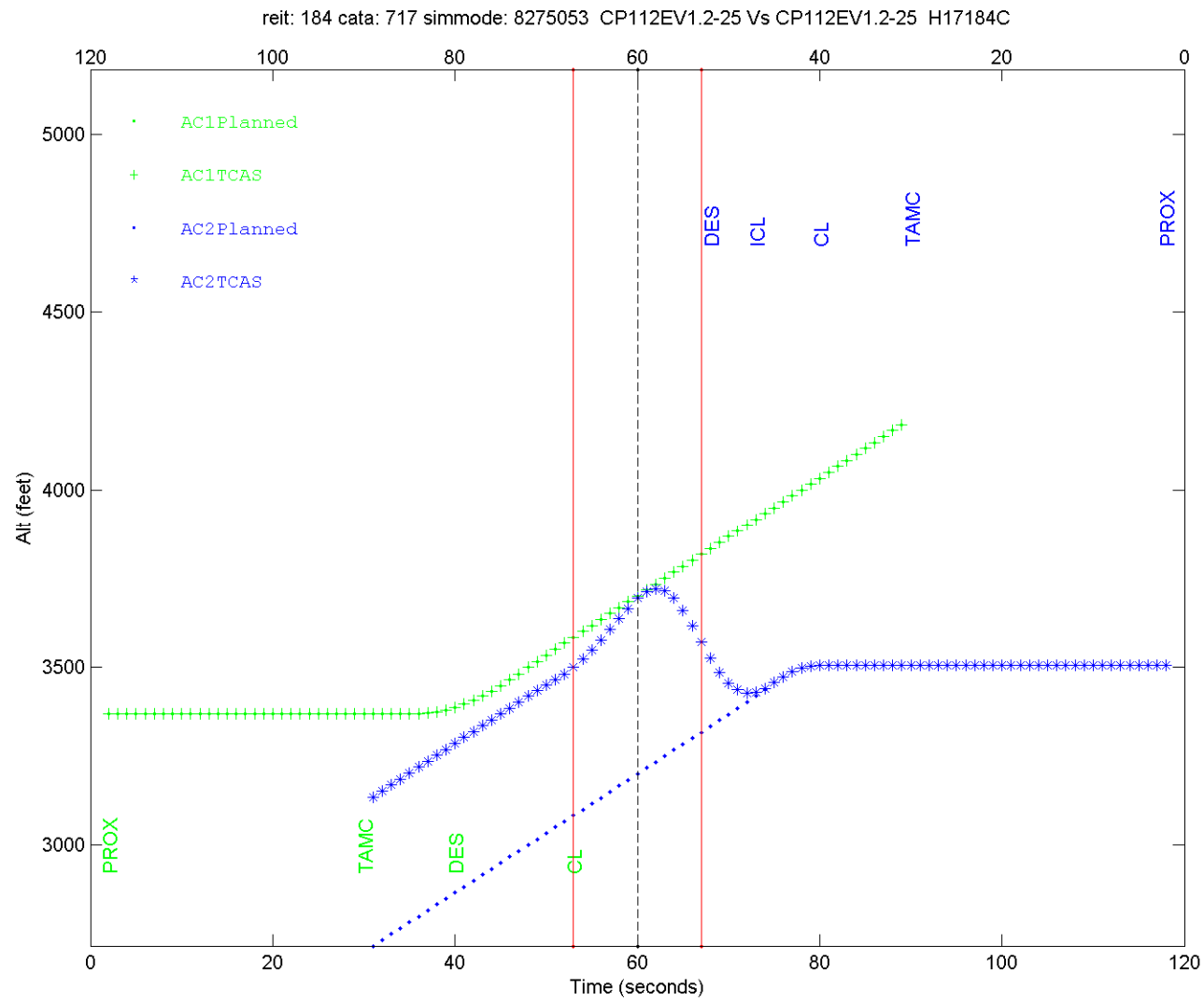
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184 V7.1 25 FT NR H VS V7.1 25 FT R L 7 27.03 CROSSING_ENC

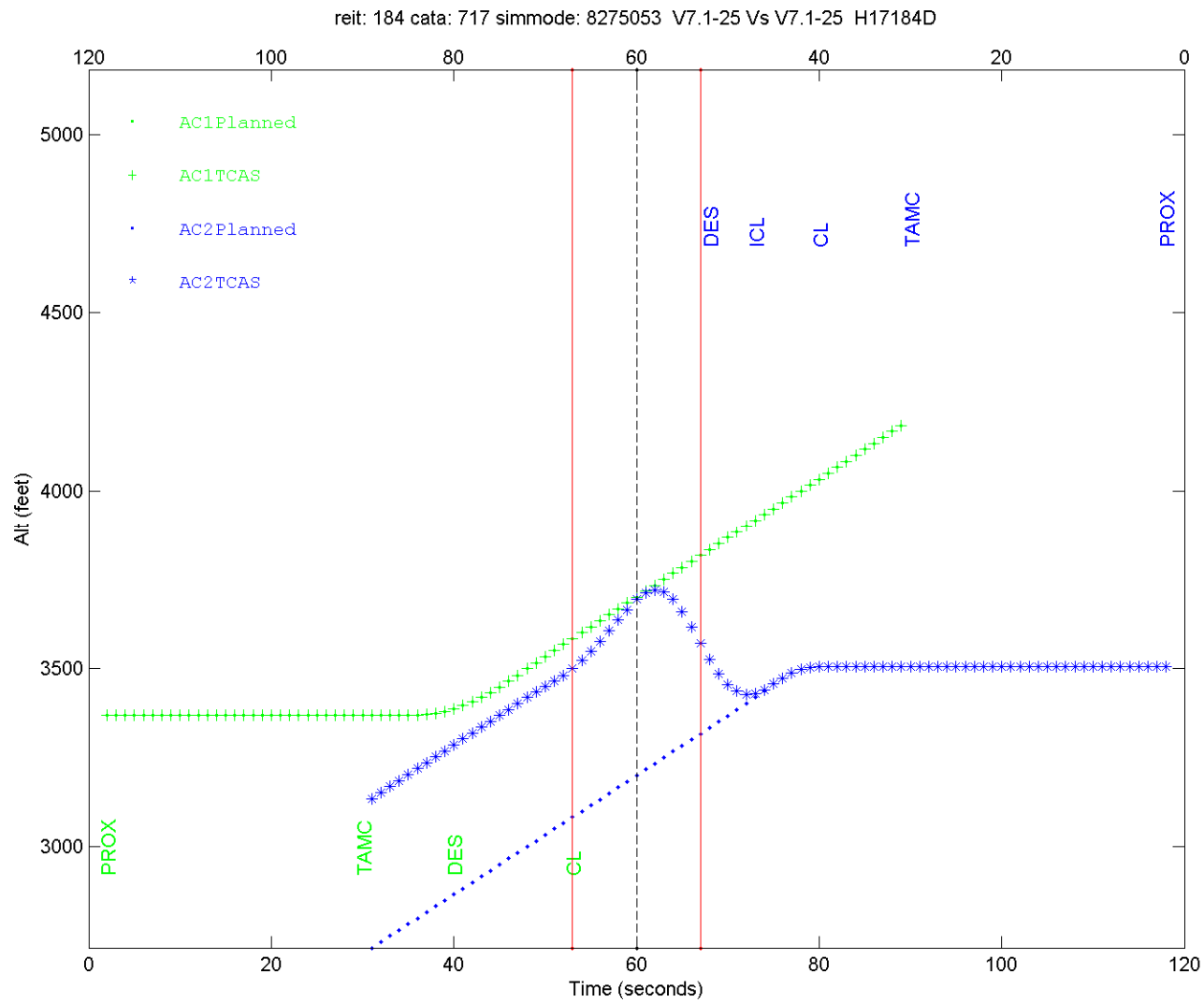
10 AC1:*REV*8275053 TA :30 |TAUR| DES @40 [NX]| CL @53 ##NON-RESPONDING##

5 AC2:*REV*8175135 TA :30 |TAUR| CL @40 [NX]| ICL @47 | DES @52
```









Change 7.1 Non-responding Representative NMAC Ind06

Encounter Class: 7

Reit Number : 6916

NMAC Characterization

Number of encounters in group	1
AC1 low ID	yes
Non-responding AC	1
Vertical tracker	25 ft
Planned separation	-750 ft
AC1 rates:	3000 fpm
AC2 rates:	5000 fpm
AC1 acceleration:	0.15 g
AC2 acceleration:	0.25 g
AC1 acceleration time:	CPA – 25 sec
AC2 acceleration time:	CPA – 30 sec
Encounters with reversed RAs	100 %

Performance Statistics for entire encounter class

<u>25 ft</u>	
98	% of RAs were non-crossing
100	% of NMACs were non-crossing
91	% of RAs were not reversed
76	% of NMACs were not reversed

Comments

New reversal at CPA – 14 seconds. Excellent outcomes for 6.04a and Version 7. CP112E caused NMAC.

Planned 5000 fpm climb by responding aircraft 2 at 30 seconds triggers DES RA at 34 seconds. Non responding aircraft 1 gets CL RA 1 second later and begins planned climb at this time. Aircraft 2 begins to respond to DES just as reversal to CL is given.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER L176916
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = -750.0 AC1 RATES(0.0,3000.0) AC2 RATES(0.0,5000.0)
 AC1 ACCEL 0.15g @ CPA -25 AC2 ACCEL 0.25g @ CPA -30 AC1 CPA ALT 7500

 6916 6.04A NR L VS 6.04A R H 7 827.42 CROSSING_ENC

5 AC1: 4165042 TA :19 |TAUR| CL @34 [NX]| ICL @40 | MCL @56 ###NON-RESPONDING##

10 AC2: 4265124 TA :19 |TAUR| DES @34 [NX]| LC2 @53

 6916 V7 25 FT NR L VS V7 25 FT R H 7 841.81 CROSSING_ENC

5 AC1: 4175053 TA :19 |TAUR| POTRA@34 | CL @35 [NX]| ICL @41 | DDES @55
 ###NON-RESPONDING##

10 AC2: 4275135 TA :19 |TAUR| DES @34 [NX]| DCL @53

 6916 CP112EV1.2 25 FT NR L VS CP112EV1.2 25 FT R H 7 -24.84 CROSSING_ENC

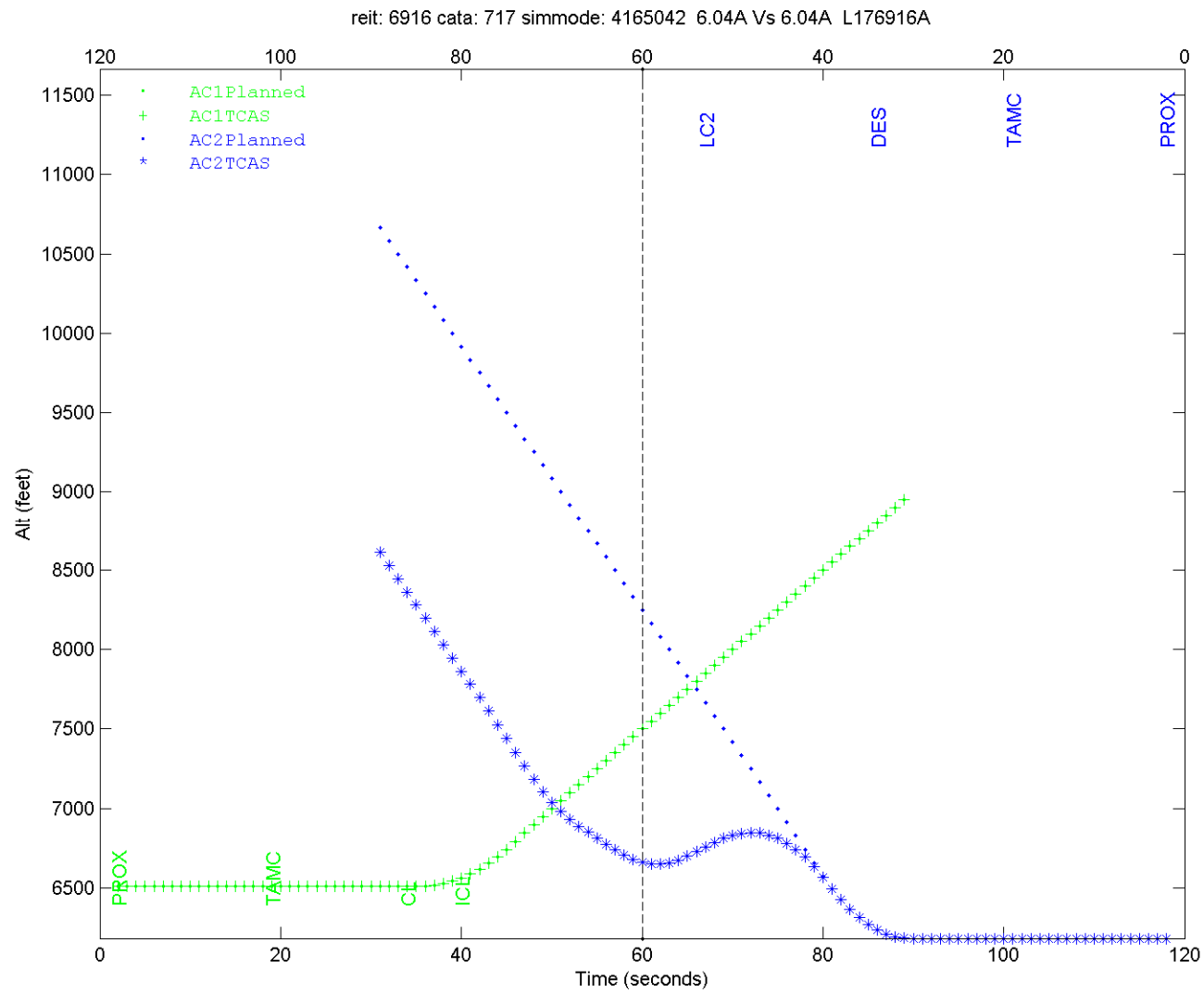
5 AC1:*REV*8175053 TA :19 |TAUR| POTRA@34| CL @35[NX]| ICL @41| DES @46| IDES @51
 ###NON-RESPONDING##

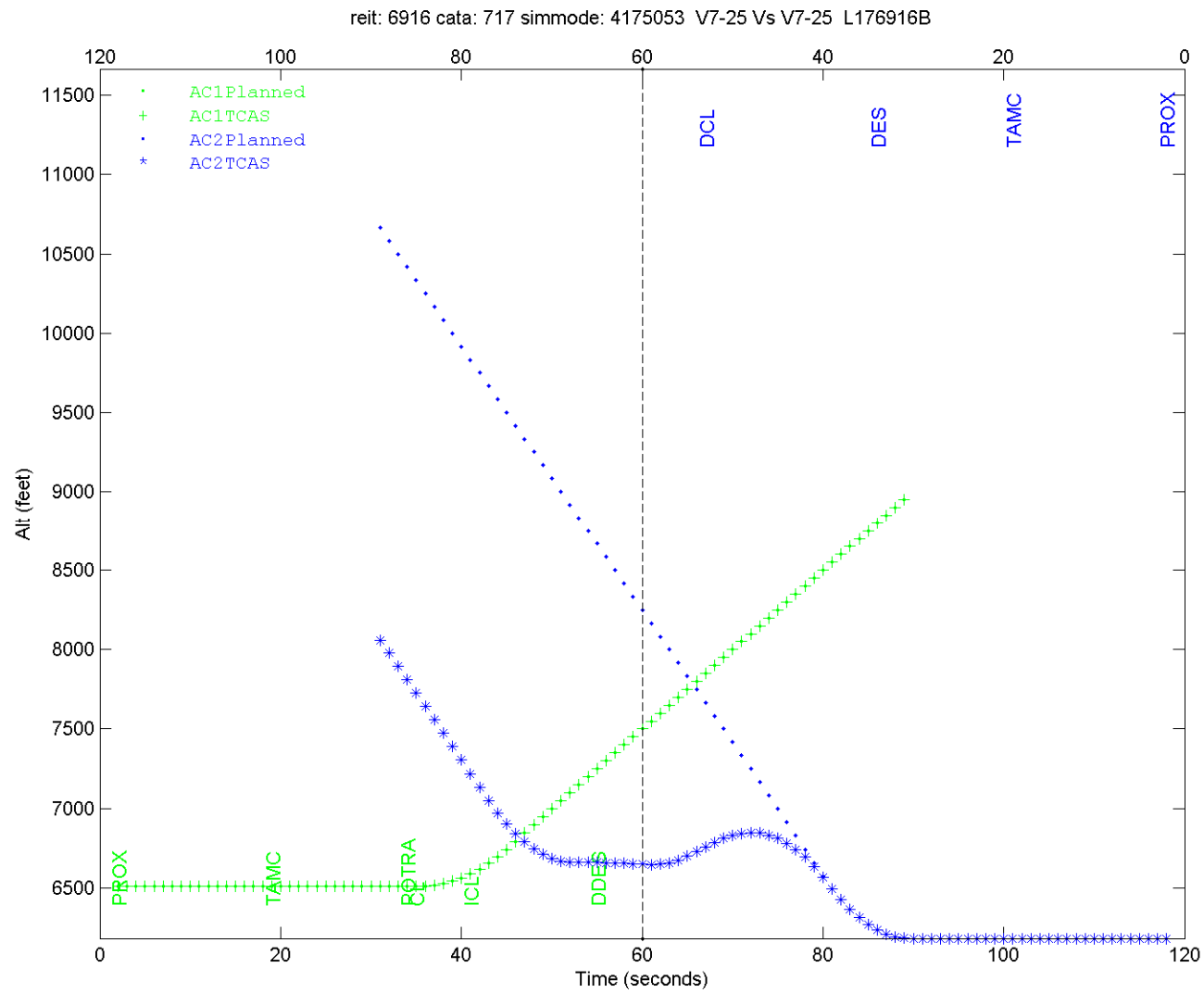
10 AC2:*REV*8275135 TA :19 |TAUR| DES @34 [NX]| CL @46 | ICL @49

 6916 V7.1 25 FT NR L VS V7.1 25 FT R H 7 -24.84 CROSSING_ENC

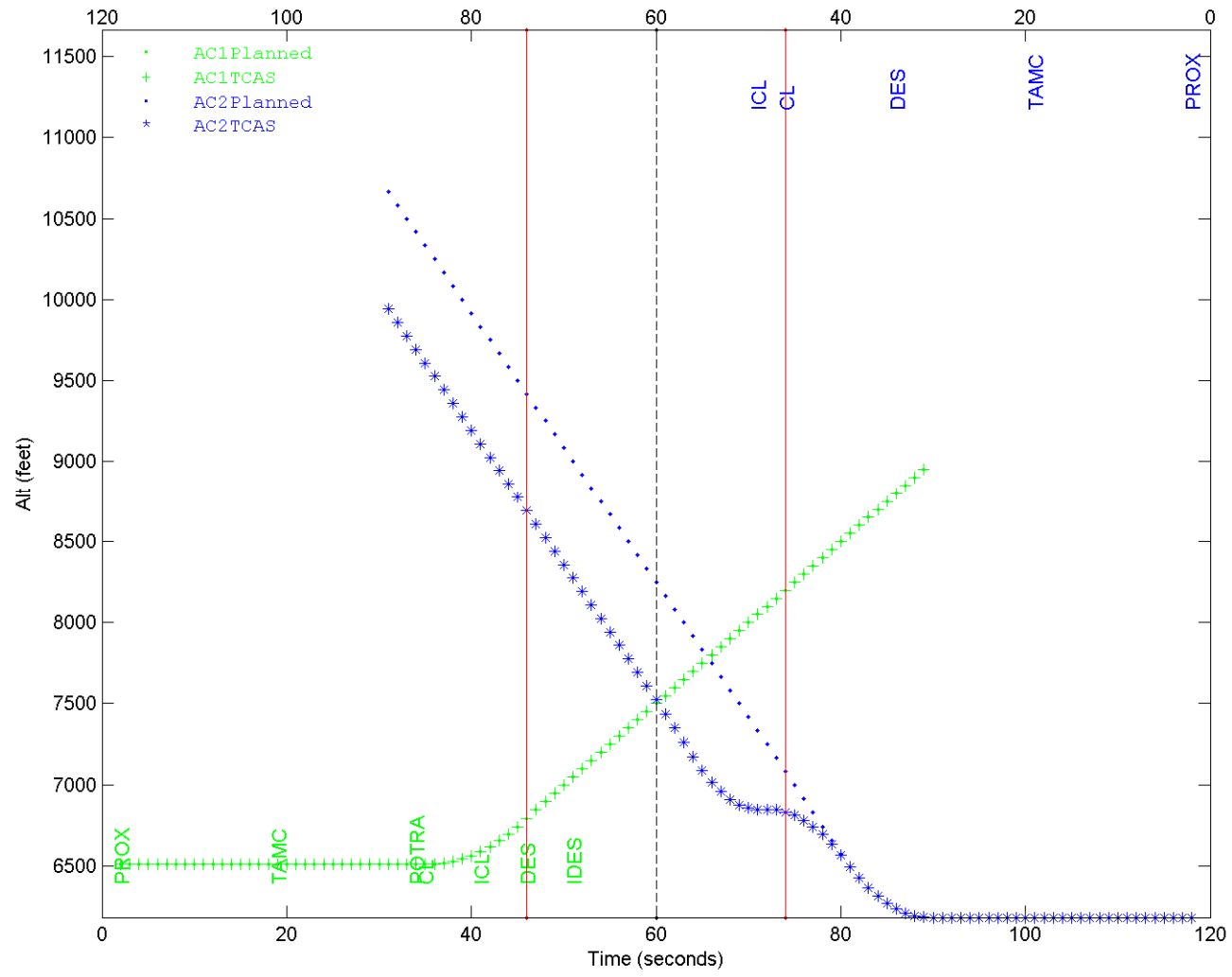
5 AC1:*REV*8175053 TA :19 |TAUR| POTRA@34| CL @35[NX]| ICL @41| DES @46| IDES @51
 ###NON-RESPONDING##

10 AC2:*REV*8275135 TA :19 |TAUR| DES @34 [NX]| CL @46 | ICL @49

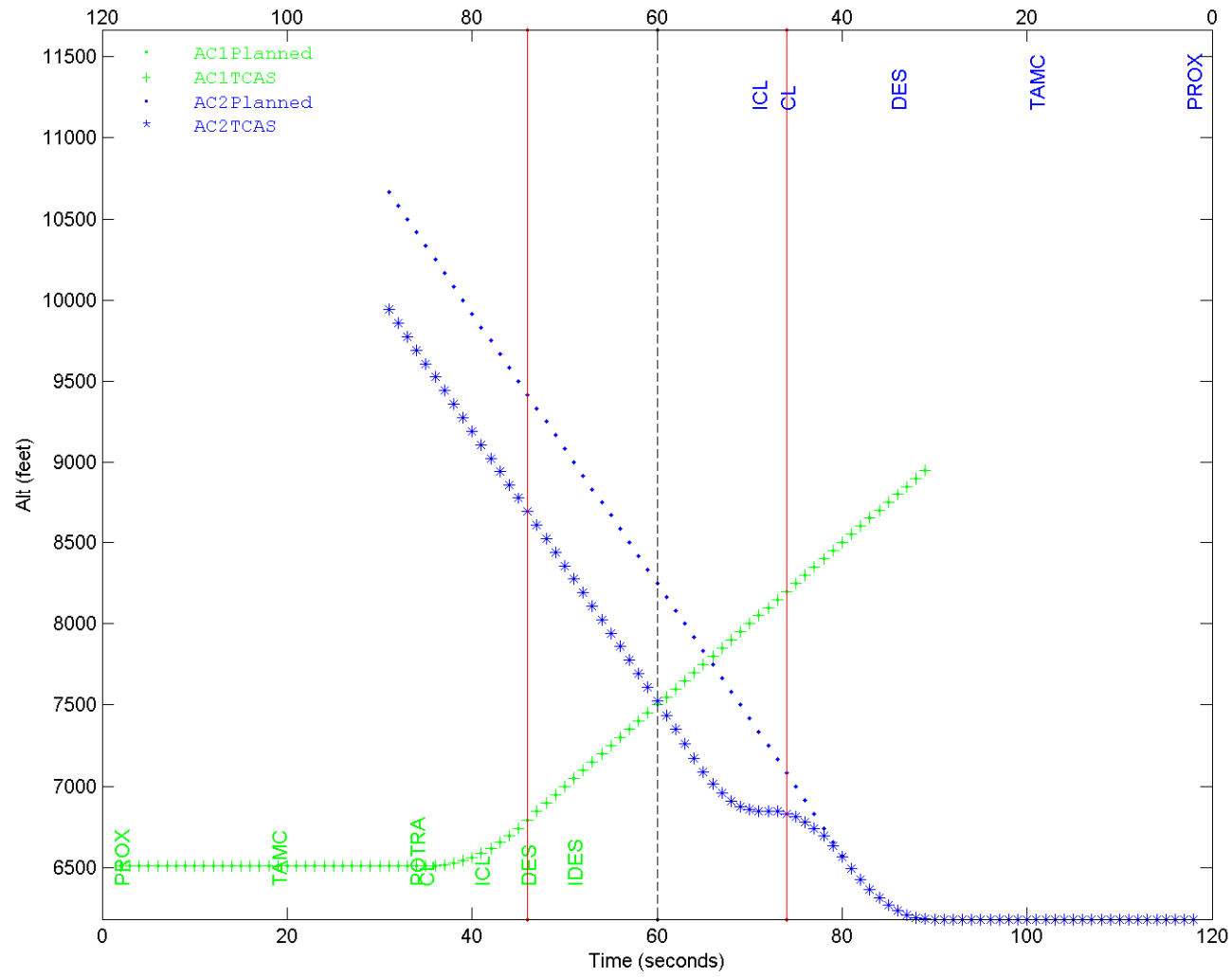




reit: 6916 cata: 717 simmode: 8175053 CP112EV1.2-25 Vs CP112EV1.2-25 L176916C



reit: 6916 cata: 717 simmode: 8175053 V7.1-25 Vs V7.1-25 L176916D



Change 7.1 Non-responding Representative NMAC Ind07

Encounter Class: 8

Reit Number : 780

NMAC Characterization

Number of encounters in group	2
AC1 low ID	yes
Non-responding AC	1
Vertical tracker	25 ft
Planned separation	250 ft
AC1 rates:	-3000 fpm
AC2 rates:	-3000 fpm
AC1 acceleration:	0.05 g
AC2 acceleration:	-0.25 g
AC1 acceleration time:	CPA – 25 sec
AC2 acceleration time:	CPA – 30 sec
Encounters with reversed RAs	100 %

Performance Statistics for entire encounter class

<u>25 ft</u>	
93	% of RAs were non-crossing
100	% of NMACs were non-crossing
93	% of RAs were not reversed
83	% of NMACs were not reversed

Comments

New reversal at CPA – 8 or 10 seconds. CP112E almost resolved the situation, but still caused NMAC.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER L18780
 LOGIC THRESHOLDS SL = 4 ZTHR = 600 TAUR = 20 TAUV = 20 ALIM = 300
 PLANNED ENCOUNTER. SEP = 250.0 AC1 RATES(-3000.0,0.0) AC2 RATES(0.0,-3000.0)
 AC1 ACCEL 0.05g @ CPA -25 AC2 ACCEL -0.25g @ CPA -30 AC1 CPA ALT 3700

```
-----
780 6.04A NR L VS 6.04A R H 8 -354.53 CROSSING_ENC

5 AC1: 4165042 TA :19 |TAUR| MDES @40 [NX]| IDES @43 | DES @62 ##NON-RESPONDING##

10 AC2: 4265124 TA :19 |TAUR| LD2 @40 [NX]| LD1 @48 | CL @49
```

```
-----
780 V7 25 FT NR L VS V7 25 FT R H 8 264.65 CROSSING_ENC

5 AC1: 4175053 TA :19 |TAUR| DDES @40 [X] | CL @53 ##NON-RESPONDING##

10 AC2: 4275135 TA :19 |TAUR| DES @40 [X]
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```
-----
780 CP112EV1.2 25 FT NR L VS CP112EV1.2 25 FT R H 8 -95.68 CROSSING_ENC

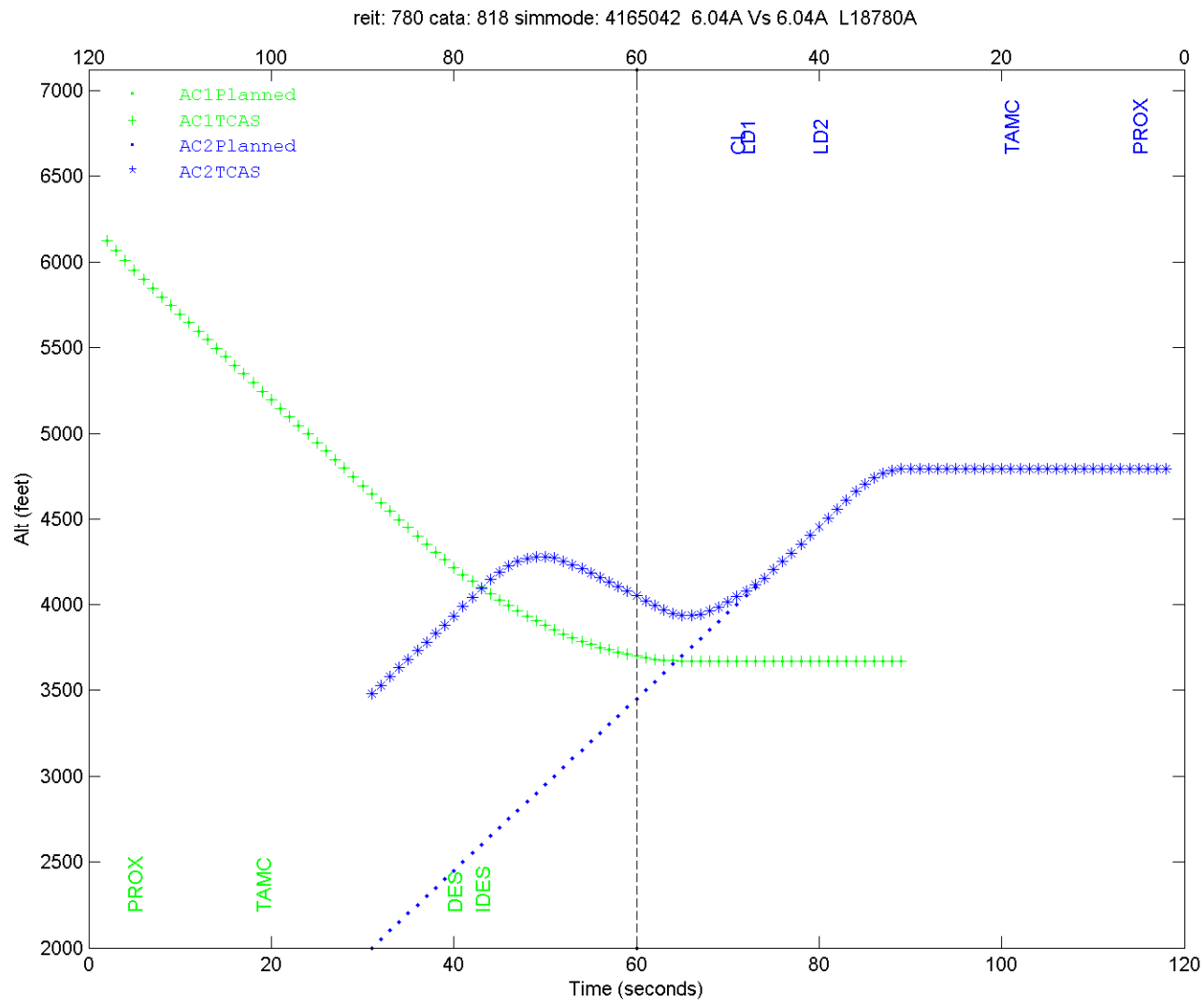
5 AC1:*REV*8175053 TA :19 |TAUR| DDES @40 [X] | DES @50 | IDES @53 ##NON-RESPONDING##

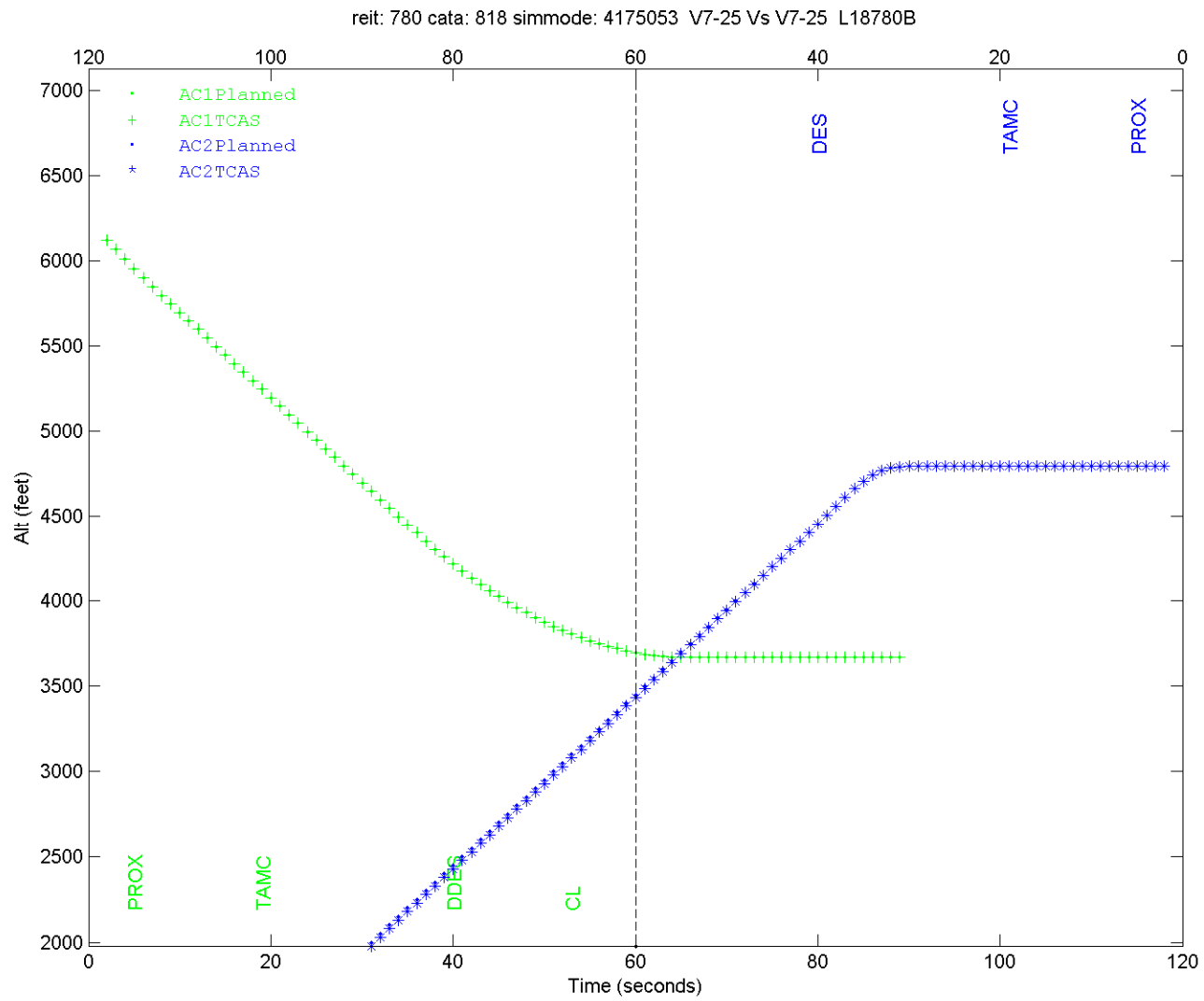
10 AC2:*REV*8275135 TA :19 |TAUR| DES @40 [X] | CL @50 | ICL @53
```

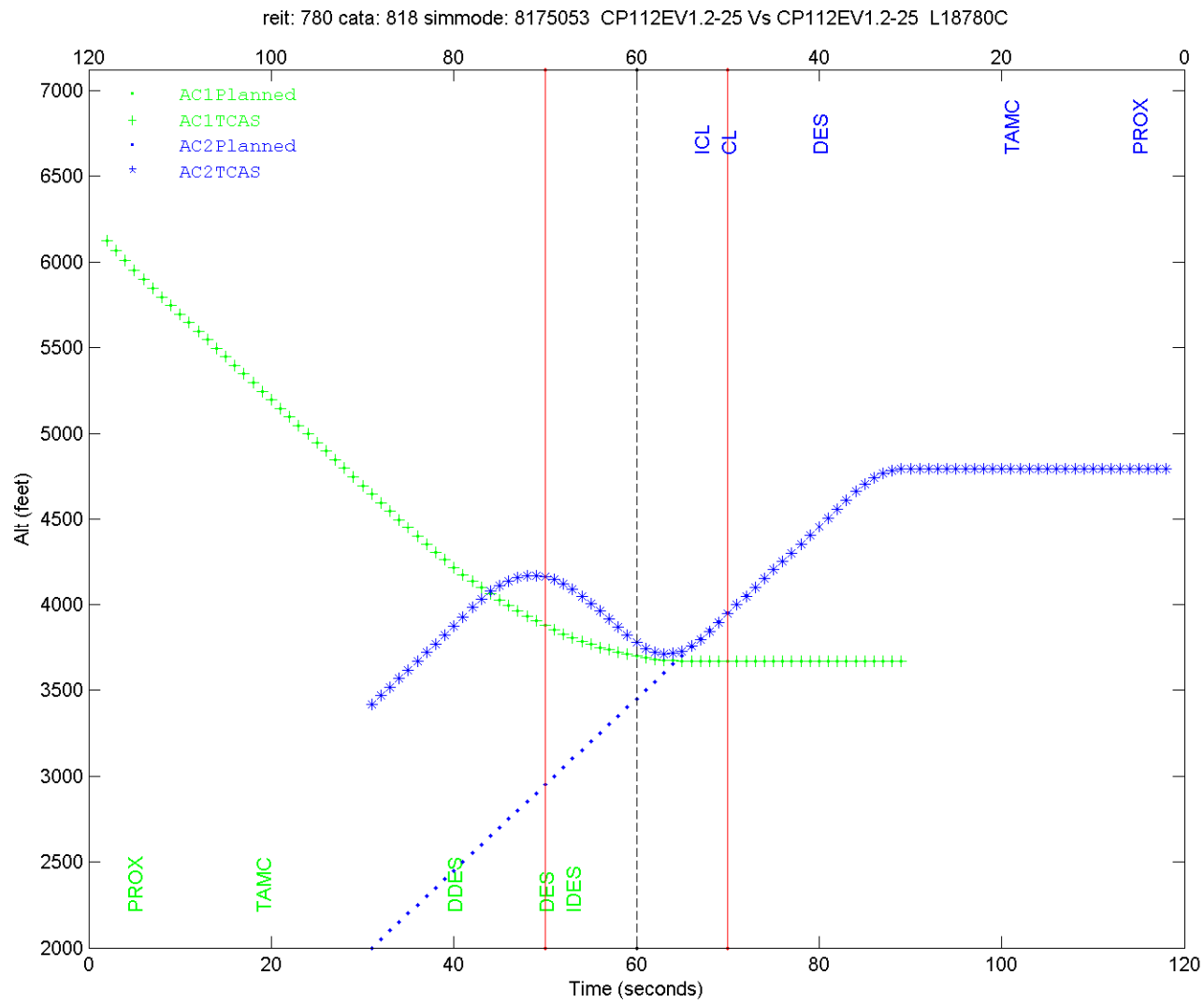
```
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780 V7.1 25 FT NR L VS V7.1 25 FT R H 8 -95.68 CROSSING_ENC

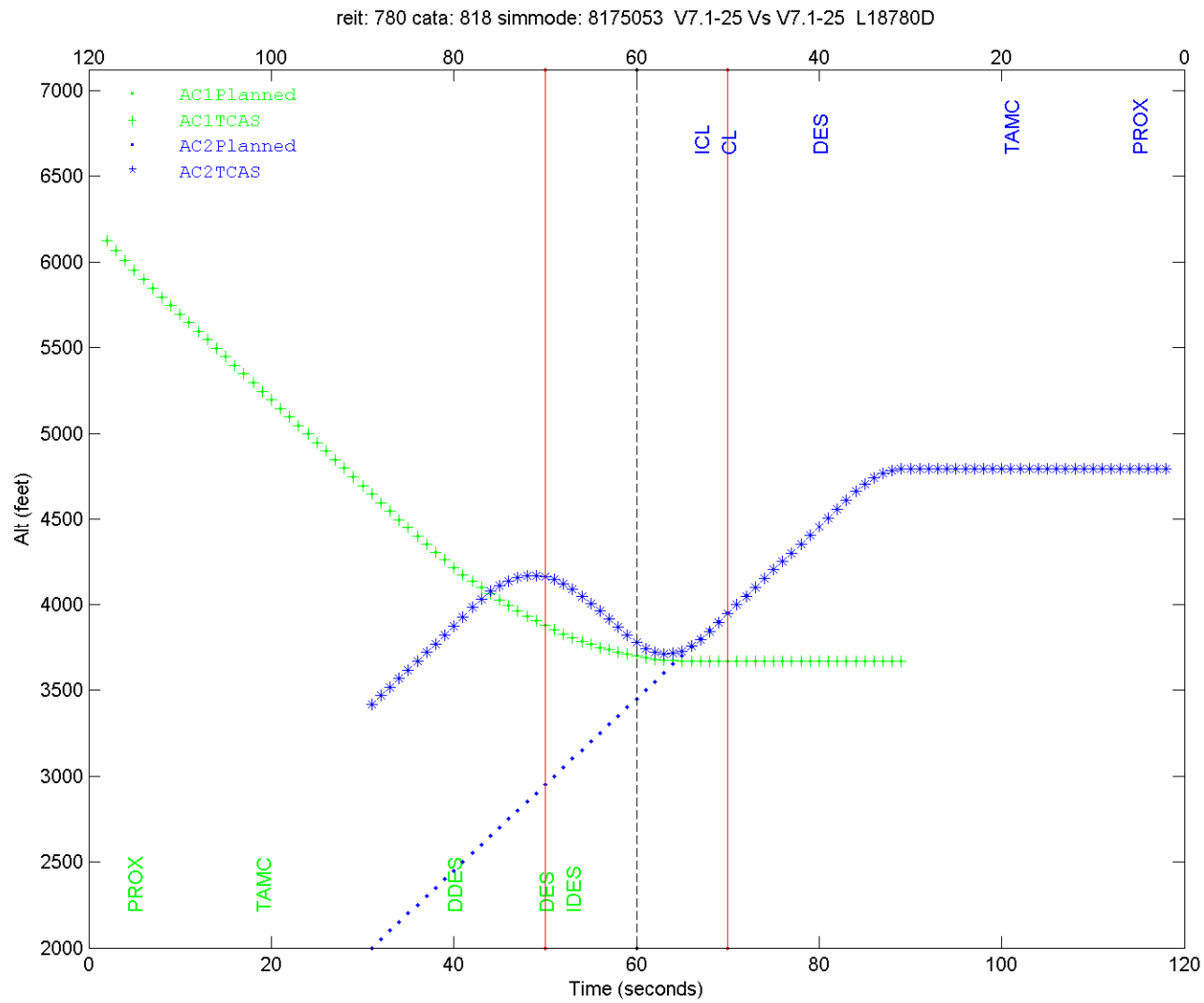
5 AC1:*REV*8175053 TA :19 |TAUR| DDES @40 [X] | DES @50 | IDES @53 ##NON-RESPONDING##

10 AC2:*REV*8275135 TA :19 |TAUR| DES @40 [X] | CL @50 | ICL @53
```







Change 7.1 Non-responding Representative NMAC Ind08

Encounter Class: 8

Reit Number : 2068

NMAC Characterization

Number of encounters in group	3
AC1 low ID	yes
Non-responding AC	1
Vertical tracker	25 ft
Planned separation	250 ft
AC1 rates:	-1000 fpm
AC2 rates:	-3000 fpm
AC1 acceleration:	0.15 g
AC2 acceleration:	-0.05 g
AC1 acceleration time:	CPA – 25 sec
AC2 acceleration time:	CPA – 25 sec
Encounters with reversed RAs	100 %

Performance Statistics for entire encounter class

<u>25 ft</u>	
93	% of RAs were non-crossing
100	% of NMACs were non-crossing
93	% of RAs were not reversed
83	% of NMACs were not reversed

Comments

New reversal at CPA – 8 seconds. CP112E caused NMAC, less than 1 foot achieved separation. Planned maneuvers defeat initial RAs. Only one aircraft complies with reversal.

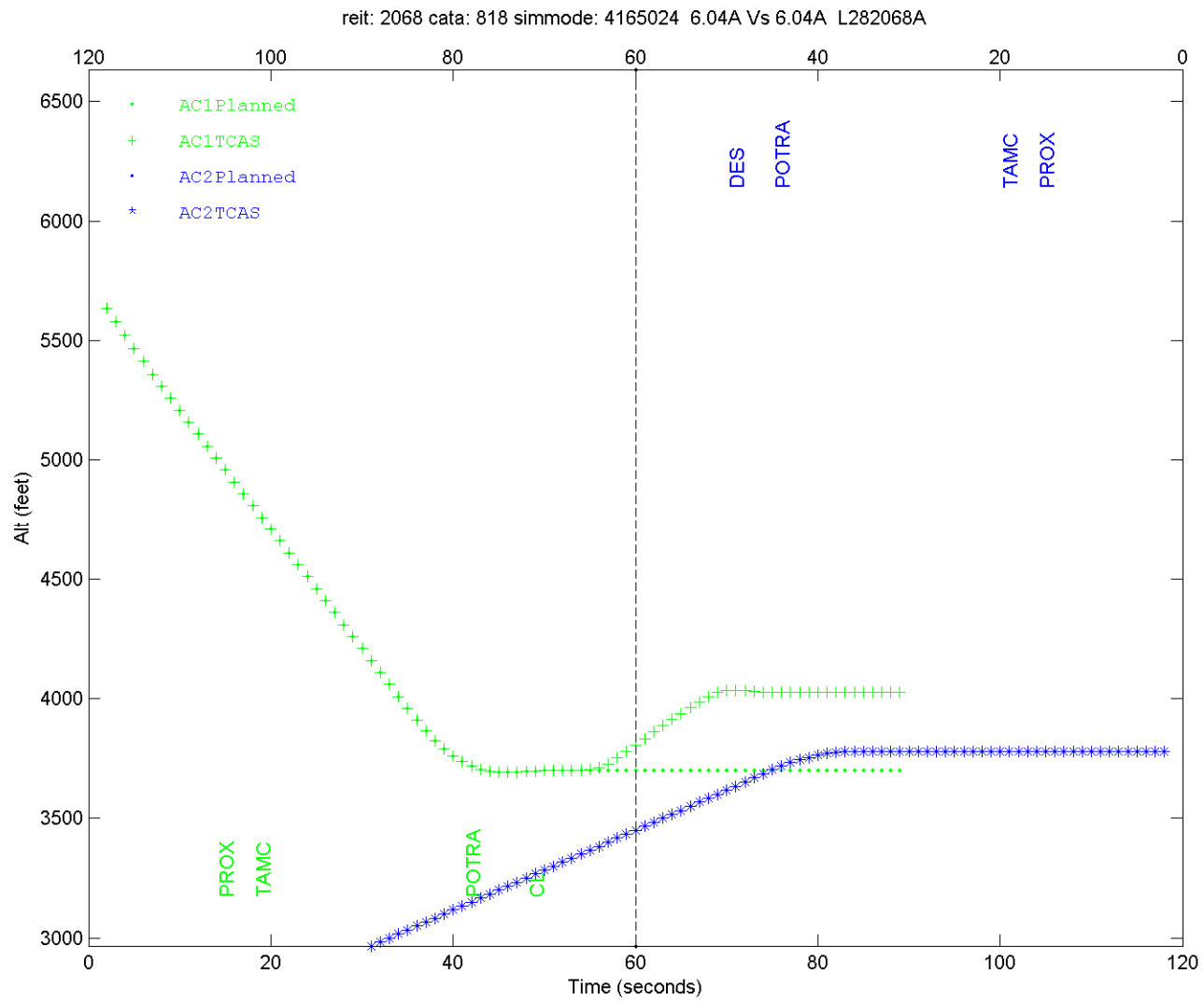
SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER L282068
 LOGIC THRESHOLDS SL = 4 ZTHR = 600 TAUR = 20 TAUUV = 20 ALIM = 300
 PLANNED ENCOUNTER. SEP = 250.0 AC1 RATES(-3000.0,0.0) AC2 RATES(0.0,-1000.0)
 AC1 ACCEL 0.15g @ CPA -25 AC2 ACCEL -0.05g @ CPA -25 AC1 CPA ALT 3700

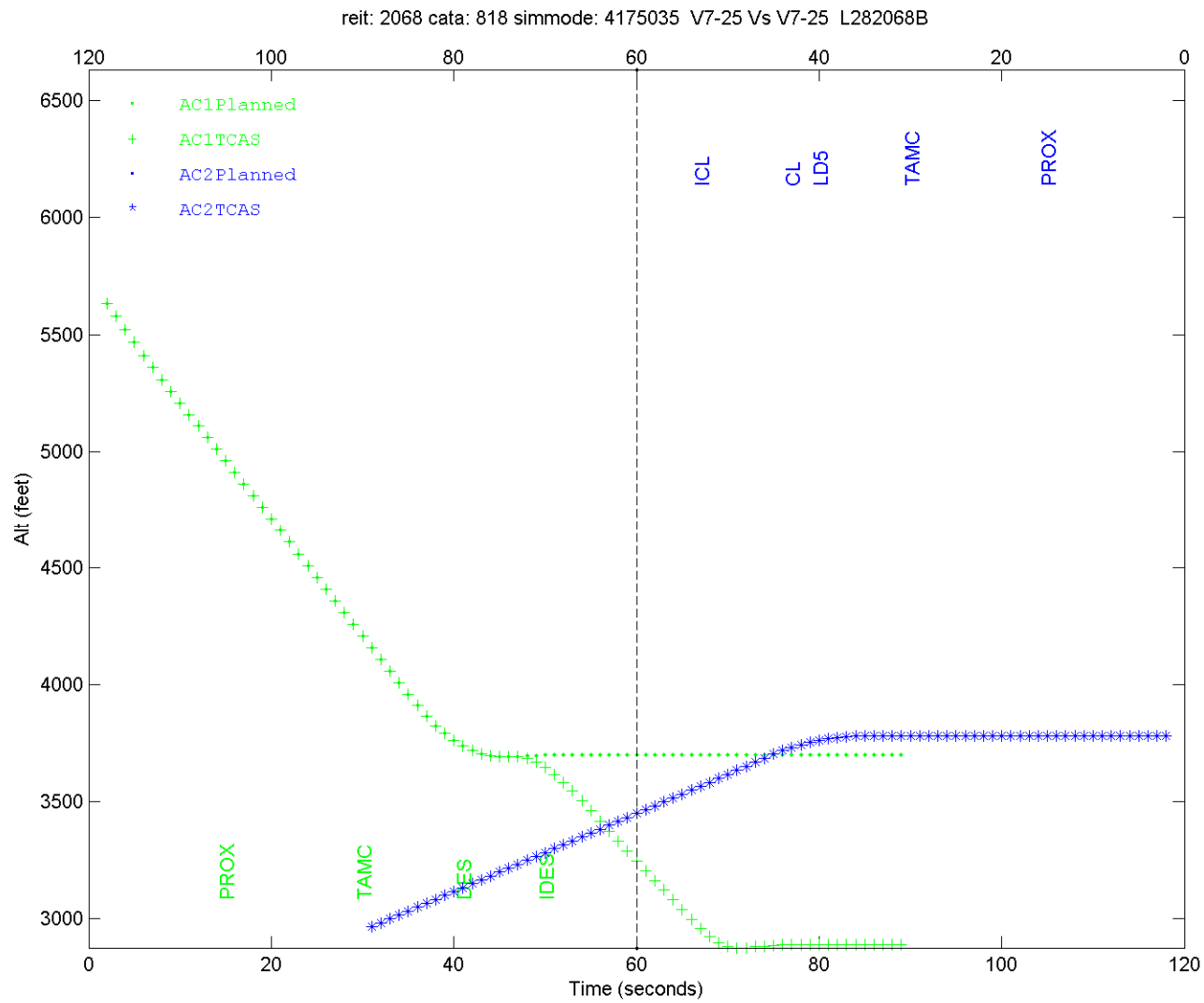
 2068 6.04A R L VS 6.04A NR H 8 361.15 CROSSING_ENC
 5 AC1: 4165024 TA :19 |PVMD| CL @49 [NX]
 10 AC2: 4265142 TA :19 |PVMD| POTRA@48 (DFD) | DES @49 [NX]
 ###NON-RESPONDING##

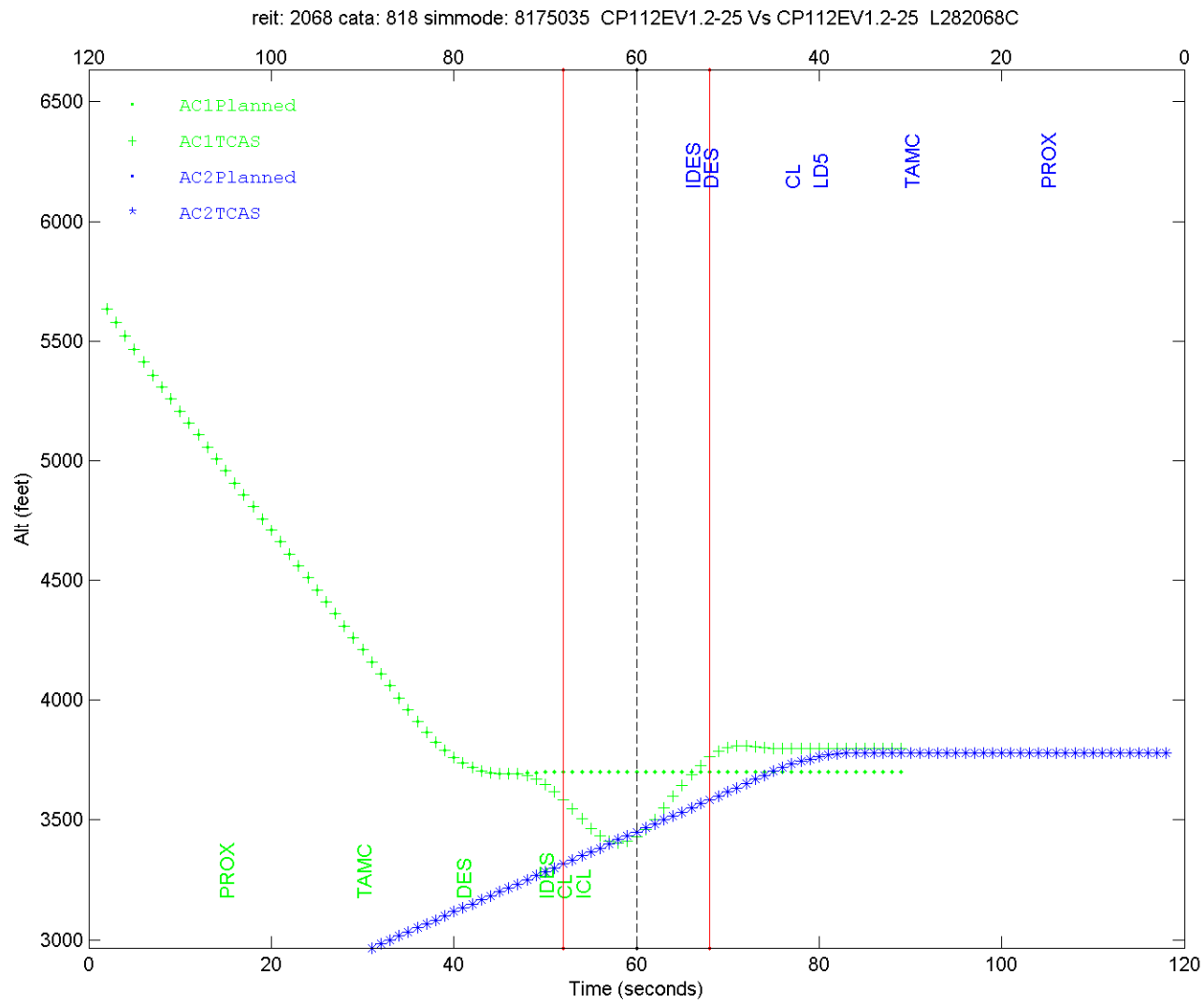
 2068 V7 25 FT R L VS V7 25 FT NR H 8 -202.89 CROSSING_ENC
 5 AC1: 4175035 TA :30 |PVMD| DES @41 [NX]| IDES @50
 10 AC2: 4275153 TA :30 |TAUR| LD5 @40 [NX]| CL @43 | ICL @53
 ###NON-RESPONDING##

 2068 CP112EV1.2 25 FT R L VS CP112EV1.2 25 FT NR H 8 -0.21 CROSSING_ENC
 5 AC1:*REV*8175035 TA :30 |PVMD| DES @41 [NX]| IDES @50| CL @52 | ICL @54
 10 AC2:*REV*8275153 TA :30 |TAUR| LD5 @40 [NX]| CL @43 | DES @52 | IDES @54
 ###NON-RESPONDING##

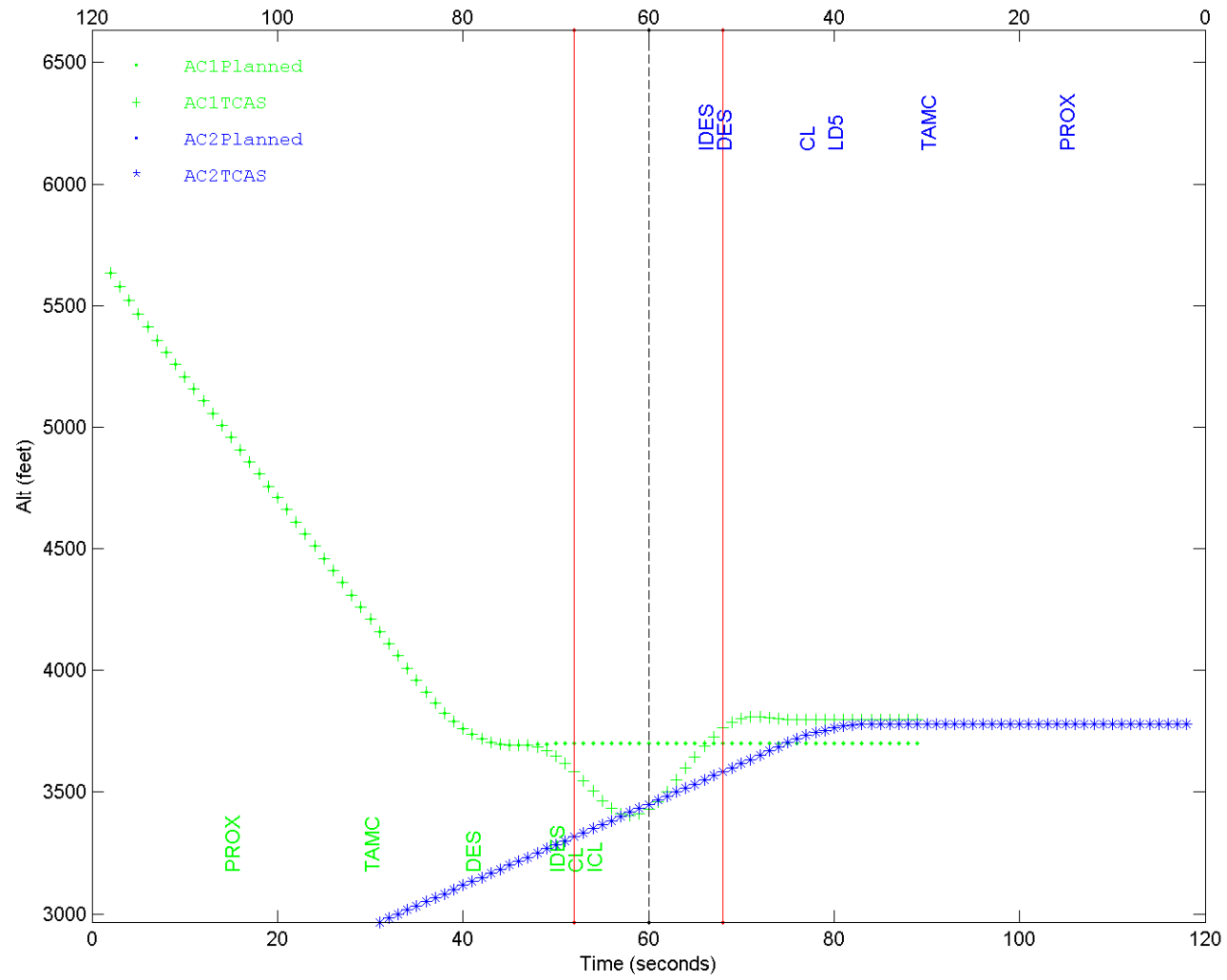
 2068 V7.1 25 FT R L VS V7.1 25 FT NR H 8 -0.21 CROSSING_ENC
 5 AC1:*REV*8175035 TA :30 |PVMD| DES @41 [NX]| IDES @50 | CL @52 | ICL @54
 10 AC2:*REV*8275153 TA :30 |TAUR| LD5 @40 [NX]| CL @43 | DES @52 | IDES @54
 ###NON-RESPONDING##







reit: 2068 cata: 818 simmode: 8175035 V7.1-25 Vs V7.1-25 L282068D



Change 7.1 Non-responding Representative NMAC Ind09

Encounter Class: 9

Reit Number : 4678

NMAC Characterization

Number of encounters in group	6
AC1 low ID	yes
Non-responding AC	1
Vertical tracker	25 ft
Planned separation	250, +/- 500, 750 ft
AC1 rates:	1000, 3000, 5000 fpm
AC2 rates:	3000, 5000 fpm
AC1 acceleration:	-0.05 g
AC2 acceleration:	-0.05 g
AC1 acceleration time:	CPA – 25 sec
AC2 acceleration time:	CPA – 30 sec
Encounters with reversed RAs	100 %

Performance Statistics for entire encounter class

<u>25 ft</u>	
72	% of RAs were non-crossing
0	% of NMACs were non-crossing
98	% of RAs were not reversed
95	% of NMACs were not reversed

Comments

New NMAC caused by CP112E. This is a climbing vertical chase.

Planned level-off by non-responding aircraft combined with descent of responding aircraft generated NMAC.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER L194678
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = -500.0 AC1 RATES(3000.0,0.0) AC2 RATES(5000.0,0.0)
 AC1 ACCEL -0.05g @ CPA -25 AC2 ACCEL -0.05g @ CPA -30 AC1 CPA ALT 7500

 4678 6.04A NR L VS 6.04A R H 9 494.22 CROSSING_ENC

5 AC1: 4165042 TA :19 |PVMD| MCL @35 [NX]| ICL @40 | CL @55
 ###NON-RESPONDING##

10 AC2: 4265124 TA :19 |TAUR| POTRA@34 (DFD) | DES @35 [NX]

 4678 V7 25 FT NR L VS V7 25 FT R H 9 528.66 CROSSING_ENC

5 AC1: 4175053 TA :19 |PVMD| CL @36 [NX] ###NON-RESPONDING##

10 AC2: 4275135 TA :19 |TAUR| LC5 @34 [NX]| DCL @46 | DES @47 | DCL @57

 4678 CP112EV1.2 25 FT NR L VS CP112EV1.2 25 FT R H 9 -71.71 CROSSING_ENC

5 AC1:*REV*8175053 TA :19 |PVMD| CL @36 [NX]| DES @47 | IDES @51
 ###NON-RESPONDING##

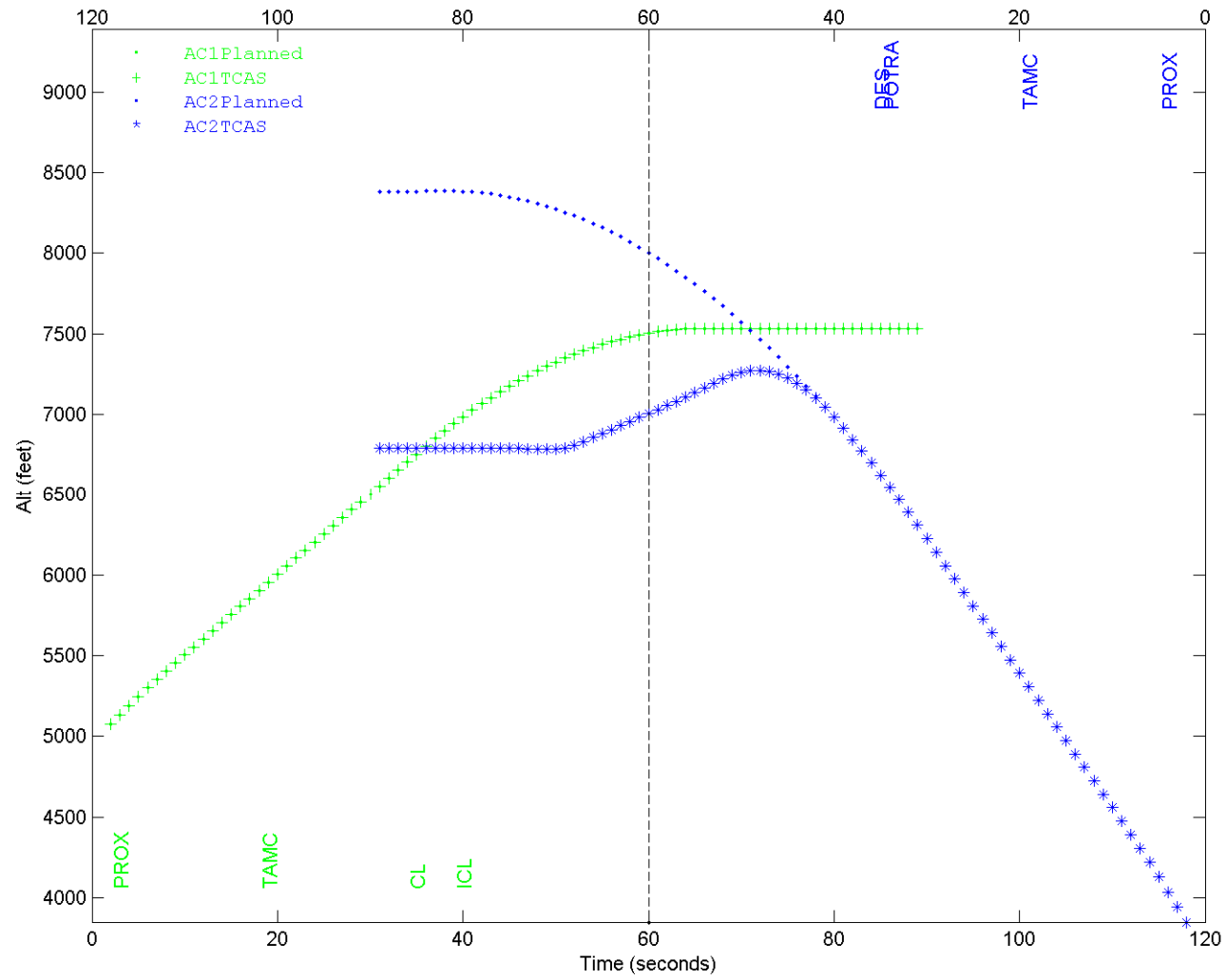
10 AC2:*REV*8275135 TA :19 |TAUR| LC5 @34 [NX]| DCL @46 | CL @47 | ICL @50

 4678 V7.1 25 FT NR L VS V7.1 25 FT R H 9 -71.71 CROSSING_ENC

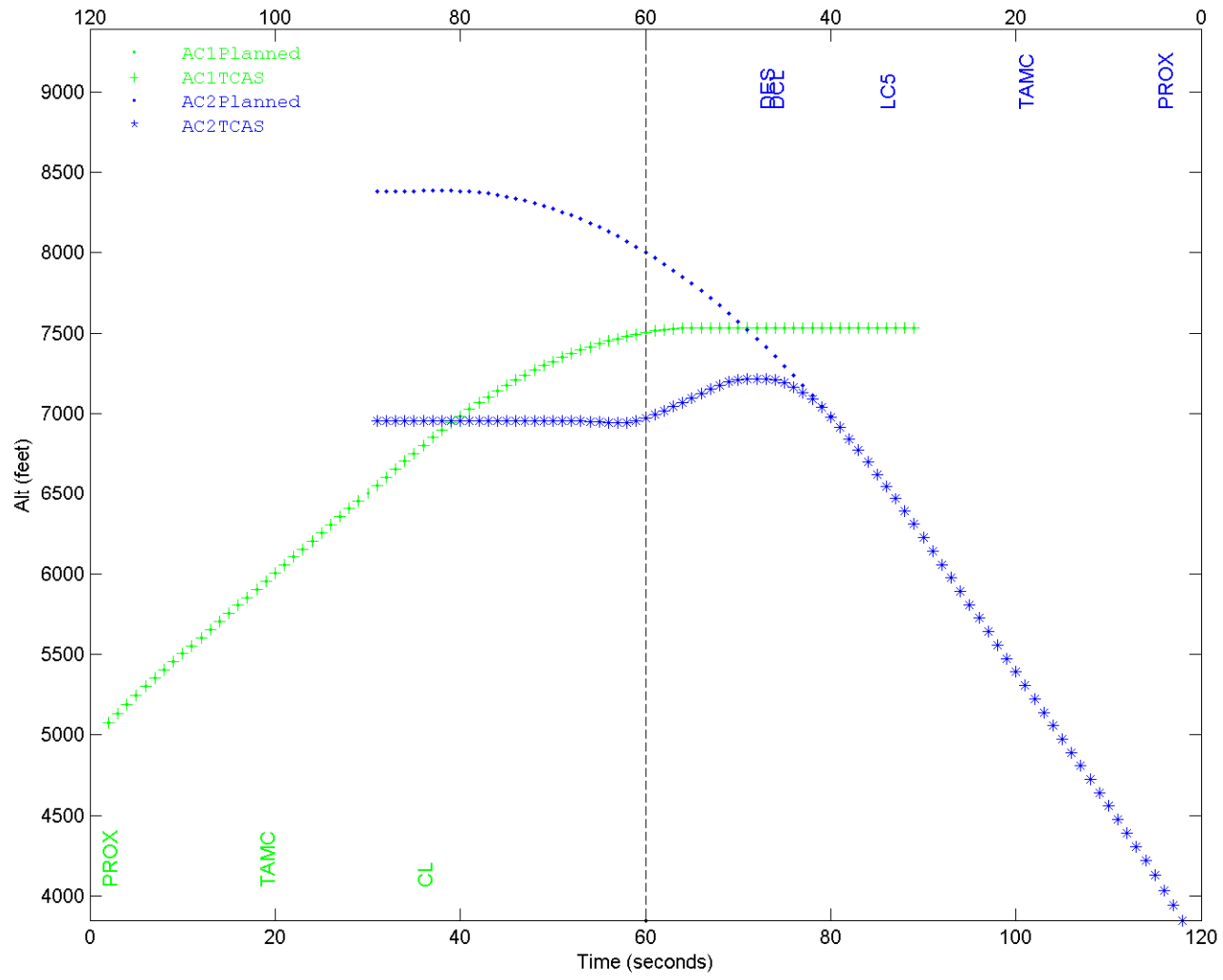
5 AC1:*REV*8175053 TA :19 |PVMD| CL @36 [NX]| DES @47 | IDES @51
 ###NON-RESPONDING##

10 AC2:*REV*8275135 TA :19 |TAUR| DCL @34 [NX]| CL @47 | ICL @50

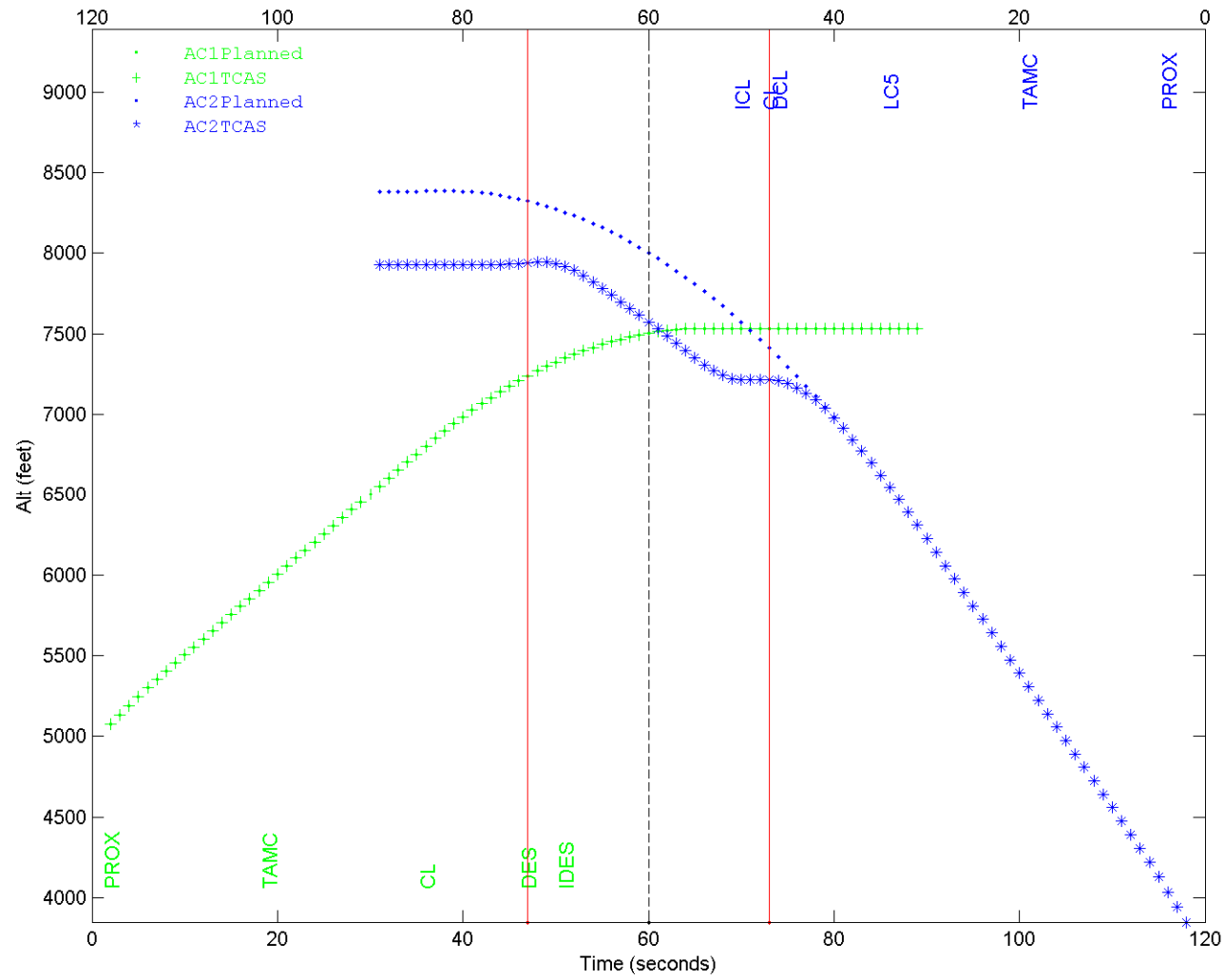
reit: 4678 cata: 919 simmode: 4165042 6.04A Vs 6.04A L194678A



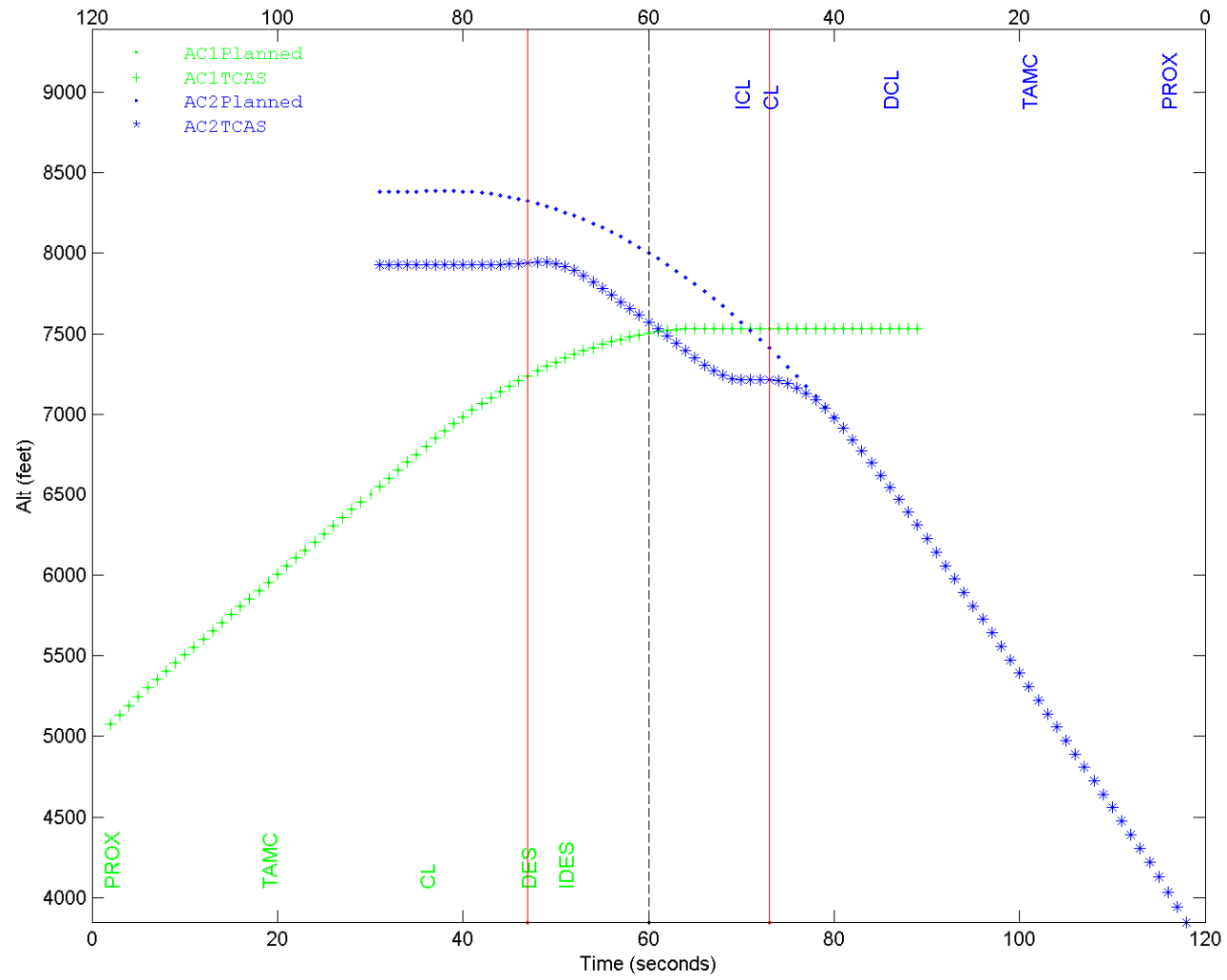
reit: 4678 cata: 919 simmode: 4175053 V7-25 Vs V7-25 L194678B



reit: 4678 cata: 919 simmode: 8175053 CP112EV1.2-25 Vs CP112EV1.2-25 L194678C



reit: 4678 cata: 919 simmode: 8175053 V7.1-25 Vs V7.1-25 L194678D



Change 7.1 Non-responding Representative NMAC Ind10

Encounter Class: 15

Reit Number : 1237

NMAC Characterization

Number of encounters in group	1
AC1 low ID	no
Non-responding AC	1
Vertical tracker	25 ft
Planned separation	-250 ft
AC1 rates:	3000 fpm
AC2 rates:	3000 fpm
AC1 acceleration:	none
AC2 acceleration:	0.35 g
AC2 acceleration time:	CPA – 20 sec
Encounters with reversed RAs	100 %

Performance Statistics for entire encounter class

<u>25 ft</u>	
93	% of RAs were non-crossing
0	% of NMACs were non-crossing
94	% of RAs were not reversed
94	% of NMACs were not reversed

Comments

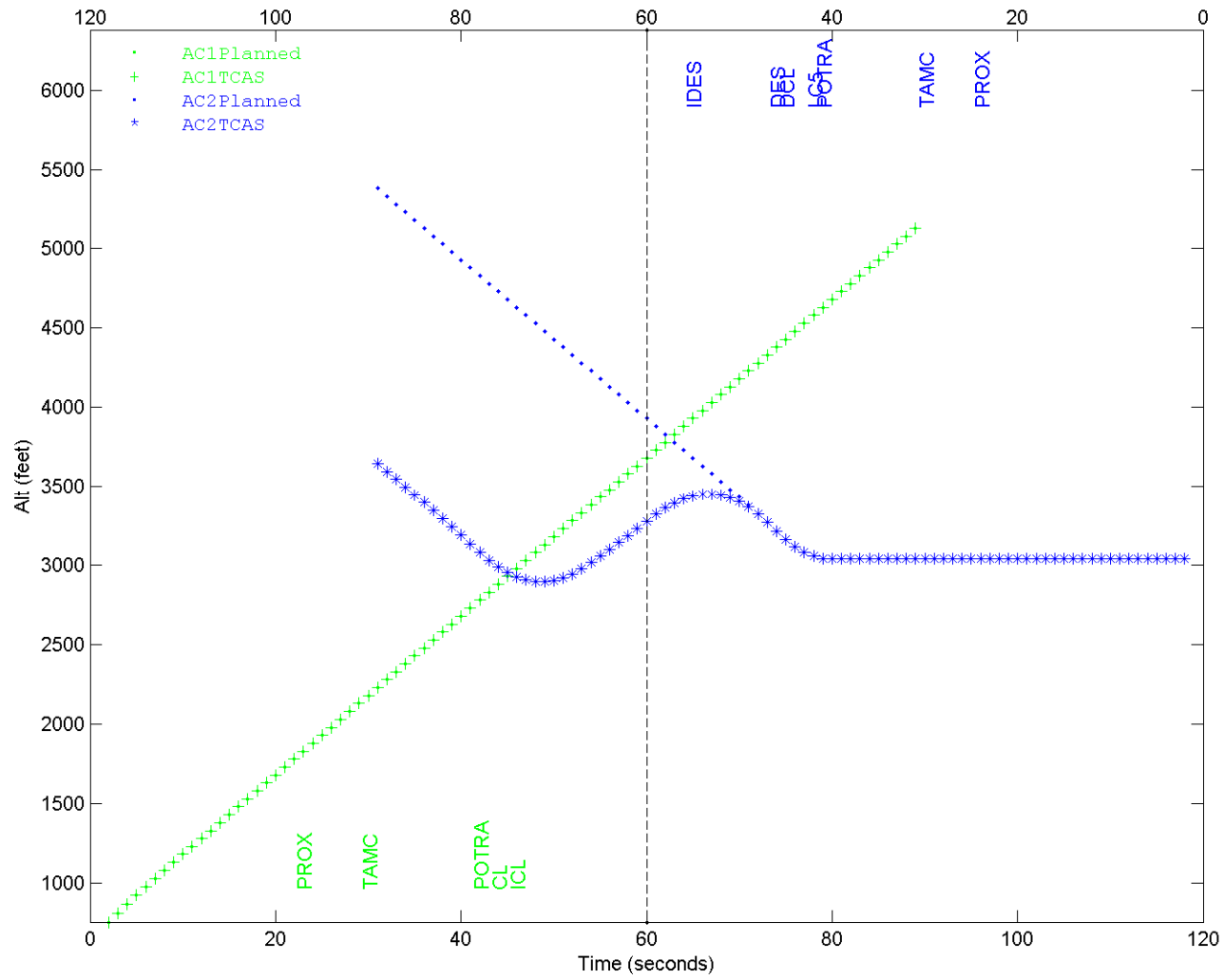
New NMAC caused by CP115. CP112E did not have NMAC or reversal.
CP115 led to different sense for first positive RA.

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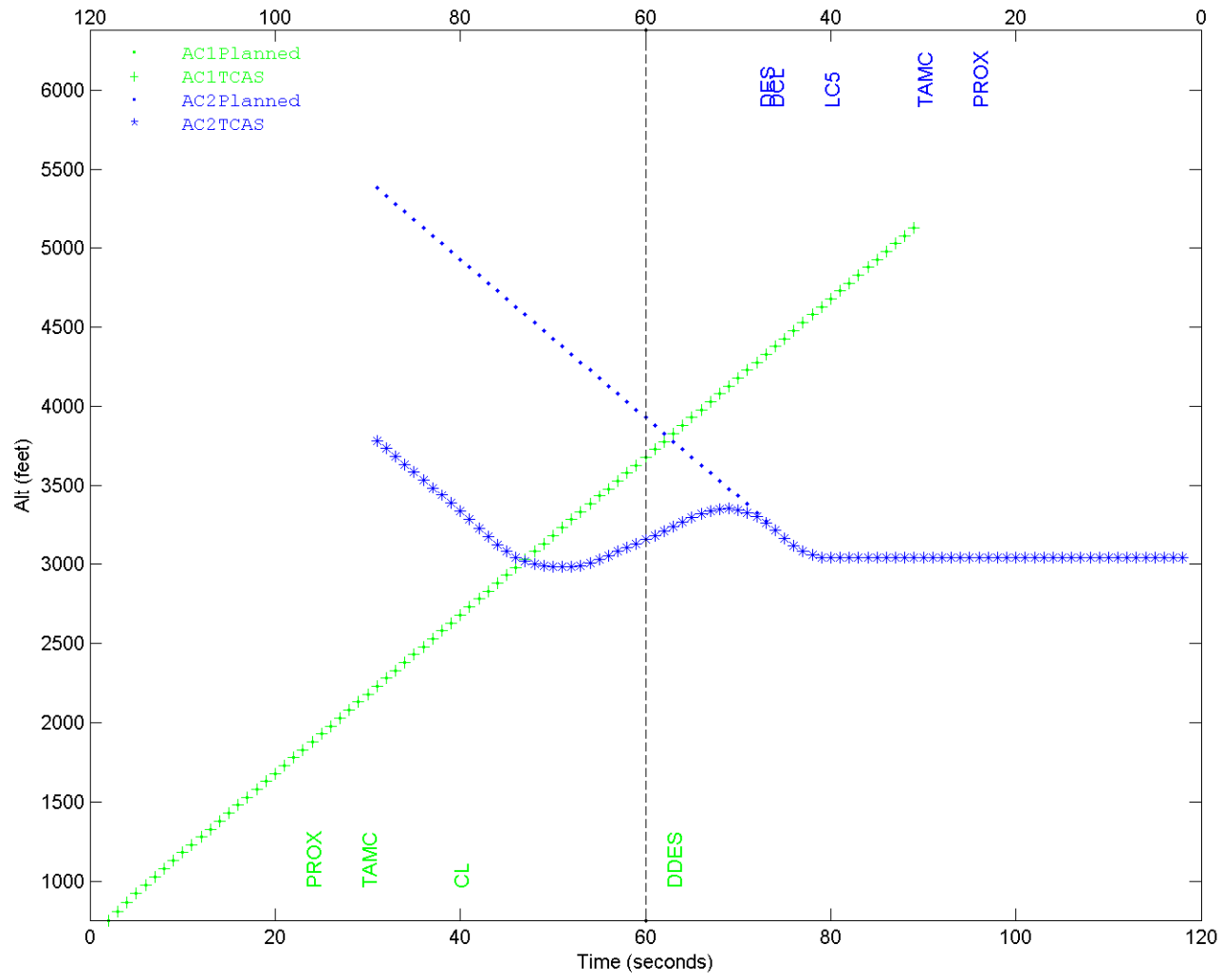
SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER H151237
LOGIC THRESHOLDS SL = 4 ZTHR = 600 TAUR = 20 TAUUV = 20 ALIM = 300
PLANNED ENCOUNTER. SEP = -250.0 AC1 RATES(3000.0,3000.0) AC2 RATES(0.0,3000.0)
      AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.35g @ CPA -20 AC1 CPA ALT 3680
-----
1237 6.04A NR H VS 6.04A NR L 15 412.99 CROSSING_ENC
10 AC1: 4165142 TA :30 |PVMD| CL @44 [X]| ICL @46 ###NON-RESPONDING##
5 AC2: 4265024 TA :30 |PVMD| LC5 @42[X]| LC5 @44 | DCL @45 | DES @46| IDES @55
-----
1237 V7 25 FT NR H VS V7 25 FT R L 15 525.32 CROSSING_ENC
10 AC1: 4275053 TA :30 |TAUR| CL @40 [X]| DDES @63 ###NON-RESPONDING##
5 AC2: 4175135 TA :30 |TAUR| LC5 @40[X]| LC5 @43 | DCL @46| DES @47 | DCL @63
-----
1237 CP112EV1.2 25 FT NR H VS CP112EV1.2 25 FT R L 15 525.32 CROSSING_ENC
10 AC1: 8275053 TA :30 |TAUR| CL @40 [X]| DDES @63 ###NON-RESPONDING##
5 AC2: 8175135 TA :30 |TAUR| LC5 @40[X]| LC5 @43| DCL @46| DES @47 | DCL @63
-----
1237 V7.1 25 FT NR H VS V7.1 25 FT R L 15 55.60 CROSSING_ENC
10 AC1:*REV*8275053 TA :30 |TAUR| CL @40 [X] | DES @51 | IDES @53 ###NON-RESPONDING##
5 AC2:*REV*8175135 TA :30 |TAUR| LC5 @40 [X] | DCL @43 | CL @50 | ICL @53

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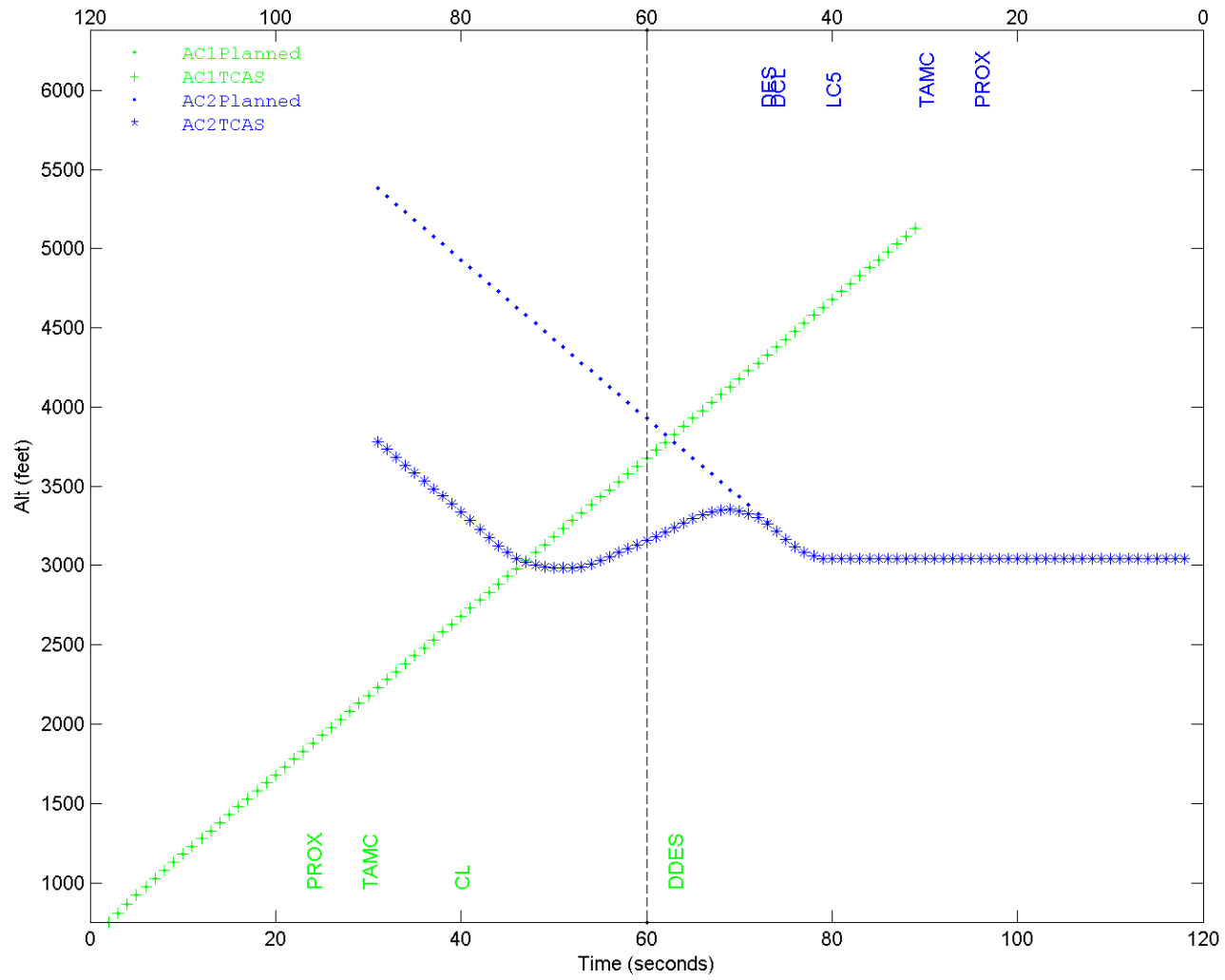
reit: 1237 cata: 515 simmode: 4165142 6.04A Vs 6.04A H151237A



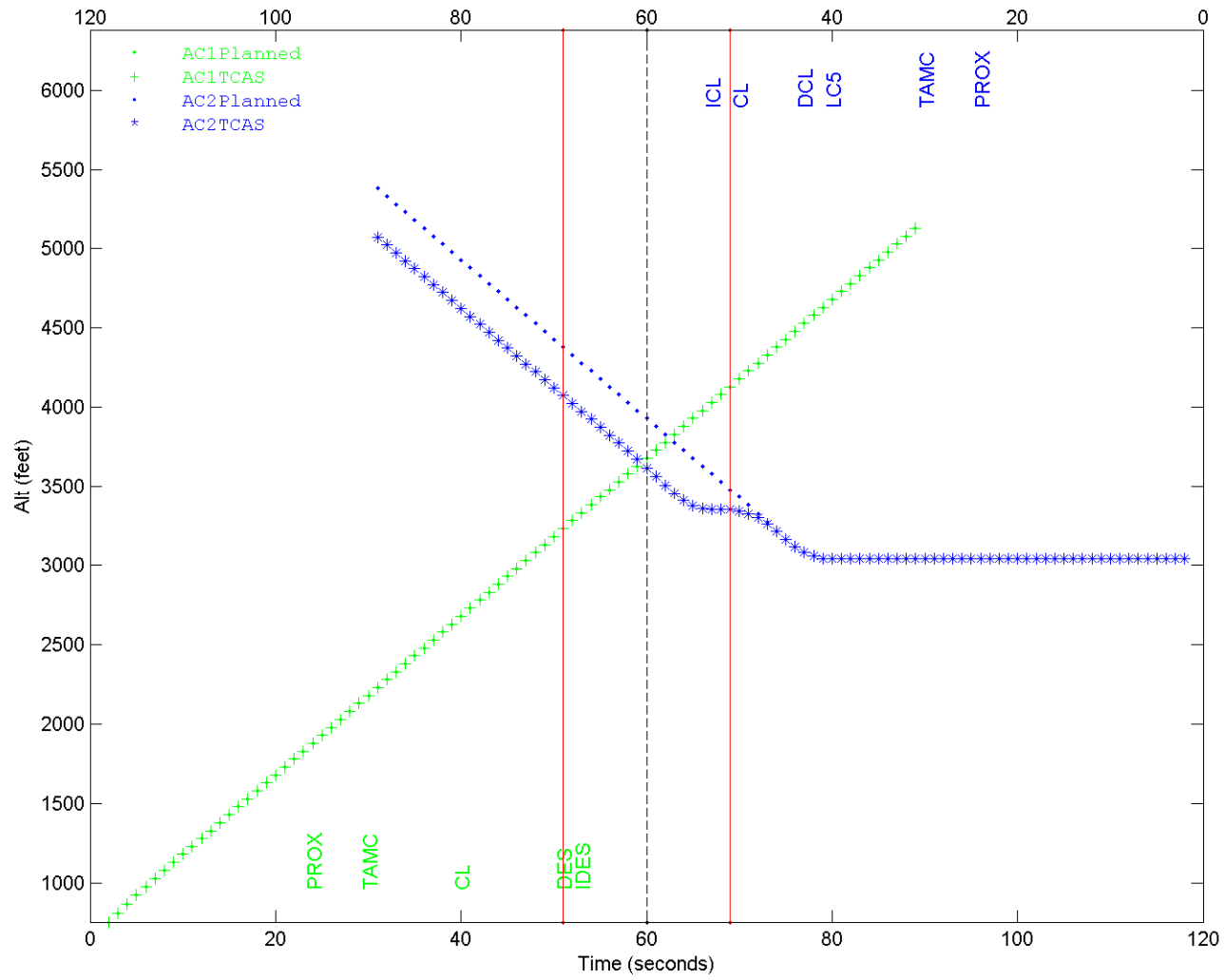
reit: 1237 cata: 515 simmode: 4275053 V7-25 Vs V7-25 H151237B



reit: 1237 cata: 515 simmode: 8275053 CP112EV1.2-25 Vs CP112EV1.2-25 H151237C



reit: 1237 cata: 515 simmode: 8275053 V7.1-25 Vs V7.1-25 H151237D



Change 7.1 Non-responding Representative NMAC Ind11

Encounter Class: 19

Reit Number : 7251

NMAC Characterization

Number of encounters in group	5
AC1 low ID	no
Non-responding AC	1
Vertical tracker	25 ft
Planned separation	-250, 500 ft
AC1 rates:	3000, 5000 fpm
AC2 rates:	3000, 5000 fpm
AC1 acceleration:	-0.15 g
AC2 acceleration:	-0.05 g
AC1 acceleration time:	CPA – 25 sec
AC2 acceleration time:	CPA – 25 sec
Encounters with reversed RAs	100 %

Performance Statistics for entire encounter class

<u>25 ft</u>	
87	% of RAs were non-crossing
0	% of NMACs were non-crossing
89	% of RAs were not reversed
98	% of NMACs were not reversed

Comments

CP112E caused new NMAC. Climbing vertical chase.
Planned level-off by non responding aircraft defeats the reversal.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER H197251
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = -250.0 AC1 RATES(5000.0,0.0) AC2 RATES(3000.0,0.0)
 AC1 ACCEL -0.15g @ CPA -25 AC2 ACCEL -0.05g @ CPA -25 AC1 CPA ALT 7500

 7251 6.04A NR H VS 6.04A NR L 19 -701.06 NON_CROSSING_ENC

10 AC1: 4165142 TA :19 |TAUR| POTRA@34 (DFD | DES @35 [NX]| LC1 @53 ##NON-RESPONDING##

5 AC2: 4265024 TA :19 |TAUR| MCL @34 [NX]| ICL @40 | LD5 @55

 7251 V7 25 FT NR H VS V7 25 FT R L 19 -701.06 NON_CROSSING_ENC

10 AC1: 4275053 TA :19 |TAUR| LC1 @34 [NX] ##NON-RESPONDING##

5 AC2: 4175135 TA :19 |TAUR| CL @34 [NX]| DDES @55

 7251 CP112EV1.2 25 FT NR H VS CP112EV1.2 25 FT R L 19 81.30 CROSSING_ENC

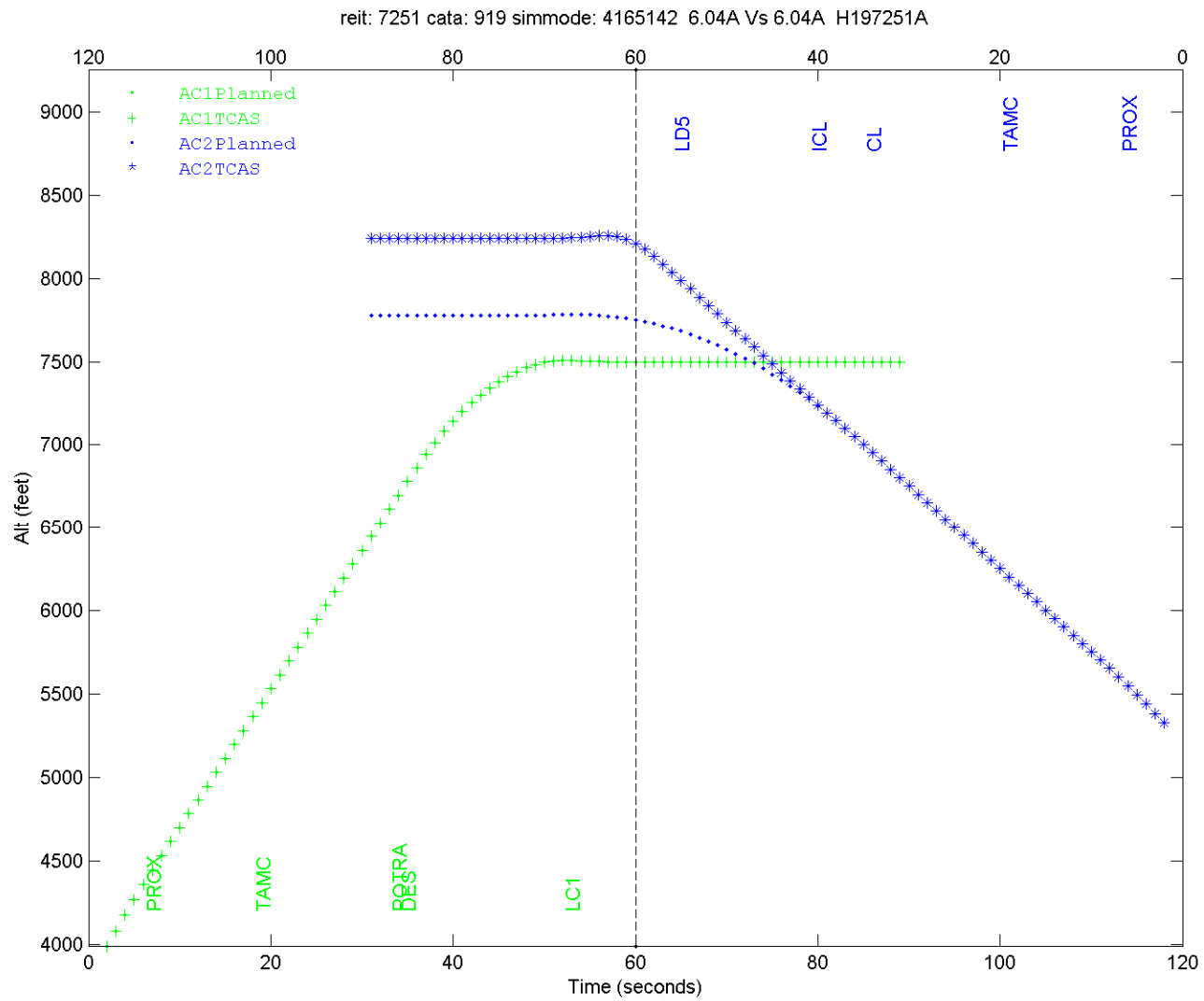
10 AC1:*REV*8275053 TA :19 |TAUR| LC1 @34 [NX]| CL @46 | ICL @49 ##NON-RESPONDING##

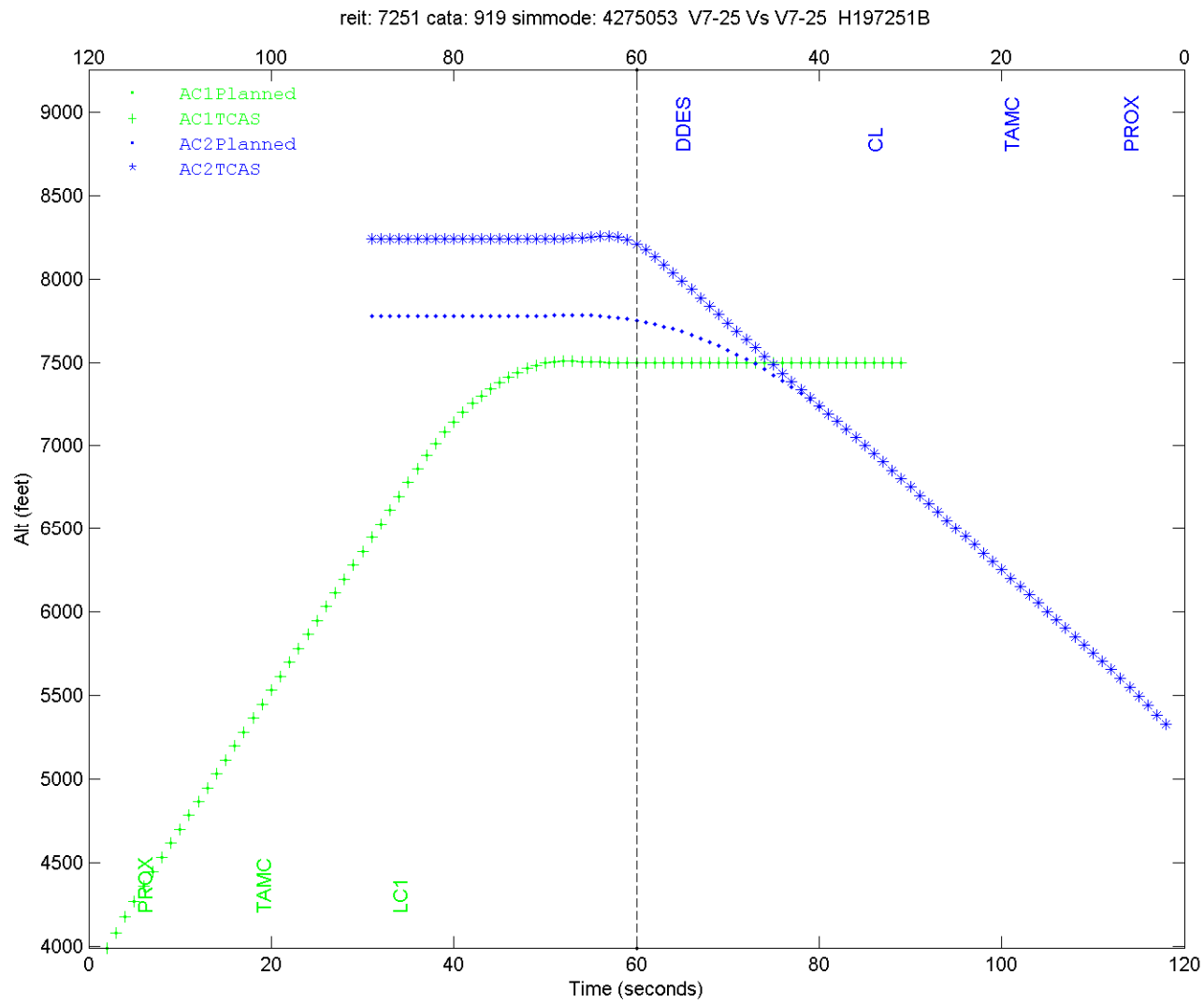
5 AC2:*REV*8175135 TA :19 |TAUR| CL @34 [NX]| DES @45 | IDES @48

 7251 V7.1 25 FT NR H VS V7.1 25 FT R L 19 81.30 CROSSING_ENC

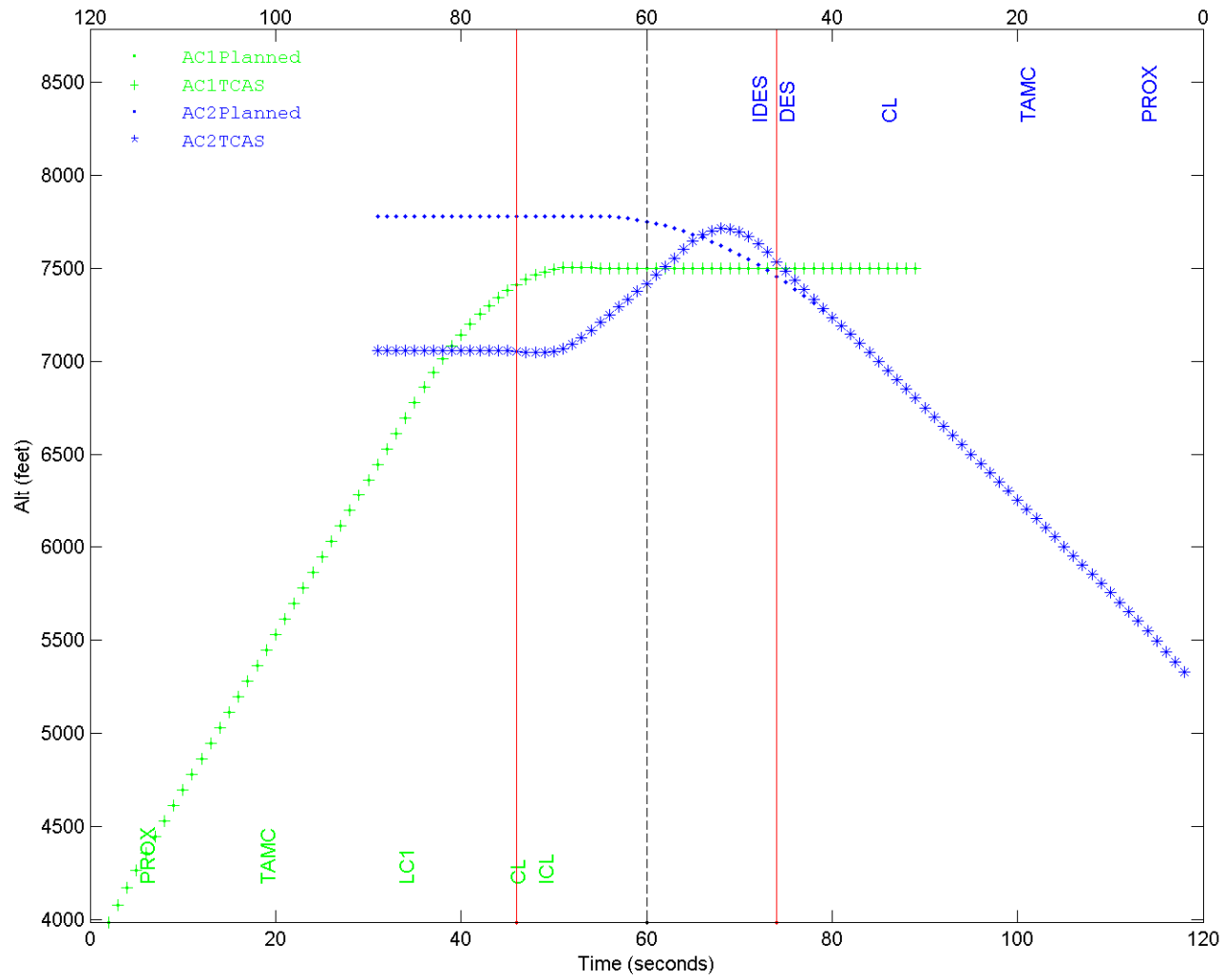
10 AC1:*REV*8275053 TA :19 |TAUR| DCL @34 [NX]| CL @46 | ICL @49 ##NON-RESPONDING##

5 AC2:*REV*8175135 TA :19 |TAUR| CL @34 [NX]| DES @45 | IDES @48

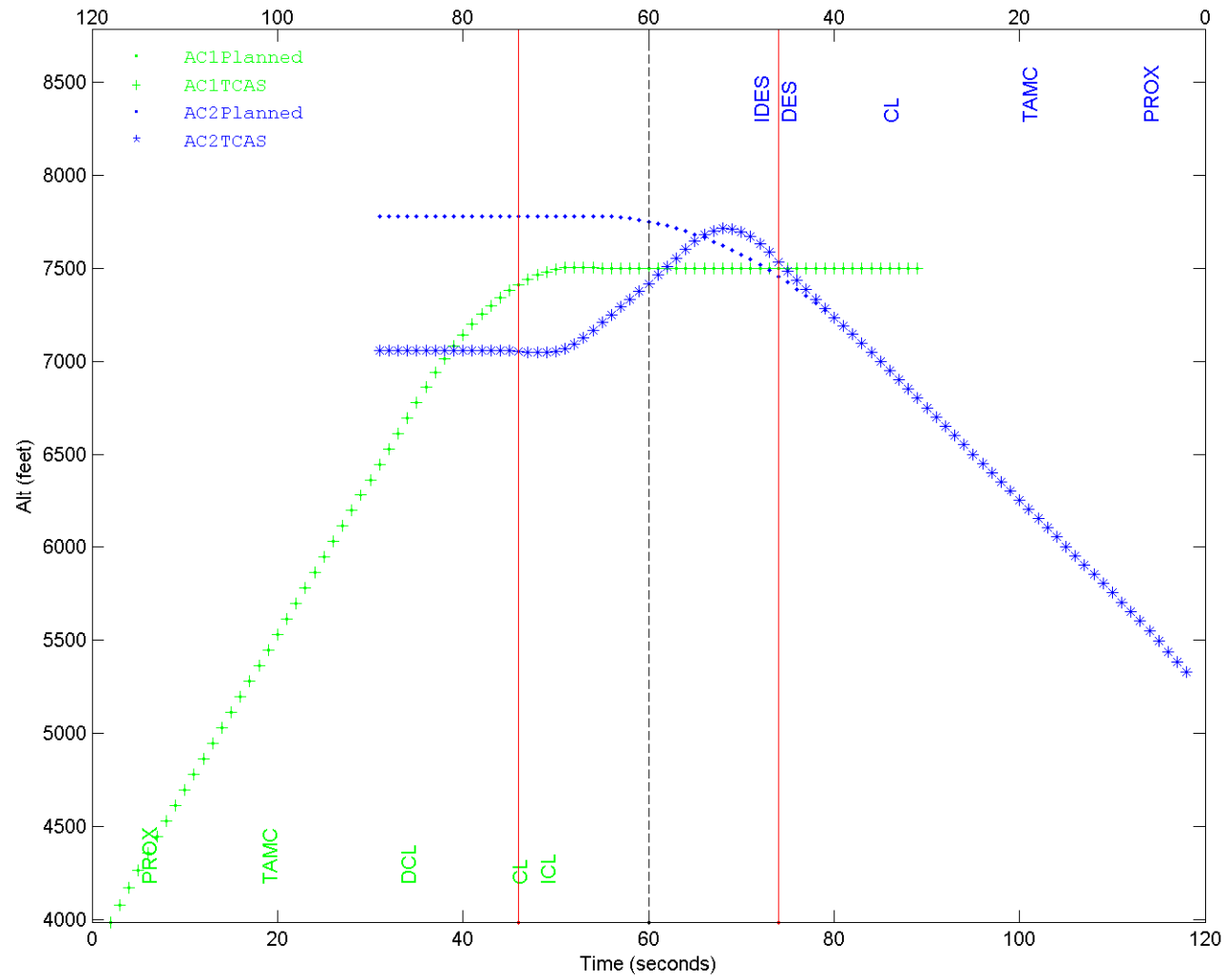




reit: 7251 cata: 919 simmode: 8275053 CP112EV1.2-25 Vs CP112EV1.2-25 H197251C



reit: 7251 cata: 919 simmode: 8275053 V7.1-25 Vs V7.1-25 H197251D



Change 7.1 Non-responding Representative NMAC Ind12

Encounter Class: 19

Reit Number : 1289

NMAC Characterization

Number of encounters in group	1
AC1 low ID	yes
Non-responding AC	1
Vertical tracker	25 ft
Planned separation	750 ft
AC1 rates:	3000 fpm
AC2 rates:	5000 fpm
AC1 acceleration:	-0.05 g
AC2 acceleration:	-0.35 g
AC1 acceleration time:	CPA – 25 sec
AC2 acceleration time:	CPA – 20 sec
Encounters with reversed RAs	100 %

Performance Statistics for entire encounter class

<u>25 ft</u>	
87	% of RAs were non-crossing
0	% of NMACs were non-crossing
89	% of RAs were not reversed
98	% of NMACs were not reversed

Comments

New reversal. CP115 caused NMAC. Climbing vertical chase. CP112E did not have a reversal or an NMAC.

First positive RA delayed 1 second with CP112E + CP115 compared to CP112E.

SIMULATION RESULTS FOR 6.04A, V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER L191289
 LOGIC THRESHOLDS SL = 4 ZTHR = 600 TAUR = 20 TAUV = 20 ALIM = 300
 PLANNED ENCOUNTER. SEP = 750.0 AC1 RATES(3000.0,0.0) AC2 RATES(5000.0,0.0)
 AC1 ACCEL -0.05g @ CPA -25 AC2 ACCEL -0.35g @ CPA -20 AC1 CPA ALT 3700

1289 6.04A NR L VS 6.04A R H 19 -270.50 CROSSING_ENC

5 AC1: 4165042 TA :30 |TAUR| LC2 @40 [X]| LC1 @41 | DES @46 ###NON-RESPONDING##

10 AC2: 4265124 TA :30 |TAUR| CL @40 [X]| ICL @42 | CL @60

1289 V7 25 FT NR L VS V7 25 FT R H 19 -184.28 CROSSING_ENC

5 AC1: 4175053 TA :30 |TAUR| LC2 @40 [X]| LC1 @42 | DES @44 | IDES @49 ###NON-RESPONDING##

10 AC2: 4275135 TA :30 |TAUR| CL @40 [X]

1289 CP112EV1.2 25 FT NR L VS CP112EV1.2 25 FT R H 19 -184.28 CROSSING_ENC

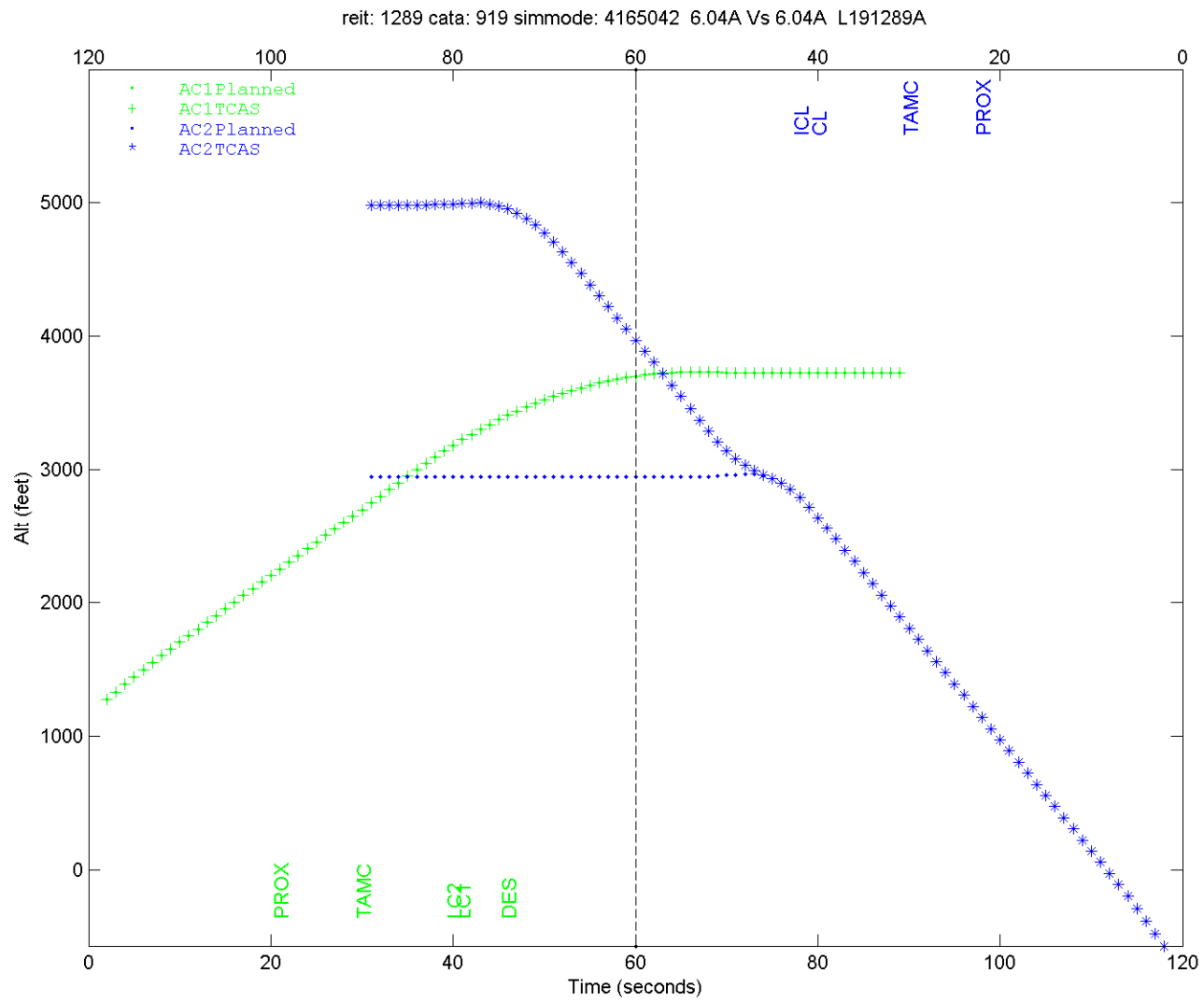
5 AC1: 8175053 TA :30 |TAUR| LC2 @40 [X]| LC1 @42 | DES @44 | IDES @49 ###NON-RESPONDING##

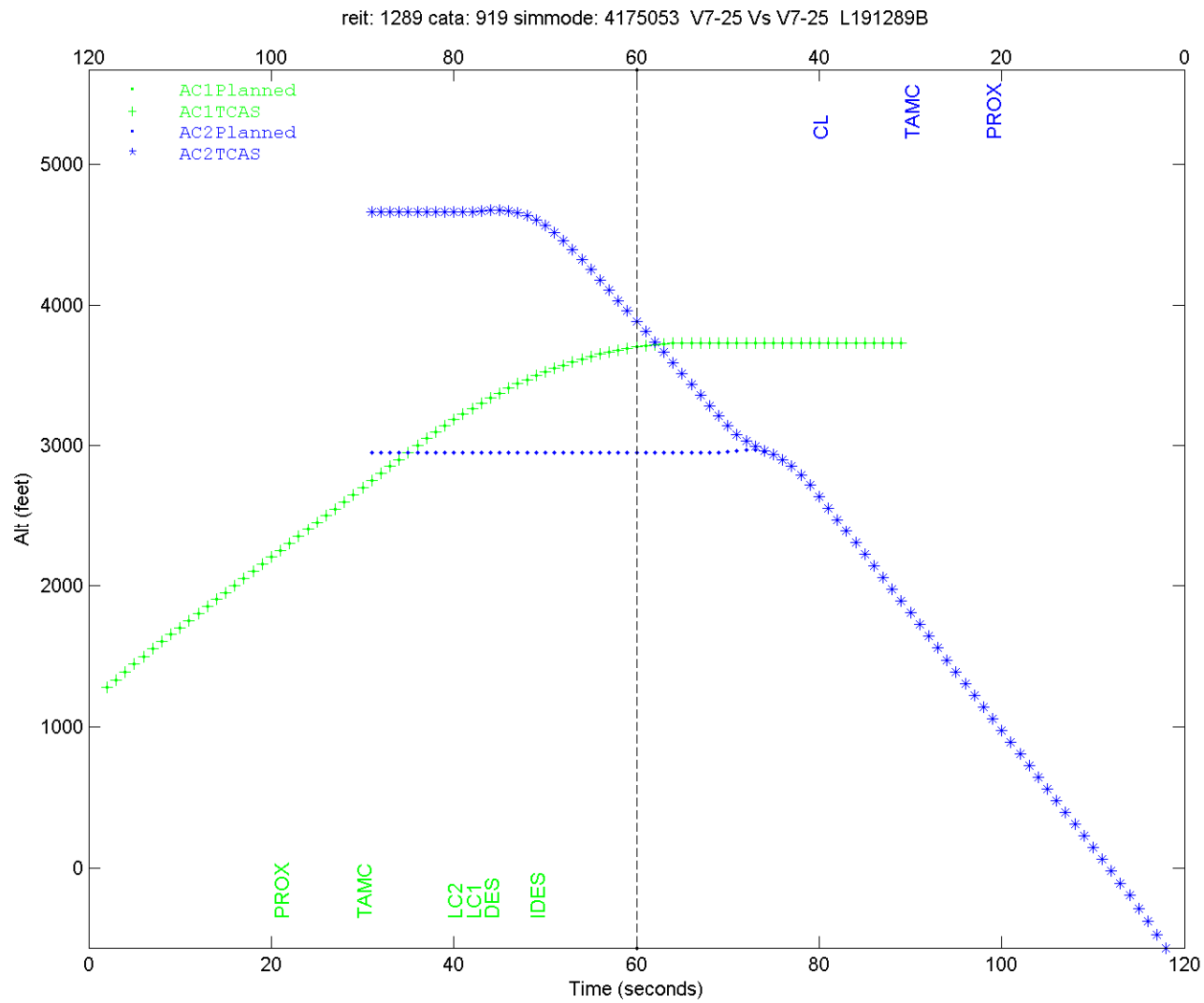
10 AC2: 8275135 TA :30 |TAUR| CL @40 [X]

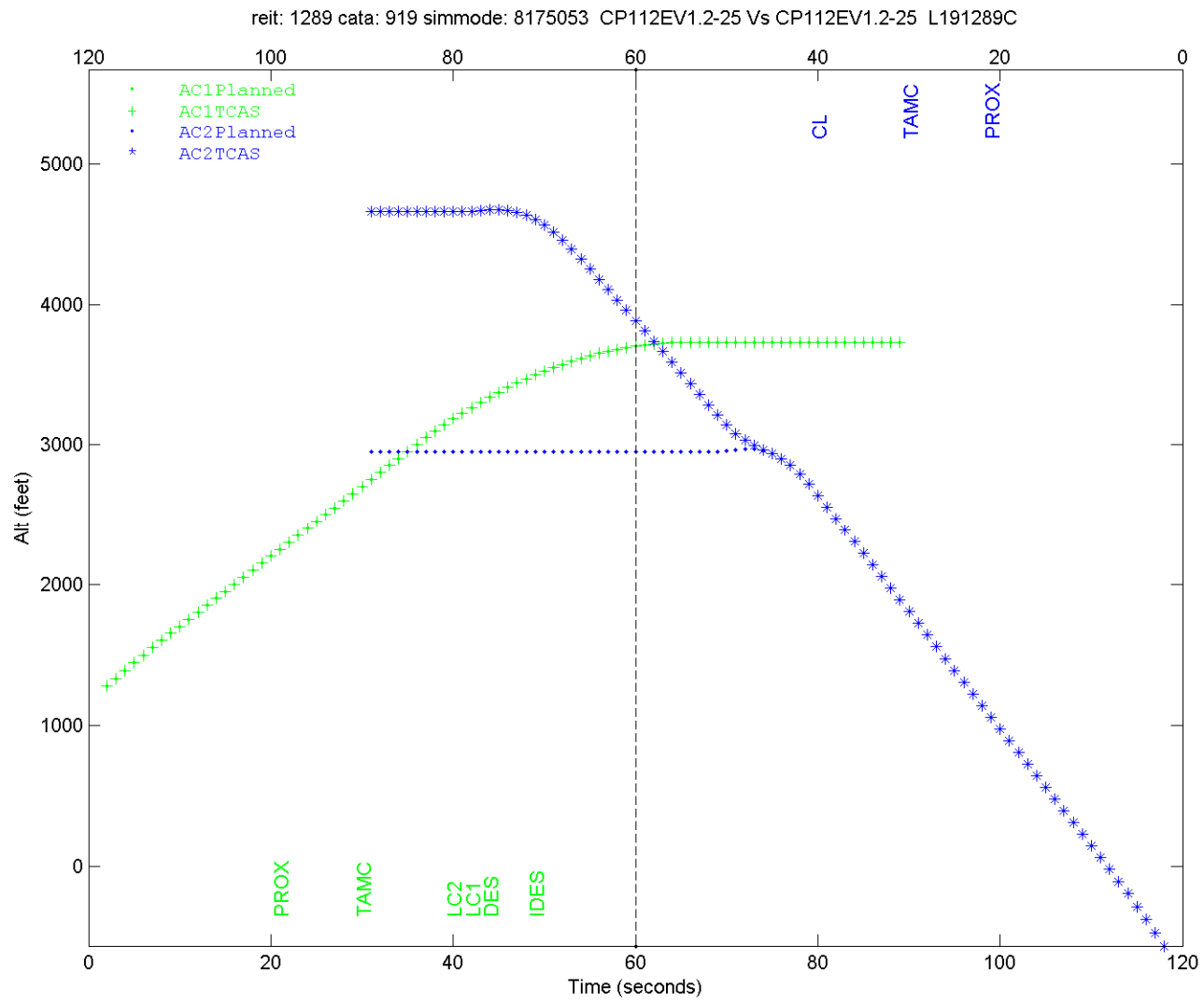
1289 V7.1 25 FT NR L VS V7.1 25 FT R H 19 91.60 NON_CROSSING_ENC

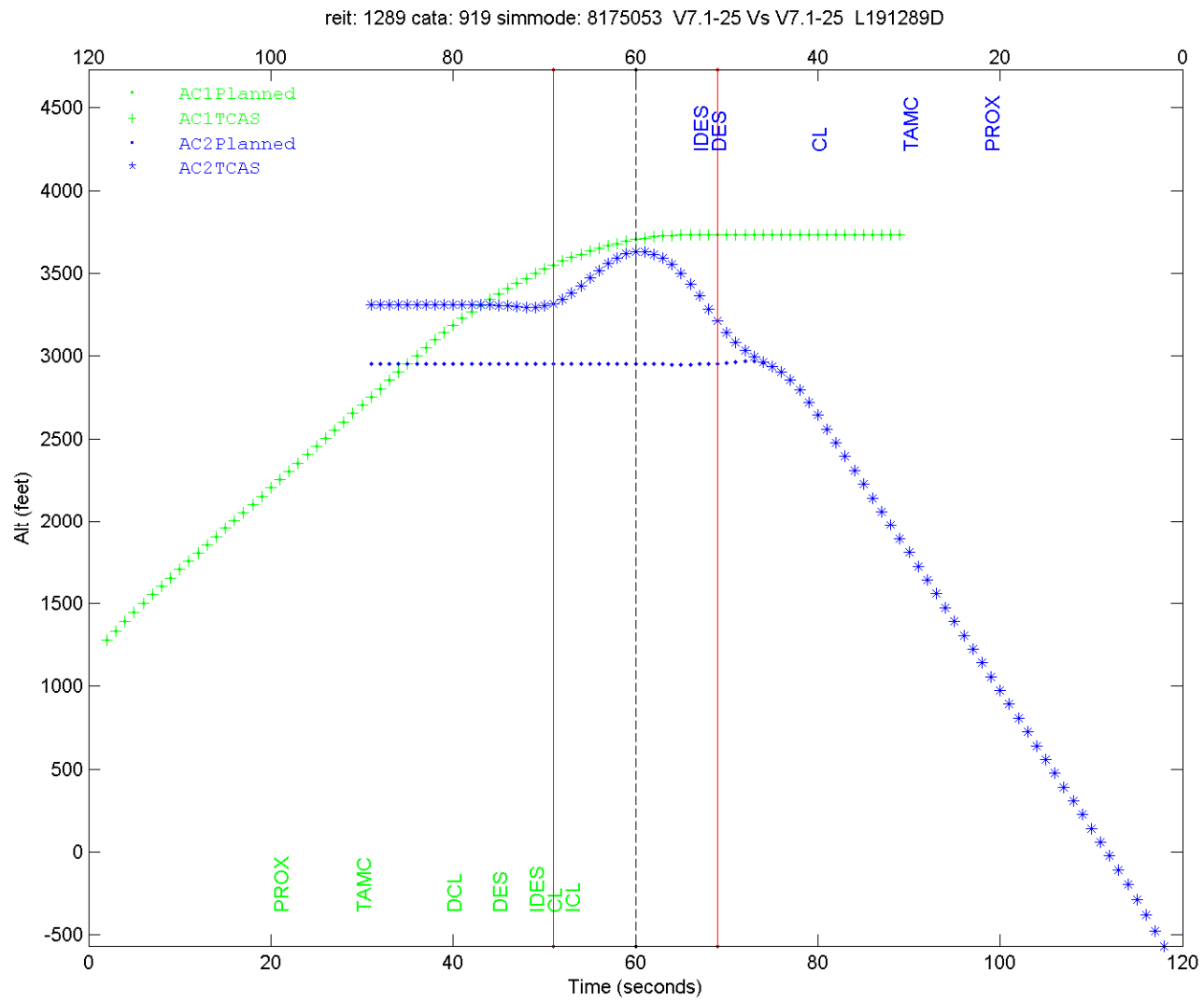
5 AC1:*REV*8175053 TA :30 |TAUR| DCL @40[X]| DES @45| IDES @49 | CL @51| ICL @53 ###NON-RESPONDING##

10 AC2:*REV*8275135 TA :30 |TAUR| CL @40 [X]| DES @51 | IDES @53









Appendix P V7.1 REPRESENTATIVE SAVES (TCAS vs. unequipped intruder)

Change 7.1 TCAS vs. Unequipped Representative Save 01

Encounter Class: 2

Reit Number : 531

Encounter Characterization

Number of encounters in group	18	
AC1 TCAS equipped	no	
Vertical tracker	25, 100	ft
Planned separation	-500, -750	ft
AC1 rates:	0, +/- 400	fpm
AC2 rates:	3000, 5000	fpm
AC1 acceleration:	none	
AC2 acceleration:	0.05	g
AC2 acceleration time:	CPA – 30	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

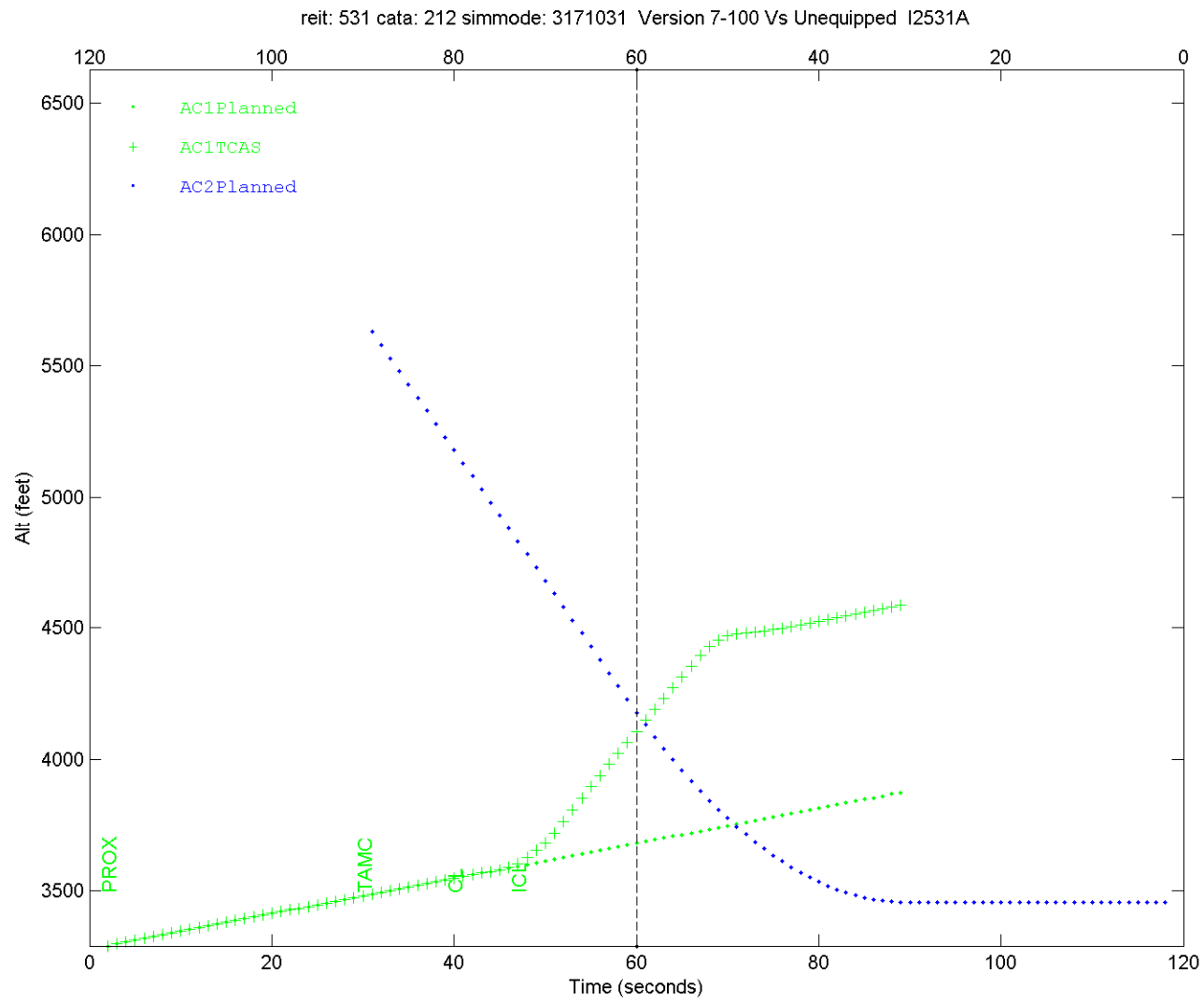
Climbing vertical chase caused by response to initial RA.
New reversal allowed by CP112E resolved NMAC.

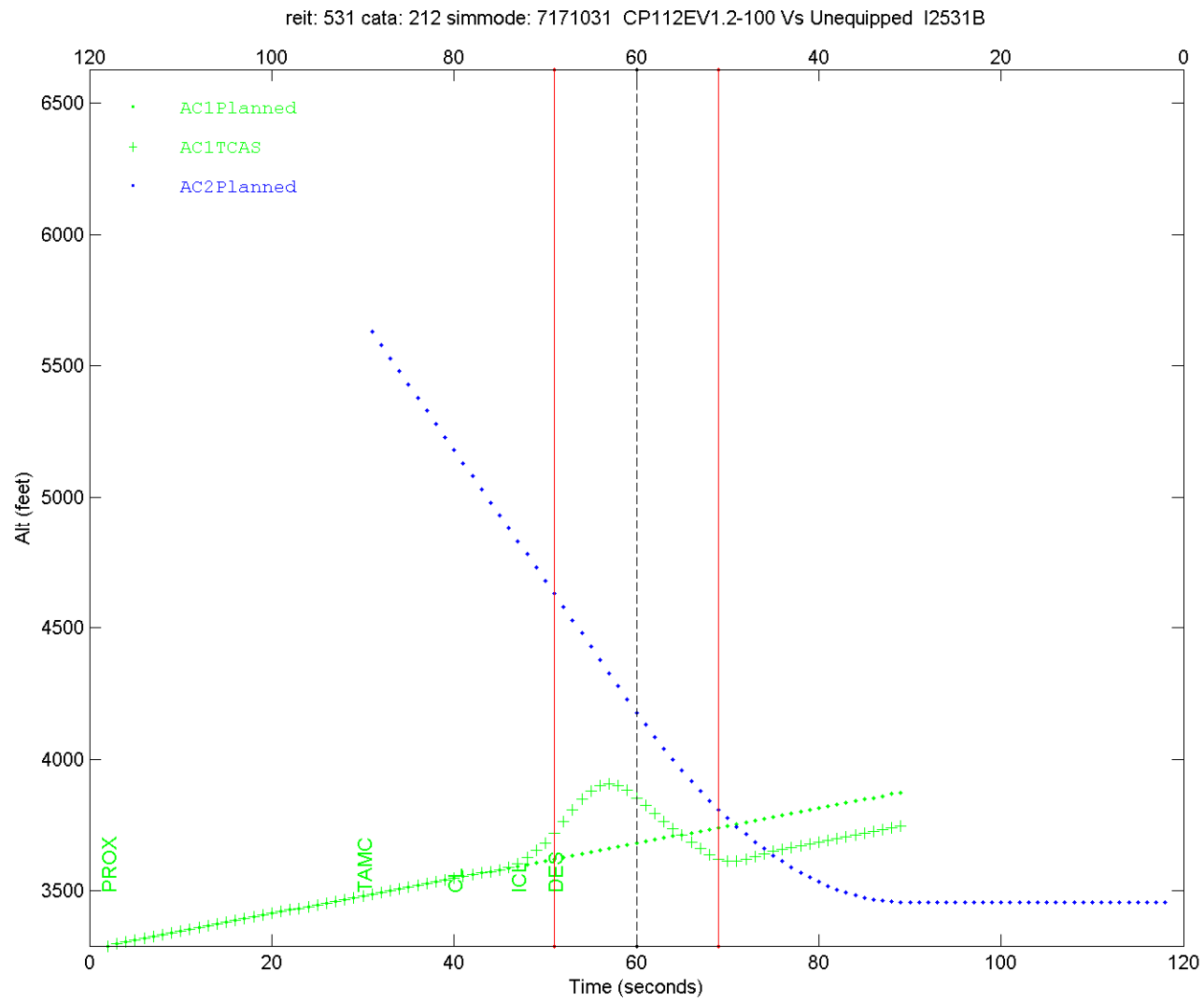
SIMULATION RESULTS FOR V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER I2531
 LOGIC THRESHOLDS SL = 4 ZTHR = 600 TAUR = 20 TAUUV = 20 ALIM = 300
 PLANNED ENCOUNTER. SEP = -500.0 AC1 RATES(400.0, 400.0) AC2 RATES(0.0,3000.0)
 AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.05g @ CPA -30 AC1 CPA ALT 3680

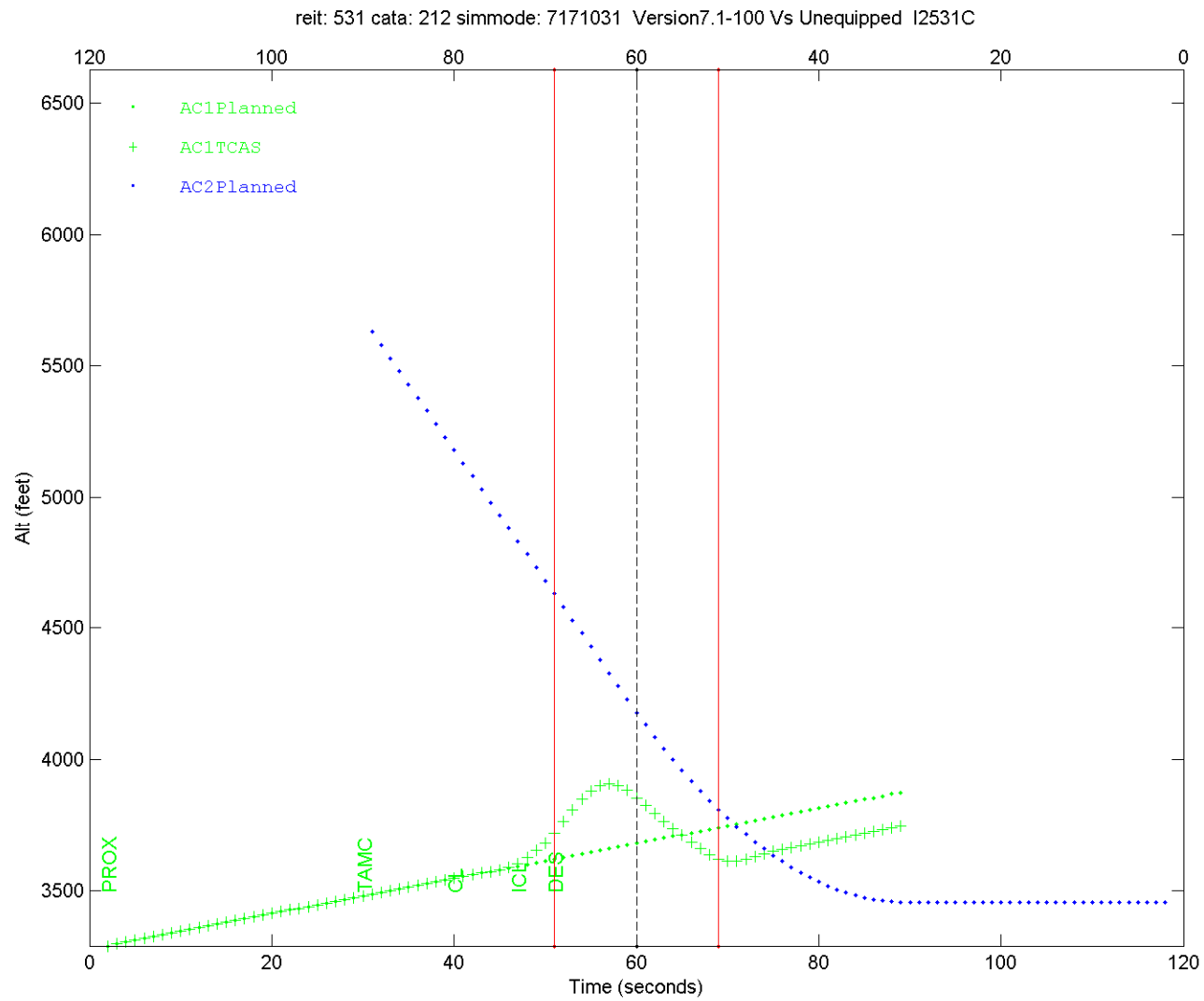
531 V7 100 FT VS UNEQUIPPED 2 -74.90 CROSSING_ENC
 1 TCAS AC 3171031 TA :30 |TAUR| CL @40 [NX]| ICL @47

531 CP112EV1.2 100 FT VS UNEQUIPPED 2 -344.21 CROSSING_ENC
 CPT_REV 1 OWN_FOLLOW TRUE TTOFOLLOW 7.29 REV_AVOID 02 TIME_REV_AVOID 0.0
 1 TCAS AC*REV*7171031 TA :30 |TAUR| CL @40 [NX]| ICL @47 | DES @51

531 V7.1 100 FT VS UNEQUIPPED 2 -344.21 CROSSING_ENC
 1 TCAS AC*REV*7171031 TA :30 |TAUR| CL @40 [NX]| ICL @47 | DES @51







Change 7.1 TCAS vs Unequipped Representative Save 02

Encounter Class: 5

Reit Number : 2184

Encounter Characterization

Number of encounters in group	7	
AC1 TCAS equipped	yes	
Vertical tracker	25, 100	ft
Planned separation	-500, -750	ft
AC1 rates:	+/- 1000	fpm
AC2 rates:	3000	fpm
AC1 acceleration:	none	
AC2 acceleration:	0.25	g
AC2 acceleration time:	CPA – 20	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

Climbing vertical chase caused by response to initial RA and planned maneuver.
New reversal or earlier reversal allowed by CP112E resolved NMAC.

SIMULATION RESULTS FOR V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER I52184
 LOGIC THRESHOLDS SL = 4 ZTHR = 600 TAUR = 20 TAUV = 20 ALIM = 300
 PLANNED ENCOUNTER. SEP = -750.0 AC1 RATES(-1000.0,-1000.0) AC2 RATES(0.0,3000.0)
 AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.25g @ CPA -20 AC1 CPA ALT 3720

 2184 V7 100 FT VS UNEQUIPPED 5 -74.38 CROSSING_ENC

1 TCAS AC 3171031 TA :30 |TAUR| DDES @40 [NX]| CL @43 | ICL @47

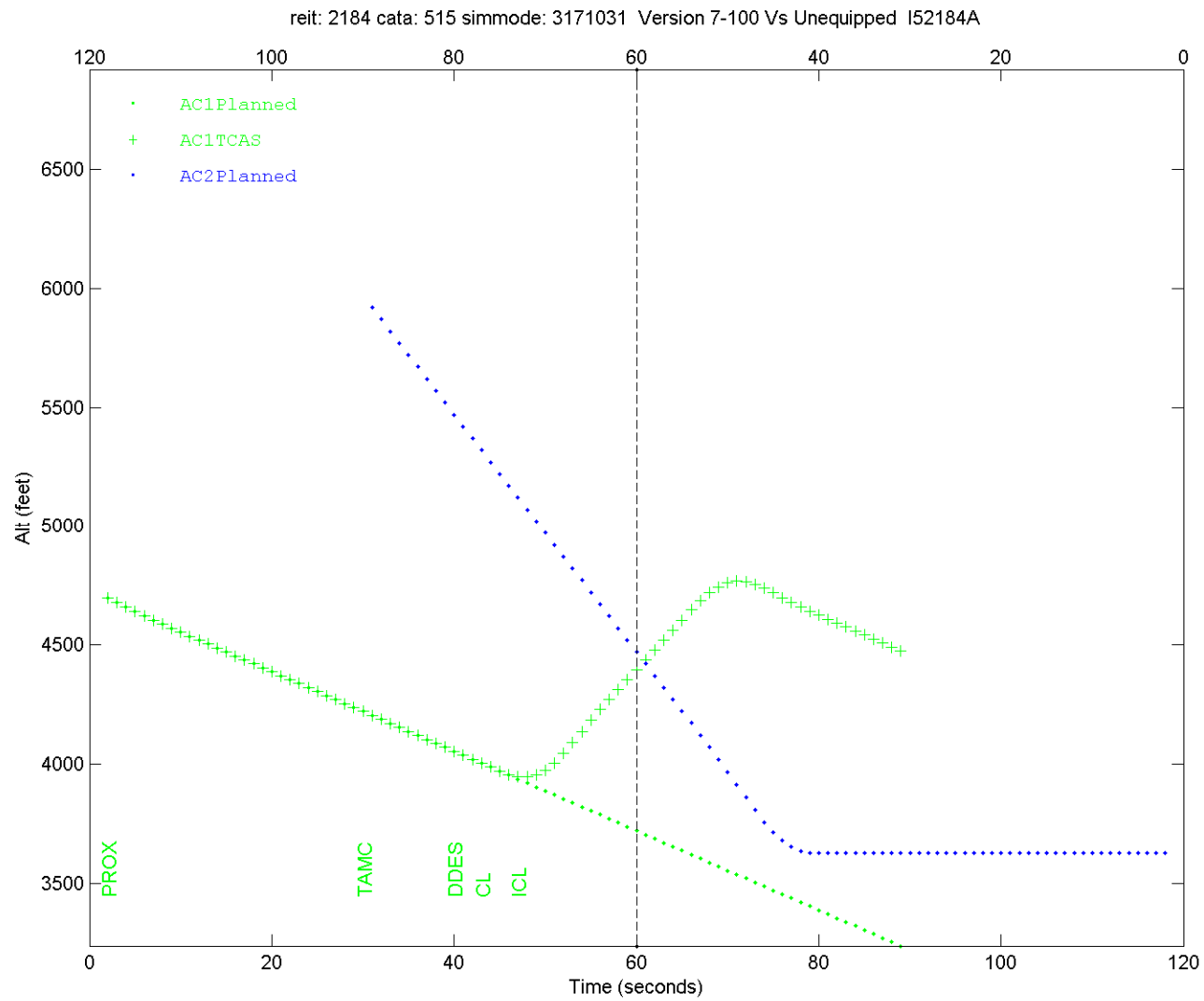
 2184 CP112EV1.2 100 FT VS UNEQUIPPED 5 -215.13 CROSSING_ENC

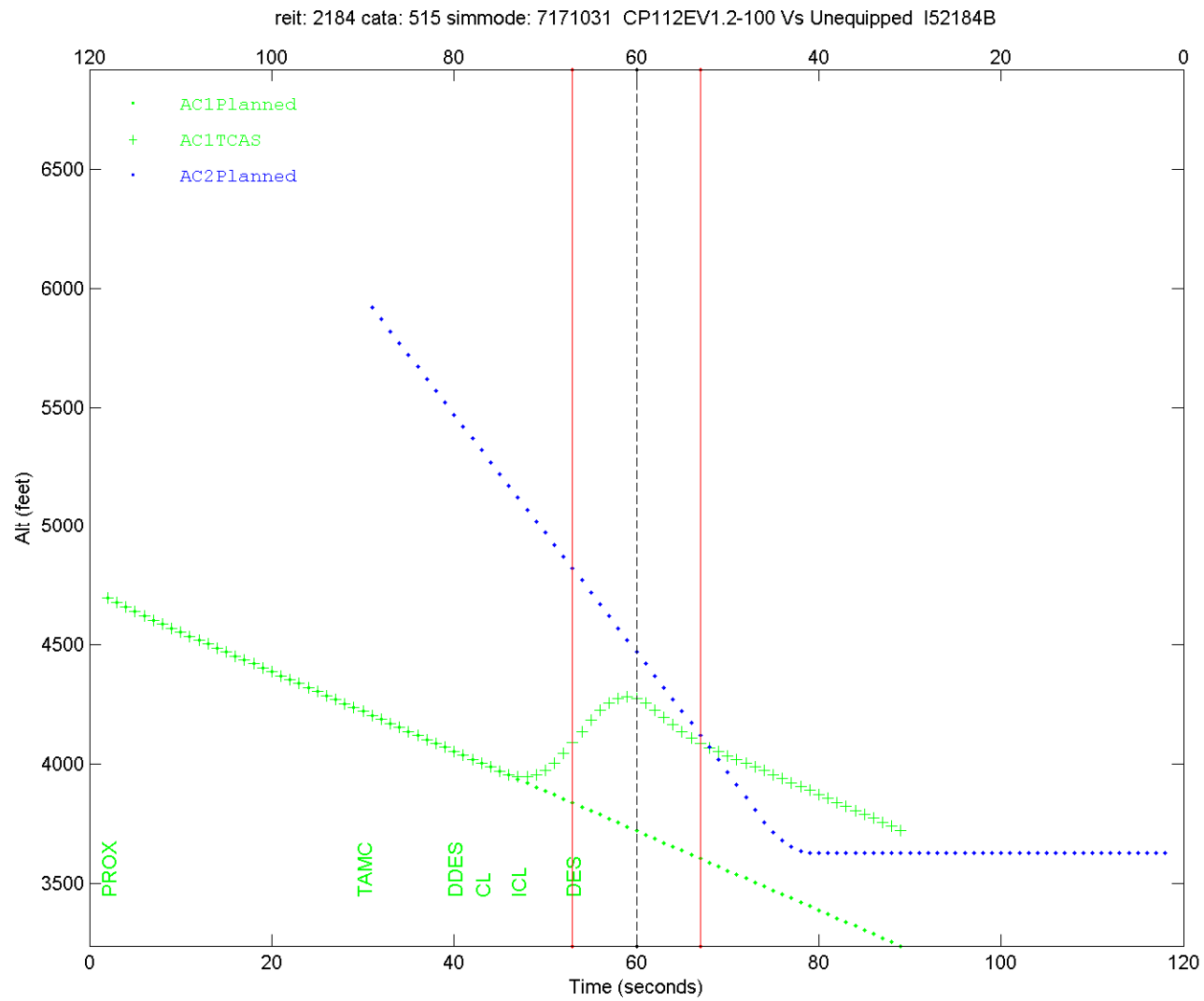
CPT_REV 1 OWN_FOLLOW TRUE TTOFOLLOW 10.21 REV_AVOID 02 TIME_REV_AVOID 0.0

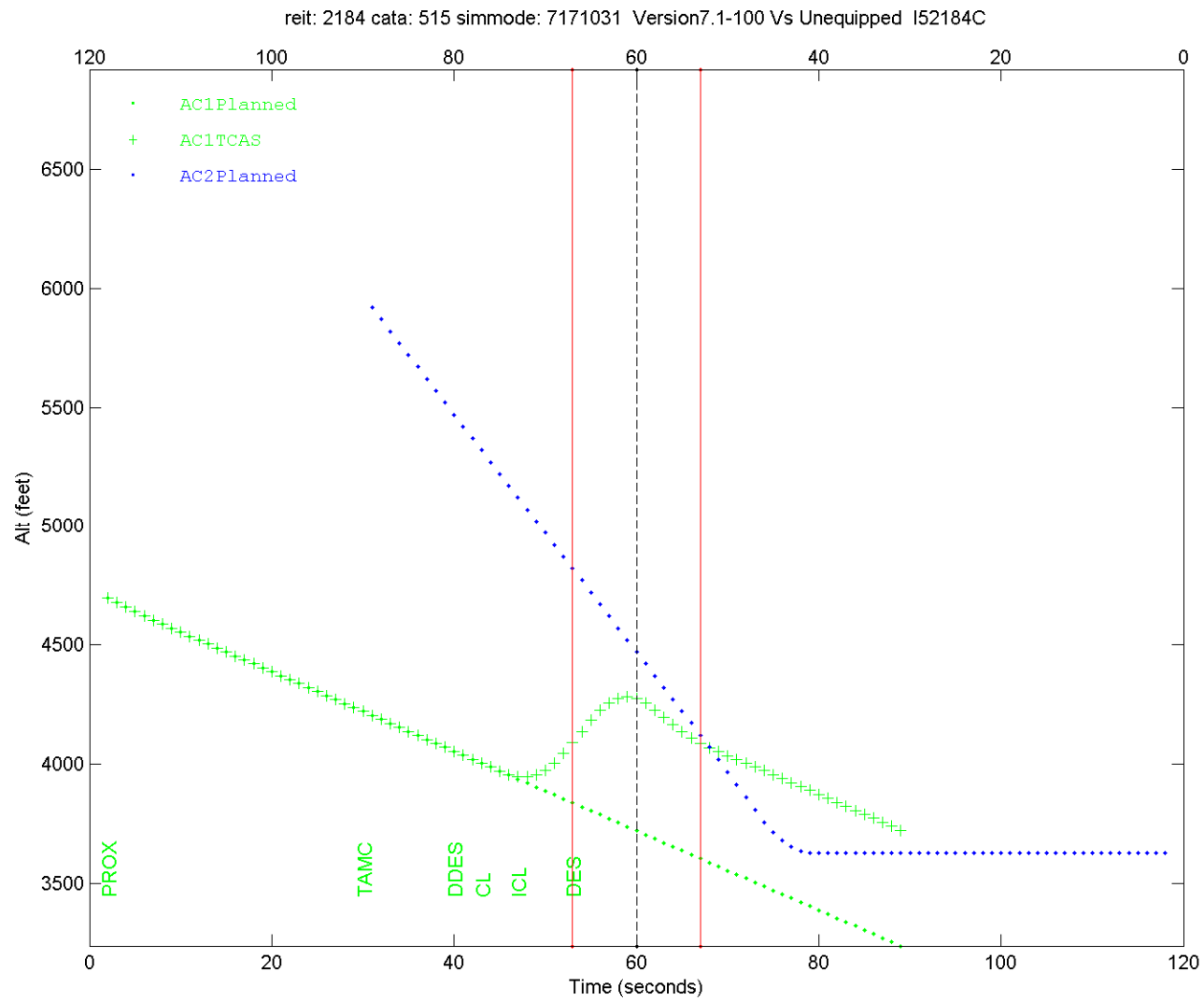
1 TCAS AC*REV*7171031 TA :30 |TAUR| DDES @40 [NX]| CL @43 | ICL @47 | DES @53

 2184 V7.1 100 FT VS UNEQUIPPED 5 -215.13 CROSSING_ENC

1 TCAS AC*REV*7171031 TA :30 |TAUR| DDES @40 [NX]| CL @43 | ICL @47 | DES @53







Change 7.1 TCAS vs Unequipped Representative Save 03

Encounter Class: 5

Reit Number : 1033

Encounter Characterization

Number of encounters in group	14	
AC1 TCAS equipped	yes	
Vertical tracker	25, 100	ft
Planned separation	0	ft
AC1 rates:	3000	fpm
AC2 rates:	3000, 5000	fpm
AC1 acceleration:	none	
AC2 acceleration:	0.05	g
AC2 acceleration time:	CPA – 30	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

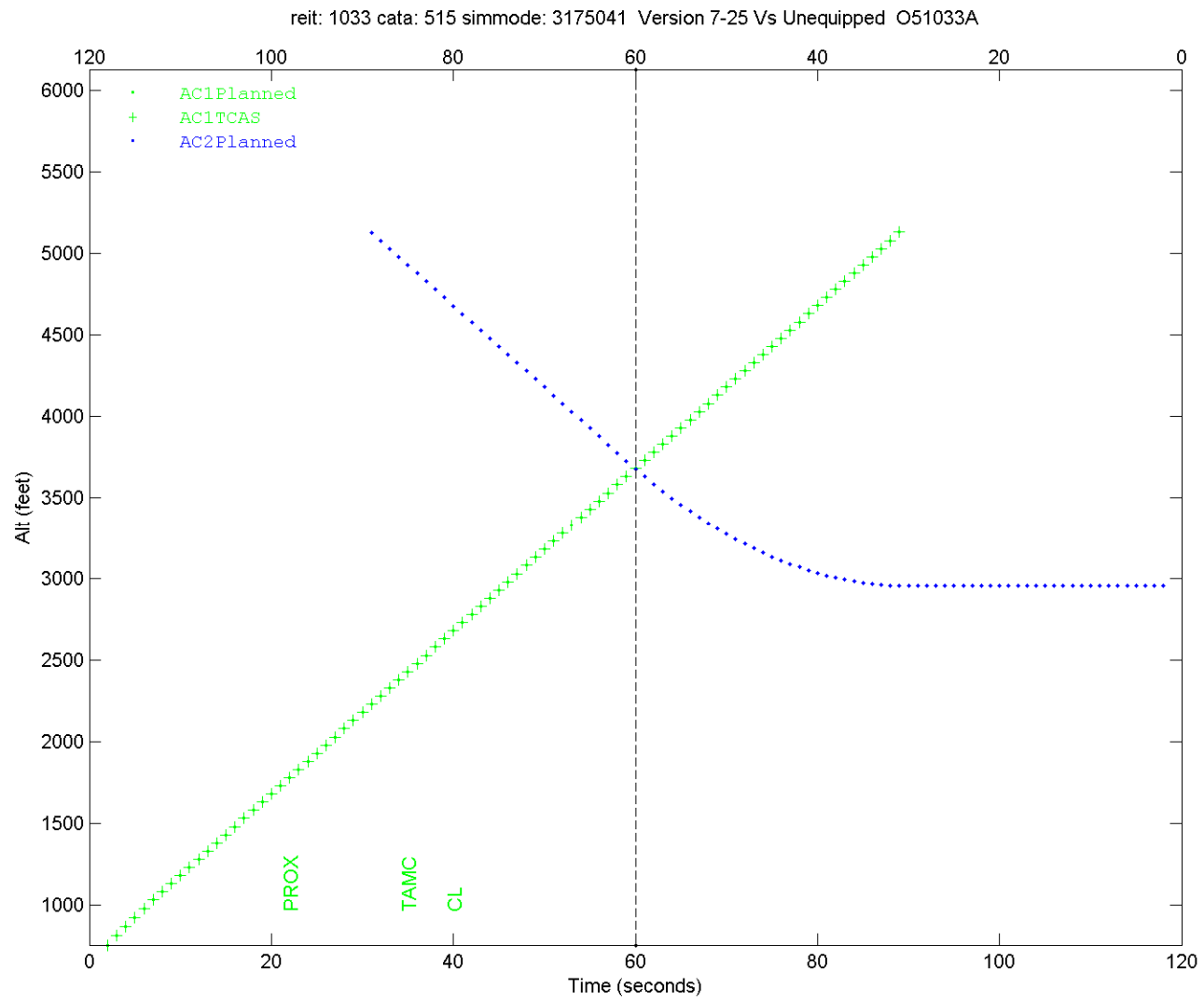
Climbing vertical chase caused by planned maneuvers.
New reversal allowed by CP112E resolved NMAC.

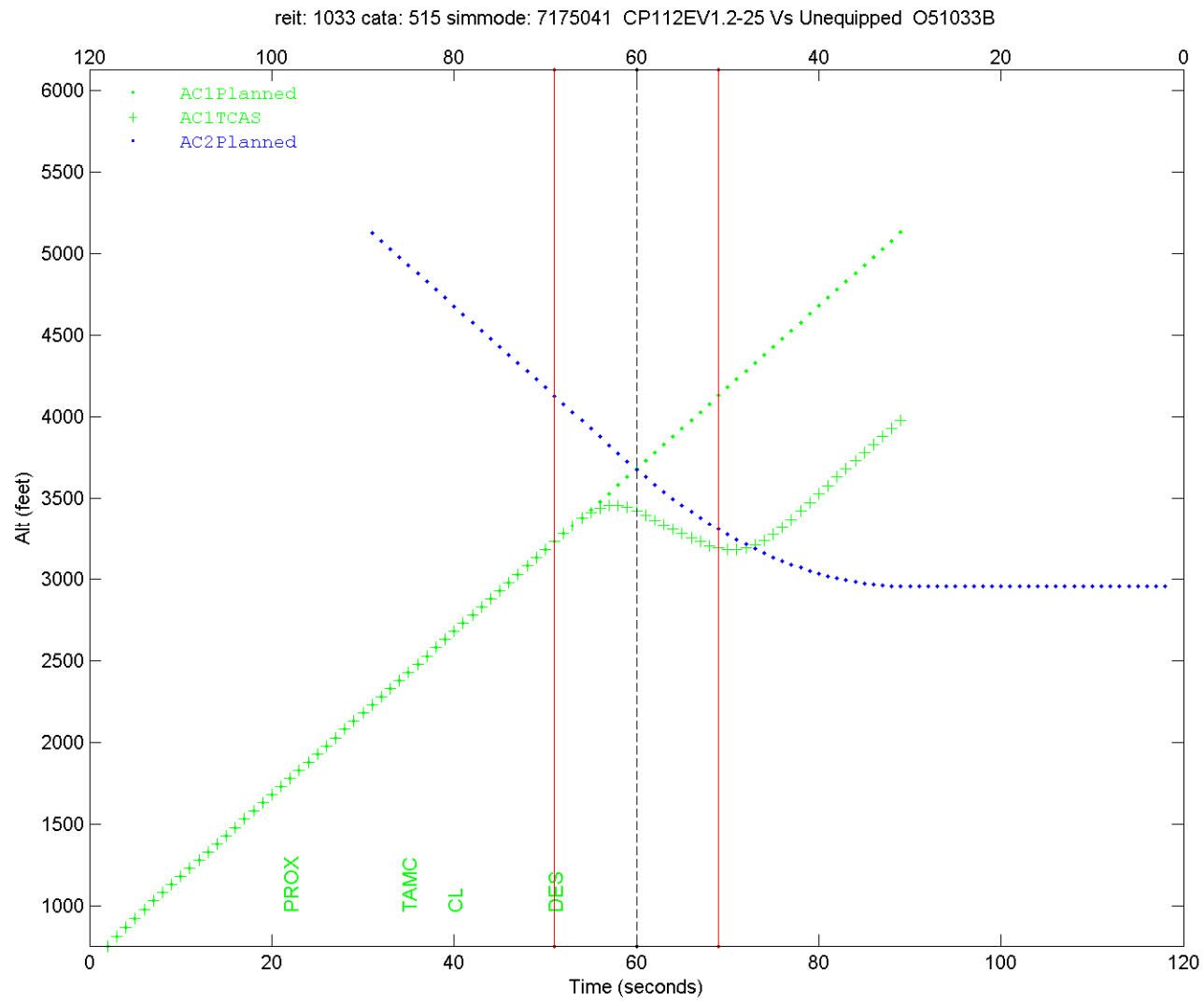
SIMULATION RESULTS FOR V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER 051033
 LOGIC THRESHOLDS SL = 4 ZTHR = 600 TAUR = 20 TAUV = 20 ALIM = 300
 PLANNED ENCOUNTER. SEP = 0.0 AC1 RATES(3000.0,3000.0) AC2 RATES(0.0,3000.0)
 AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.05g @ CPA -30 AC1 CPA ALT 3680

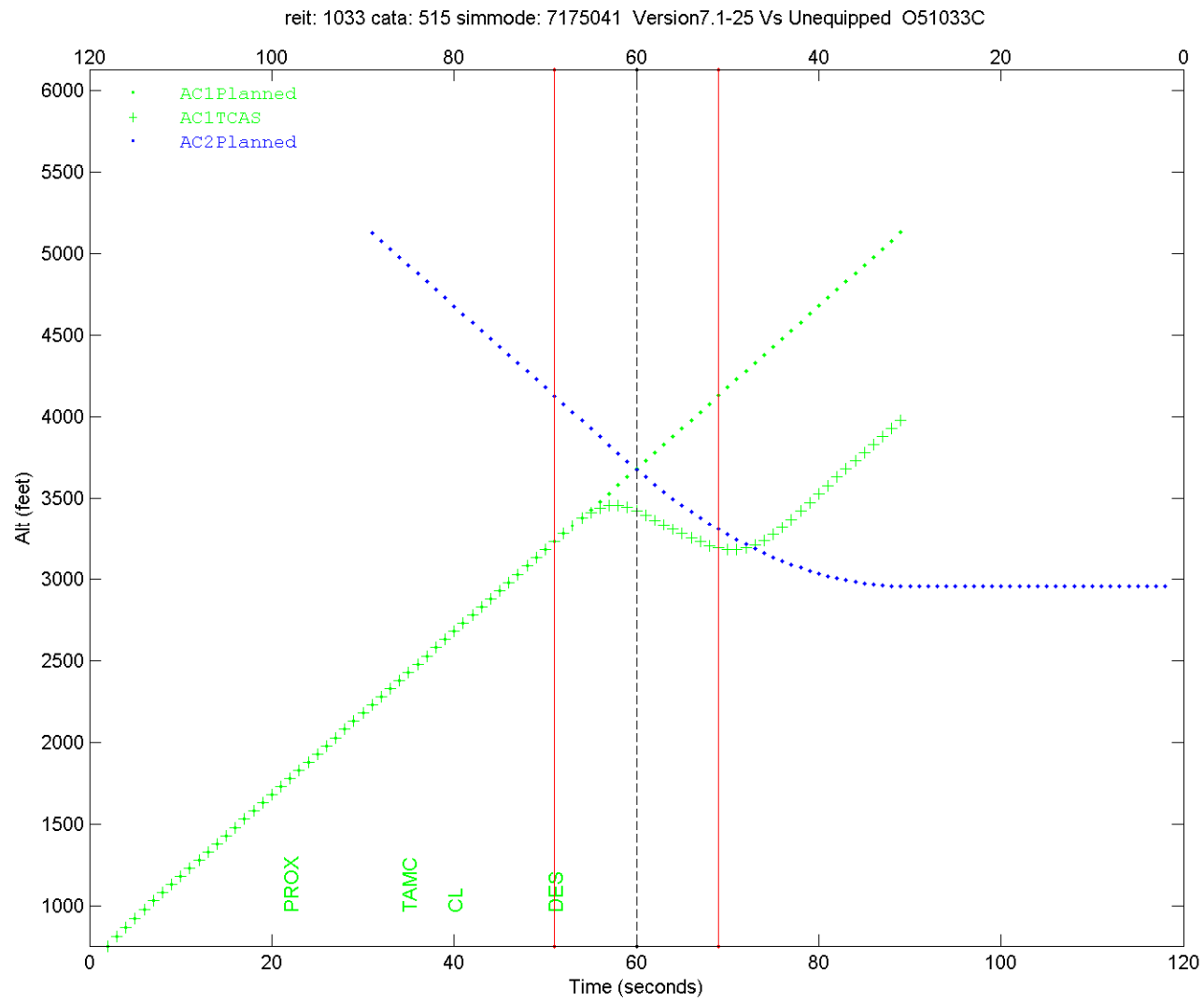
1033 V7 25 FT VS UNEQUIPPED 5 0.00 CROSSING_ENC
 1 TCAS AC 3175041 TA :35 |TAUR| CL @40 [X]

1033 CP112EV1.2 25 FT VS UNEQUIPPED 5 -275.23 NON_CROSSING_ENC
 CPT_REV 1 OWN_FOLLOW TRUE TTOFOLLOW 5.00 REV_AVOID 02 TIME_REV_AVOID 0.0
 1 TCAS AC*REV*7175041 TA :35 |TAUR| CL @40 [X] | DES @51

1033 V7.1 25 FT VS UNEQUIPPED 5 -275.23 NON_CROSSING_ENC
 1 TCAS AC*REV*7175041 TA :35 |TAUR| CL @40 [X] | DES @51







Change 7.1 TCAS vs Unequipped Representative Save 04

Encounter Class: 5

Reit Number : 125

Encounter Characterization

Number of encounters in group	6	
AC1 TCAS equipped	yes	
Vertical tracker	25, 100	ft
Planned separation	0, -250, -500, -750	ft
AC1 rates:	-1000, -3000, -5000	fpm
AC2 rates:	5000	fpm
AC1 acceleration:	none	
AC2 acceleration:	0.15	g
AC2 acceleration time:	CPA – 20	sec
Encounters with reversed RAs	0	%
Vertical chase	no	

Save Mechanism

Logic change solving NMAC

CP115

Comments

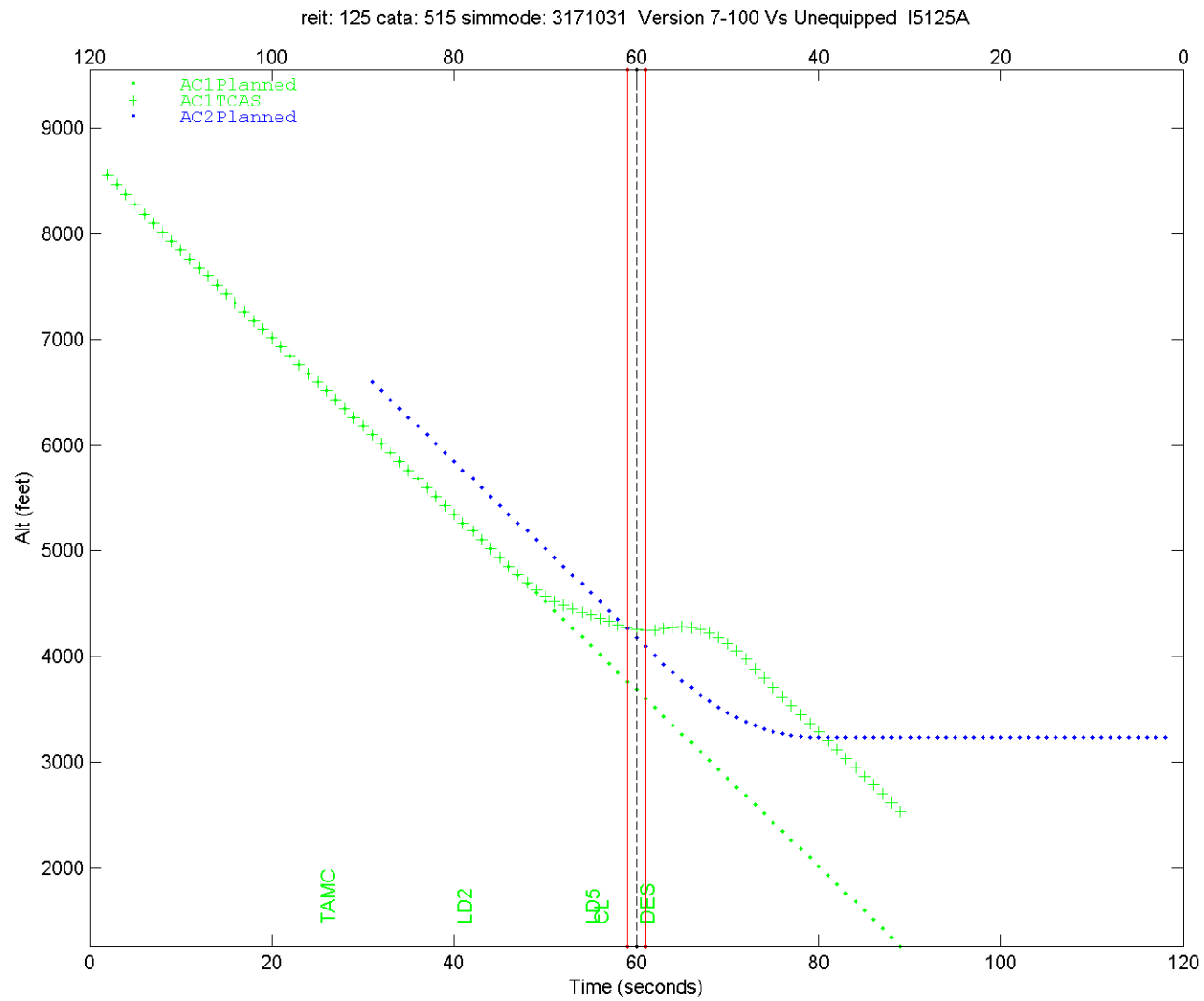
Version 7 and Version 7 + CP112E have post-CPA reversals.

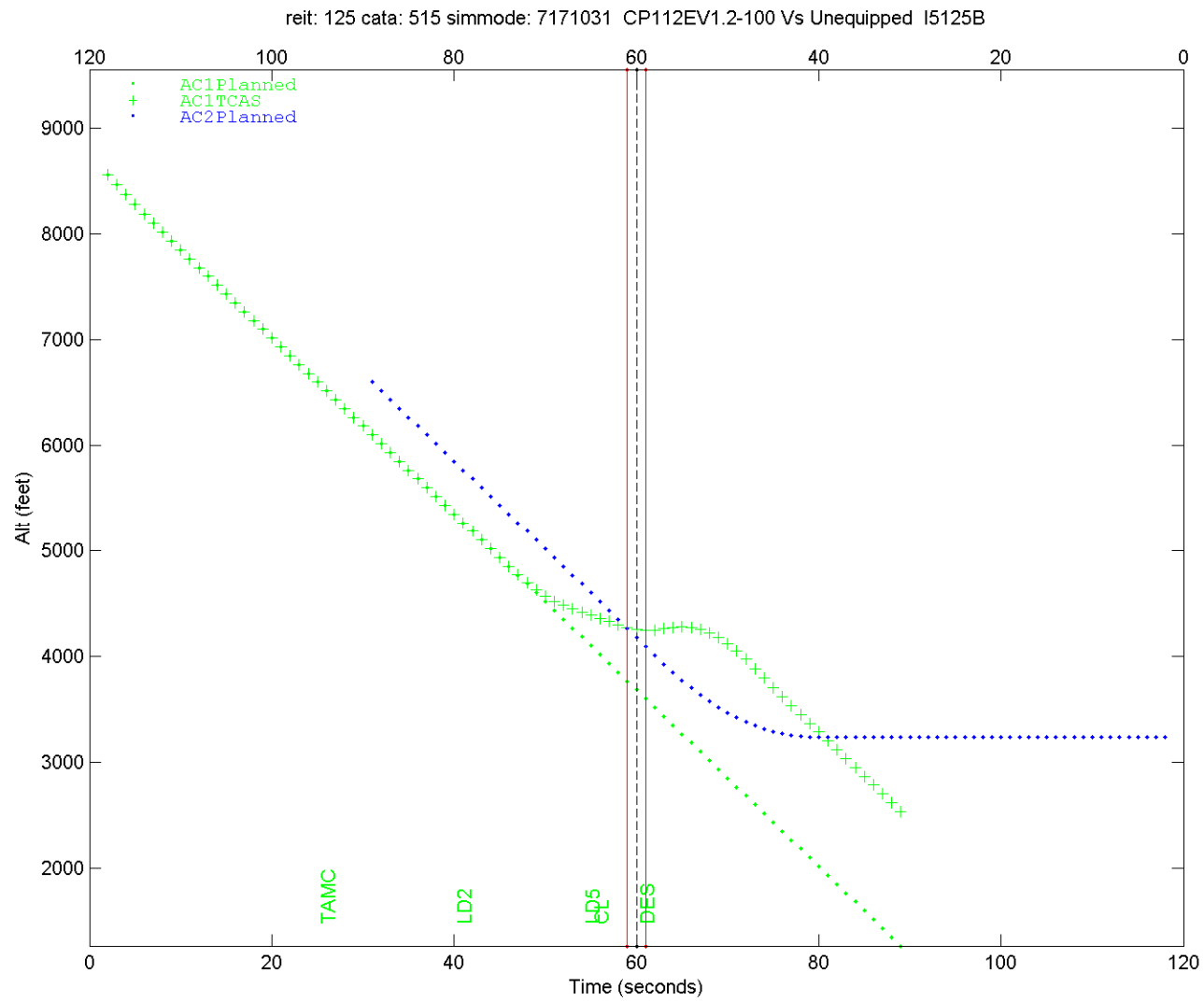
CP115 avoids late, ineffective reversals. LOLO instead of AVSA allows CL to be more effective.

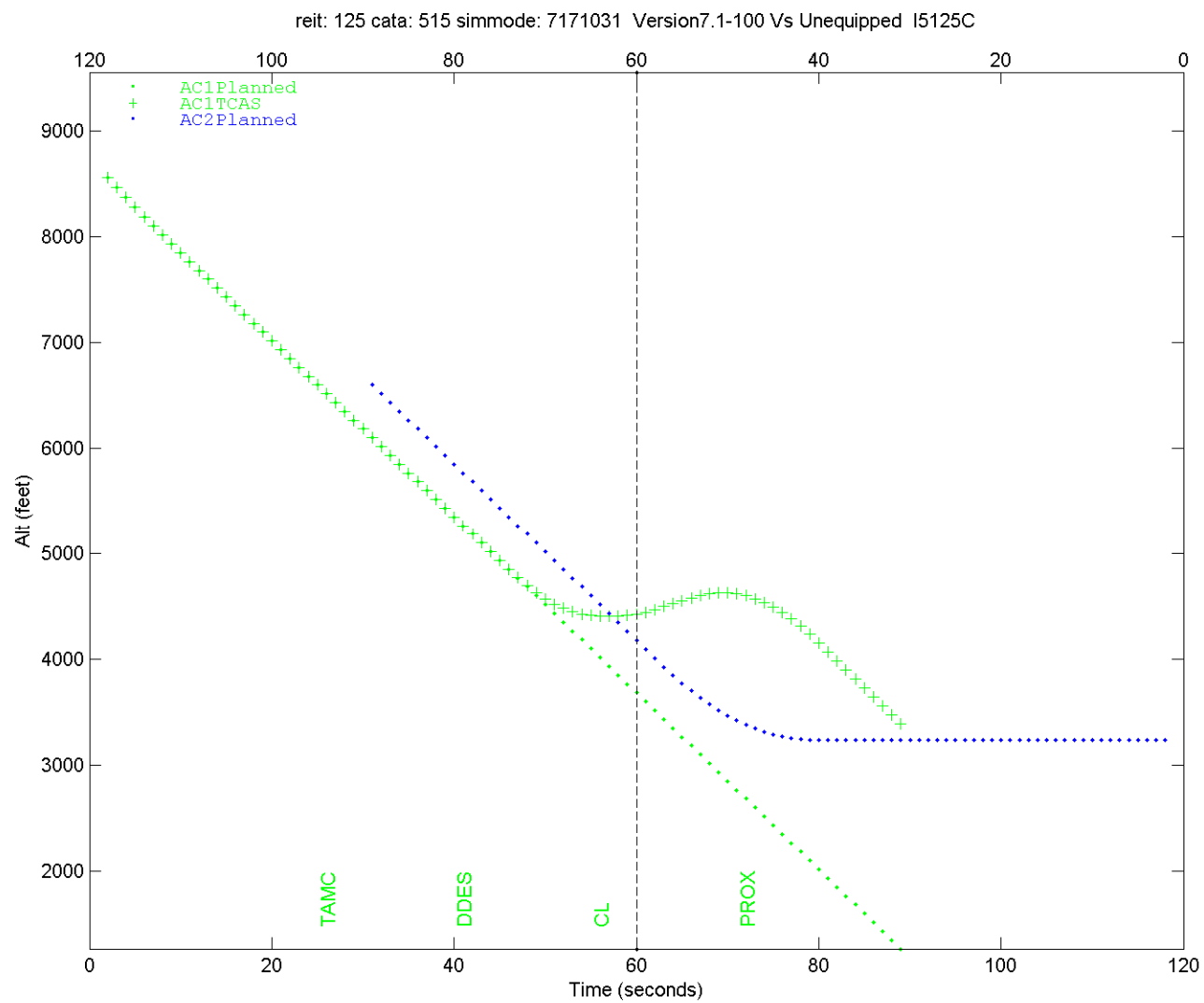
```

SIMULATION RESULTS FOR V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER I5125
LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUUV = 25 ALIM = 350
PLANNED ENCOUNTER. SEP = -500.0 AC1 RATES(-5000.0,-5000.0) AC2 RATES(0.0,5000.0)
      AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.15g @ CPA -20 AC1 CPA ALT 3680
-----
125 V7 100 FT VS UNEQUIPPED 5 80.78 CROSSING_ENC
1 TCAS AC*REV*3171031 TA :26 |TAUV| LD2 @41 [NX]| LD5 @55 | CL @56 | DES @61
-----
125 CP112EV1.2 100 FT VS UNEQUIPPED 5 80.78 CROSSING_ENC
CPT_REV 0 OWN_FOLLOW TRUE TTOFOLLOW 15.42 REV_AVOID 02 TIME_REV_AVOID 0.0
1 TCAS AC*REV*7171031 TA :26 |TAUV| LD2 @41 [NX]| LD5 @55 | CL @56 | DES @61
-----
125 V7.1 100 FT VS UNEQUIPPED 5 251.05 CROSSING_ENC
1 TCAS AC 7171031 TA :26 |TAUV| DDES @41 [NX]| CL @56

```







Change 7.1 TCAS vs Unequipped Representative Save 05

Encounter Class: 7

Reit Number : 7032

Encounter Characterization

Number of encounters in group	24	
AC1 TCAS equipped	5	
Vertical tracker	25, 100	ft
Planned separation	0	ft
AC1 rates:	3000, 5000	fpm
AC2 rates:	3000, 5000	fpm
AC1 acceleration:	0.15	g
AC2 acceleration:	0.35	g
AC1 acceleration time:	CPA – 25	sec
AC2 acceleration time:	CPA – 20	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

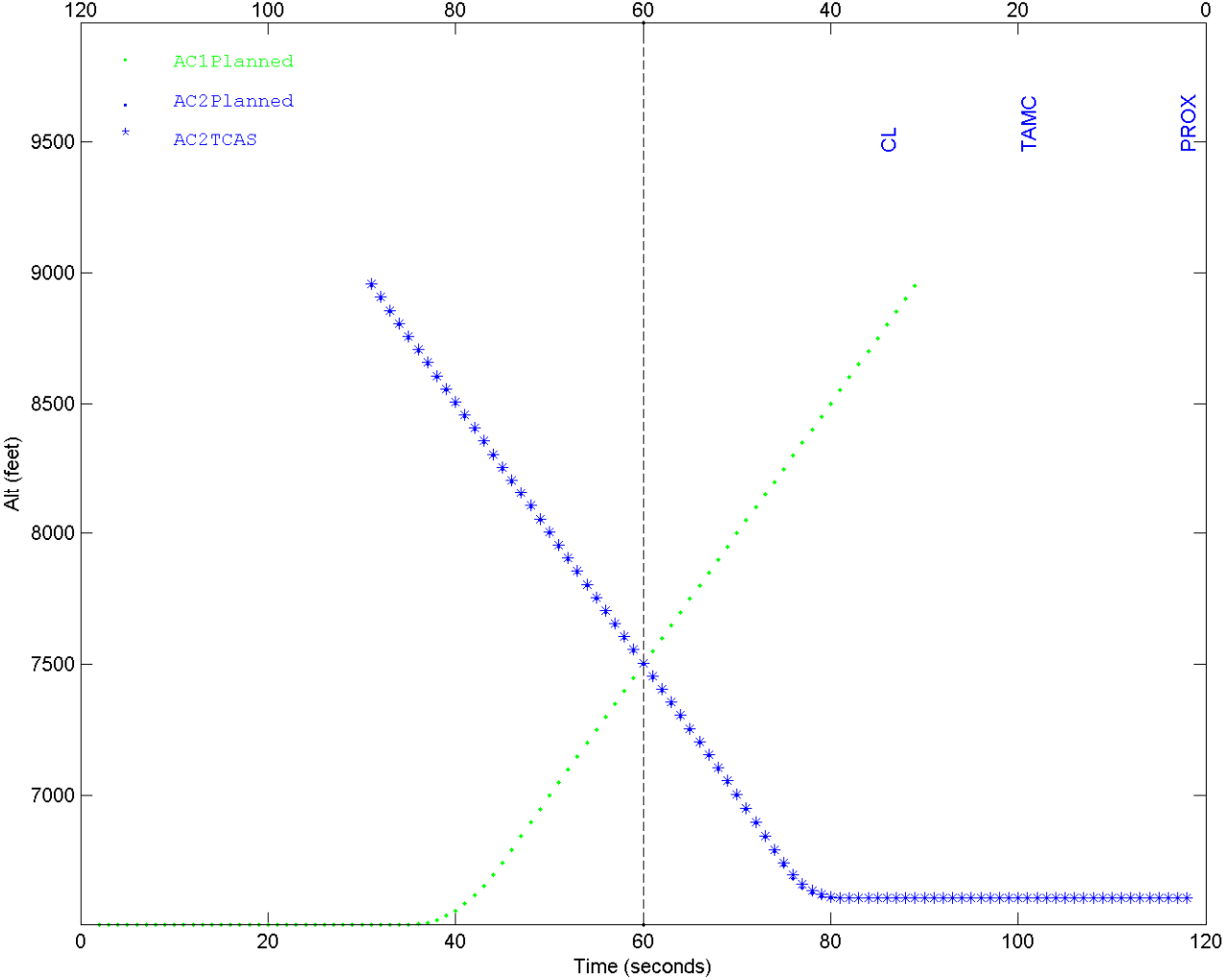
Climbing vertical chase caused by planned maneuvers.
Early reversal with CP112E solves NMAC.

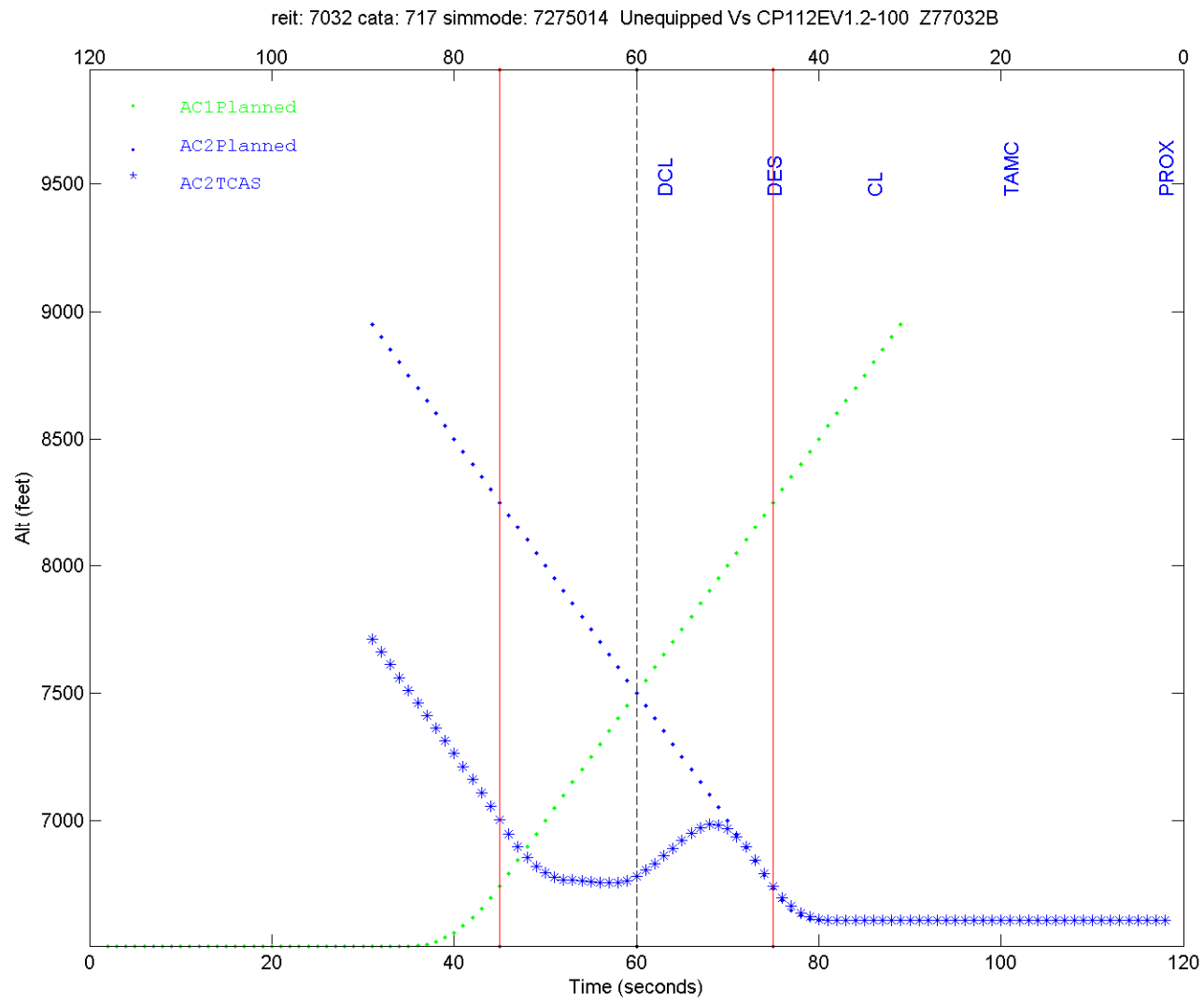
SIMULATION RESULTS FOR V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER Z77032
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = 0.0 AC1 RATES(0.0,3000.0) AC2 RATES(0.0,3000.0)
 AC1 ACCEL 0.15g @ CPA -25 AC2 ACCEL 0.35g @ CPA -20 AC1 CPA ALT 7500

7032 UNEQUIPPED VS V7 25 FT 7 5.60 NON_CROSSING_ENC
 2 TCAS AC 3275014 TA :19 |TAUR| CL @34 [NX]

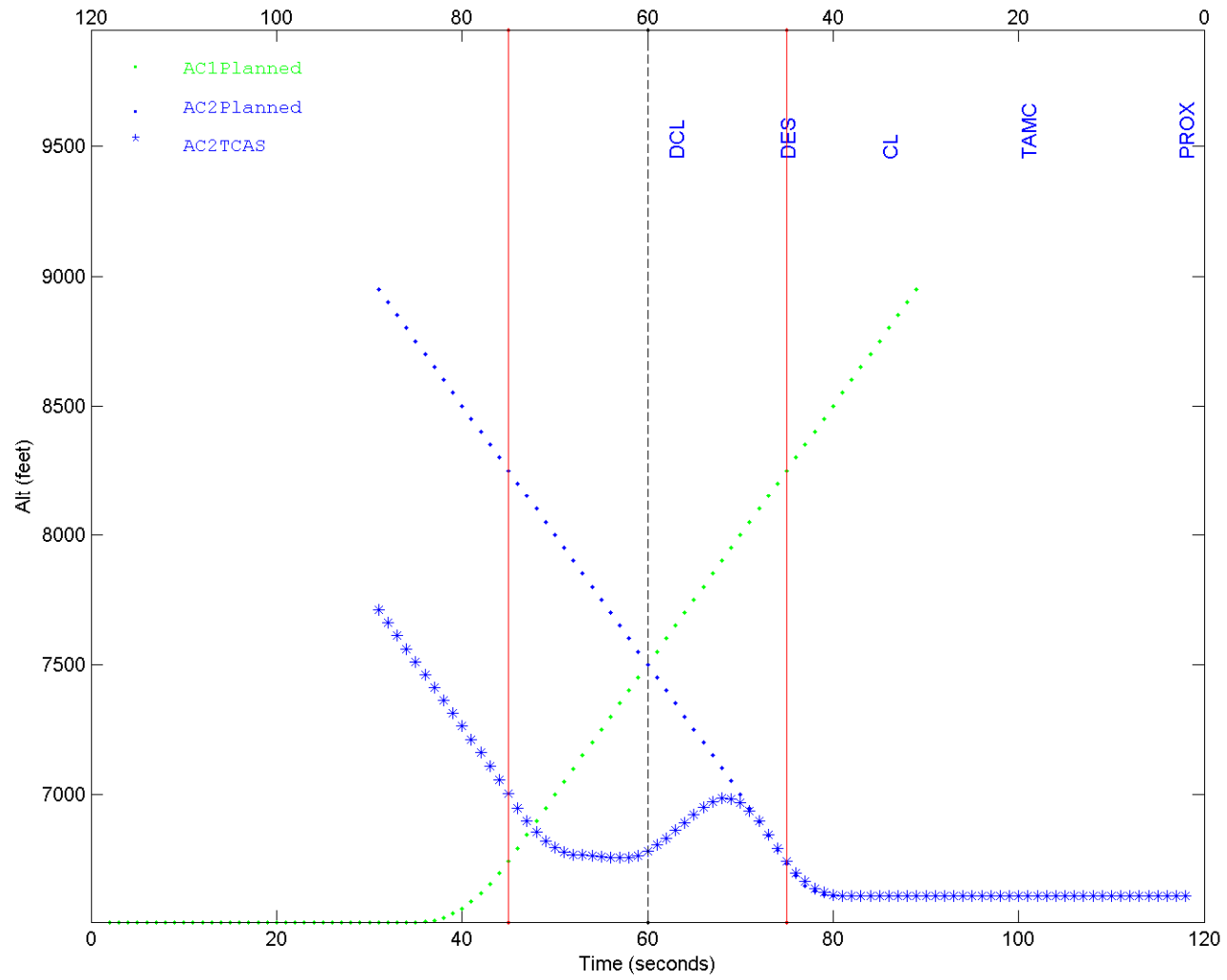
7032 UNEQUIPPED VS CP112EV1.2 25 FT 7 -715.61 CROSSING_ENC
 CPT_REV 1 OWN_FOLLOW TRUE TTOfollow 8.13 REV_AVOID 02 TIME_REV_AVOID 0.0
 2 TCAS AC*REV*7275014 TA :19 |TAUR| CL @34 [NX]| DES @45 | DCL @57

7032 UNEQUIPPED VS V7.1 25 FT 7 -715.61 CROSSING_ENC
 2 TCAS AC*REV*7275014 TA :19 |TAUR| CL @34 [NX]| DES @45 | DCL @57





reit: 7032 cata: 717 simmode: 7275014 Unequipped Vs Version7.1-100 Z77032C



Change 7.1 TCAS vs Unequipped Representative Save 06

Encounter Class: 7

Reit Number : 5915

Encounter Characterization

Number of encounters in group	20	
AC1 TCAS equipped	yes	
Vertical tracker	25, 100	ft
Planned separation	-250, -500, -750	ft
AC1 rates:	1000, 3000, 5000	fpm
AC2 rates:	3000, 5000	fpm
AC1 acceleration:	0.05	g
AC2 acceleration:	0.25	g
AC1 acceleration time:	CPA – 25	sec
AC2 acceleration time:	CPA – 25	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

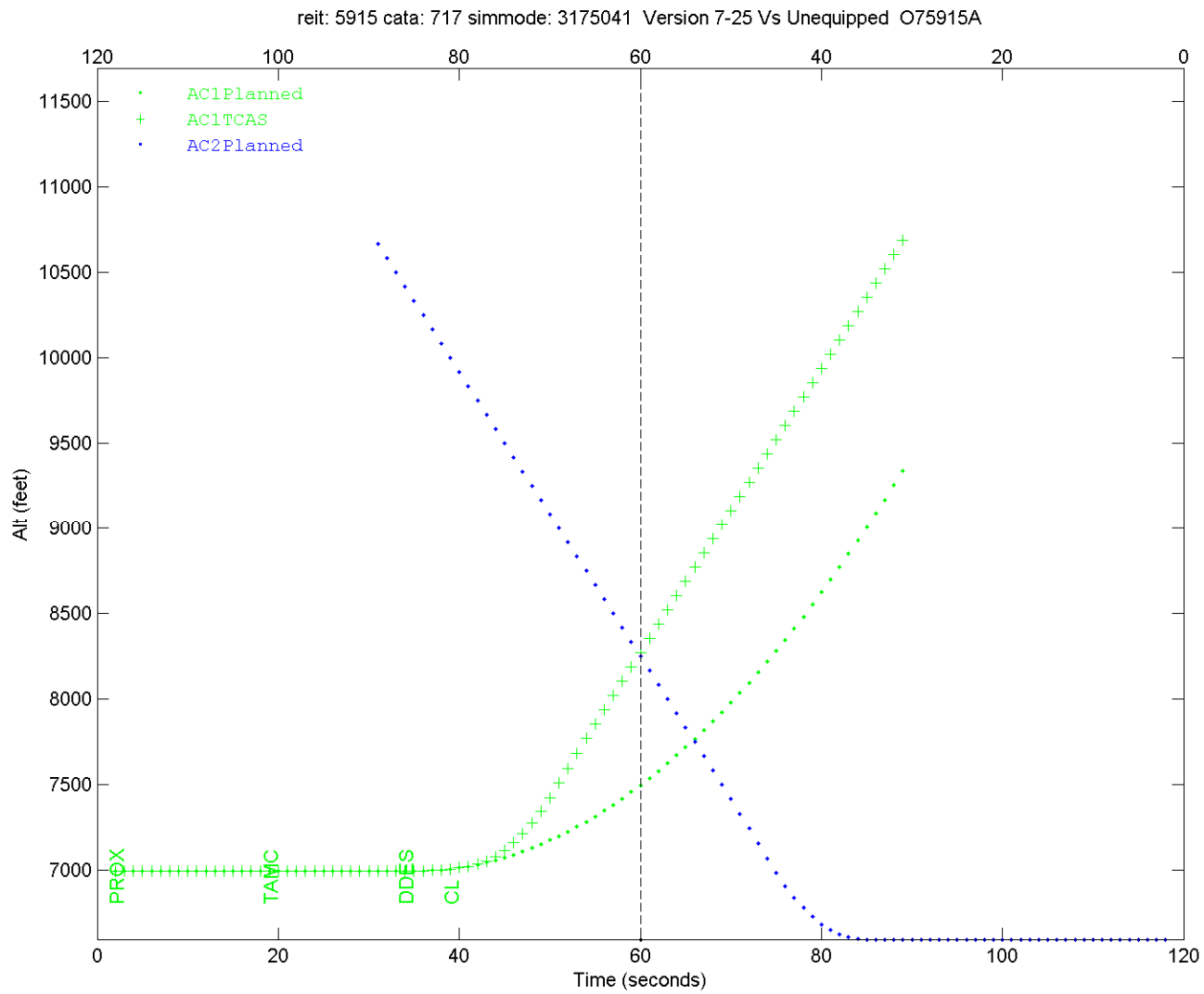
Climbing vertical chase caused by planned maneuver and response to initial RA.
Reversal with CP112E solves NMAC.

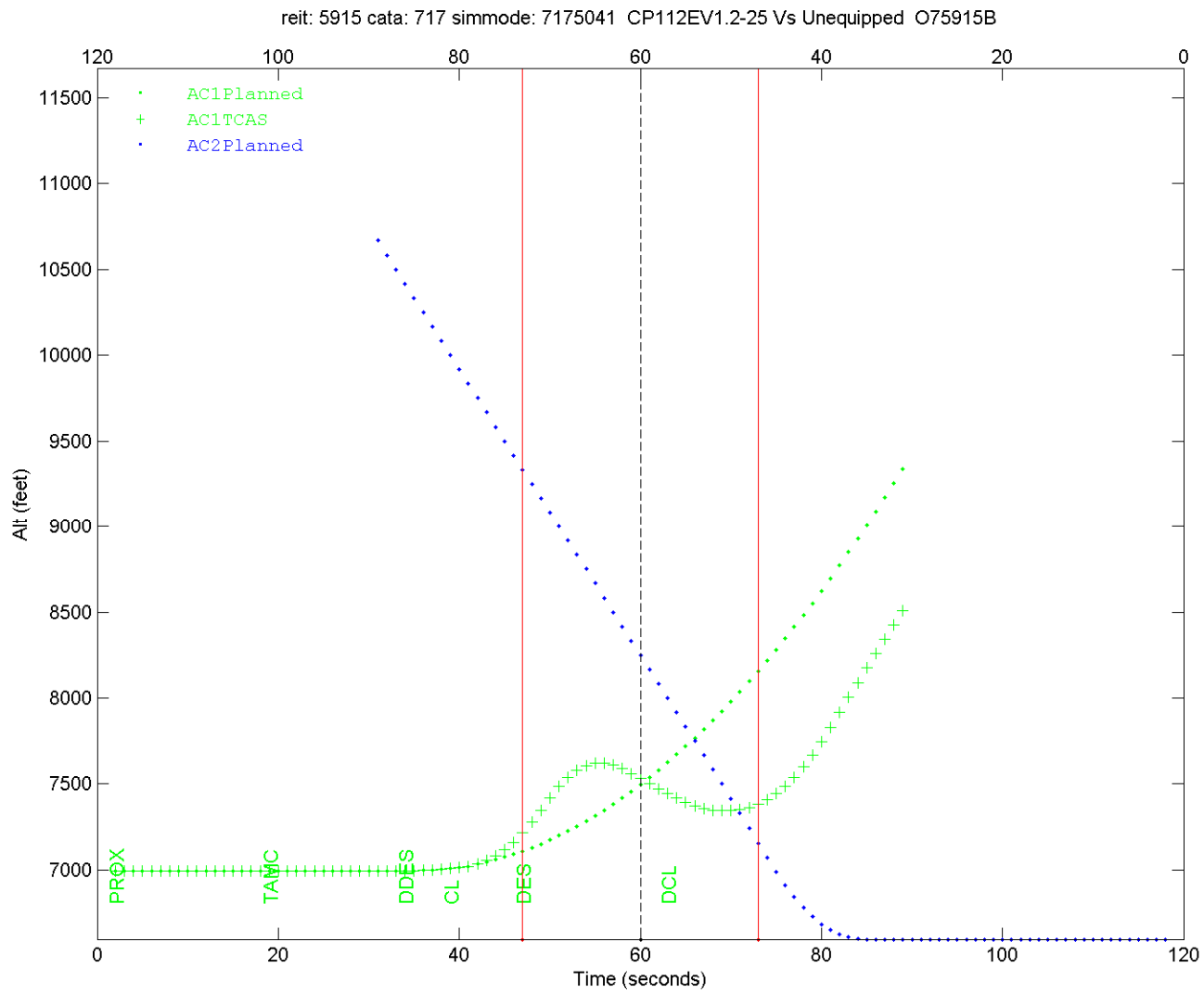
SIMULATION RESULTS FOR V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER 075915
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = -750.0 AC1 RATES(0.0,5000.0) AC2 RATES(0.0,5000.0)
 AC1 ACCEL 0.05g @ CPA -25 AC2 ACCEL 0.25g @ CPA -25 AC1 CPA ALT 7500

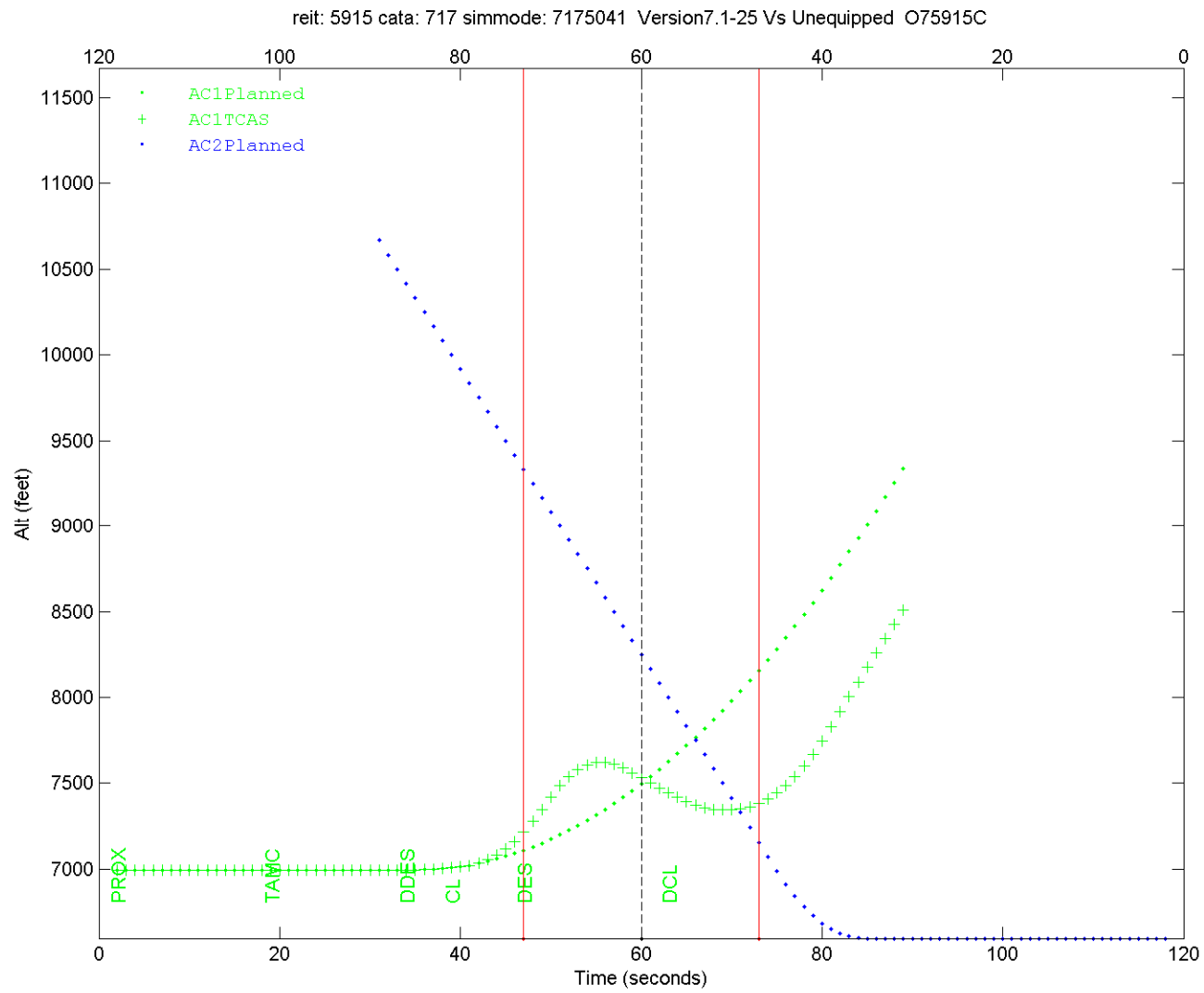
5915 V7 25 FT VS UNEQUIPPED 7 22.10 NON_CROSSING_ENC
 1 TCAS AC 3175041 TA :19 |TAUR| DDES @34 [NX]| CL @39

5915 CP112EV1.2 25 FT VS UNEQUIPPED 7 -728.98 CROSSING_ENC
 CPT_REV 1 OWN_FOLLOW TRUE TTOFOLLOW 5.41 REV_AVOID 02 TIME_REV_AVOID 0.0
 1 TCAS AC*REV*7175041 TA :19 |TAUR| DDES @34 [NX]| CL @39 | DES @47 | DCL @63

5915 V7.1 25 FT VS UNEQUIPPED 7 -728.98 CROSSING_ENC
 1 TCAS AC*REV*7175041 TA :19 |TAUR| DDES @34 [NX]| CL @39 | DES @47 | DCL @63







Change 7.1 TCAS vs Unequipped Representative Save 07

Encounter Class: 7

Reit Number : 1044

Encounter Characterization

Number of encounters in group	15	
AC1 TCAS equipped	9	
Vertical tracker	25, 100	ft
Planned separation	750	ft
AC1 rates:	1000, 3000, 5000	fpm
AC2 rates:	-3000, -5000	fpm
AC1 acceleration:	0.05	g
AC2 acceleration:	-0.05	g
AC1 acceleration time:	CPA – 25	sec
AC2 acceleration time:	CPA – 20	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

Climbing vertical chase caused by planned maneuver and response to initial RA.
Reversal with CP112E solves NMAC.

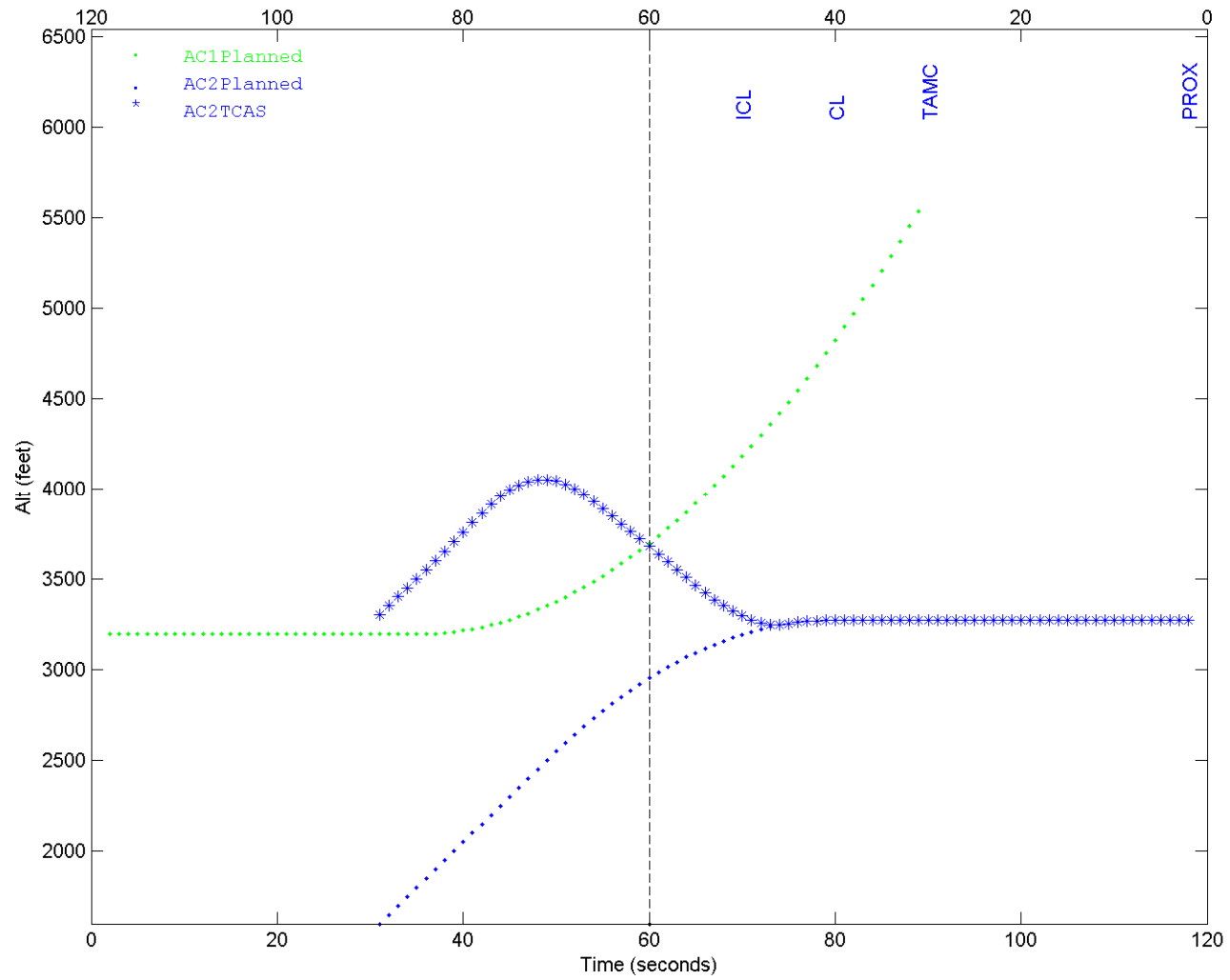
SIMULATION RESULTS FOR V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER J71044
 LOGIC THRESHOLDS SL = 4 ZTHR = 600 TAUR = 20 TAUV = 20 ALIM = 300
 PLANNED ENCOUNTER. SEP = 750.0 AC1 RATES(0.0,5000.0) AC2 RATES(0.0,-3000.0)
 AC1 ACCEL 0.05g @ CPA -25 AC2 ACCEL -0.05g @ CPA -20 AC1 CPA ALT 3700

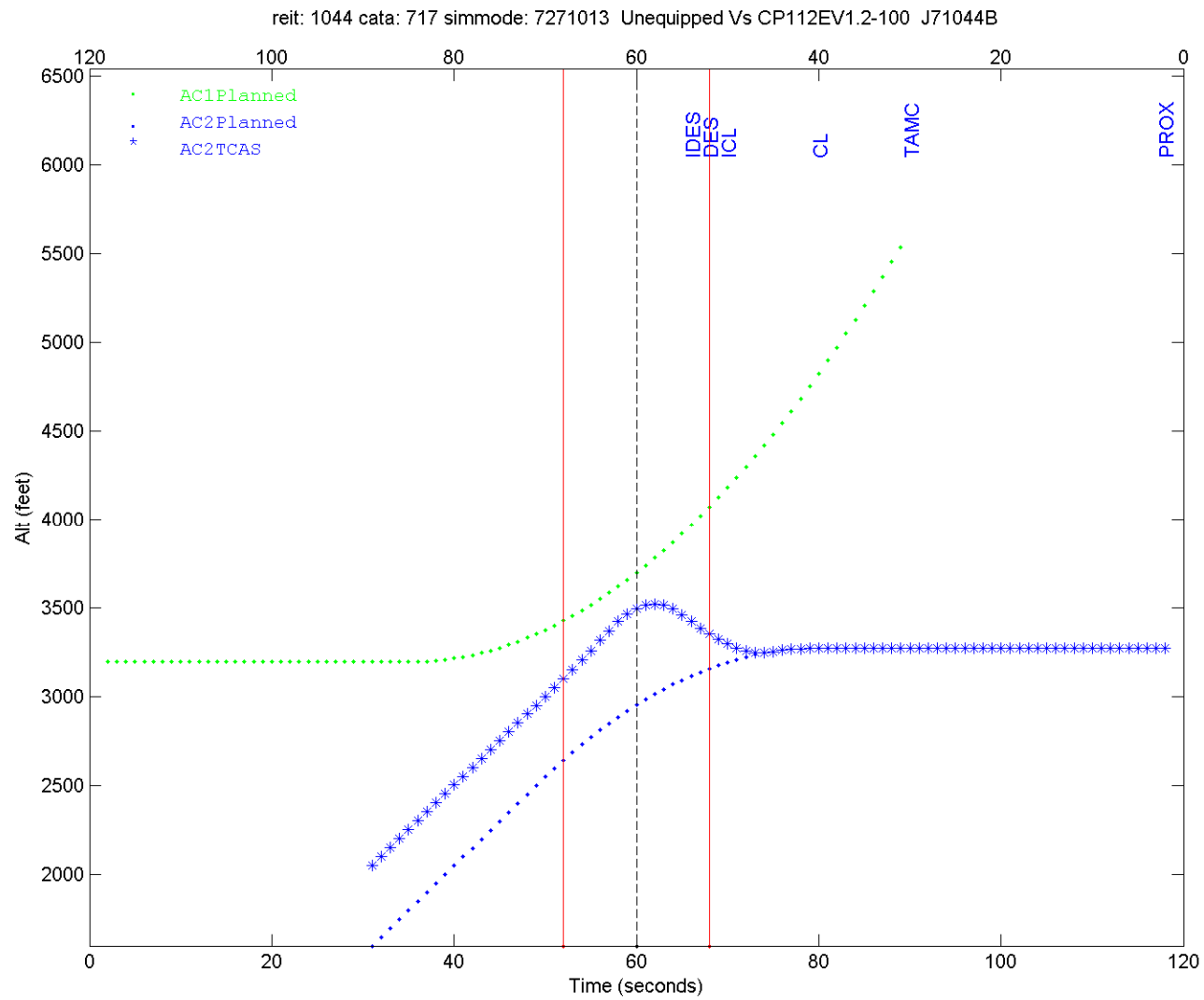
1044 UNEQUIPPED VS V7 100 FT 7 -20.26 CROSSING_ENC
 2 TCAS AC 3271013 TA :30 |TAUR| CL @40 [NX]| ICL @50

1044 UNEQUIPPED VS CP112EV1.2 100 FT 7 -222.94 CROSSING_ENC
 CPT_REV 1 OWN_FOLLOW TRUE TTOFOLLOW 8.73 REV_AVOID 02 TIME_REV_AVOID 0.0
 2 TCAS AC*REV*7271013 TA :30 |TAUR| CL @40 [NX]| ICL @50 | DES @52 | IDES @54

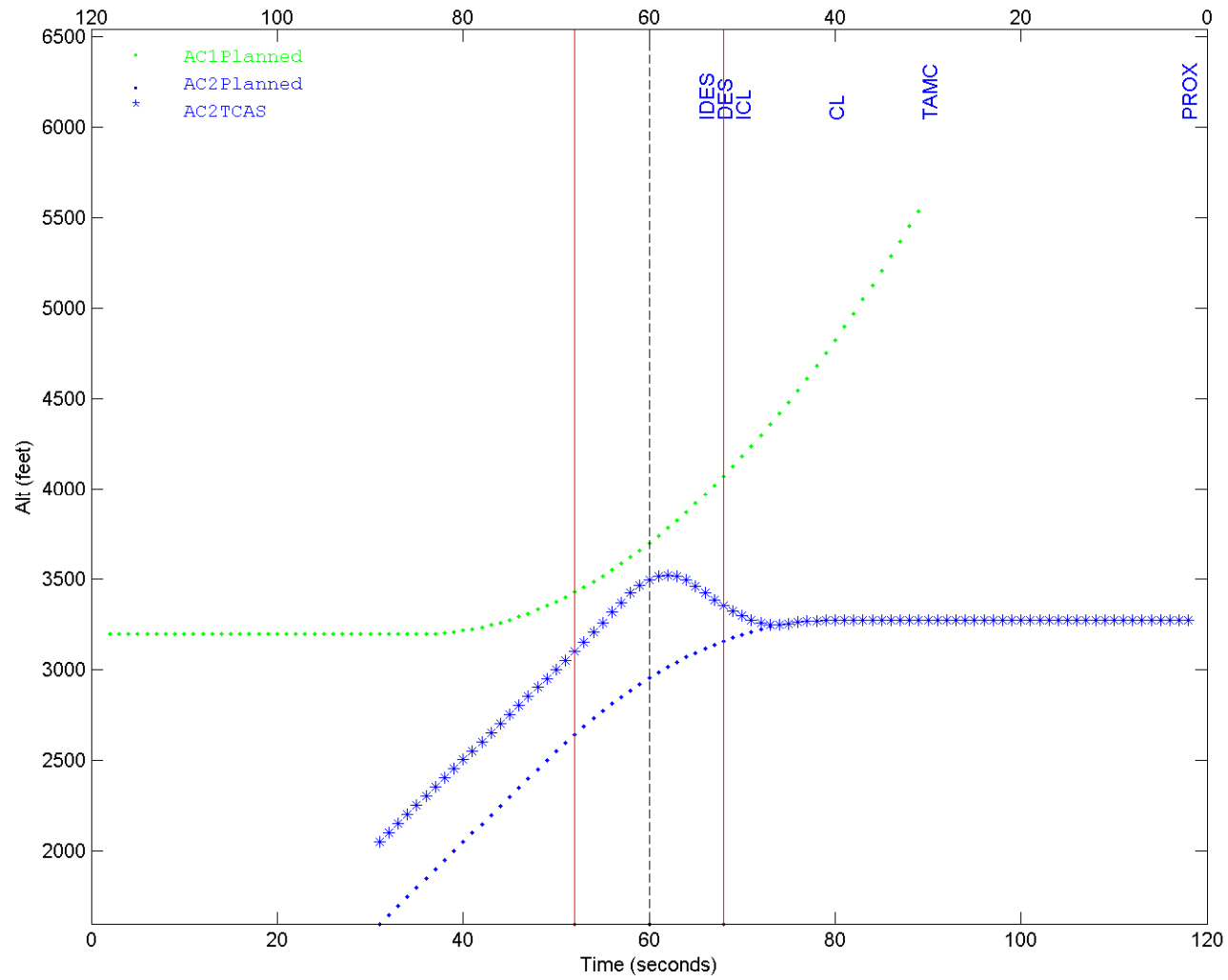
1044 UNEQUIPPED VS V7.1 100 FT 7 -222.94 CROSSING_ENC
 2 TCAS AC*REV*7271013 TA :30 |TAUR| CL @40 [NX]| ICL @50 | DES @52 | IDES @54

reit: 1044 cata: 717 simmode: 3271013 Unequipped Vs Version 7-100 J71044A





reit: 1044 cata: 717 simmode: 7271013 Unequipped Vs Version7.1-100 J71044C



Change 7.1 TCAS vs Unequipped Representative Save 08

Encounter Class: 7

Reit Number : 8809

Encounter Characterization

Number of encounters in group	17	
AC1 TCAS equipped	no	
Vertical tracker	25, 100	ft
Planned separation	250, 500, 750	ft
AC1 rates:	3000, 5000	fpm
AC2 rates:	1000, 3000, 5000	fpm
AC1 acceleration:	0.25	g
AC2 acceleration:	0.15	g
AC1 acceleration time:	CPA – 25	sec
AC2 acceleration time:	CPA – 25	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

Climbing vertical chase caused by planned aircraft maneuvers.
Reversal with CP112E solves NMAC.

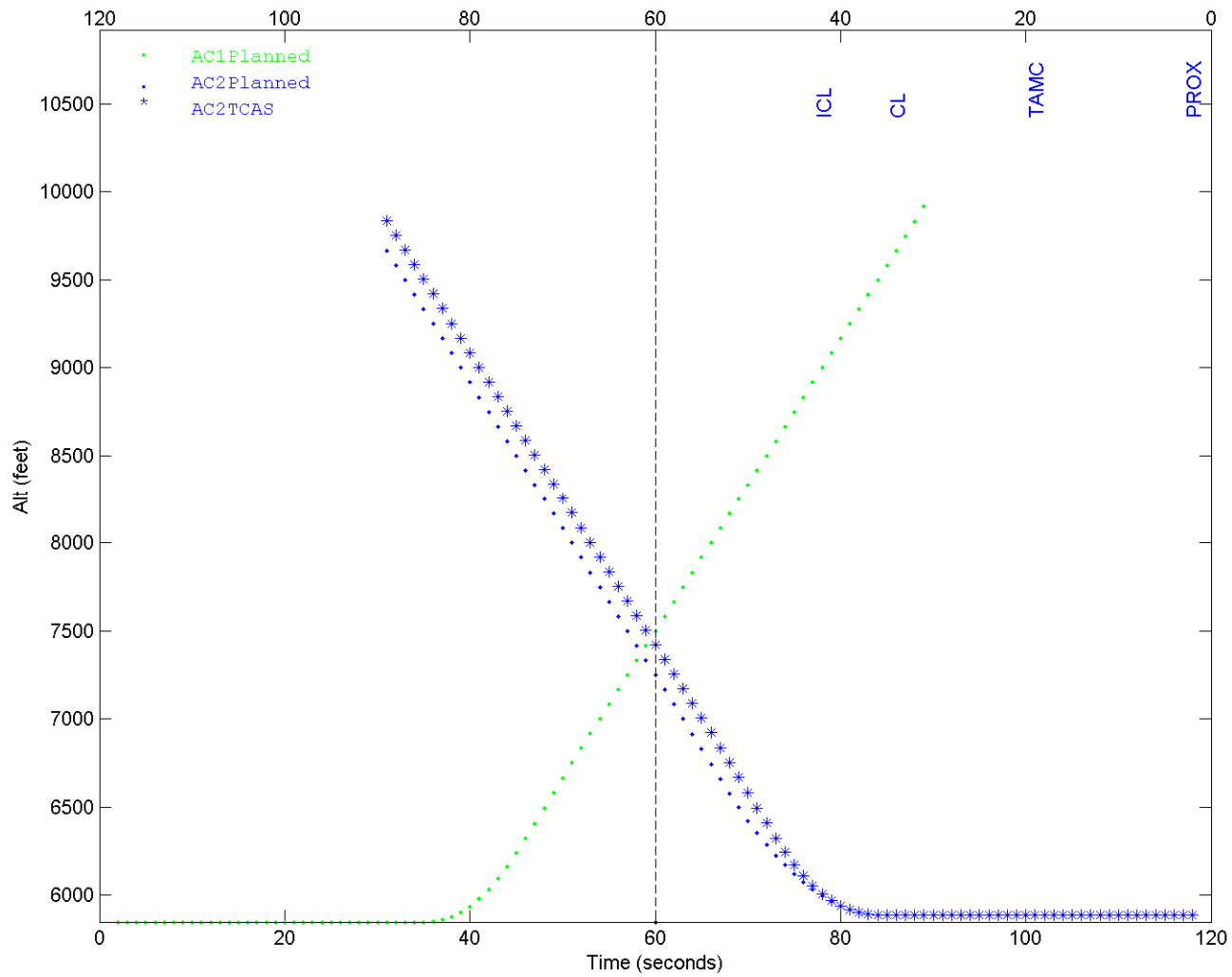
SIMULATION RESULTS FOR V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER J78809
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = 250.0 AC1 RATES(0.0,5000.0) AC2 RATES(0.0,5000.0)
 AC1 ACCEL 0.25g @ CPA -25 AC2 ACCEL 0.15g @ CPA -25 AC1 CPA ALT 7500

8809 UNEQUIPPED VS V7 100 FT 7 -80.09 CROSSING_ENC
 2 TCAS AC 3271013 TA :19 |TAUR| CL @34 [NX]| ICL @42

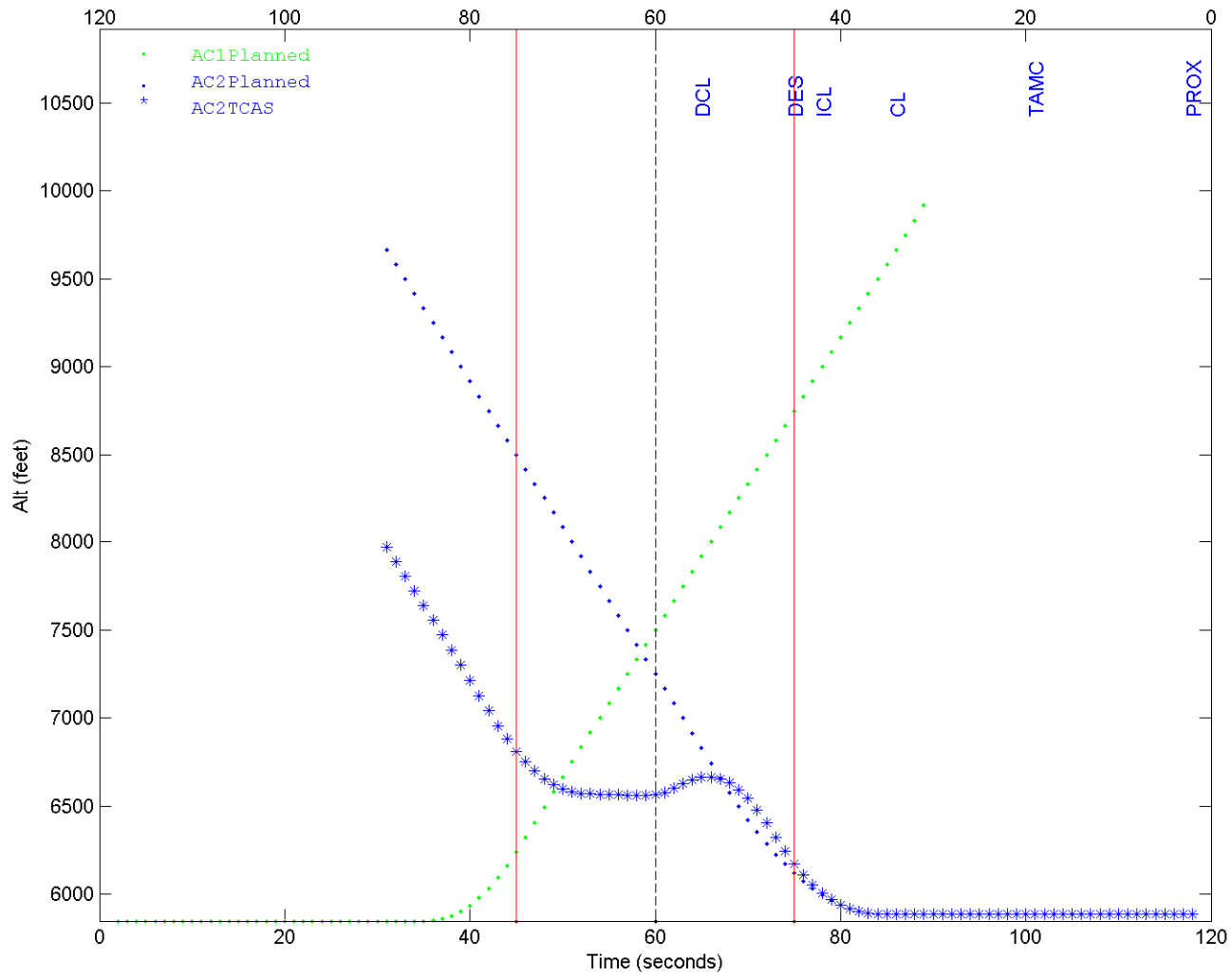
8809 UNEQUIPPED VS CP112EV1.2 100 FT 7 -931.11 CROSSING_ENC
 CPT_REV 1 OWN_FOLLOW TRUE TTOFOLLOW 6.89 REV_AVOID 02 TIME_REV_AVOID 0.0
 2 TCAS AC*REV*7271013 TA :19 |TAUR| CL @34 [NX]| ICL @42 | DES @45 | DCL @55

8809 UNEQUIPPED VS V7.1 100 FT 7 -931.11 CROSSING_ENC
 2 TCAS AC*REV*7271013 TA :19 |TAUR| CL @34 [NX]| ICL @42 | DES @45 | DCL @55

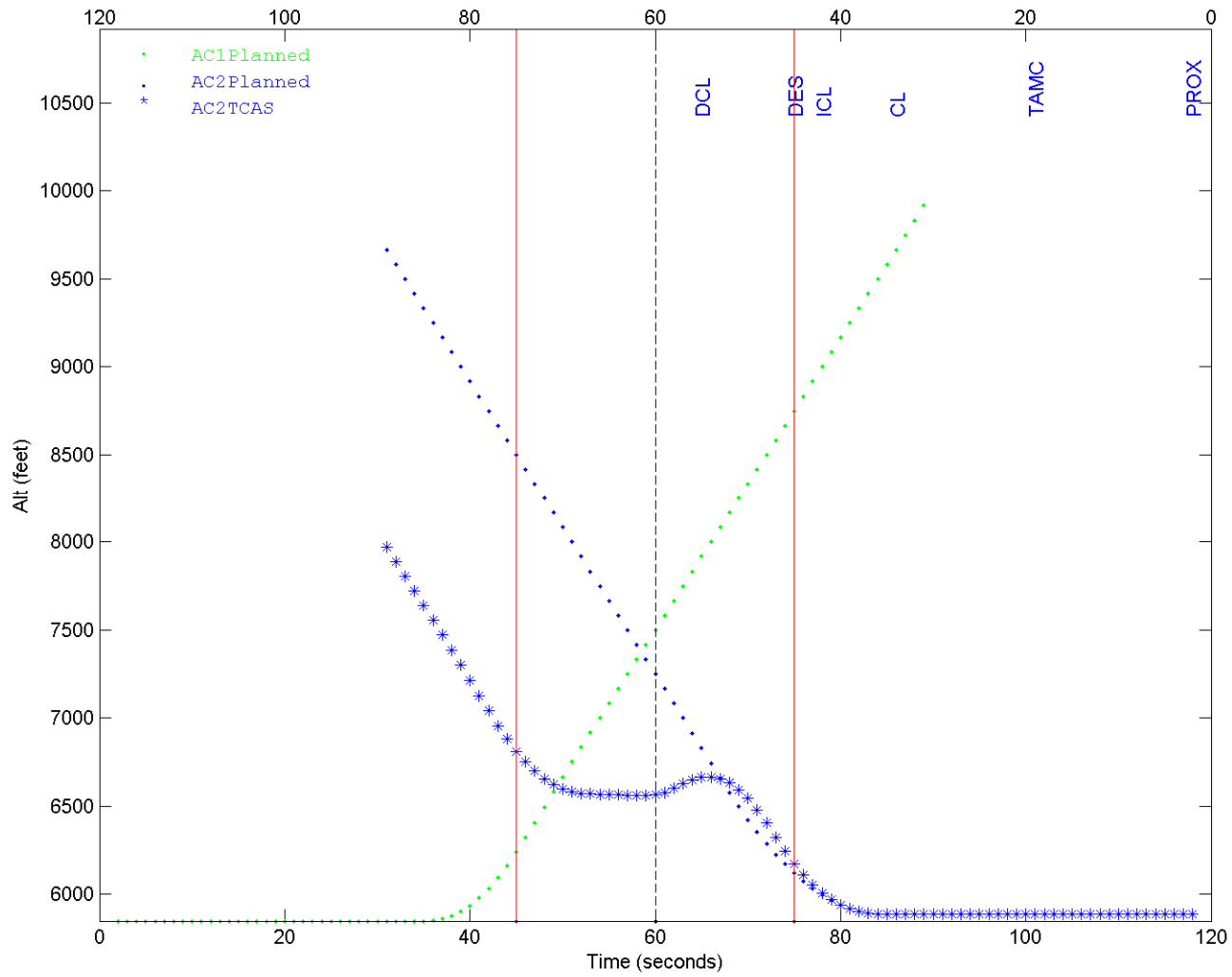
reit: 8809 cata: 717 simmode: 3271013 Unequipped Vs Version 7-100 J78809A



reit: 8809 cata: 717 simmode: 7271013 Unequipped Vs CP112EV1.2-100 J78809B



reit: 8809 cata: 717 simmode: 7271013 Unequipped Vs Version7.1-100 J78809C



Change 7.1 TCAS vs Unequipped Representative Save 09

Encounter Class: 7

Reit Number : 8968

Encounter Characterization

Number of encounters in group	2	
AC1 TCAS equipped	yes	
Vertical tracker	100	ft
Planned separation	750	ft
AC1 rates:	5000	fpm
AC2 rates:	-3000	fpm
AC1 acceleration:	0.25	g
AC2 acceleration:	0.15	g
AC1 acceleration time:	CPA – 25	sec
AC2 acceleration time:	CPA – 25	sec
Encounters with reversed RAs	100	%
Vertical chase	no	

Save Mechanism

Logic change solving NMAC

CP115

Comments

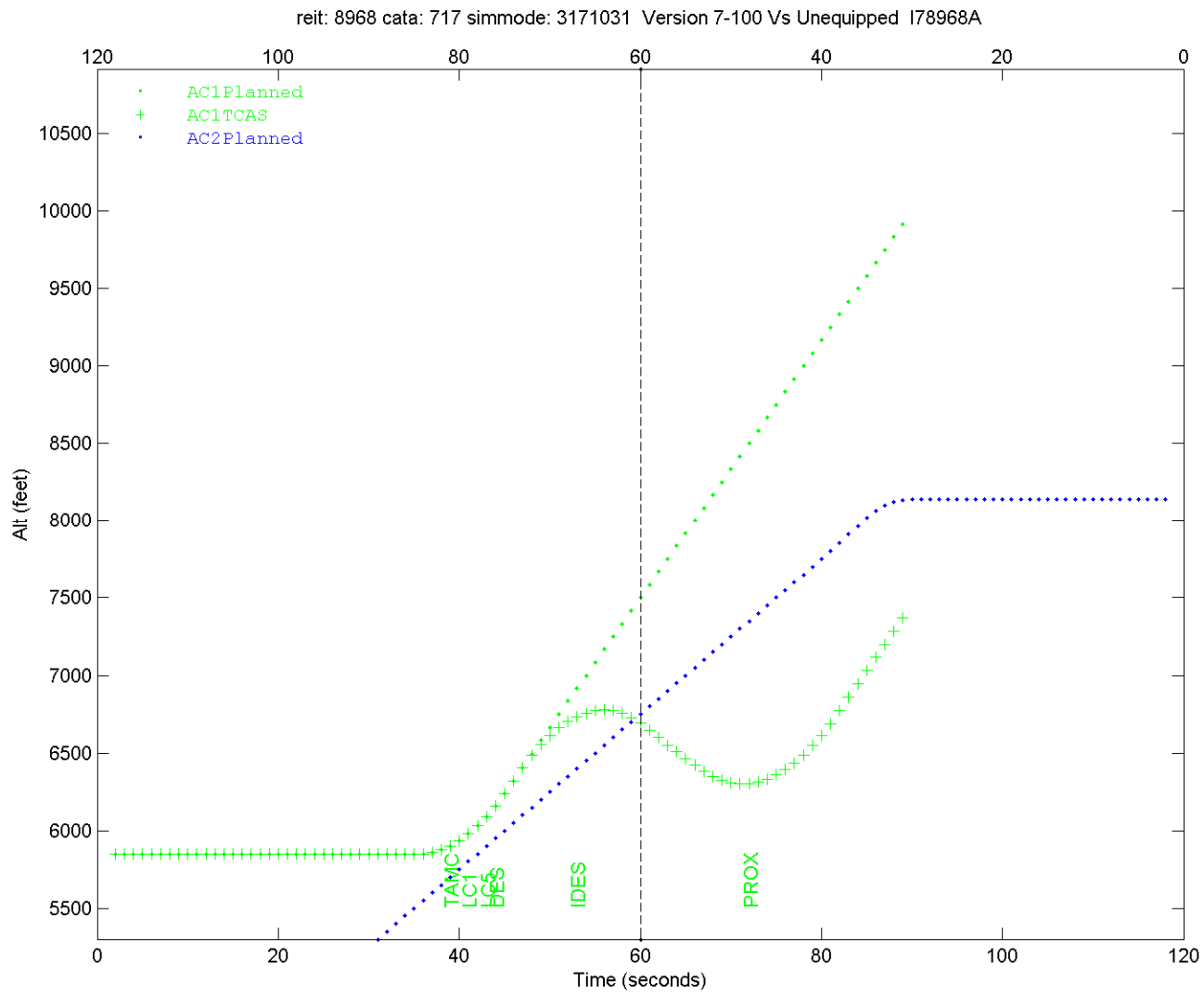
CP115 changed timing to allow effective reversal.

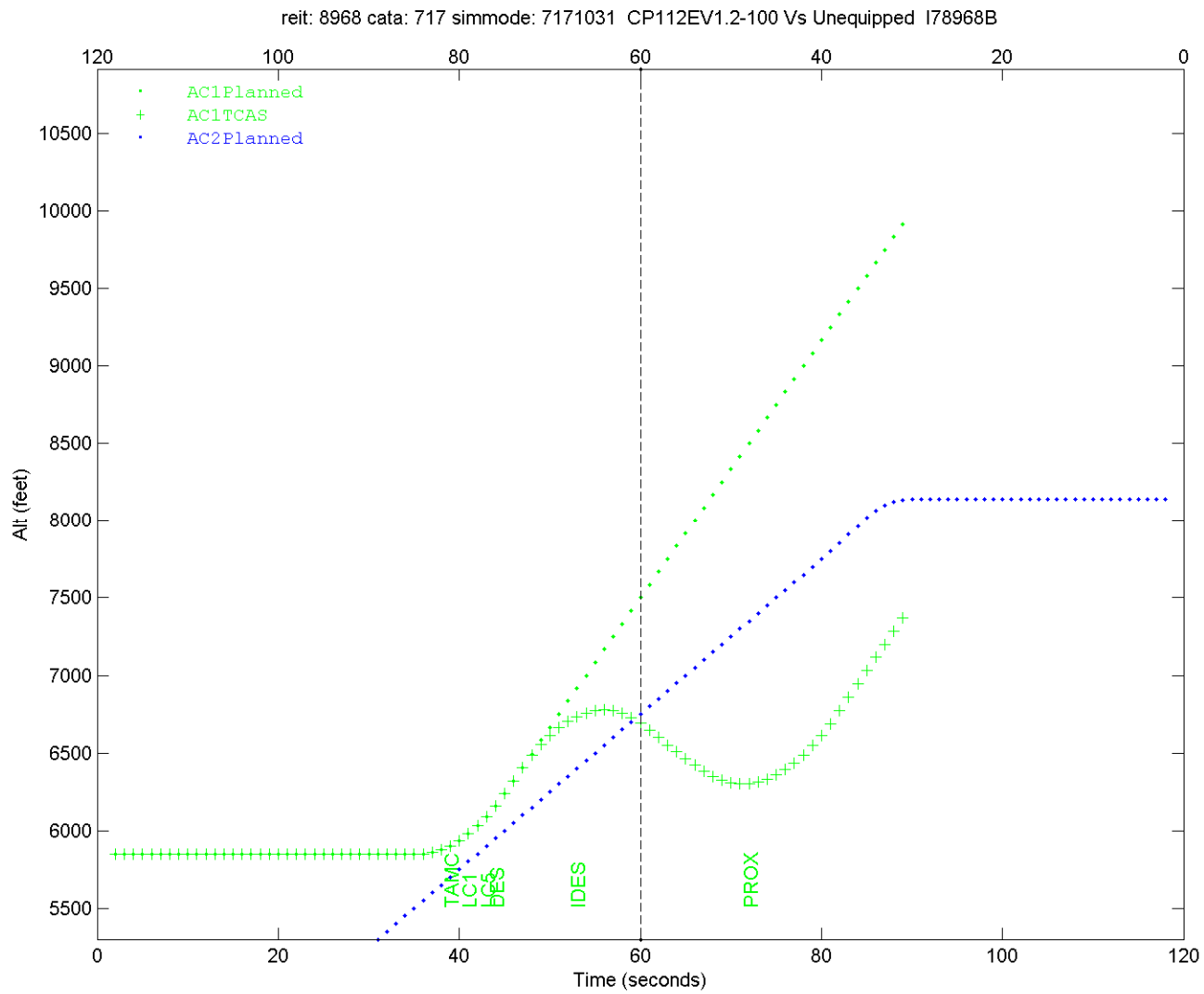
SIMULATION RESULTS FOR V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER I78968
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = 750.0 AC1 RATES(0.0,5000.0) AC2 RATES(0.0,-3000.0)
 AC1 ACCEL 0.25g @ CPA -25 AC2 ACCEL -0.35g @ CPA -30 AC1 CPA ALT 7500

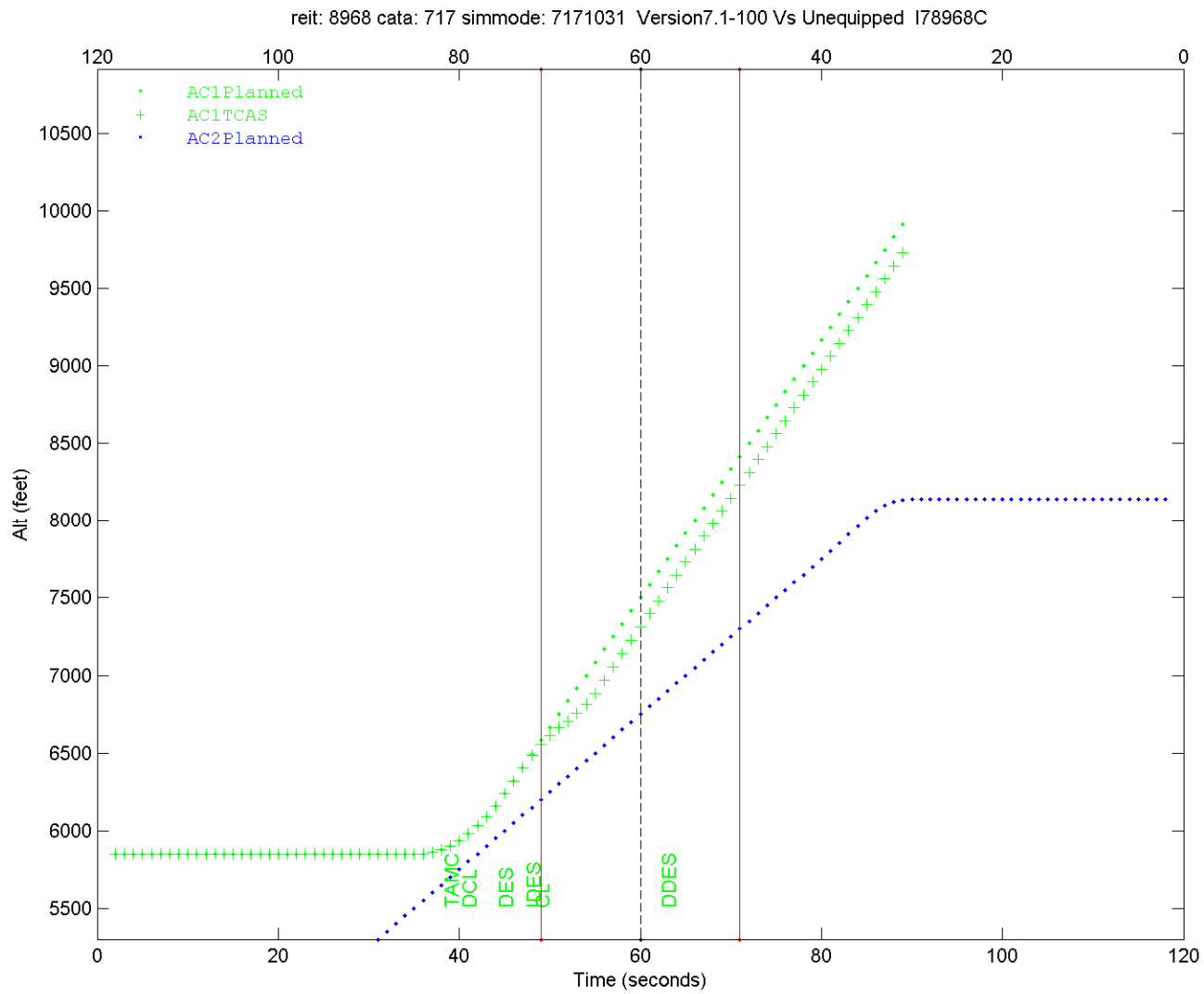
8968 V7 100 FT VS UNEQUIPPED 7 -77.84 CROSSING_ENC
 1 TCAS AC 3171031 TA:39 |TAUV| LC1 @41 [NX]| LC5 @43 | DES @44 | IDES @53

8968 CP112EV1.2 100 FT VS UNEQUIPPED 7 -77.84 CROSSING_ENC
 CPT_REV 0 OWN_FOLLOW TRUE TTOFOLLOW 17.31 REV_AVOID 02 TIME_REV_AVOID 0.0
 1 TCAS AC 7171031 TA:39 |TAUV| LC1 @41 [NX]| LC5 @43 | DES @44 | IDES @53

8968 V7.1 100 FT VS UNEQUIPPED 7 564.09 CROSSING_ENC
 1 TCAS AC*REV*7171031 TA:39 |TAUV| DCL @41[NX]| DES @45| IDES @48| CL @49|
 DDES @63







Change 7.1 TCAS vs Unequipped Representative Save 10

Encounter Class: 8

Reit Number : 3817

Encounter Characterization

Number of encounters in group	17	
AC1 TCAS equipped	yes	
Vertical tracker	25, 100	ft
Planned separation	500, 750	ft
AC1 rates:	-3000, -5000	fpm
AC2 rates:	-3000, -5000	fpm
AC1 acceleration:	0.25	g
AC2 acceleration:	-0.25	g
AC1 acceleration time:	CPA – 25	sec
AC2 acceleration time:	CPA – 20	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

Descending vertical chase caused by response to initial RA.

SIMULATION RESULTS FOR V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER 083817
 LOGIC THRESHOLDS SL = 4 ZTHR = 600 TAUR = 20 TAUV = 20 ALIM = 300
 PLANNED ENCOUNTER. SEP = 500.0 AC1 RATES(-3000.0,0.0) AC2 RATES(0.0,-3000.0)
 AC1 ACCEL 0.25g @ CPA -25 AC2 ACCEL -0.25g @ CPA -20 AC1 CPA ALT 3700

 3817 V7 25 FT VS UNEQUIPPED 8 76.19 CROSSING_ENC

1 TCAS AC 3175041 TA :30 |PVMD| DES @42 [NX]| IDES @49

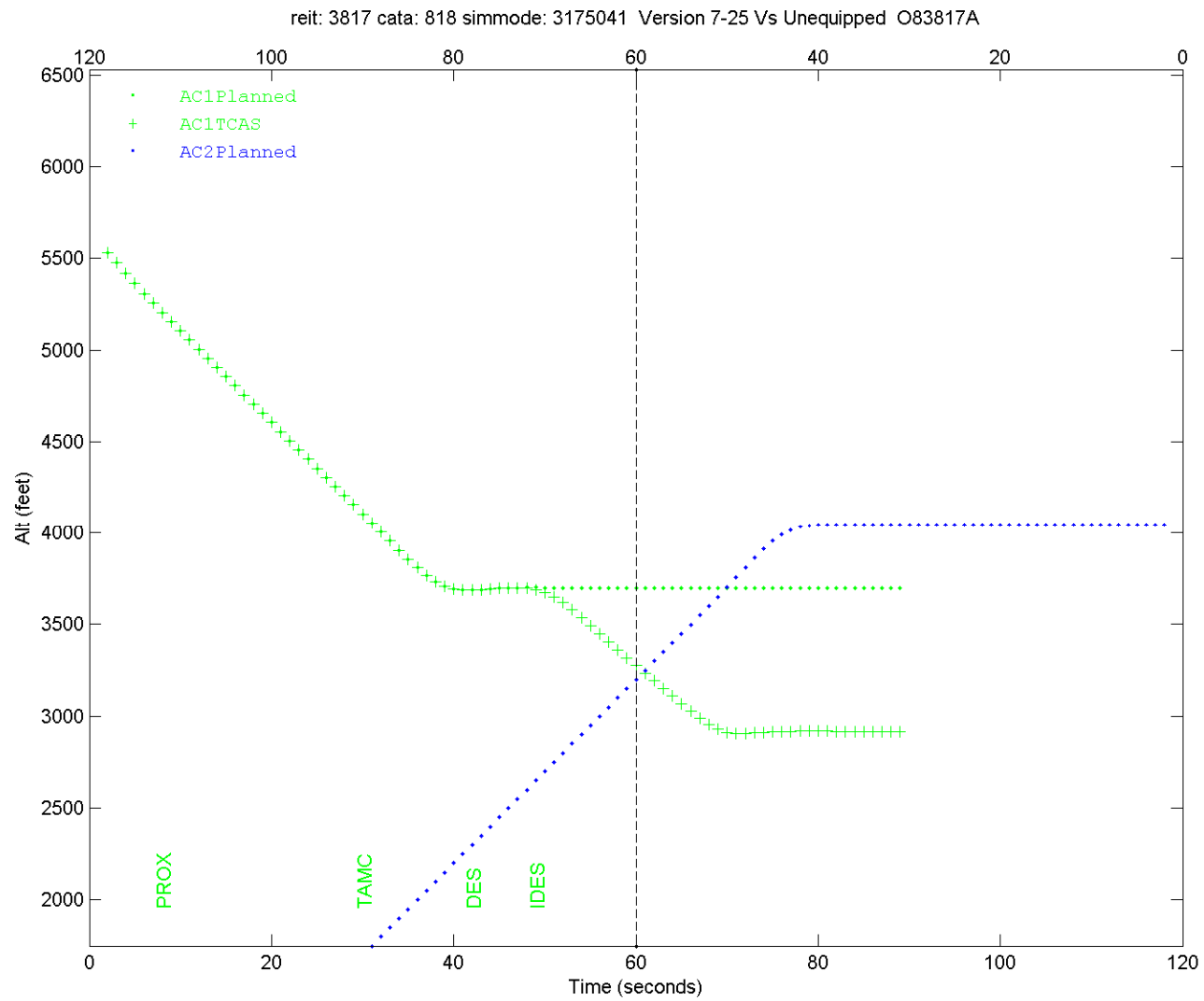
 3817 CP112EV1.2 25 FT VS UNEQUIPPED 8 216.94 CROSSING_ENC

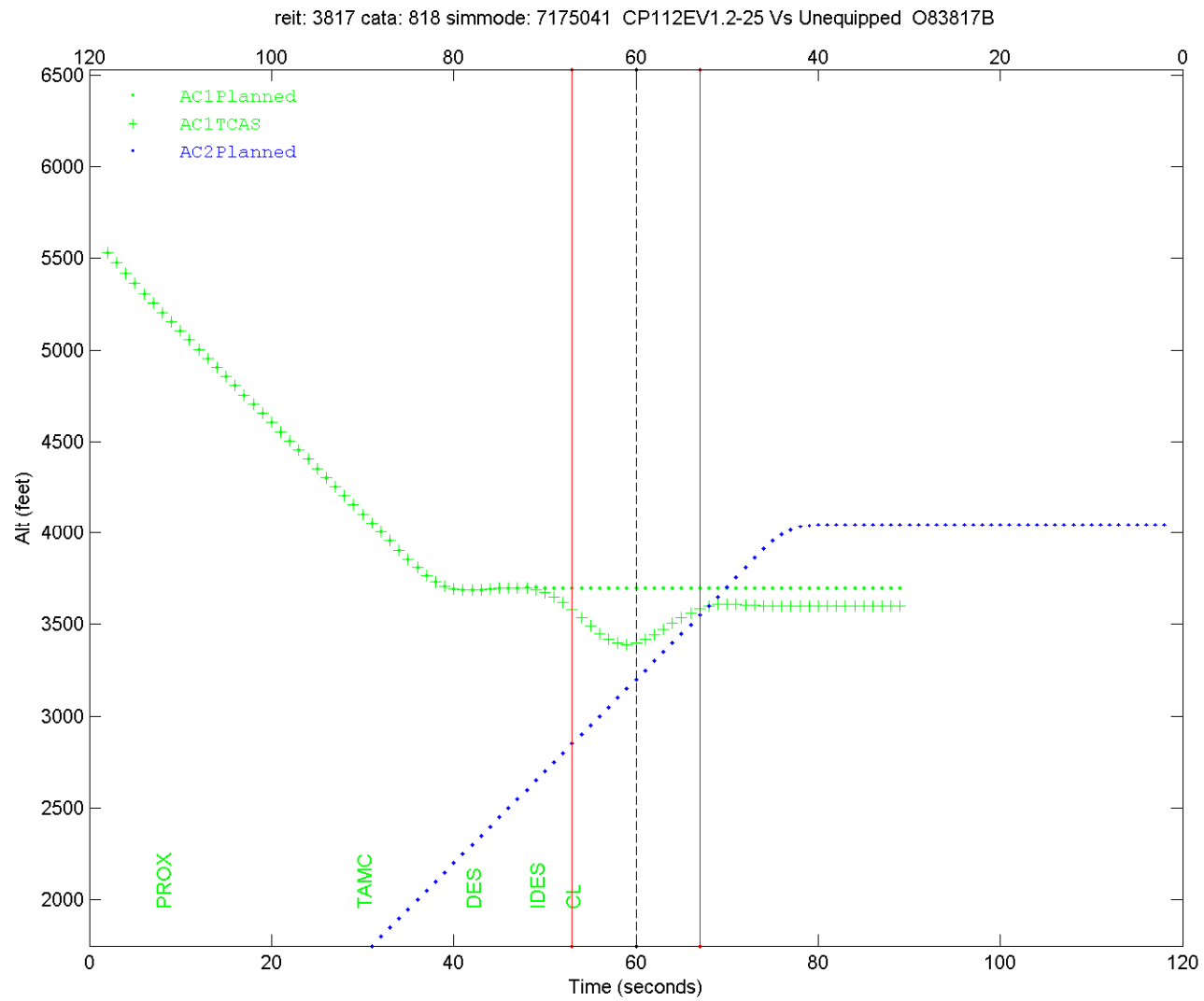
CPT_REV 1 OWN_FOLLOW TRUE TTOFOLLOW 8.28 REV_AVOID 02 TIME_REV_AVOID 0.0

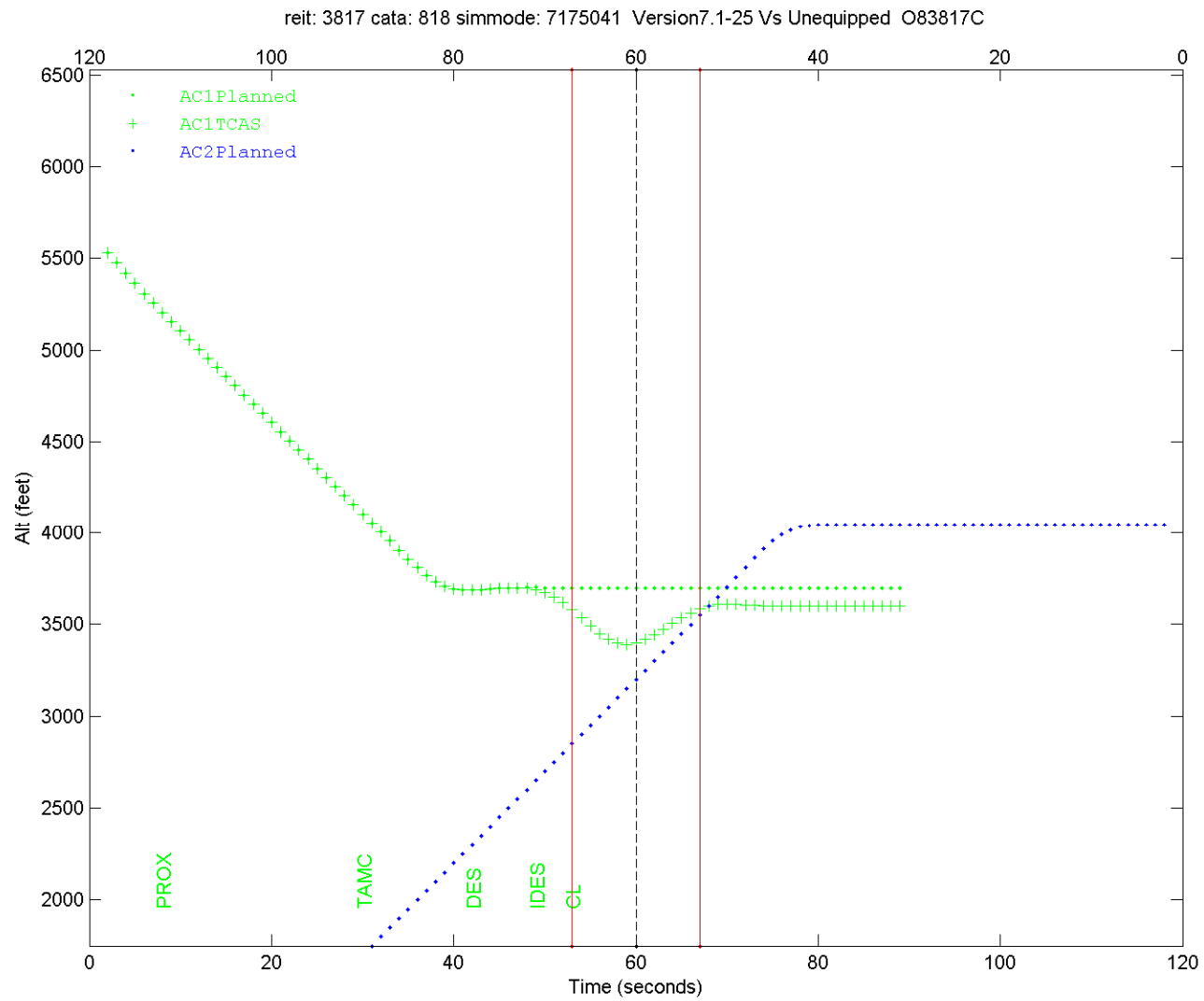
1 TCAS AC*REV*7175041 TA :30 |PVMD| DES @42 [NX]| IDES @49 | CL @53

 3817 V7.1 25 FT VS UNEQUIPPED 8 216.94 CROSSING_ENC

1 TCAS AC*REV*7175041 TA :30 |PVMD| DES @42 [NX]| IDES @49 | CL @53







Change 7.1 TCAS vs Unequipped Representative Save 11

Encounter Class: 8

Reit Number : 8792

Encounter Characterization

Number of encounters in group	20	
AC1 TCAS equipped	yes	
Vertical tracker	25, 100	ft
Planned separation	-500, -750	ft
AC1 rates:	-1000, -3000	fpm
AC2 rates:	3000	fpm
AC1 acceleration:	0.25	g
AC2 acceleration:	0.15	g
AC1 acceleration time:	CPA – 25	sec
AC2 acceleration time:	CPA – 25	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

Climbing vertical chase caused by response to initial RA.

SIMULATION RESULTS FOR V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER I88792
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = -750.0 AC1 RATES(-1000.0,0.0) AC2 RATES(0.0,3000.0)
 AC1 ACCEL 0.25g @ CPA -25 AC2 ACCEL 0.15g @ CPA -25 AC1 CPA ALT 7500

 8792 V7 100 FT VS UNEQUIPPED 8 -92.86 CROSSING_ENC

1 TCAS AC*REV*3171031 TA :19 |TAUR| CL @34 [NX]| ICL @47 | DES @58

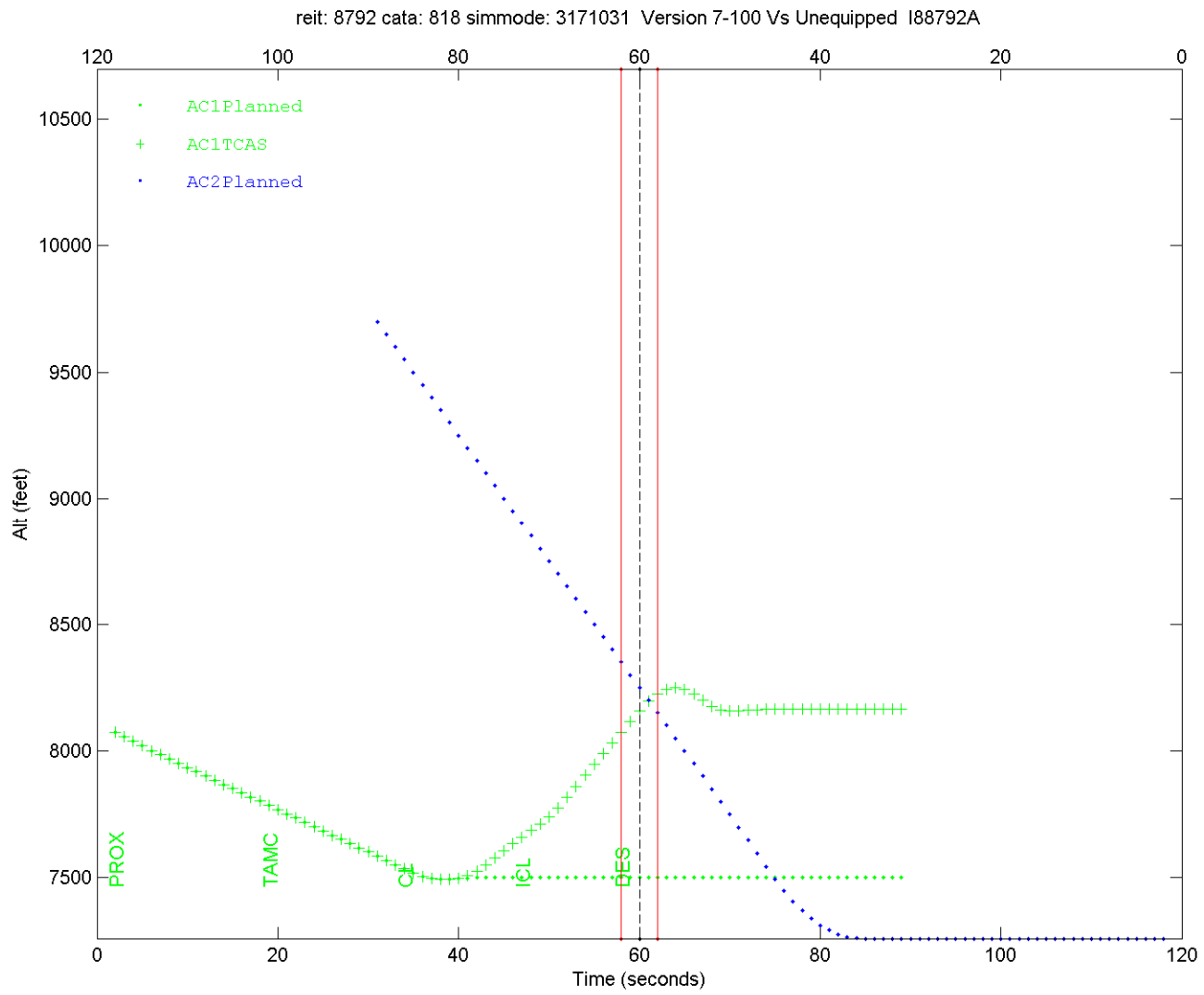
 8792 CP112EV1.2 100 FT VS UNEQUIPPED 8 -736.76 CROSSING_ENC

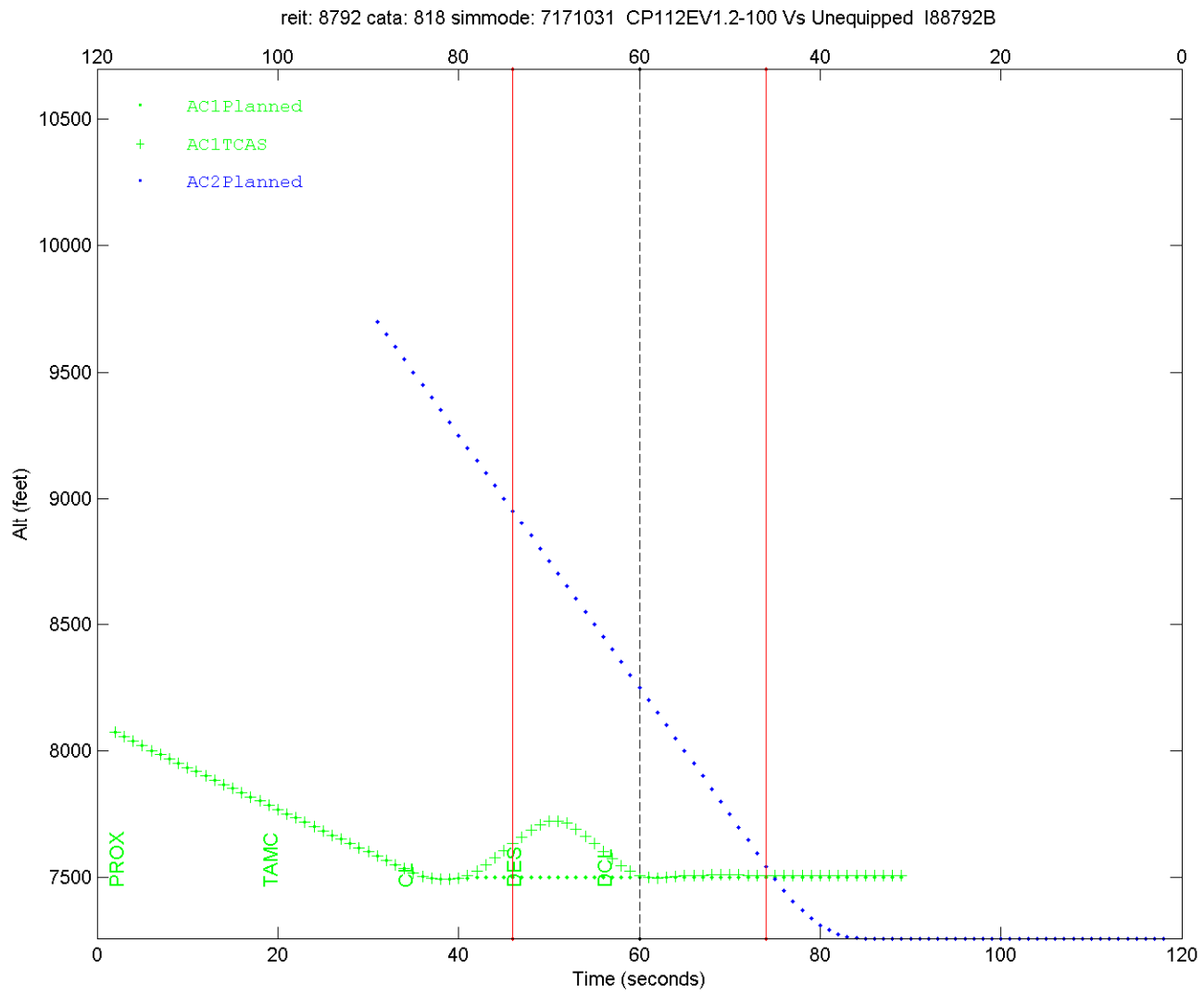
CPT_REV 1 OWN_FOLLOW TRUE TTOFOLLOW 8.64 REV_AVOID 02 TIME_REV_AVOID 0.0

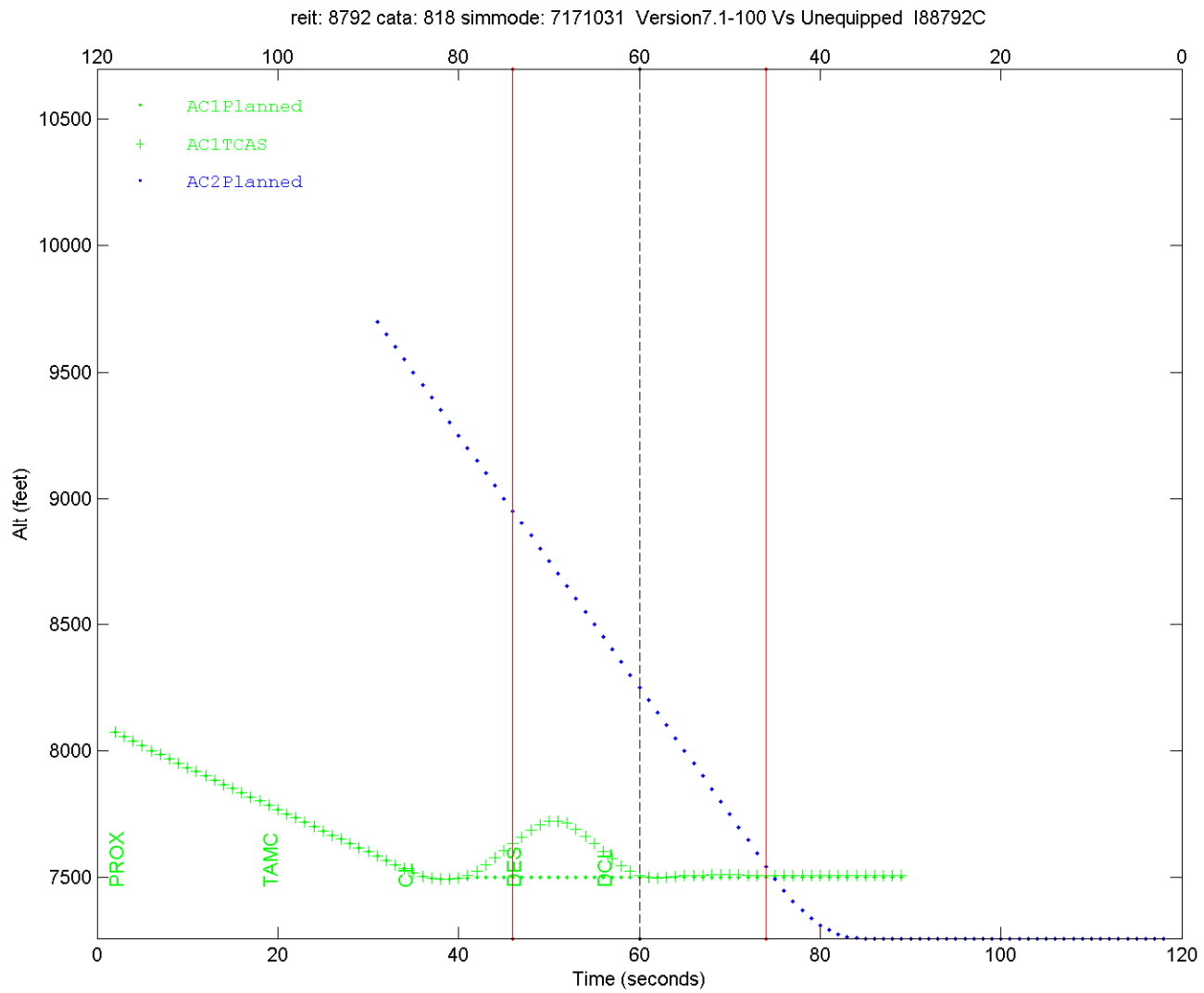
1 TCAS AC*REV*7171031 TA :19 |TAUR| CL @34 [NX]| DES @46 | DCL @56

 8792 V7.1 100 FT VS UNEQUIPPED 8 -736.76 CROSSING_ENC

1 TCAS AC*REV*7171031 TA :19 |TAUR| CL @34 [NX]| DES @46 | DCL @56







Change 7.1 TCAS vs Unequipped Representative Save 12

Encounter Class: 8

Reit Number : 1794

Encounter Characterization

Number of encounters in group	2	
AC1 TCAS equipped	no	
Vertical tracker	25	ft
Planned separation	500	ft
AC1 rates:	-5000	fpm
AC2 rates:	-3000	fpm
AC1 acceleration:	0.15	g
AC2 acceleration:	-0.25	g
AC1 acceleration time:	CPA – 25	sec
AC2 acceleration time:	CPA – 25	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP115

Comments

Descending vertical chase caused by planned maneuver. CP112E reversal did not solve NMAC.

After addition of CP115 TCAS aircraft gets LOLO. DES RA comes 2 seconds later, so reversal to DES succeeds.

SIMULATION RESULTS FOR V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER Z81794
 LOGIC THRESHOLDS SL = 4 ZTHR = 600 TAUR = 20 TAUV = 20 ALIM = 300
 PLANNED ENCOUNTER. SEP = 500.0 AC1 RATES(-5000.0,0.0) AC2 RATES(0.0,-3000.0)
 AC1 ACCEL 0.15g @ CPA -25 AC2 ACCEL -0.25g @ CPA -25 AC1 CPA ALT 3700

 1794 UNEQUIPPED VS V7 25 FT 8 -95.32 CROSSING_ENC

2 TCAS AC*REV*3275014 TA :30 |PVMD| LD2 @42 [NX]| LD1 @44 | CL @46 | ICL @49
 | DES @52 | IDES @54

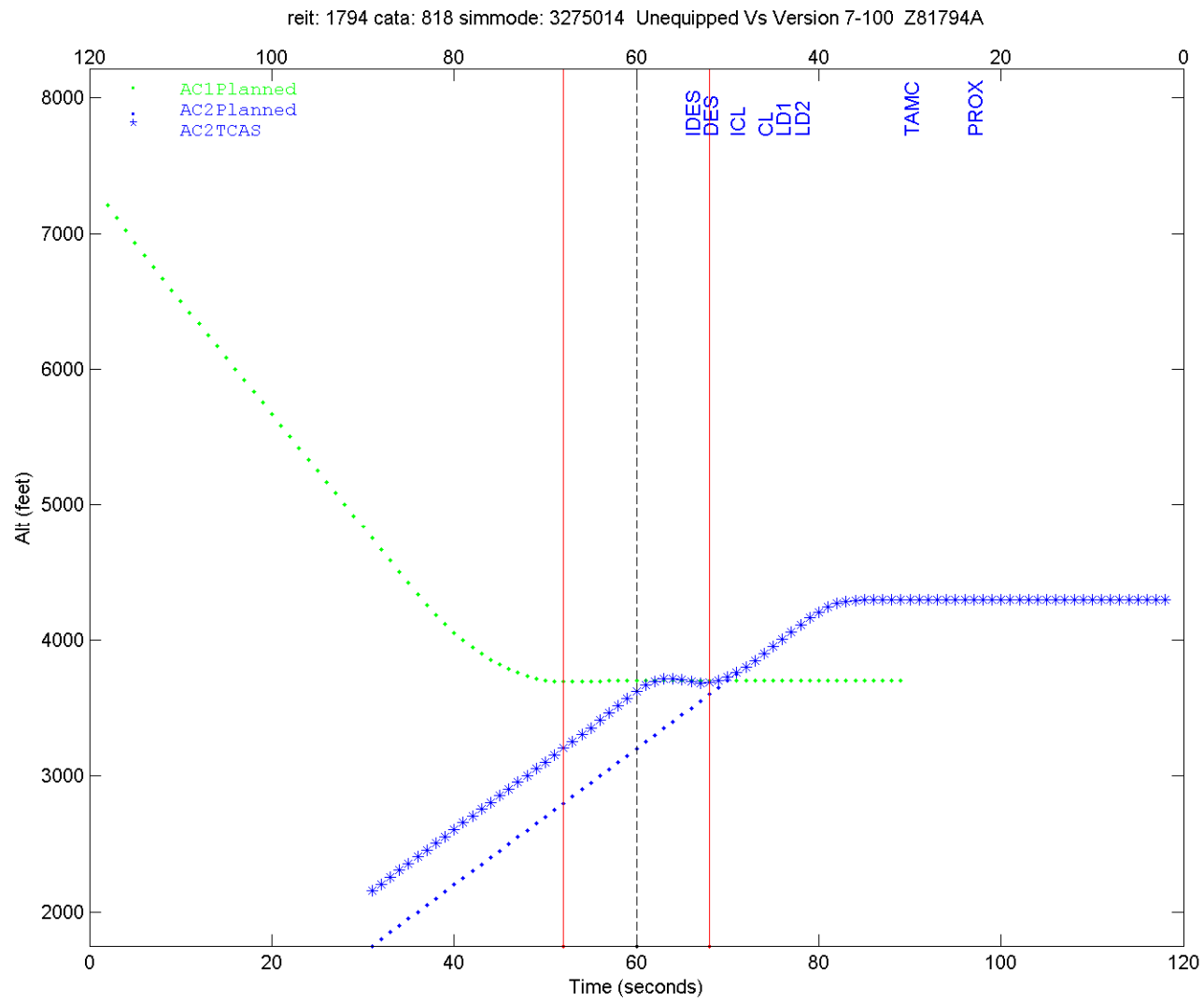
 1794 UNEQUIPPED VS CP112EV1.2 25 FT 8 -95.32 CROSSING_ENC

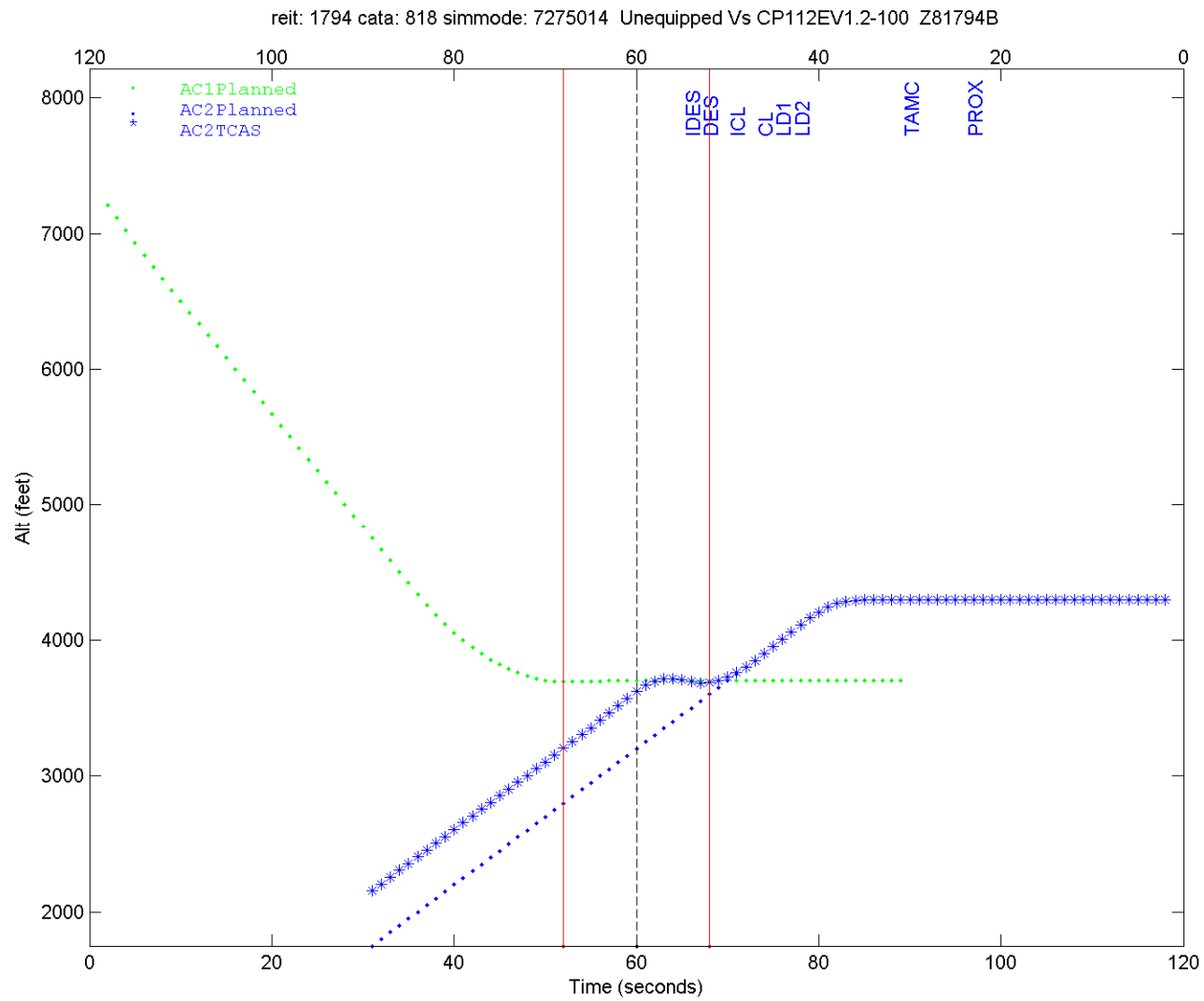
CPT_REV 0 OWN_FOLLOW TRUE TTOFOLLOW 14.53 REV_AVOID 02 TIME_REV_AVOID 0.0

2 TCAS AC*REV*7275014 TA :30 |PVMD| LD2 @42 [NX]| LD1 @44 | CL @46 | ICL @49
 | DES @52 | IDES @54

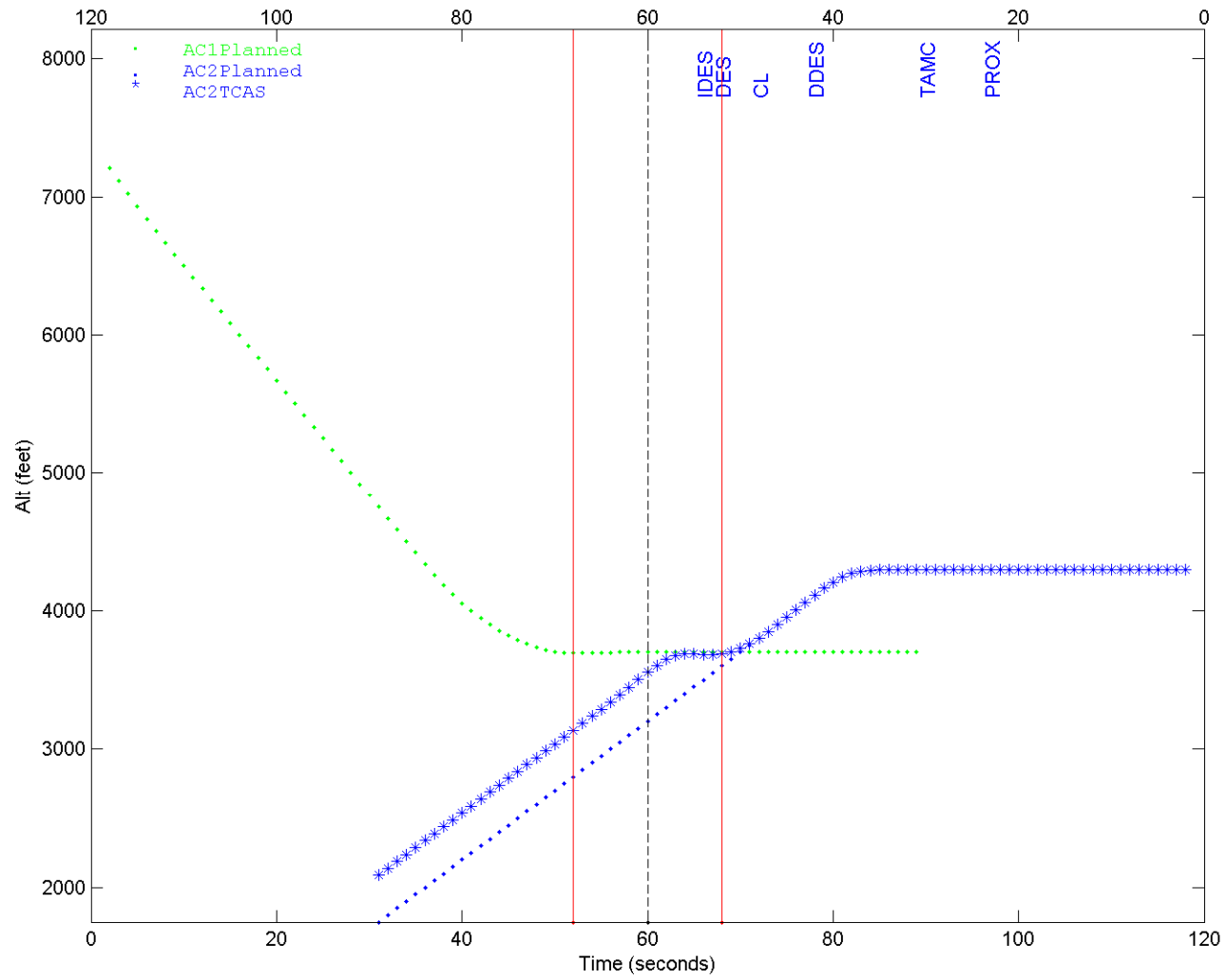
 1794 UNEQUIPPED VS V7.1 25 FT 8 -162.19 CROSSING_ENC

2 TCAS AC*REV*7275014 TA :30 |PVMD| DDES @42 [NX]| CL @48 | DES @52 | IDES @54





reit: 1794 cata: 818 simmode: 7275014 Unequipped Vs Version7.1-100 Z81794C



Change 7.1 TCAS vs Unequipped Representative Save 13

Encounter Class: 8

Reit Number : 7930

Encounter Characterization

Number of encounters in group	1	
AC1 TCAS equipped	yes	
Vertical tracker	100	ft
Planned separation	-500	ft
AC1 rates:	-5000	fpm
AC2 rates:	5000	fpm
AC1 acceleration:	0.25	g
AC2 acceleration:	0.25	g
AC1 acceleration time:	CPA – 25	sec
AC2 acceleration time:	CPA – 25	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP115

Comments

Climbing vertical chase caused by response to initial RA and planned maneuver by intruder.
LOLO instead of AVSA caused TCAS aircraft to descend less before the CL reversal.
Version 7 and Version 7 + CP112E had reversals after CPA.

```

SIMULATION RESULTS FOR V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER I87930
LOGIC THRESHOLDS SL = 5  ZTHR = 600  TAUR = 25  TAUV = 25  ALIM = 350
PLANNED ENCOUNTER. SEP = -500.0 AC1 RATES(-5000.0,0.0) AC2 RATES(0.0,5000.0)
      AC1 ACCEL 0.25g @ CPA -25 AC2 ACCEL 0.25g @ CPA -25 AC1 CPA ALT 7500
-----
7930  V7 100 FT VS UNEQUIPPED      8    -35.21    CROSSING_ENC

1 TCAS AC*REV*3171031 TA :19 |TAUR| LD2 @34 [NX]| LD1 @41 | DDES @42 | CL @43
  | ICL @49 | DES @62

-----
7930  CP112EV1.2 100 FT VS UNEQUIPPED      8    -35.21    CROSSING_ENC

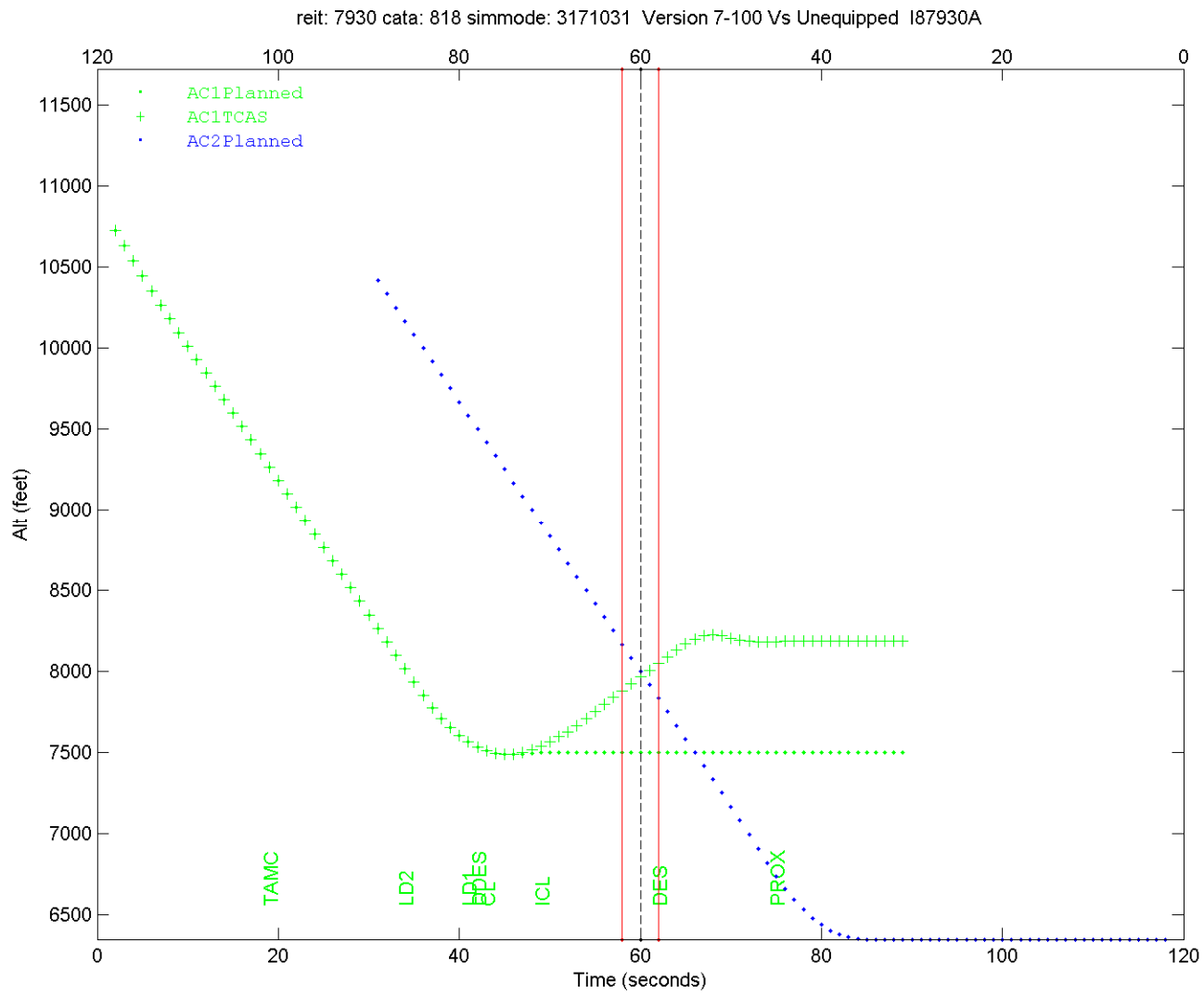
CPT_REV  0 OWN_FOLLOW TRUE TTOFOLLOW 13.37 REV_AVOID 02 TIME_REV_AVOID 0.0

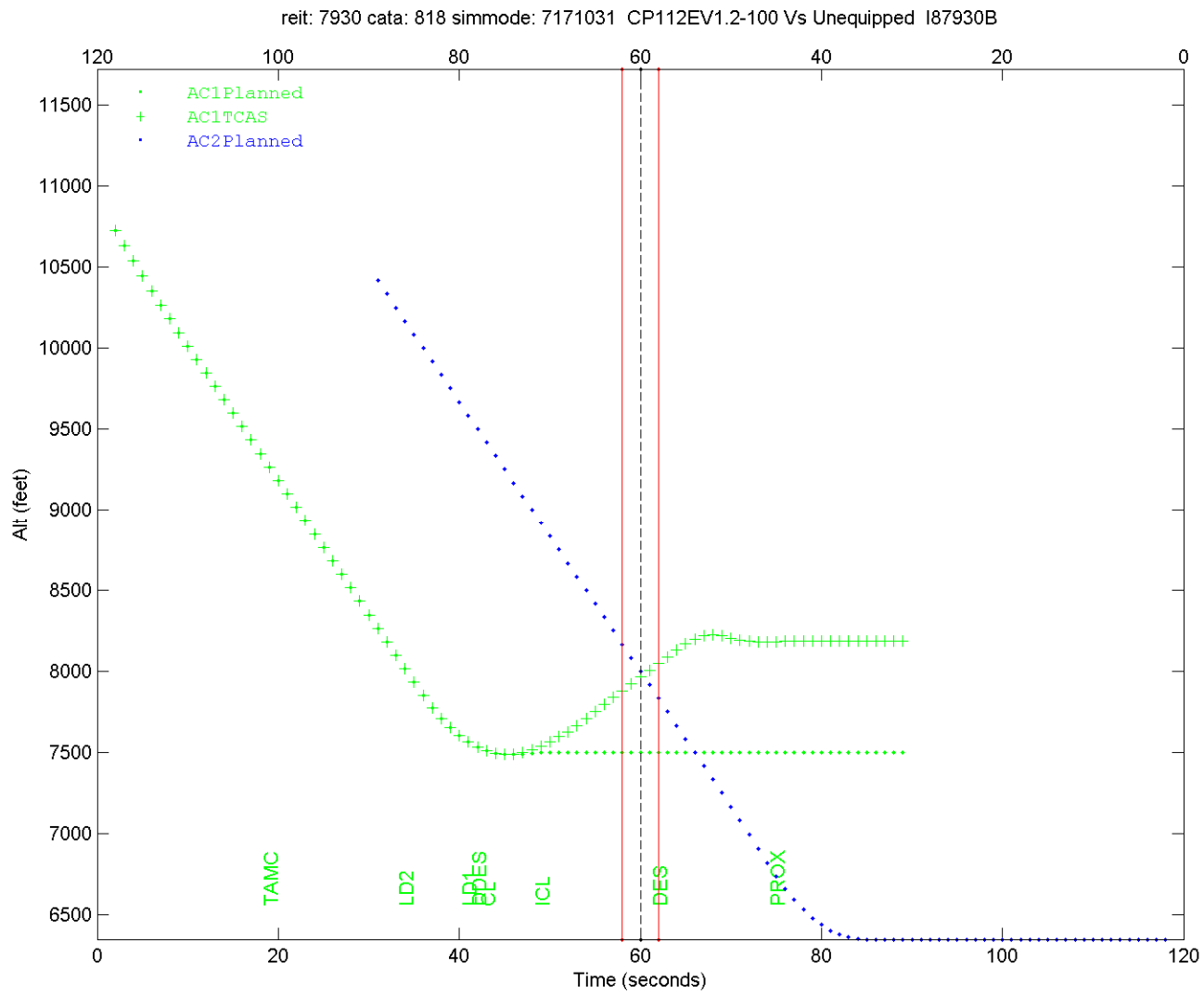
1 TCAS AC*REV*7171031 TA :19 |TAUR| LD2 @34 [NX]| LD1 @41 | DDES @42 | CL @43
  | ICL @49 | DES @62

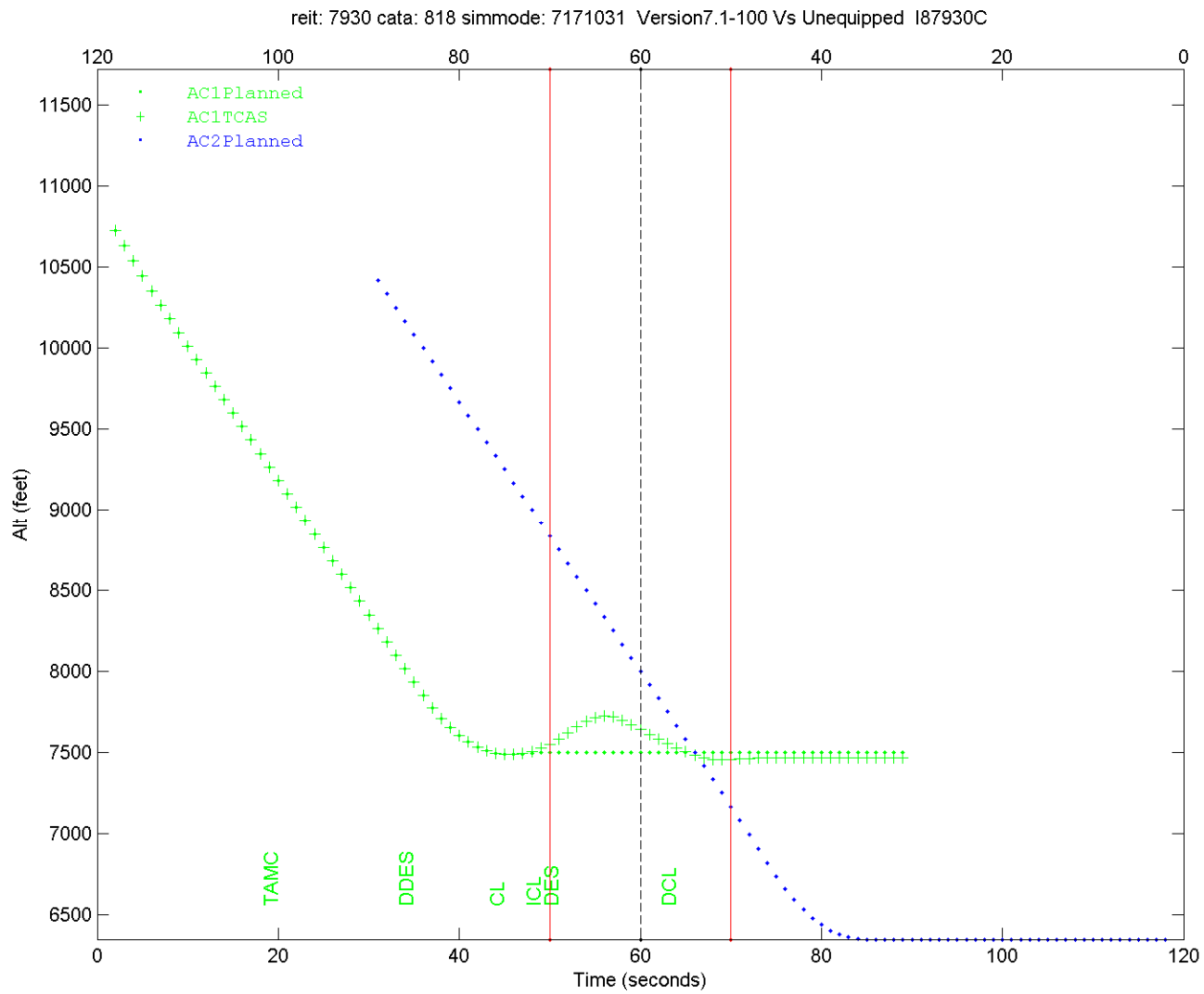
-----
7930  V7.1 100 FT VS UNEQUIPPED      8    -370.51    CROSSING_ENC

1 TCAS AC*REV*7171031 TA :19 |TAUR| DDES @34 [NX]| CL @44 | ICL @48 | DES @50
  | DCL @63

```





Change 7.1 TCAS vs Unequipped Representative Save 14

Encounter Class: 9

Reit Number : 1605

Encounter Characterization

Number of encounters in group	1	
AC1 TCAS equipped	yes	
Vertical tracker	25	ft
Planned separation	500	ft
AC1 rates:	5000	fpm
AC2 rates:	5000	fpm
AC1 acceleration:	-0.05	g
AC2 acceleration:	-0.15	g
AC1 acceleration time:	CPA – 25	sec
AC2 acceleration time:	CPA – 25	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP115

Comments

Pre-existing climbing vertical chase.

Addition of CP115 caused LOLO instead of AVSA.

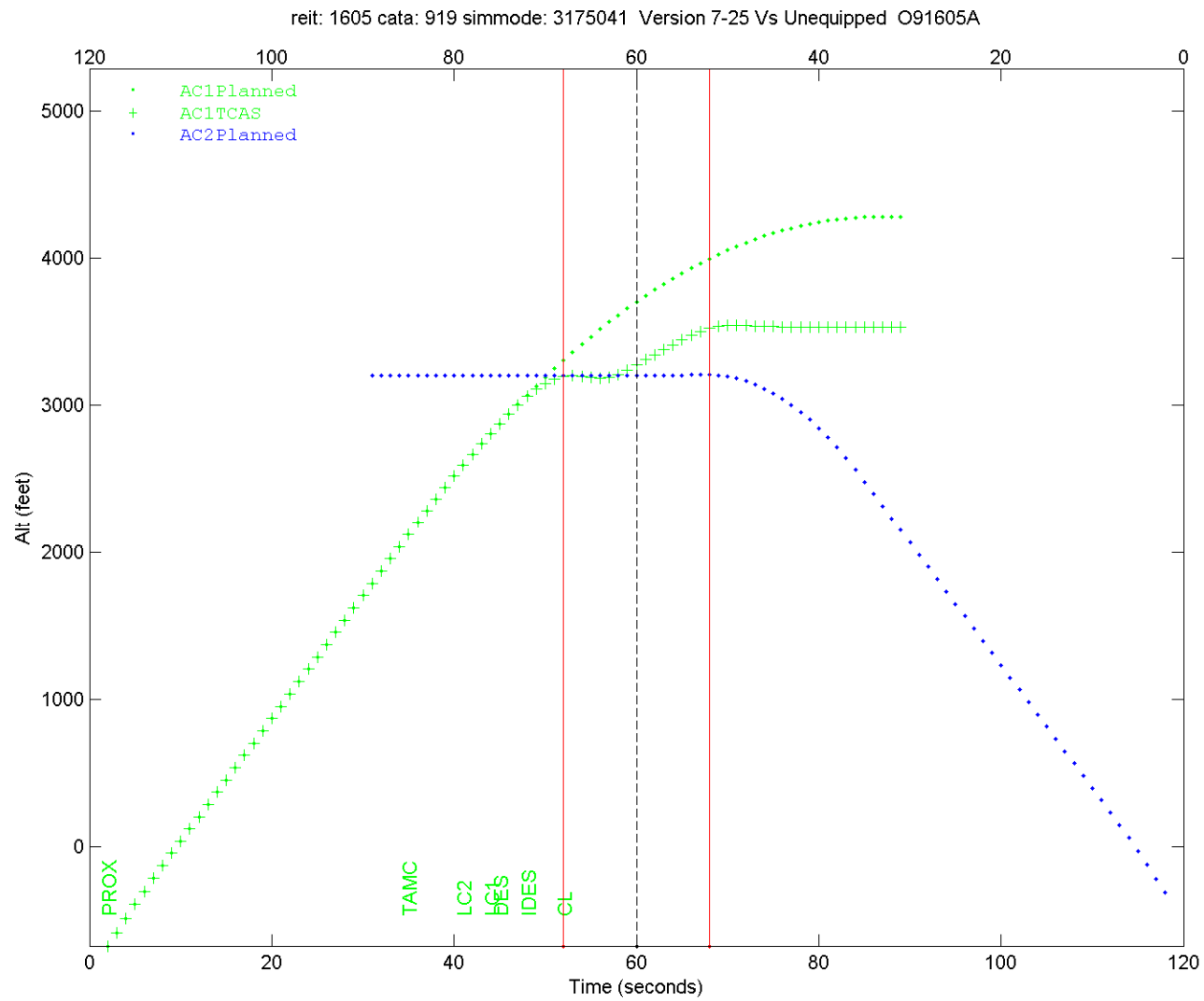
Later initial positive command (3 second delay) leads to more separation from the reversal.

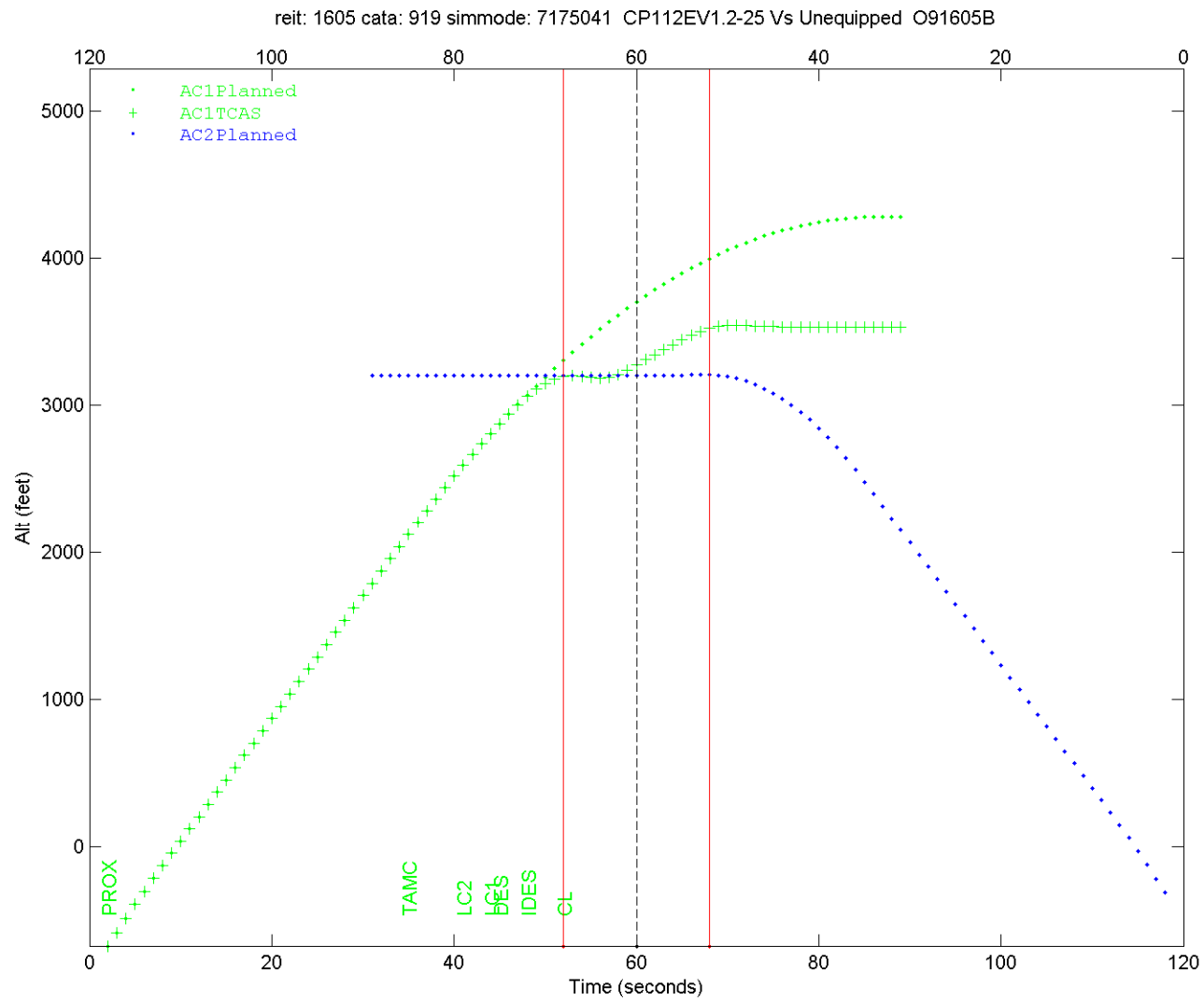
SIMULATION RESULTS FOR V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER 091605
 LOGIC THRESHOLDS SL = 4 ZTHR = 600 TAUR = 20 TAUV = 20 ALIM = 300
 PLANNED ENCOUNTER. SEP = 500.0 AC1 RATES(5000.0,0.0) AC2 RATES(5000.0,0.0)
 AC1 ACCEL -0.05g @ CPA -25 AC2 ACCEL -0.15g @ CPA -25 AC1 CPA ALT 3700

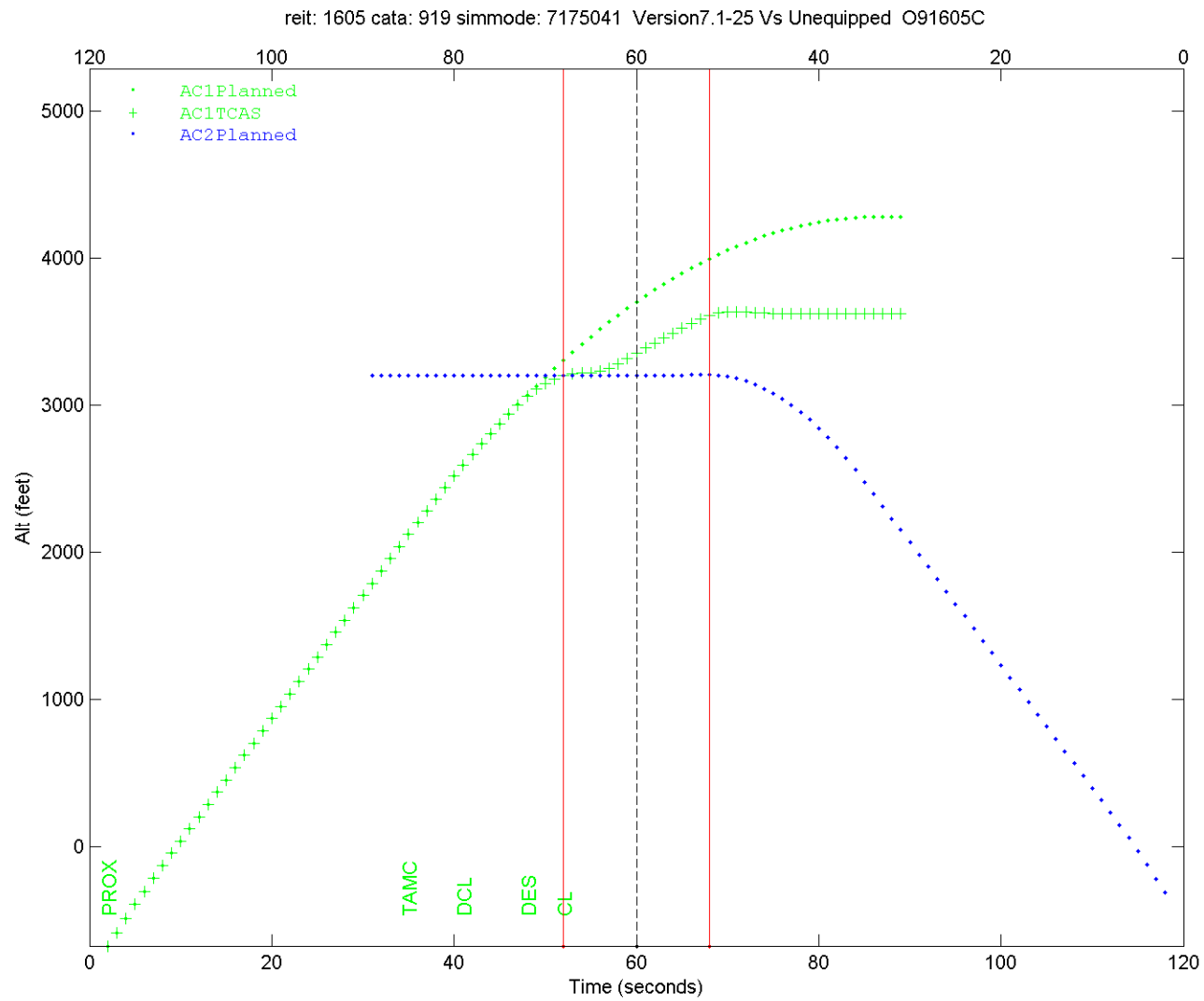
1605 V7 25 FT VS UNEQUIPPED 9 86.66 CROSSING_ENC
 1 TCAS AC*REV*3175041 TA :35 |SL| LC2 @41[NX]| LC1 @44| DES @45| IDES @48| CL @52

1605 CP112EV1.2 25 FT VS UNEQUIPPED 9 86.66 CROSSING_ENC
 CPT_REV 0 OWN_FOLLOW TRUE TTOFOLLOW 16.69 REV_AVOID 02 TIME_REV_AVOID 0.0
 1 TCAS AC*REV*7175041 TA :35 |SL| LC2 @41[NX]| LC1 @44| DES @45| IDES @48| CL @52

1605 V7.1 25 FT VS UNEQUIPPED 9 159.42 CROSSING_ENC
 1 TCAS AC*REV*7175041 TA :35 |SL | DCL @41 [NX]| DES @48 | CL @52







Change 7.1 TCAS vs Unequipped Representative Save 15

Encounter Class: 15

Reit Number : 5632

Encounter Characterization

Number of encounters in group	4	
AC1 TCAS equipped	yes	
Vertical tracker	25, 100	ft
Planned separation	0	ft
AC1 rates:	3000, 5000	fpm
AC2 rates:	3000, 5000	fpm
AC1 acceleration:	none	
AC2 acceleration:	0.15	g
AC2 acceleration time:	CPA – 30	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

Climbing vertical chase caused by planned maneuver by intruder.
Addition of CP112E allowed sense reversal that solved the NMAC.

SIMULATION RESULTS FOR V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER 055632
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = 0.0 AC1 RATES(3000.0,3000.0) AC2 RATES(0.0,3000.0)
 AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.15g @ CPA -30 AC1 CPA ALT 7520

 5632 V7 25 FT VS UNEQUIPPED 15 0.00 NON_CROSSING_ENC

1 TCAS AC 3175041 TA :20 |PVMD| CL @37 [NX]

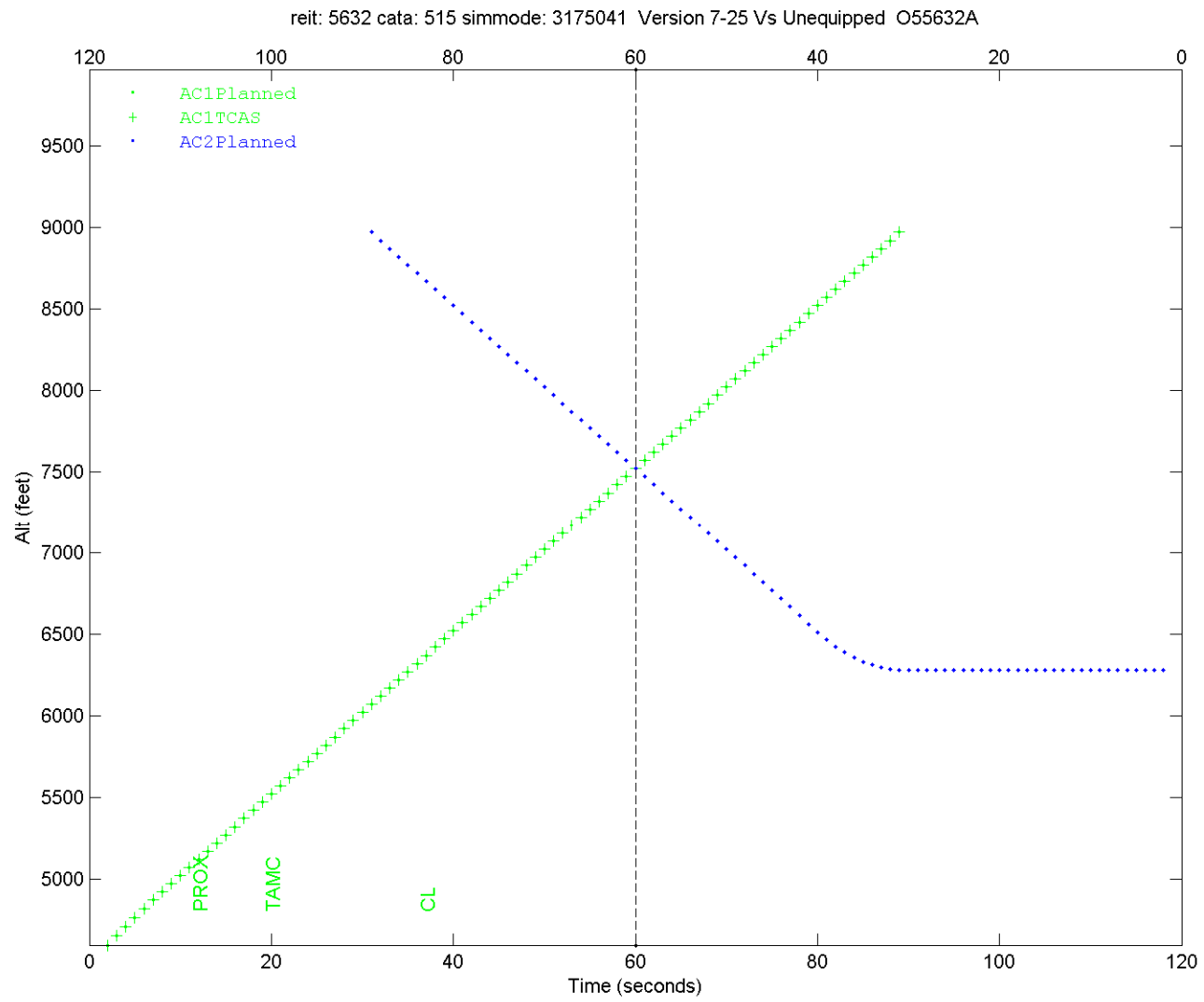
 5632 CP112EV1.2 25 FT VS UNEQUIPPED 15 -543.55 NON_CROSSING_ENC

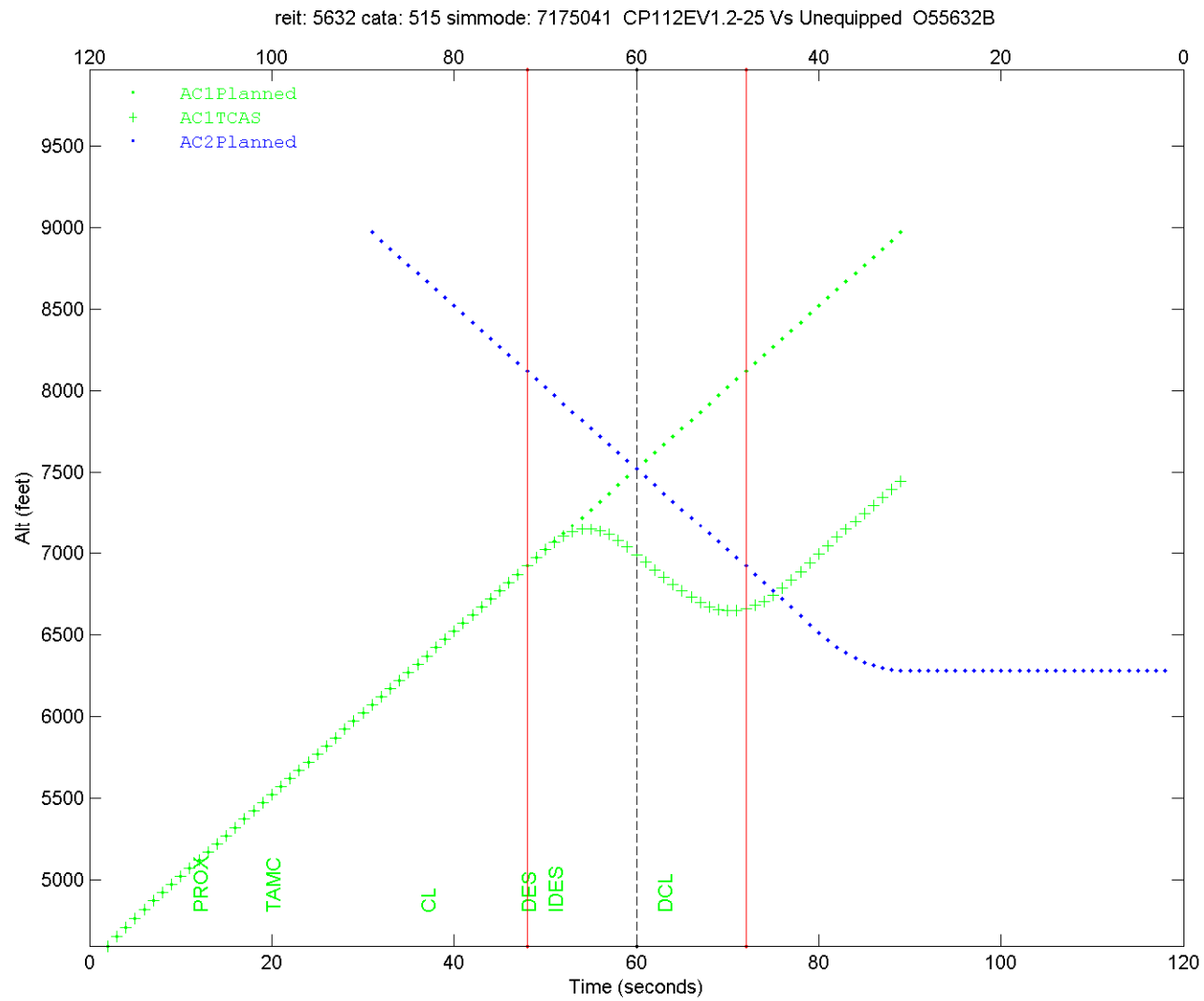
CPT_REV 1 OWN_FOLLOW TRUE TTOFOLLOW 5.00 REV_AVOID 02 TIME_REV_AVOID 0.0

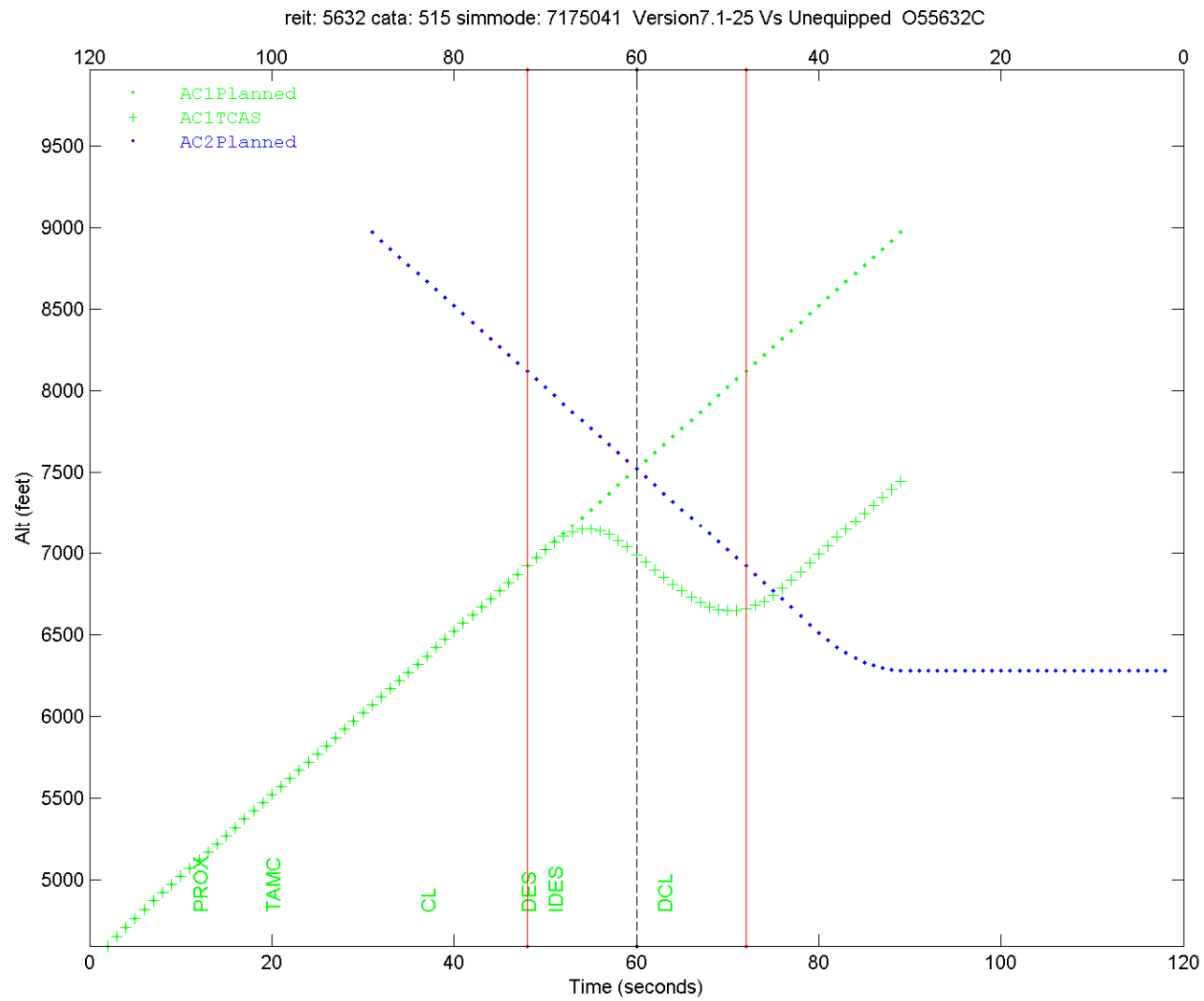
1 TCAS AC*REV*7175041 TA :20 |PVMD| CL @37 [NX]| DES @48 | IDES @51 | DCL @63

 5632 V7.1 25 FT VS UNEQUIPPED 15 -543.55 NON_CROSSING_ENC

1 TCAS AC*REV*7175041 TA :20 |PVMD| CL @37 [NX]| DES @48 | IDES @51 | DCL @63







Change 7.1 TCAS vs Unequipped Representative Save 16

Encounter Class: 16

Reit Number : 4935

Encounter Characterization

Number of encounters in group	7	
AC1 TCAS equipped	yes	
Vertical tracker	25, 100	ft
Planned separation	-250, -750	ft
AC1 rates:	-1000, -3000	fpm
AC2 rates:	-5000	fpm
AC1 acceleration:	none	
AC2 acceleration:	0.25	g
AC2 acceleration time:	CPA – 20	sec
Encounters with reversed RAs	0	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP115

Comments

Initial descending vertical chase causes LD2 RA. Level-off maneuver by intruder defeats LD2. Addition of CP115 changes LD2 to DDES, CL which resolves the encounter without a reversal.

SIMULATION RESULTS FOR V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER I64935
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = -750.0 AC1 RATES(-3000.0,-3000.0) AC2 RATES(-5000.0,0.0)
 AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.25g @ CPA -20 AC1 CPA ALT 7520

 4935 V7 100 FT VS UNEQUIPPED 16 12.85 CROSSING_ENC

1 TCAS AC 3171031 TA :19 |TAUR| LD2 @34 [X] | LD1 @47 | CL @48

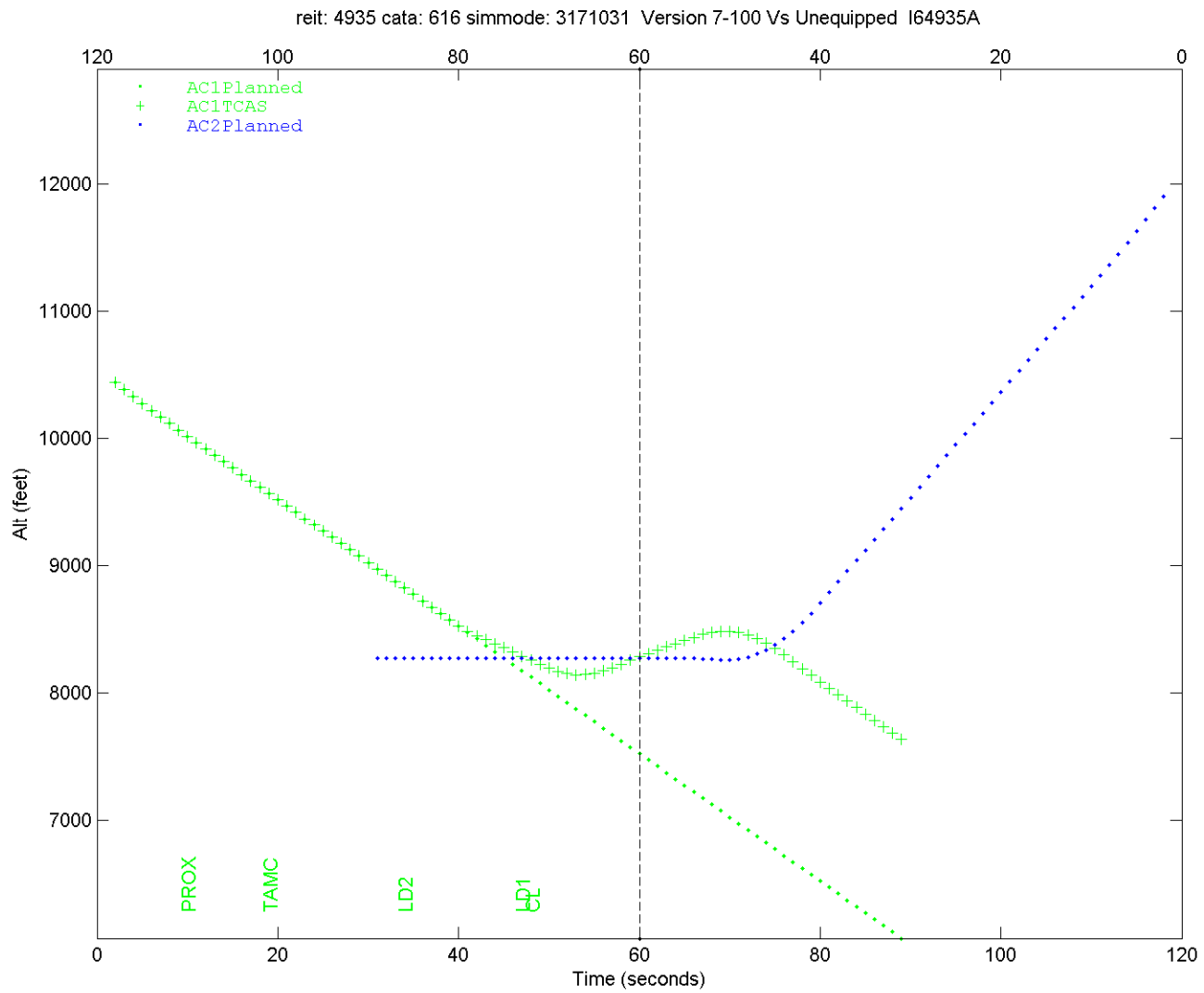
 4935 CP112EV1.2 100 FT VS UNEQUIPPED 16 12.85 CROSSING_ENC

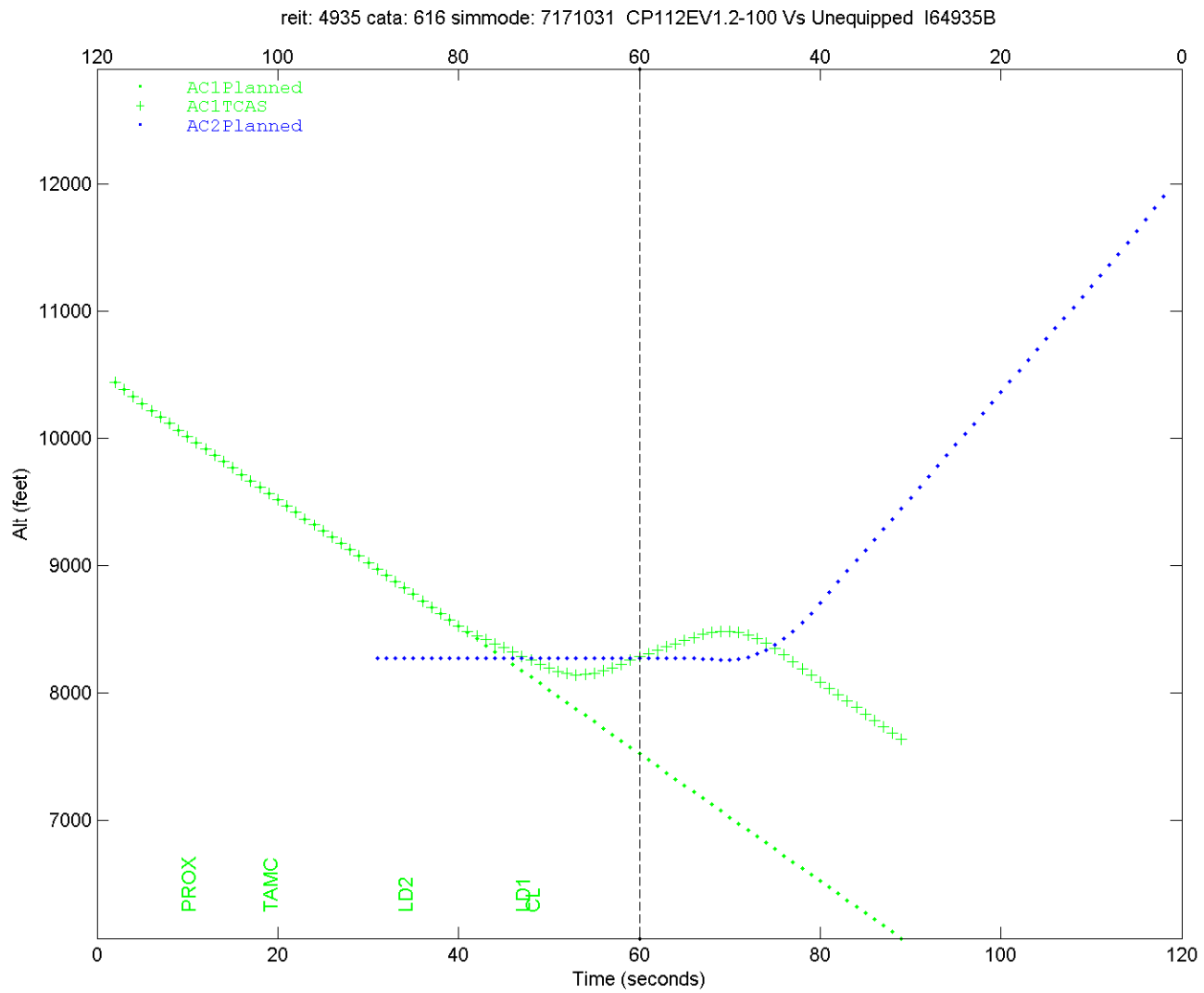
CPT_REV 0 OWN_FOLLOW TRUE TTOfollow 11.25 REV_AVOID 02 TIME_REV_AVOID 0.0

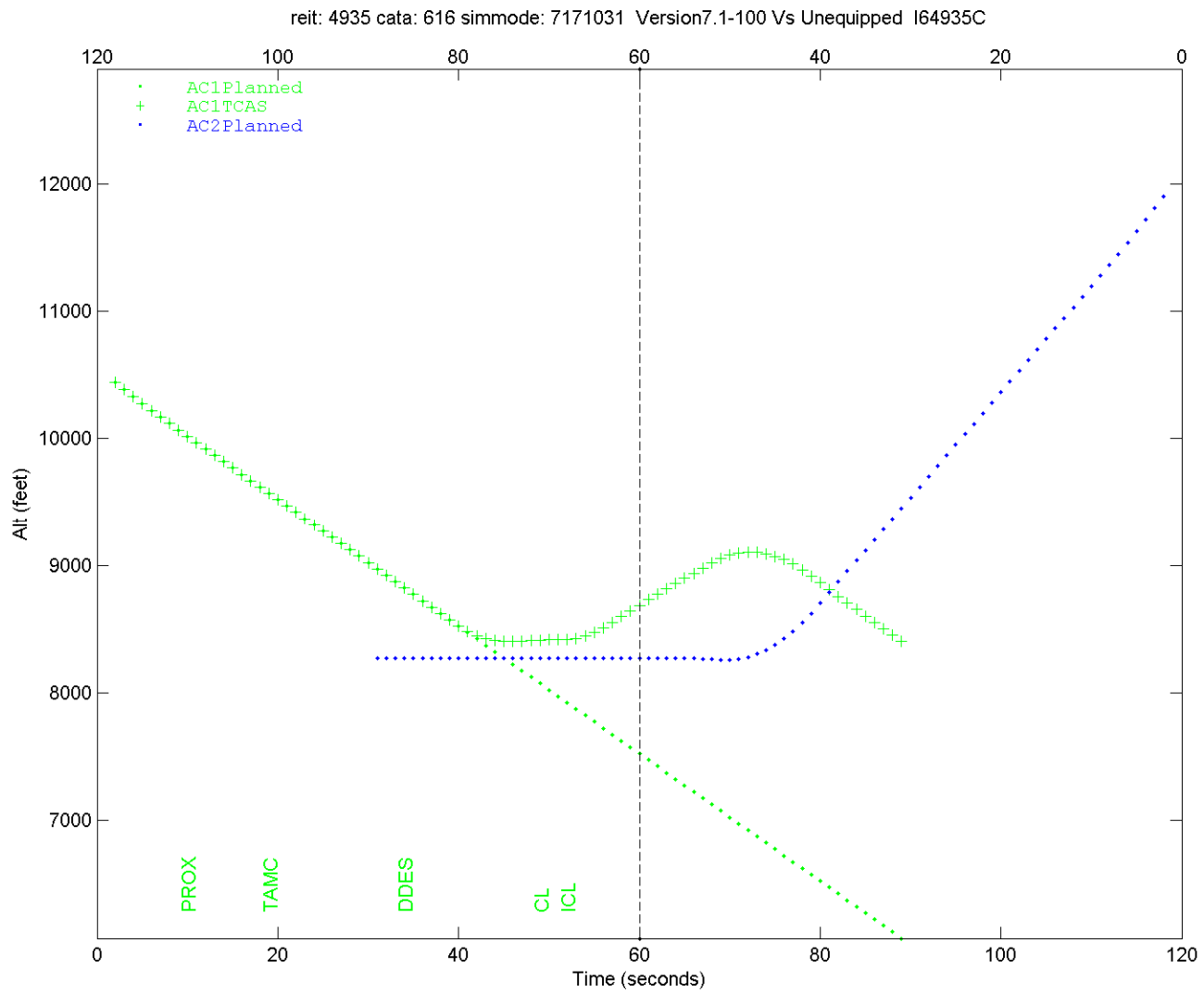
1 TCAS AC 7171031 TA :19 |TAUR| LD2 @34 [X] | LD1 @47 | CL @48

 4935 V7.1 100 FT VS UNEQUIPPED 16 417.11 CROSSING_ENC

1 TCAS AC 7171031 TA :19 |TAUR| DDES @34 [X] | DDES @46 | CL @49 | ICL @52







Change 7.1 TCAS vs Unequipped Representative Save 17

Encounter Class: 17

Reit Number : 6773

Encounter Characterization

Number of encounters in group	23	
AC1 TCAS equipped	14	
Vertical tracker	25, 100	ft
Planned separation	0	ft
AC1 rates:	3000, 5000	fpm
AC2 rates:	3000, 5000	fpm
AC1 acceleration:	0.15	g
AC2 acceleration:	0.15	g
AC1 acceleration time:	CPA – 25	sec
AC2 acceleration time:	CPA – 25	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

Climbing vertical chase caused by planned maneuvers.
Addition of CP112E allowed sense reversal to solve NMAC.

```

SIMULATION RESULTS FOR V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER Z76773
LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUUV = 25 ALIM = 350
PLANNED ENCOUNTER. SEP = 0.0 AC1 RATES(0.0,3000.0) AC2 RATES(0.0,3000.0)
AC1 ACCEL 0.15g @ CPA -25 AC2 ACCEL 0.15g @ CPA -25 AC1 CPA ALT 7500
-----
6773 UNEQUIPPED VS V7 25 FT 17 39.05 NON_CROSSING_ENC

2 TCAS AC 3275014 TA :19 |TAUR| CL @34 [NX]

-----
6773 UNEQUIPPED VS CP112EV1.2 25 FT 17 -775.48 NON_CROSSING_ENC

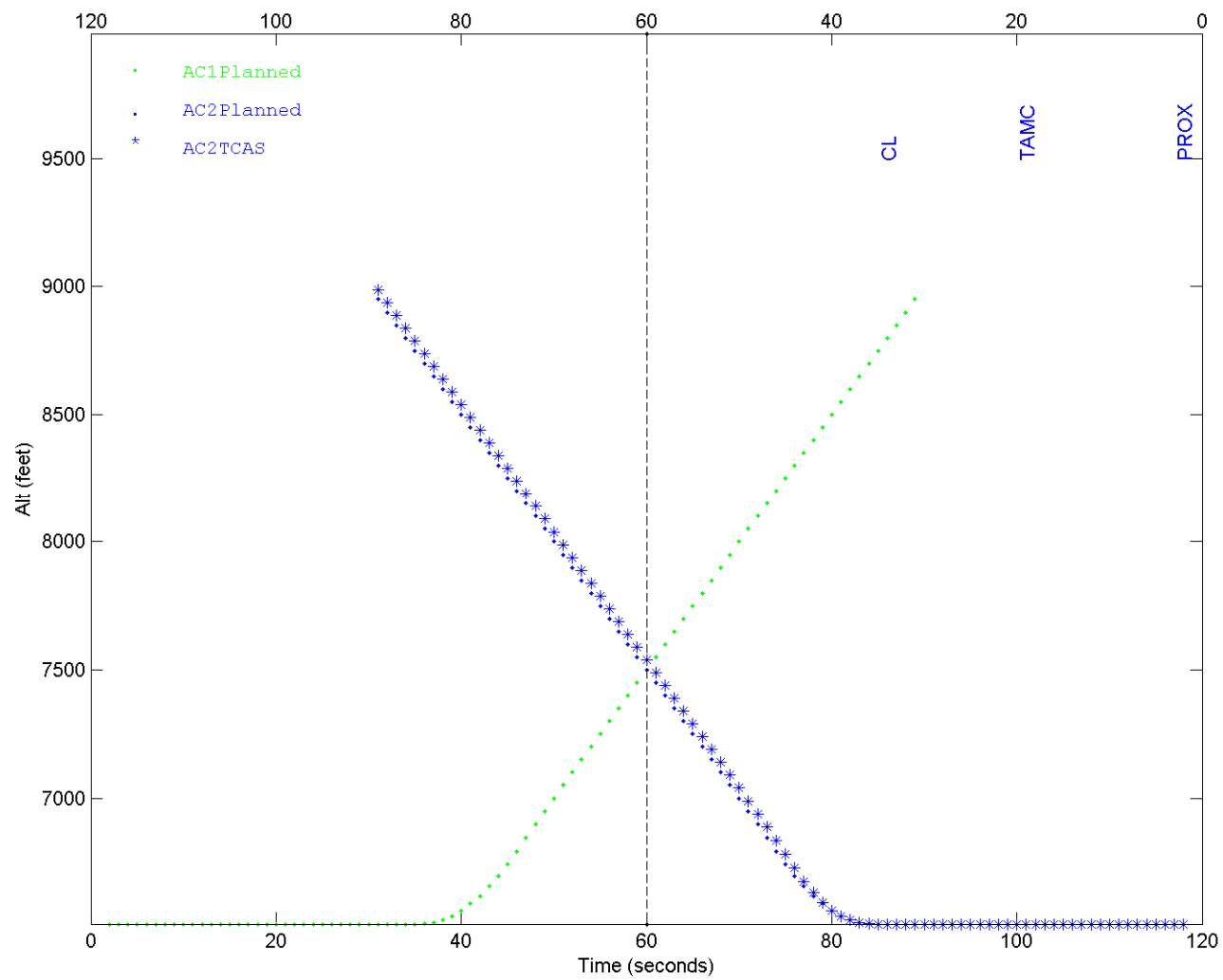
CPT_REV 1 OWN_FOLLOW TRUE TTOFOLLOW 6.89 REV_AVOID 02 TIME_REV_AVOID 0.0

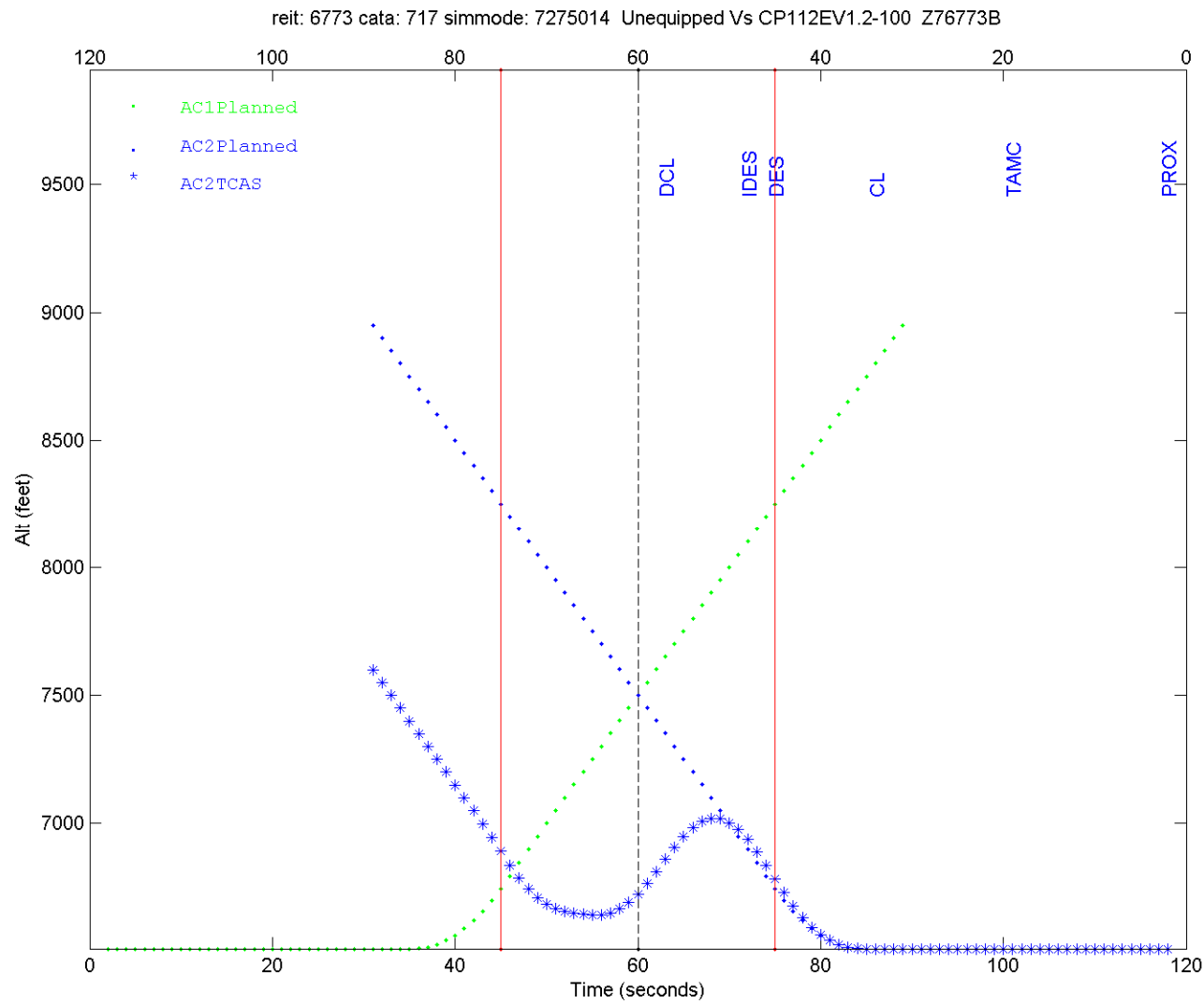
2 TCAS AC*REV*7275014 TA :19 |TAUR| CL @34 [NX]| DES @45 | IDES @48 | DCL @57

-----
6773 UNEQUIPPED VS V7.1 25 FT 17 -775.48 NON_CROSSING_ENC

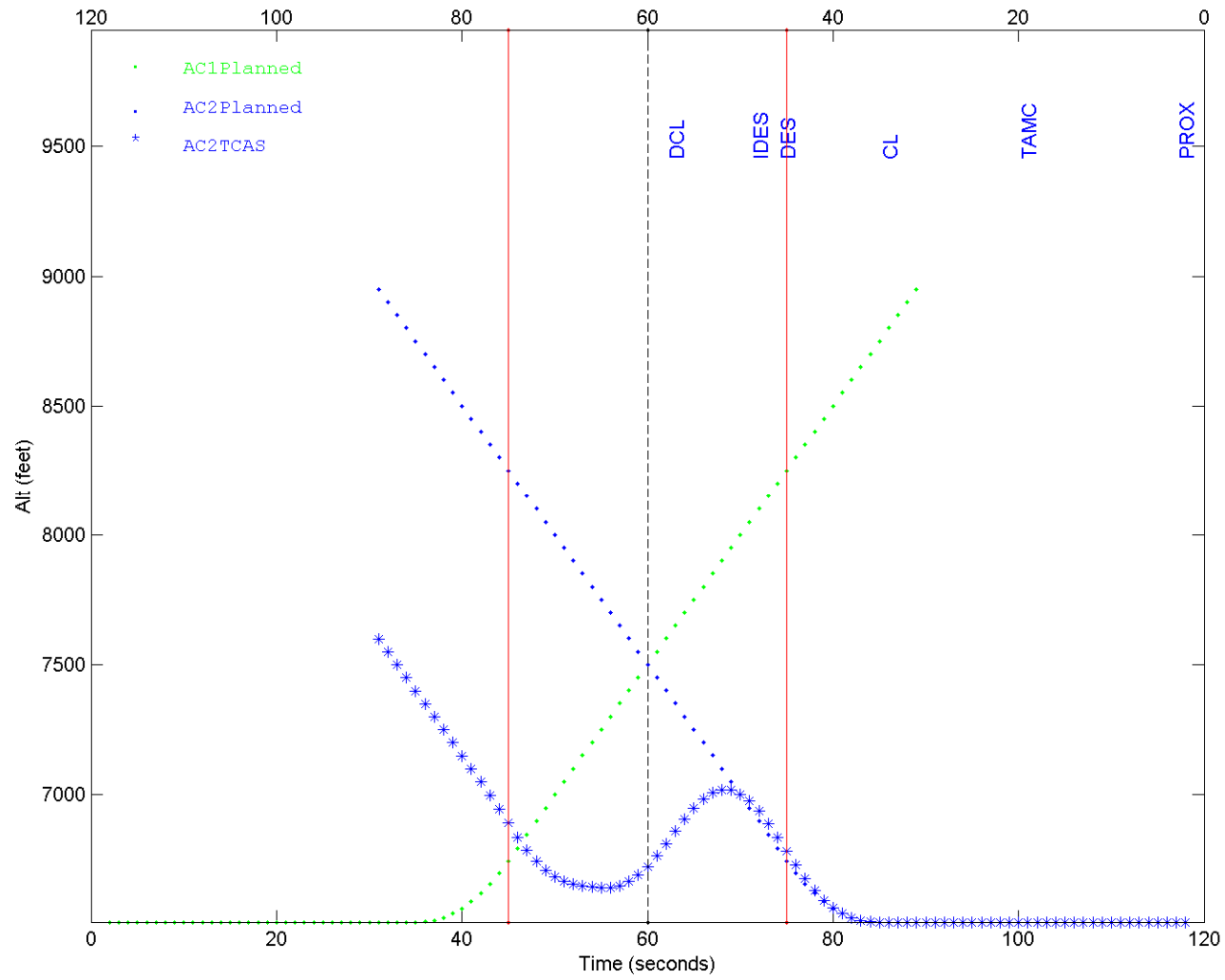
2 TCAS AC*REV*7275014 TA :19 |TAUR| CL @34 [NX]| DES @45 | IDES @48 | DCL @57

```





reit: 6773 cata: 717 simmode: 7275014 Unequipped Vs Version7.1-100 Z76773C



Change 7.1 TCAS vs Unequipped Representative Save 18

Encounter Class: 17

Reit Number : 570

Encounter Characterization

Number of encounters in group	15	
AC1 TCAS equipped	1	
Vertical tracker	25, 100	ft
Planned separation	250, -500	ft
AC1 rates:	3000, 5000	fpm
AC2 rates:	1000, 5000	fpm
AC1 acceleration:	0.15	g
AC2 acceleration:	0.15	g
AC1 acceleration time:	CPA – 25	sec
AC2 acceleration time:	CPA – 25	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

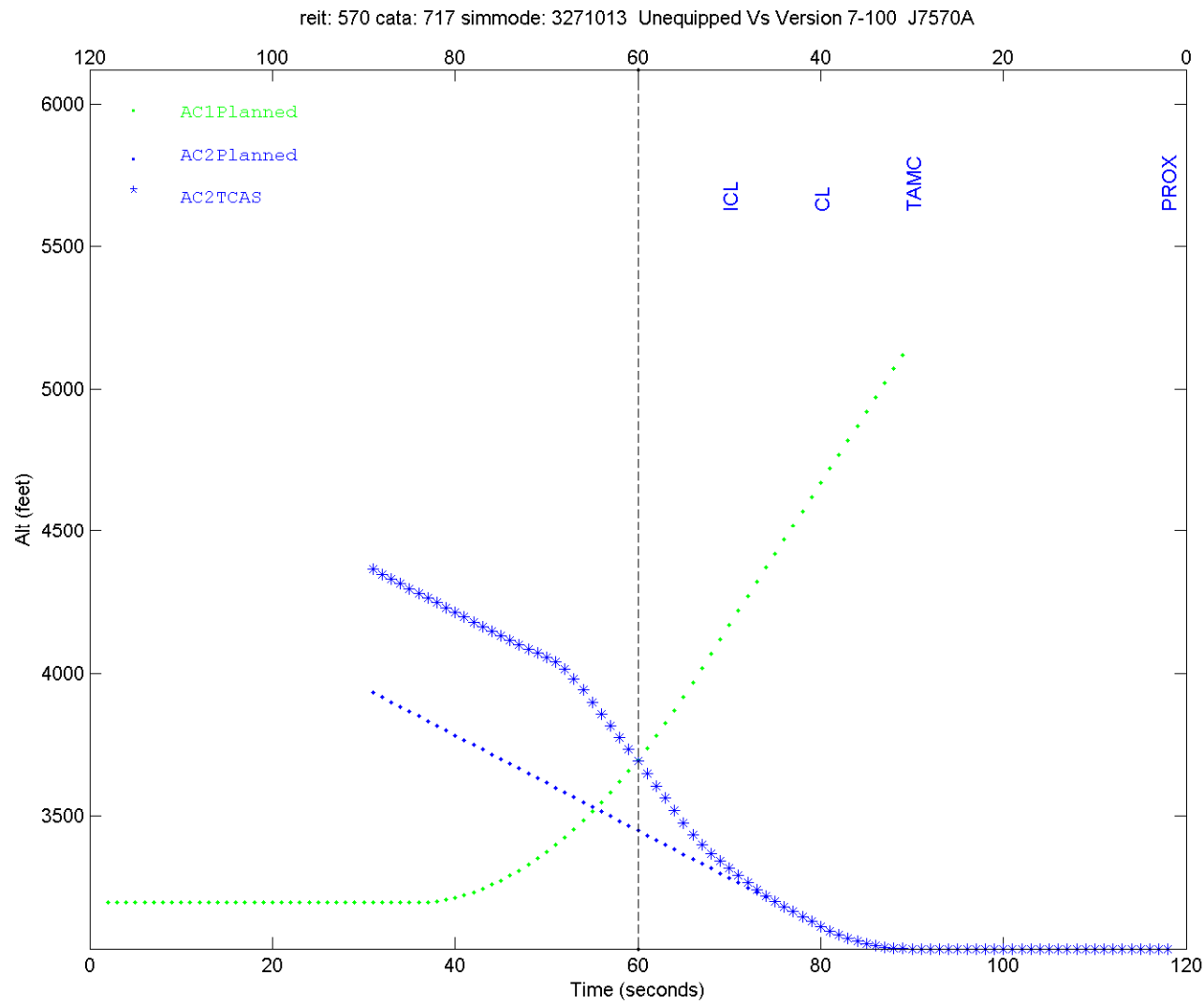
Climbing vertical chase caused by planned maneuvers.
Addition of CP112E allowed sense reversal to solve NMAC.

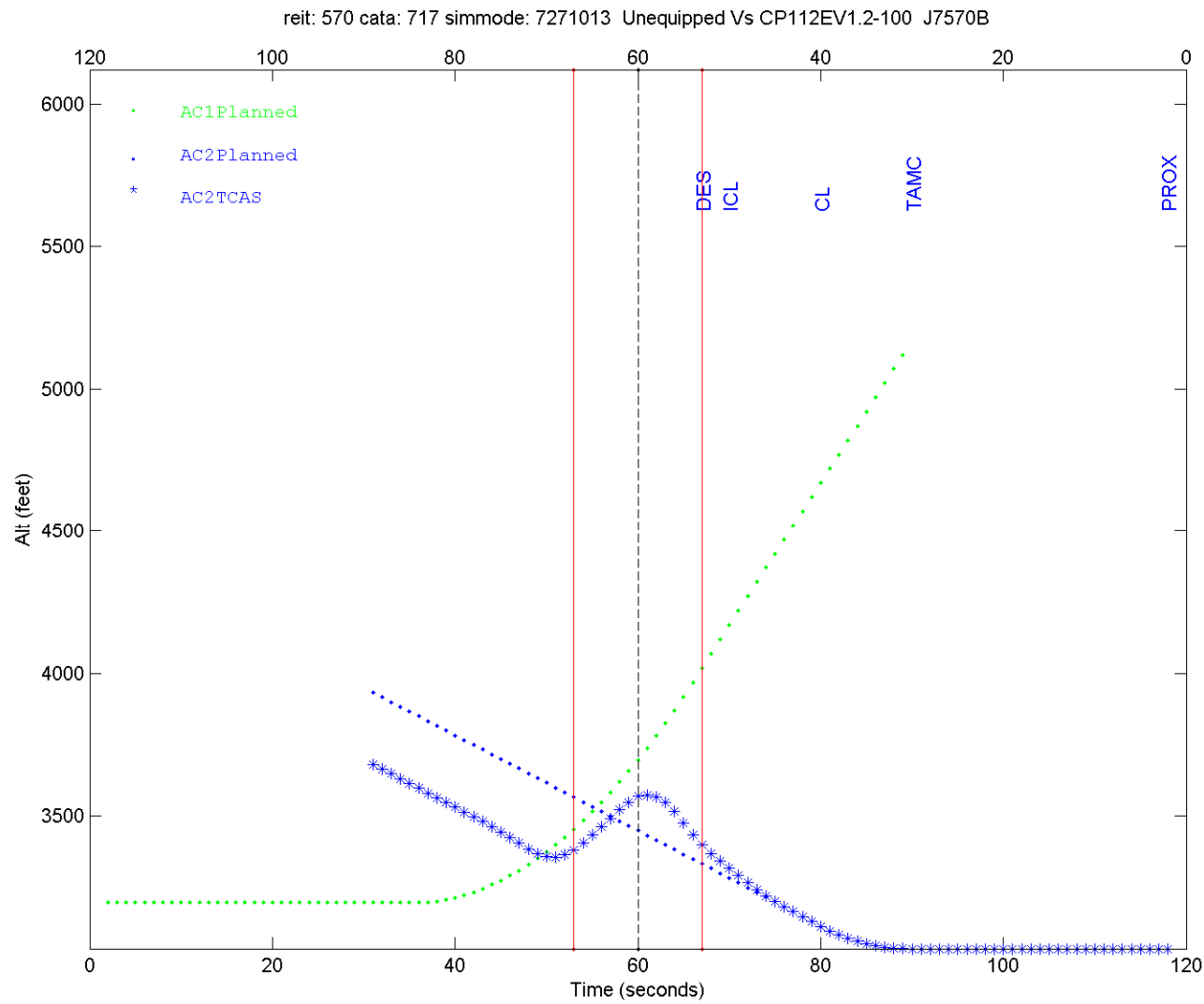
SIMULATION RESULTS FOR V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER J7570
 LOGIC THRESHOLDS SL = 4 ZTHR = 600 TAUR = 20 TAUV = 20 ALIM = 300
 PLANNED ENCOUNTER. SEP = 250.0 AC1 RATES(0.0,3000.0) AC2 RATES(0.0,1000.0)
 AC1 ACCEL 0.05g @ CPA -25 AC2 ACCEL 0.05g @ CPA -30 AC1 CPA ALT 3700

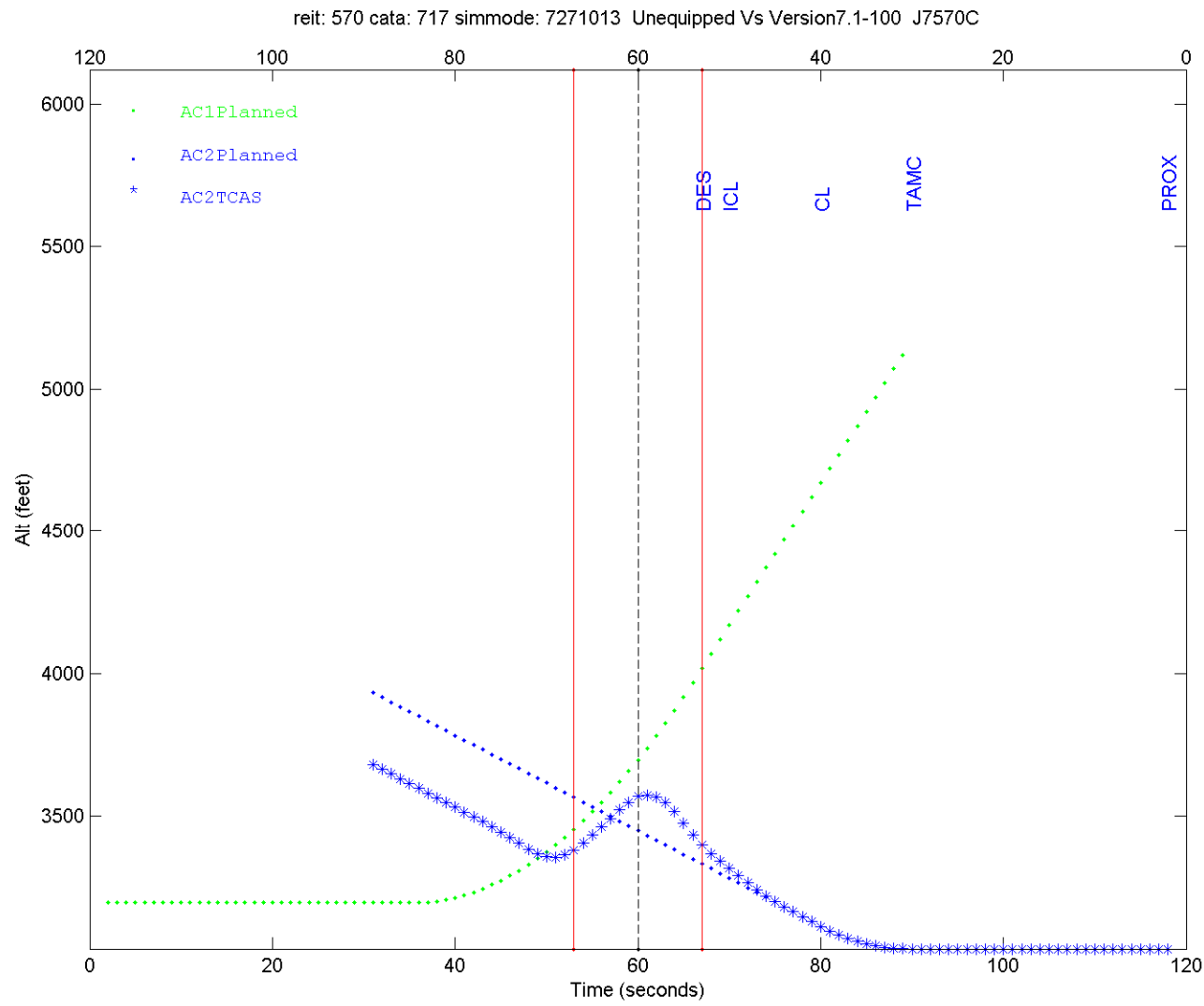
570 UNEQUIPPED VS V7 100 FT 17 -8.32 NON_CROSSING_ENC
 2 TCAS AC 3271013 TA :30 |TAUR| CL @40 [NX]| ICL @50

570 UNEQUIPPED VS CP112EV1.2 100 FT 17 -149.07 NON_CROSSING_ENC
 CPT_REV 1 OWN_FOLLOW TRUE TTOFOLLOW 6.01 REV_AVOID 02 TIME_REV_AVOID 0.0
 2 TCAS AC*REV*7271013 TA :30 |TAUR| CL @40 [NX]| ICL @50 | DES @53

570 UNEQUIPPED VS V7.1 100 FT 17 -149.07 NON_CROSSING_ENC
 2 TCAS AC*REV*7271013 TA :30 |TAUR| CL @40 [NX]| ICL @50 | DES @53







Change 7.1 TCAS vs Unequipped Representative Save 19

Encounter Class: 18

Reit Number :5189

Encounter Characterization

Number of encounters in group	9	
AC1 TCAS equipped	yes	
Vertical tracker	25, 100	ft
Planned separation	500, 750	ft
AC1 rates:	-1000, -3000,-5000	fpm
AC2 rates:	-3000, -5000	fpm
AC1 acceleration:	0.05	g
AC2 acceleration:	-0.15	g
AC1 acceleration time:	CPA – 25	sec
AC2 acceleration time:	CPA – 30	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP112E

Comments

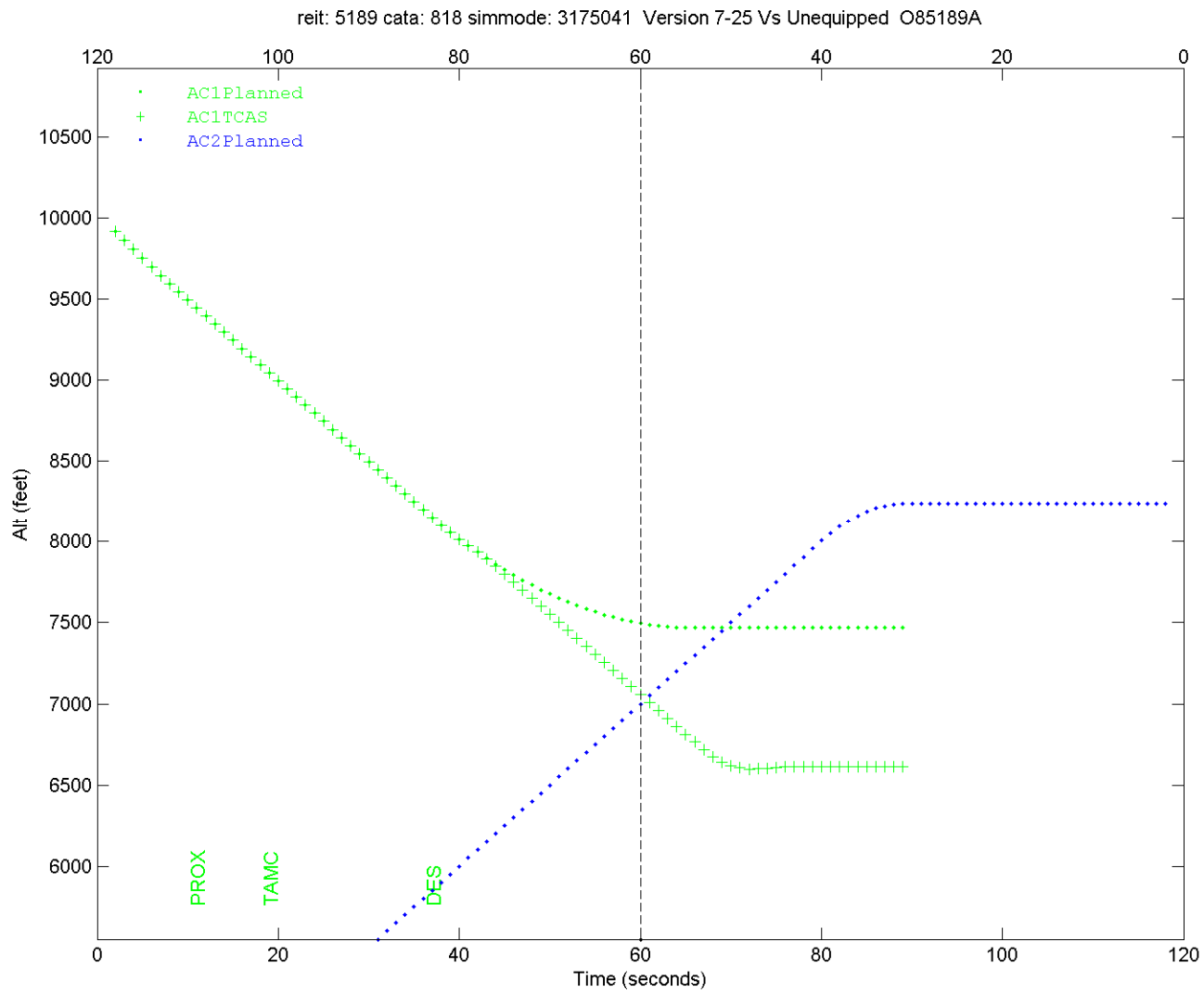
Descending vertical chase caused by response to initial RA.
Addition of CP112E allowed sense reversal to solve NMAC.

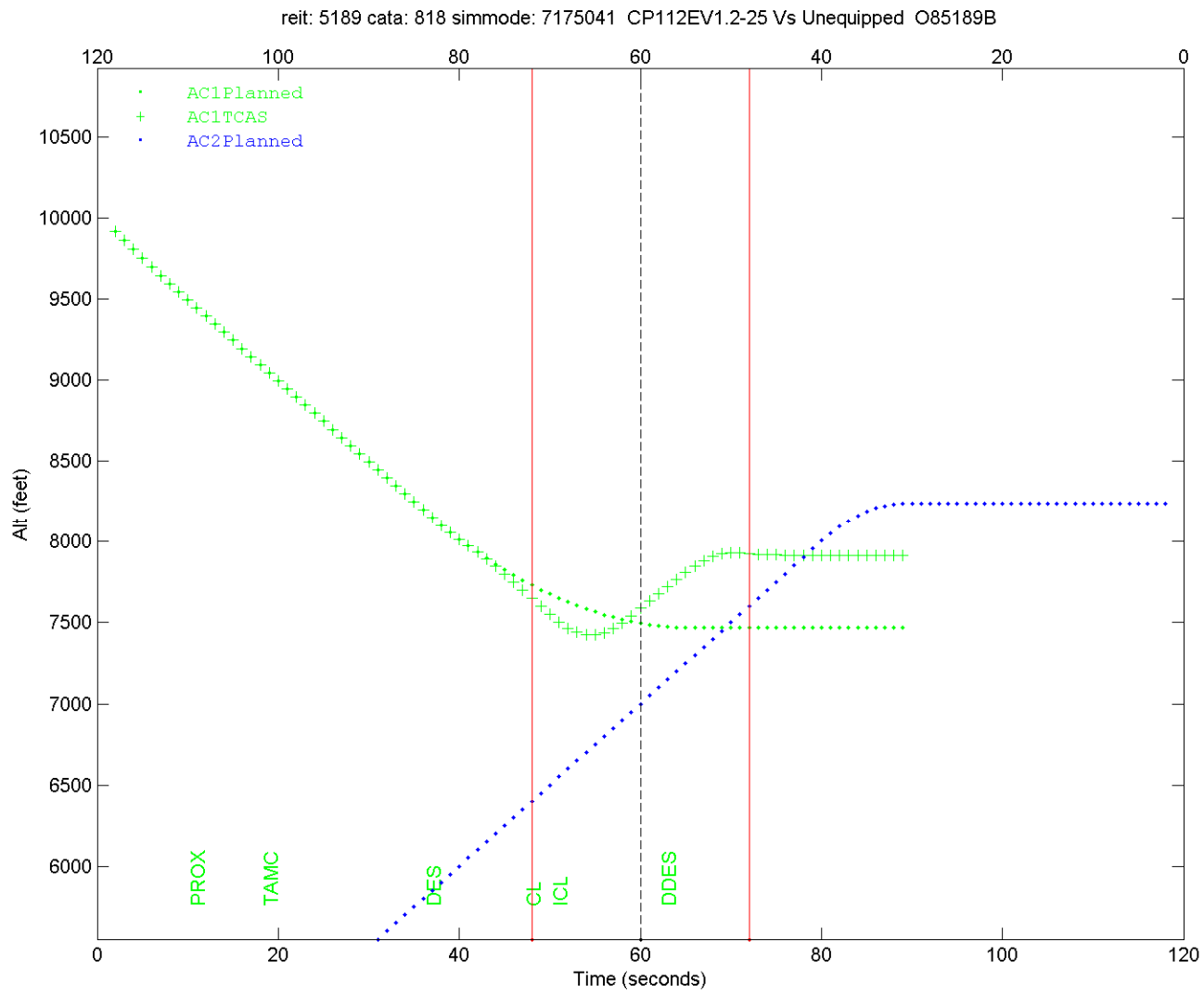
SIMULATION RESULTS FOR V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER 085189
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = 500.0 AC1 RATES(-3000.0,0.0) AC2 RATES(0.0,-3000.0)
 AC1 ACCEL 0.05g @ CPA -25 AC2 ACCEL -0.15g @ CPA -30 AC1 CPA ALT 7500

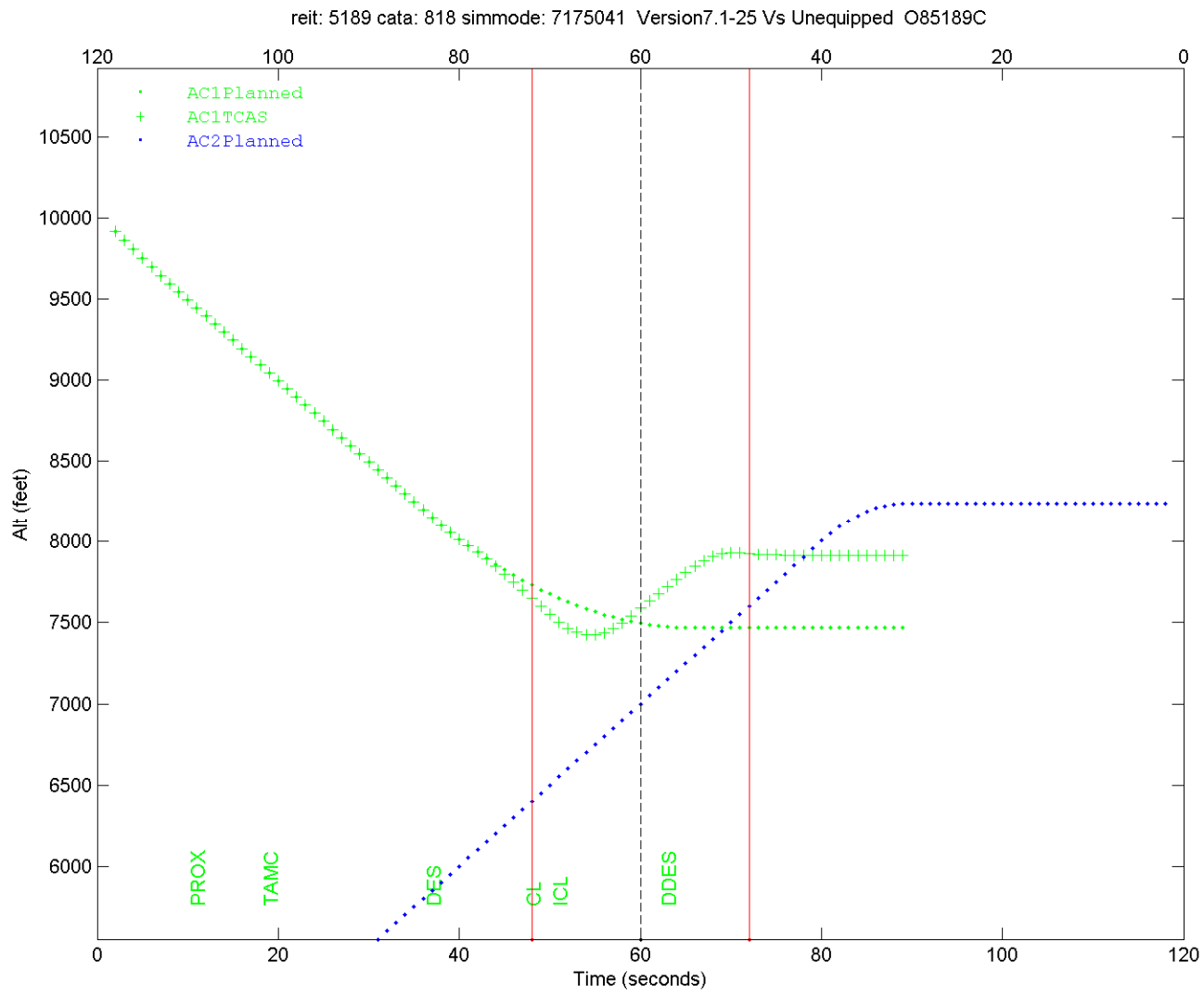
5189 V7 25 FT VS UNEQUIPPED 18 58.57 NON_CROSSING_ENC
 1 TCAS AC 3175041 TA :19 |PVMD| DES @37 [NX]

5189 CP112EV1.2 25 FT VS UNEQUIPPED 18 600.53 NON_CROSSING_ENC
 CPT_REV 1 OWN_FOLLOW TRUE TTOFOLLOW 5.92 REV_AVOID 02 TIME_REV_AVOID 0.0
 1 TCAS AC*REV*7175041 TA :19 |PVMD| DES @37 [NX]| CL @48 | ICL @51 | DDES @63

5189 V7.1 25 FT VS UNEQUIPPED 18 600.53 NON_CROSSING_ENC
 1 TCAS AC*REV*7175041 TA :19 |PVMD| DES @37 [NX]| CL @48 | ICL @51 | DDES @63







Change 7.1 TCAS vs Unequipped Representative Save 20

Encounter Class: 18

Reit Number : 6455

Encounter Characterization

Number of encounters in group	1	
AC1 TCAS equipped	no	
Vertical tracker	100	ft
Planned separation	750	ft
AC1 rates:	-5000	fpm
AC2 rates:	-3000	fpm
AC1 acceleration:	0.15	g
AC2 acceleration:	-0.35	g
AC1 acceleration time:	CPA – 25	sec
AC2 acceleration time:	CPA – 25	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Save Mechanism

Logic change solving NMAC

CP115

Comments

Brief descending vertical chase caused by planned maneuver of intruder.
Addition of CP115 delayed first positive RA allowing a more appropriate advisory.

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SIMULATION RESULTS FOR V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER J86455
LOGIC THRESHOLDS SL = 5  ZTHR = 600  TAUR = 25  TAUV = 25  ALIM = 350
PLANNED ENCOUNTER. SEP = 750.0 AC1 RATES(-5000.0,0.0) AC2 RATES(0.0,-3000.0)
      AC1 ACCEL 0.15g @ CPA -25 AC2 ACCEL -0.35g @ CPA -25 AC1 CPA ALT 7500
-----
6455  UNEQUIPPED VS V7 100 FT 18 33.19 CROSSING_ENC

2 TCAS AC 3271013 TA :19 |PVMD| LD2 @41[NX]| LD1 @42| DDES @44| CL @45| ICL @51
-----
6455  UNEQUIPPED VS CP112EV1.2 100 FT 18 33.19 CROSSING_ENC

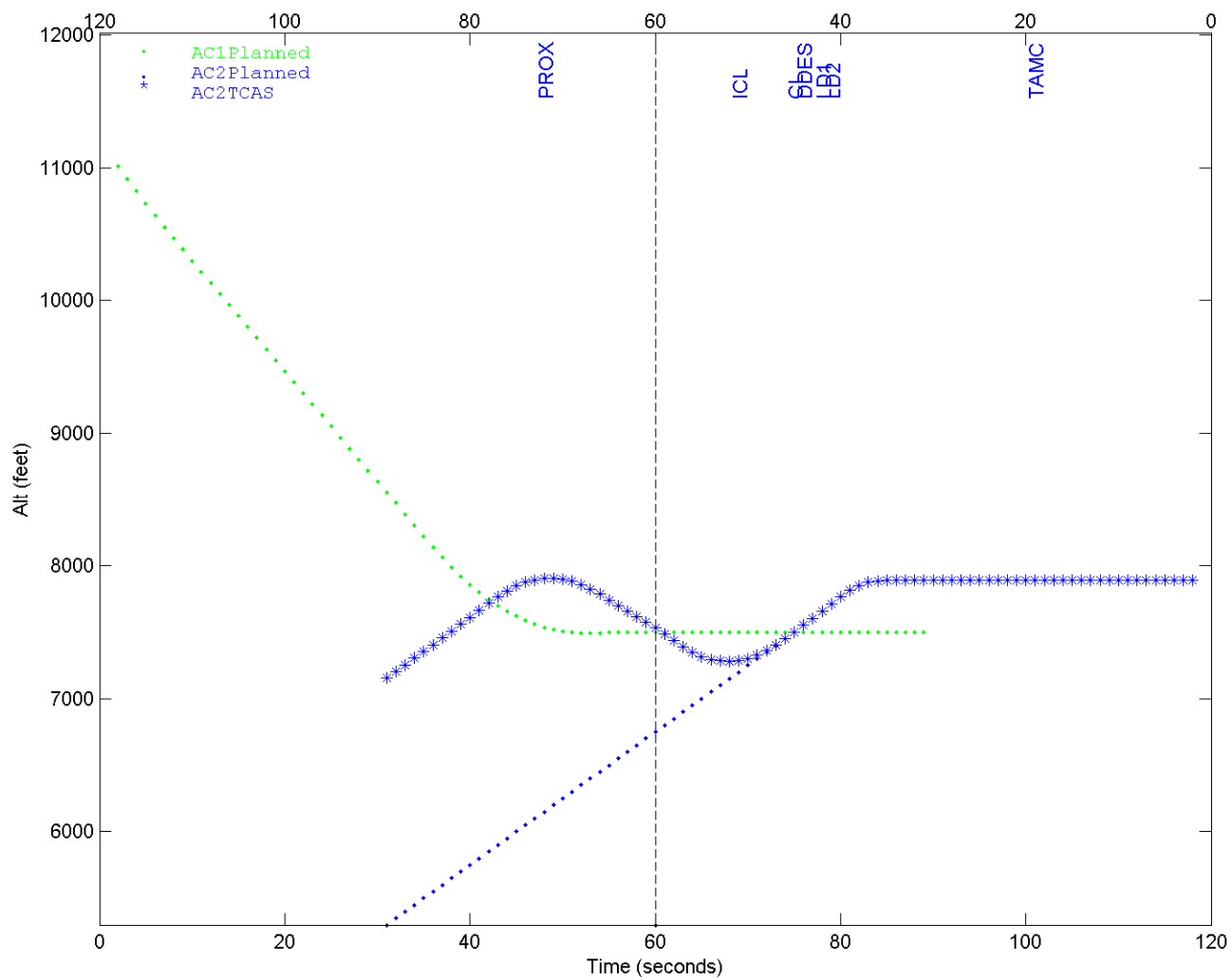
CPT_REV 0 OWN_FOLLOW TRUE TTOFOLLOW 14.54 REV_AVOID 02 TIME_REV_AVOID 0.0

2 TCAS AC 7271013 TA :19 |PVMD| LD2 @41[NX]| LD1 @42| DDES @44| CL @45| ICL @51
-----
6455  UNEQUIPPED VS V7.1 100 FT 18 -733.55 NON_CROSSING_ENC

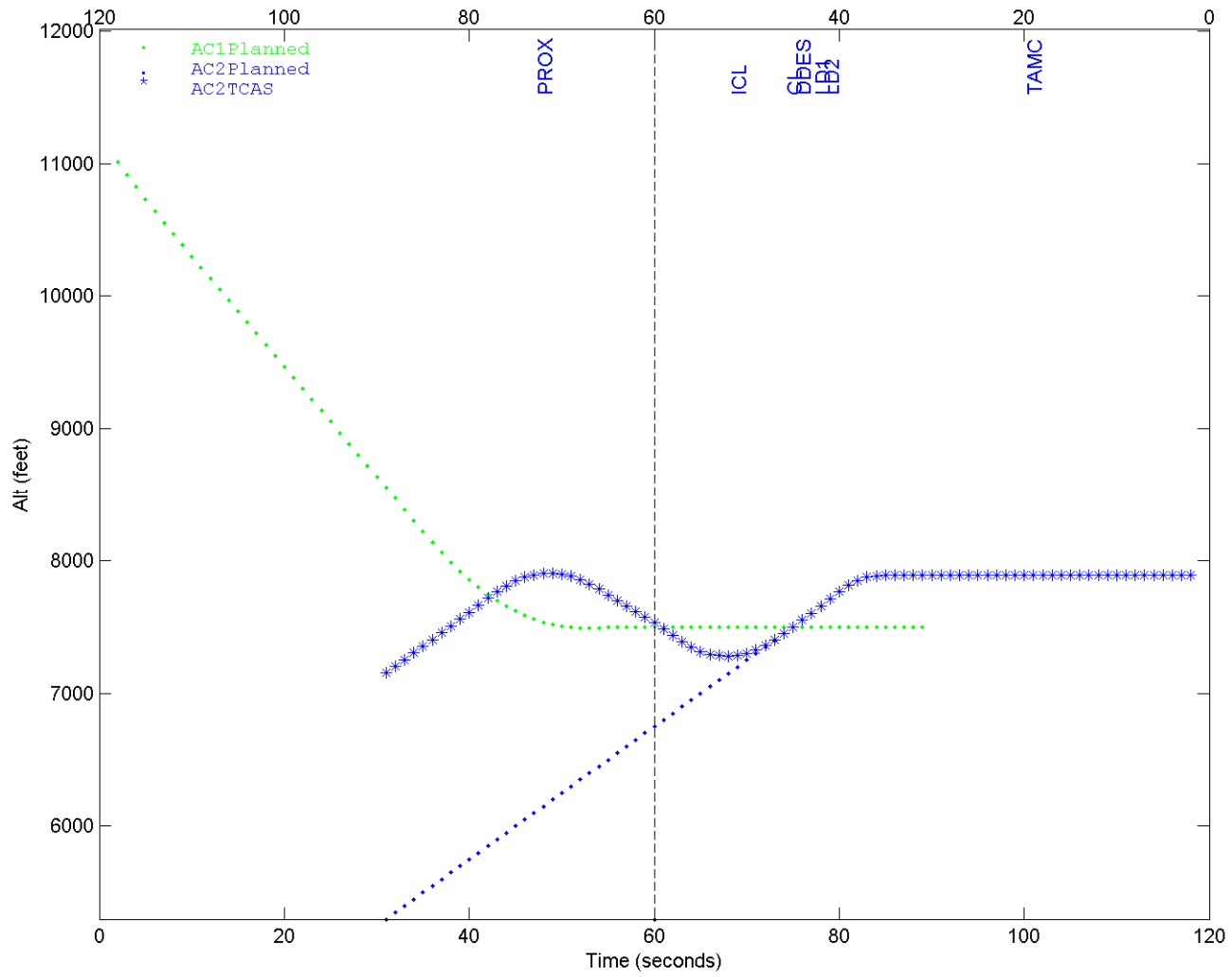
2 TCAS AC*REV*7271013 TA :19 |PVMD| DDES @41 [NX]| DES @46 | DCL @56

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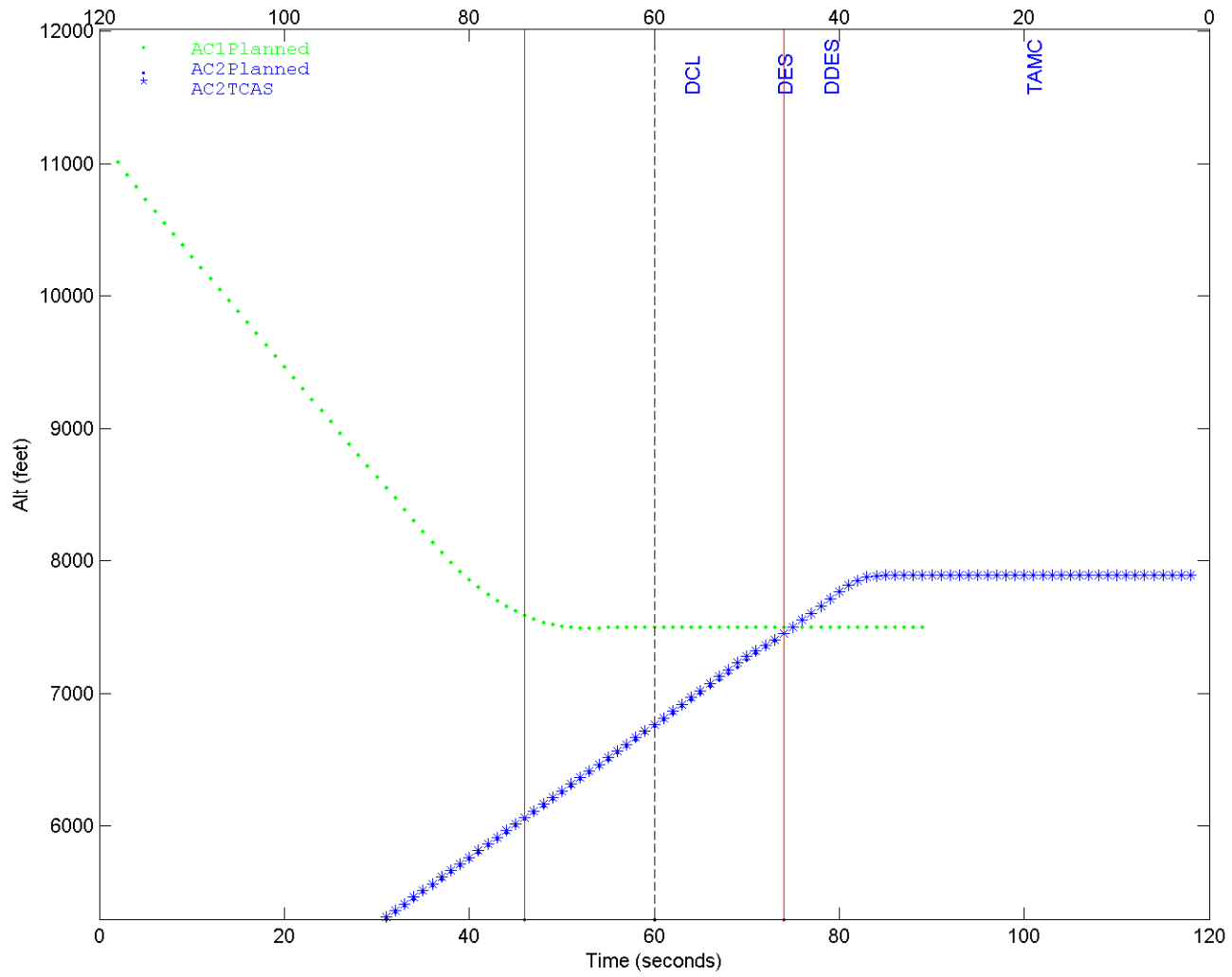
reit: 6455 cata: 818 simmode: 3271013 Unequipped Vs Version 7-100 J86455A



reit: 6455 cata: 818 simmode: 7271013 Unequipped Vs CP112EV1.2-100 J86455B



reit: 6455 cata: 818 simmode: 7271013 Unequipped Vs Version7.1-100 J86455C



Appendix Q V7.1 REPRESENTATIVE NMACs (TCAS vs. unequipped intruder)

Change 7.1 TCAS vs Unequipped Representative NMAC 01

Encounter Class : 5

Reit Number : 189

NMAC Characterization

Number of encounters in group	5	
AC1 TCAS equipped	yes	
Vertical tracker	100	
Planned separation	0, -250, -500, -750	ft
AC1 rates :	-1000, -3000, -5000	fpm
AC2 rates :	3000, 5000	fpm
AC1 acceleration :	none	
AC2 acceleration :	0.25	g
AC2 acceleration time :	CPA – 20	sec
Encounters with reversed RAs	0	%
Vertical chase	no	

Comments

NMAC caused by CP115.

SIMULATION RESULTS FOR V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER I5189
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = -750.0 AC1 RATES(-5000.0,-5000.0) AC2 RATES(0.0,5000.0)
 AC1 ACCEL 0.00g @ CPA 0 AC2 ACCEL 0.25g @ CPA -20 AC1 CPA ALT 3680

 189 V7 100 FT VS UNEQUIPPED 5 112.50 CROSSING_ENC

1 TCAS AC 3171031 TA :26 |TAUV| LD2 @41 [NX]| LD5 @4 | CL @49 | ICL @51

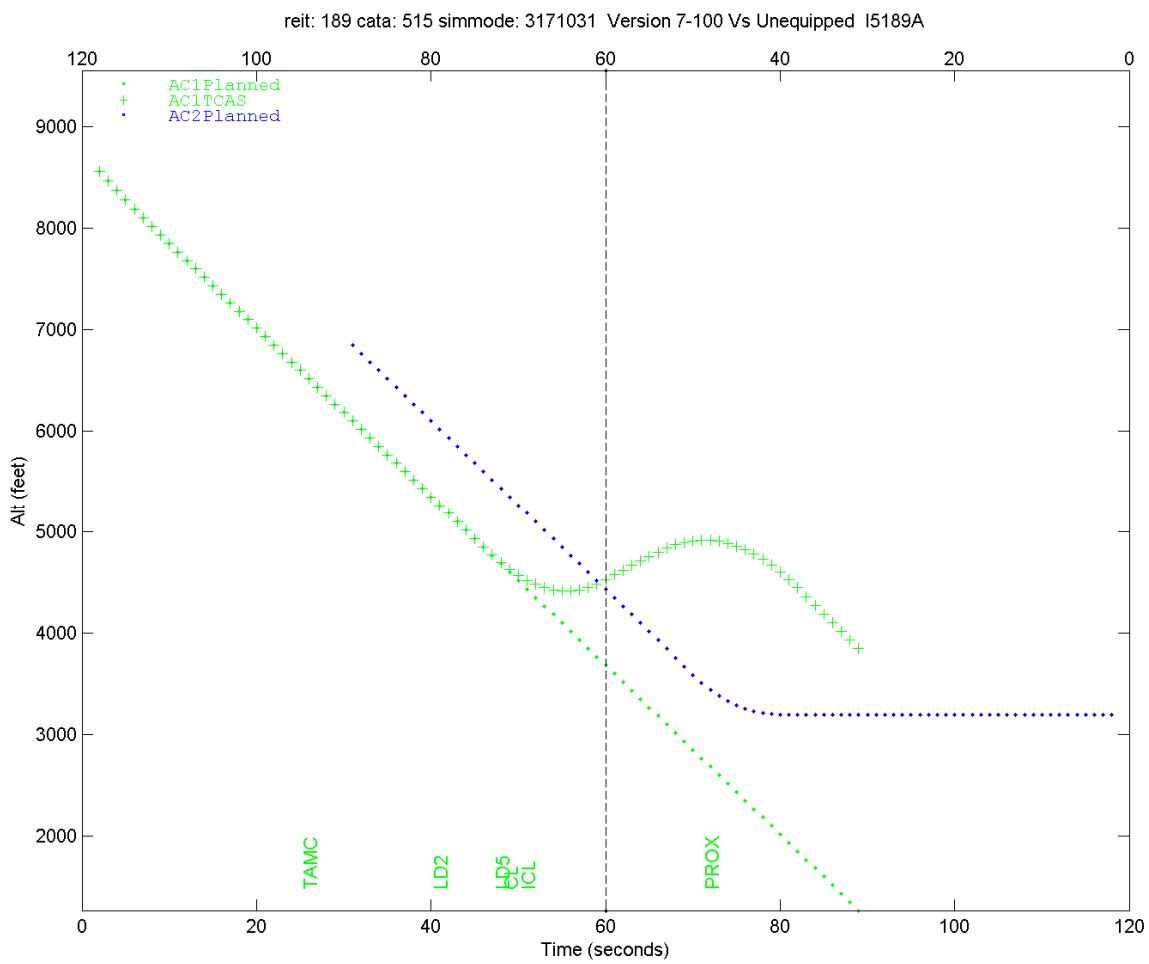
 189 CP112EV1.2 100 FT VS UNEQUIPPED 5 112.50 CROSSING_ENC

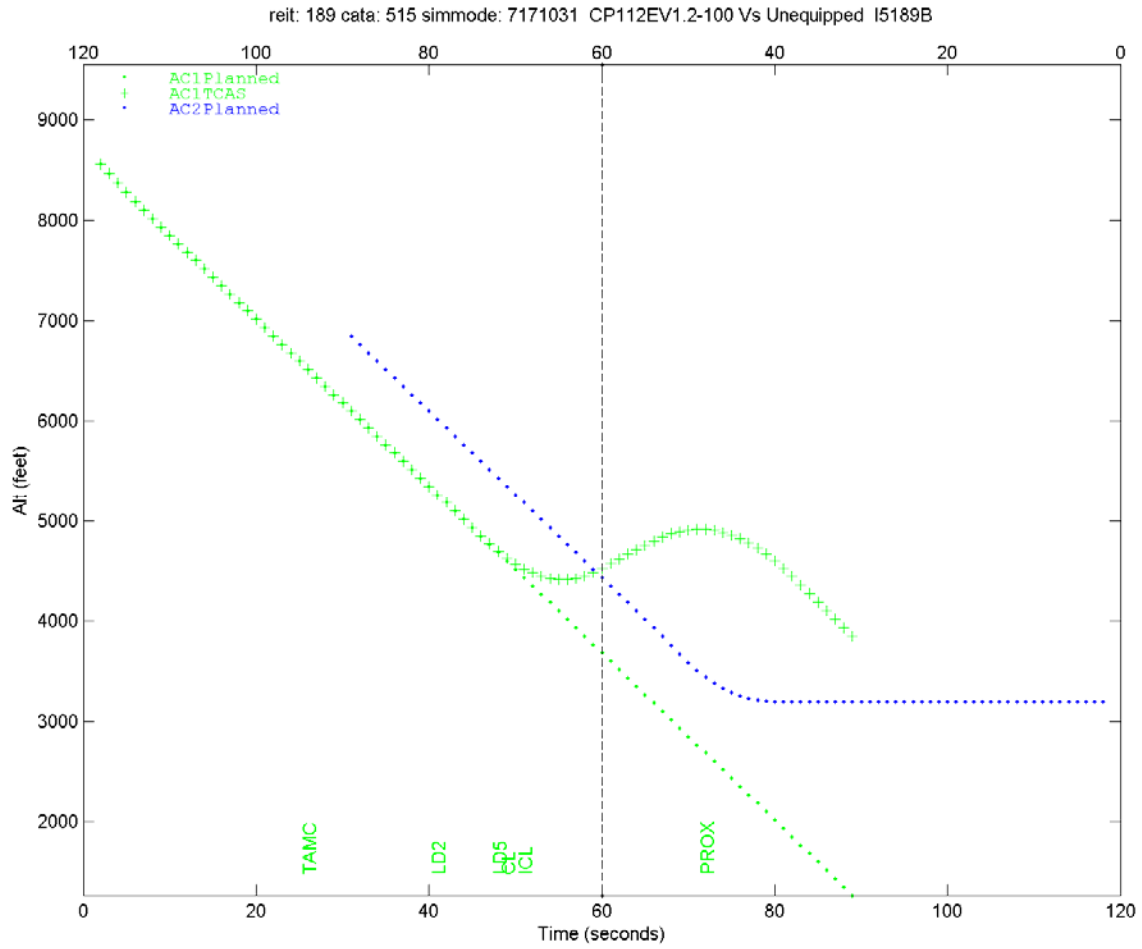
CPT_REV 0 OWN_FOLLOW TRUE TTOFOLLOW 15.42 REV_AVOID 02 TIME_REV_AVOID 0.0

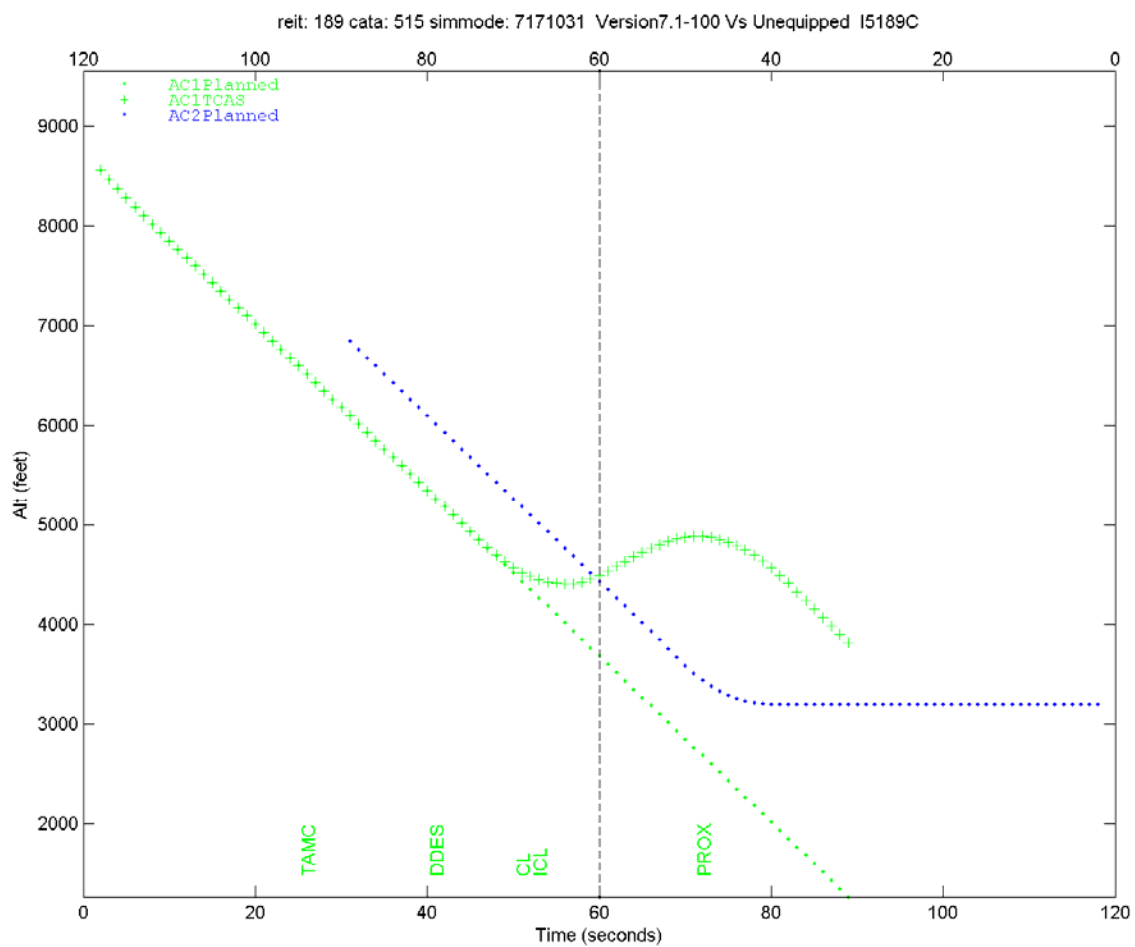
1 TCAS AC 7171031 TA :26 |TAUV| LD2 @41 [NX]| LD5 @48 | CL @49 | ICL @51

 189 V7.1 100 FT VS UNEQUIPPED 5 77.84 CROSSING_ENC

1 TCAS AC 7171031 TA :26 |TAUV| DDES @41 [NX]| CL @51 | ICL @53







Change 7.1 TCAS vs Unequipped Representative NMAC 02

Encounter Class : 7

Reit Number : 1363

NMAC Characterization

Number of encounters in group	1	
AC1 TCAS equipped	yes	
Vertical tracker	100	
Planned separation	-250	ft
AC1 rates :	5000	fpm
AC2 rates :	3000	fpm
AC1 acceleration :	0.05	g
AC2 acceleration :	0.25	g
AC1 acceleration time :	CPA – 25	sec
AC2 acceleration time :	CPA – 20	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Comments

Climbing vertical chase caused by planned maneuvers, made worse by response to initial RA.
NMAC caused by CP112E.

SIMULATION RESULTS FOR V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER I71363
 LOGIC THRESHOLDS SL = 4 ZTHR = 600 TAUR = 20 TAUV = 20 ALIM = 300
 PLANNED ENCOUNTER. SEP = -250.0 AC1 RATES(0.0,5000.0) AC2 RATES(0.0,3000.0)
 AC1 ACCEL 0.05g @ CPA -25 AC2 ACCEL 0.25g @ CPA -20 AC1 CPA ALT 3700

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-----
1363    V7 100 FT VS UNEQUIPPED      7      296.62      NON_CROSSING_ENC

1 TCAS AC      3171031 TA :30 |TAUR| CL   @40  [NX]| ICL   @49

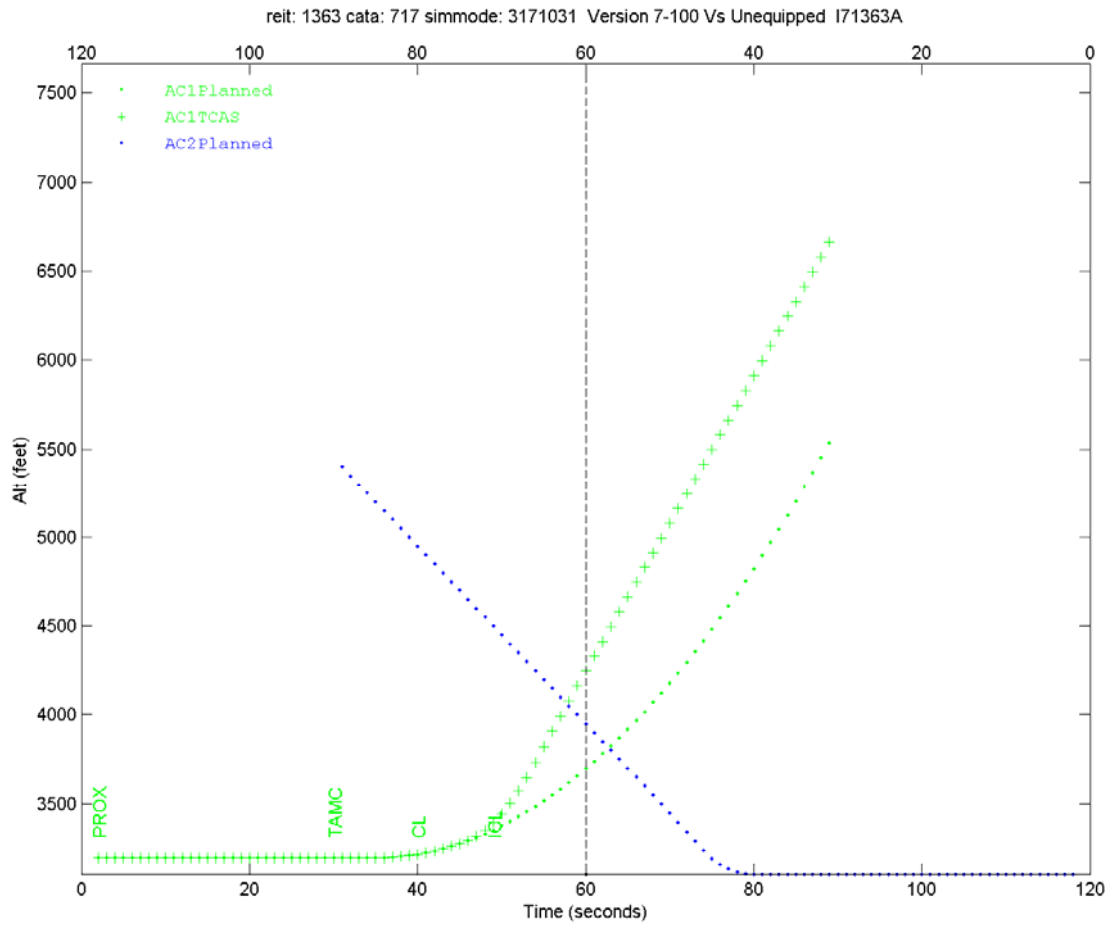
-----
1363    CP112EV1.2 100 FT VS UNEQUIPPED      7      0.95      CROSSING_ENC

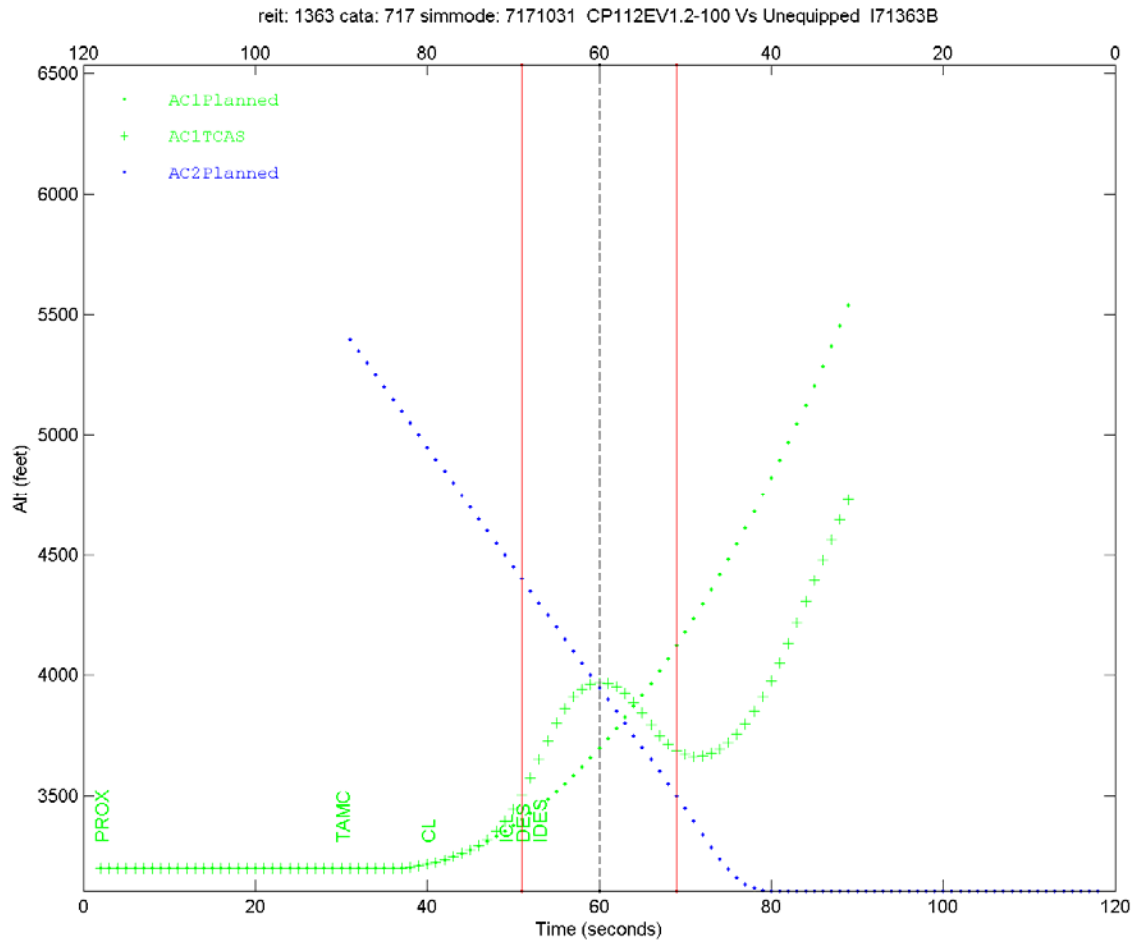
CPT_REV    1 OWN_FOLLOW TRUE TTOFOLLOW  6.48 REV_AVOID  02 TIME_REV_AVOID 0.0

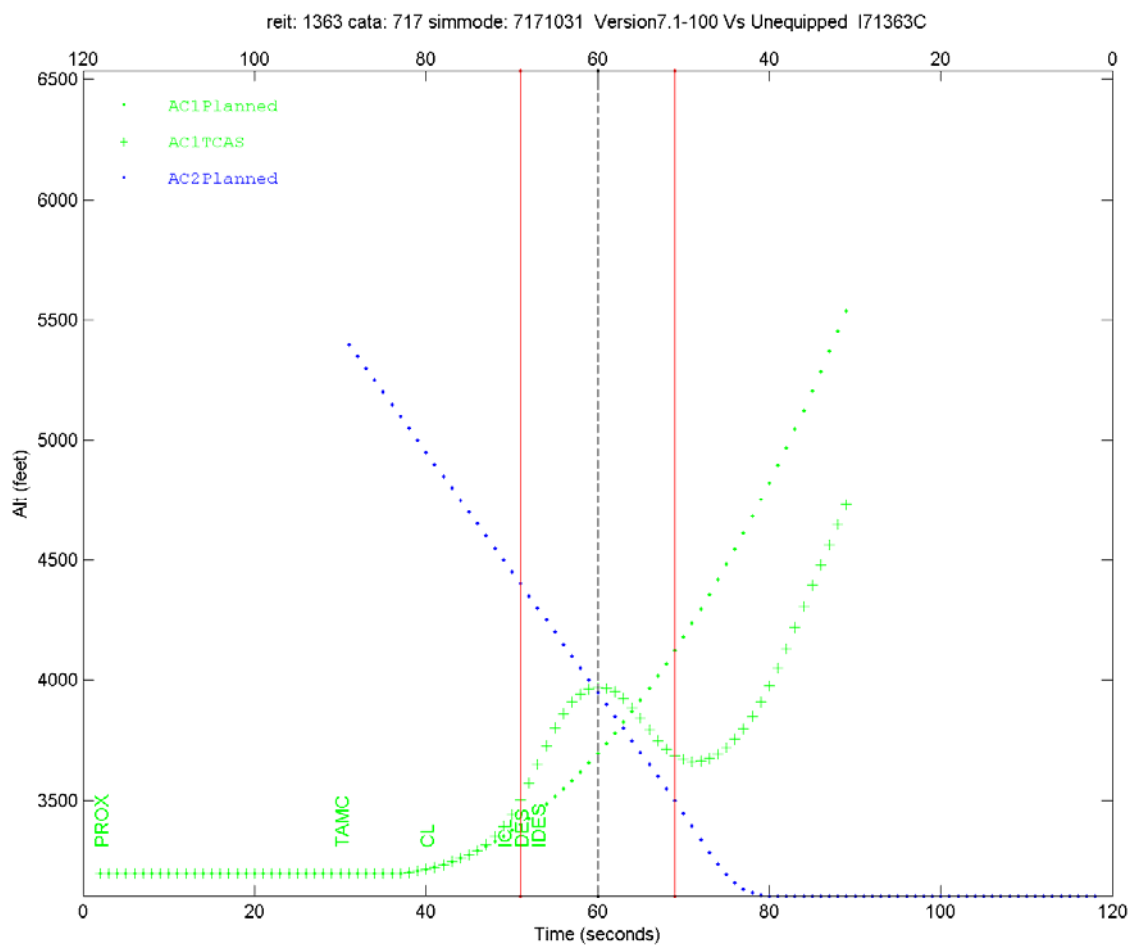
1 TCAS AC*REV*7171031 TA :30 |TAUR| CL   @40  [NX]| ICL @49 | DES @51 | IDES @53

-----
1363    V7.1 100 FT VS UNEQUIPPED      7      0.95      CROSSING_ENC

1 TCAS AC*REV*7171031 TA :30 |TAUR| CL @40 [NX]| ICL   @49 | DES @51 | IDES @53
```







Change 7.1 TCAS vs Unequipped Representative NMAC 03

Encounter Class : 7

Reit Number : 1422

NMAC Characterization

Number of encounters in group	4	
AC1 TCAS equipped	yes	
Vertical tracker	100	
Planned separation	750	ft
AC1 rates :	3000, 5000	fpm
AC2 rates :	-3000	fpm
AC1 acceleration :	0.05	g
AC2 acceleration :	-0.35	g
AC1 acceleration time :	CPA – 25	sec
AC2 acceleration time :	CPA – 20	sec
Encounters with reversed RAs	0	%
Vertical chase	yes	

Comments

NMAC caused by CP115.
CP112E-only had reversal that resolved NMAC.

SIMULATION RESULTS FOR V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER I71422
 LOGIC THRESHOLDS SL = 4 ZTHR = 600 TAUR = 20 TAUUV = 20 ALIM = 300
 PLANNED ENCOUNTER. SEP = 750.0 AC1 RATES(0.0,5000.0) AC2 RATES(0.0,-3000.0)
 AC1 ACCEL 0.05g @ CPA -25 AC2 ACCEL -0.35g @ CPA -20 AC1 CPA ALT 3700

 1422 V7 100 FT VS UNEQUIPPED 7 123.90 CROSSING_ENC

1 TCAS AC*REV*3171031 TA :30 |TAUR| LC5 @40 [NX]| LC5 @43 | DCL @44 | DES @45
 | IDES @49 | CL @52

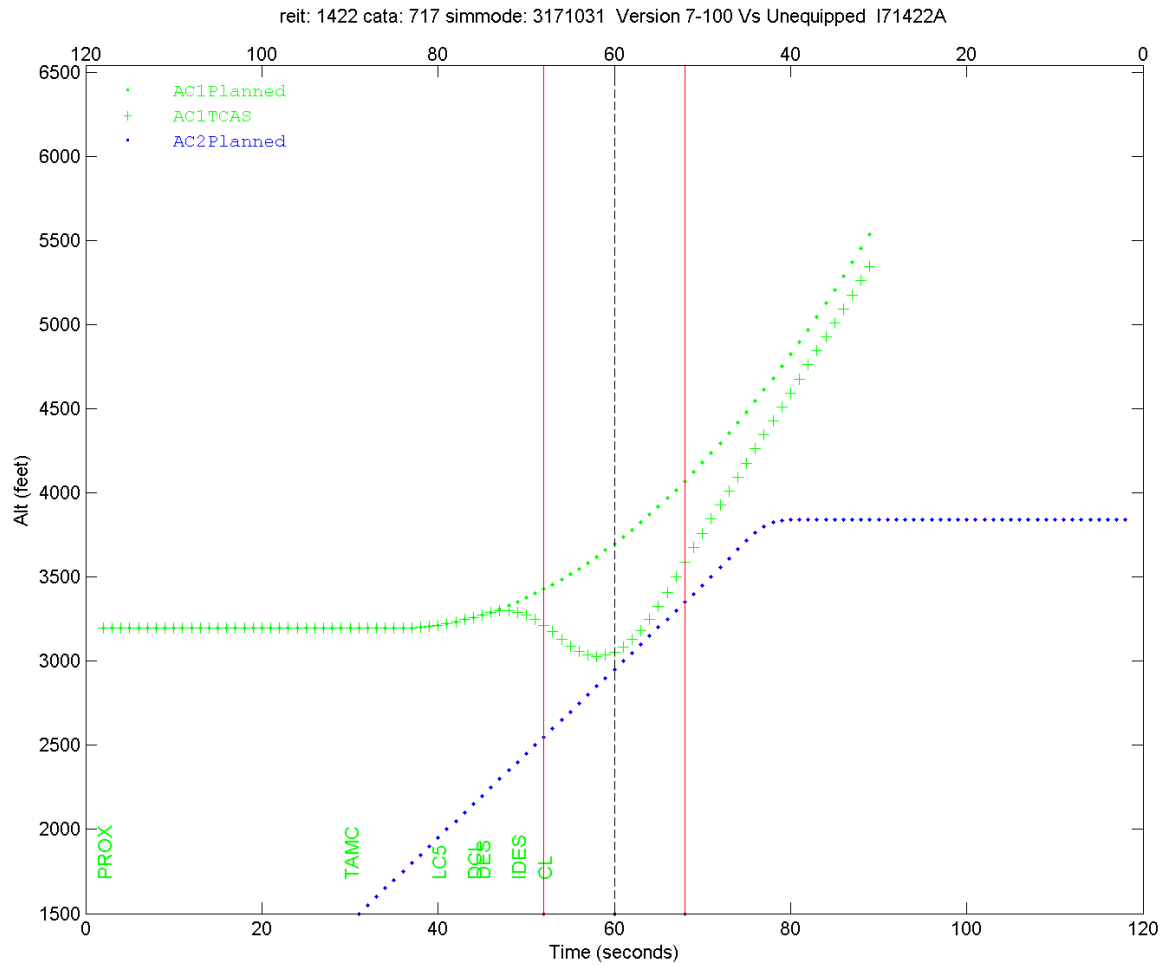
 1422 CP112EV1.2 100 FT VS UNEQUIPPED 7 123.90 CROSSING_ENC

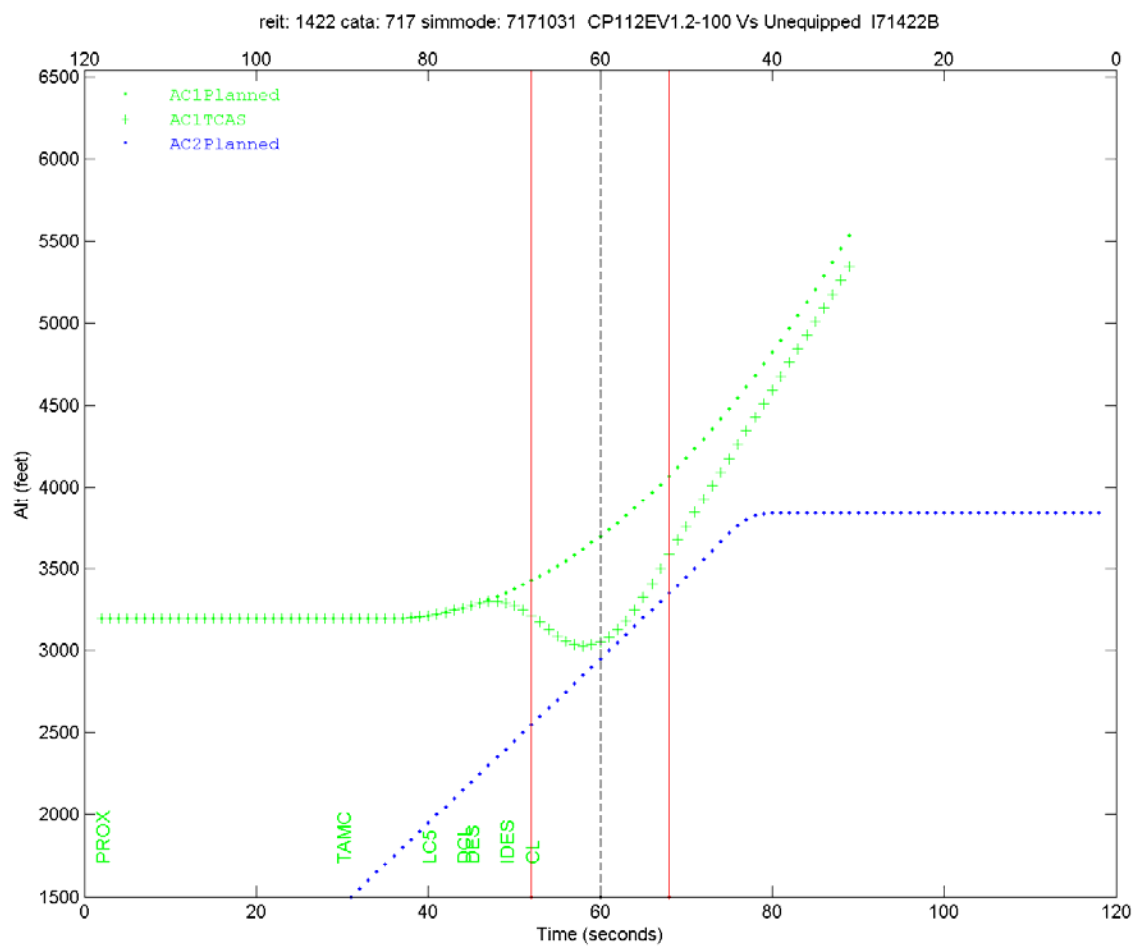
CPT_REV 0 OWN_FOLLOW TRUE TTOFOLLOW 6.64 REV_AVOID 02 TIME_REV_AVOID 0.0

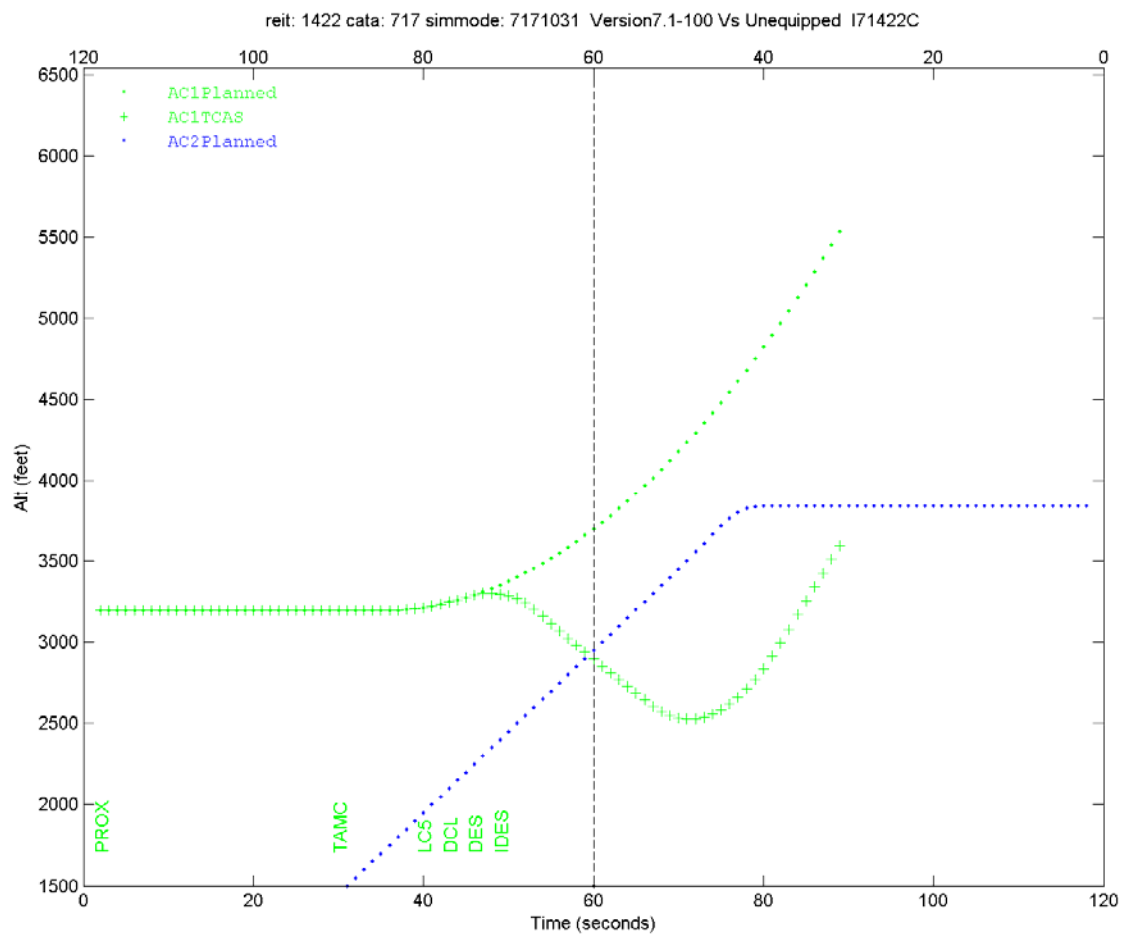
1 TCAS AC*REV*7171031 TA :30 |TAUR| LC5 @40 [NX]| LC5 @43 | DCL @44 | DES @45
 | IDES @49 | CL @52

 1422 V7.1 100 FT VS UNEQUIPPED 7 -53.72 CROSSING_ENC

1 TCAS AC 7171031 TA :30 |TAUR| LC5 @40 [NX]| DCL @43 | DES @46 | IDES @49







Change 7.1 TCAS vs Unequipped Representative NMAC 04

Encounter Class : 8

Reit Number : 2327

NMAC Characterization

Number of encounters in group	3	
AC1 TCAS equipped	yes	
Vertical tracker	25	
Planned separation	250	ft
AC1 rates :	-3000	fpm
AC2 rates :	-1000	fpm
AC1 acceleration :	0.15	g
AC2 acceleration :	-0.25	g
AC1 acceleration time :	CPA – 25	sec
AC2 acceleration time :	CPA – 20	sec
Encounters with reversed RAs	100	%
Vertical chase	yes	

Comments

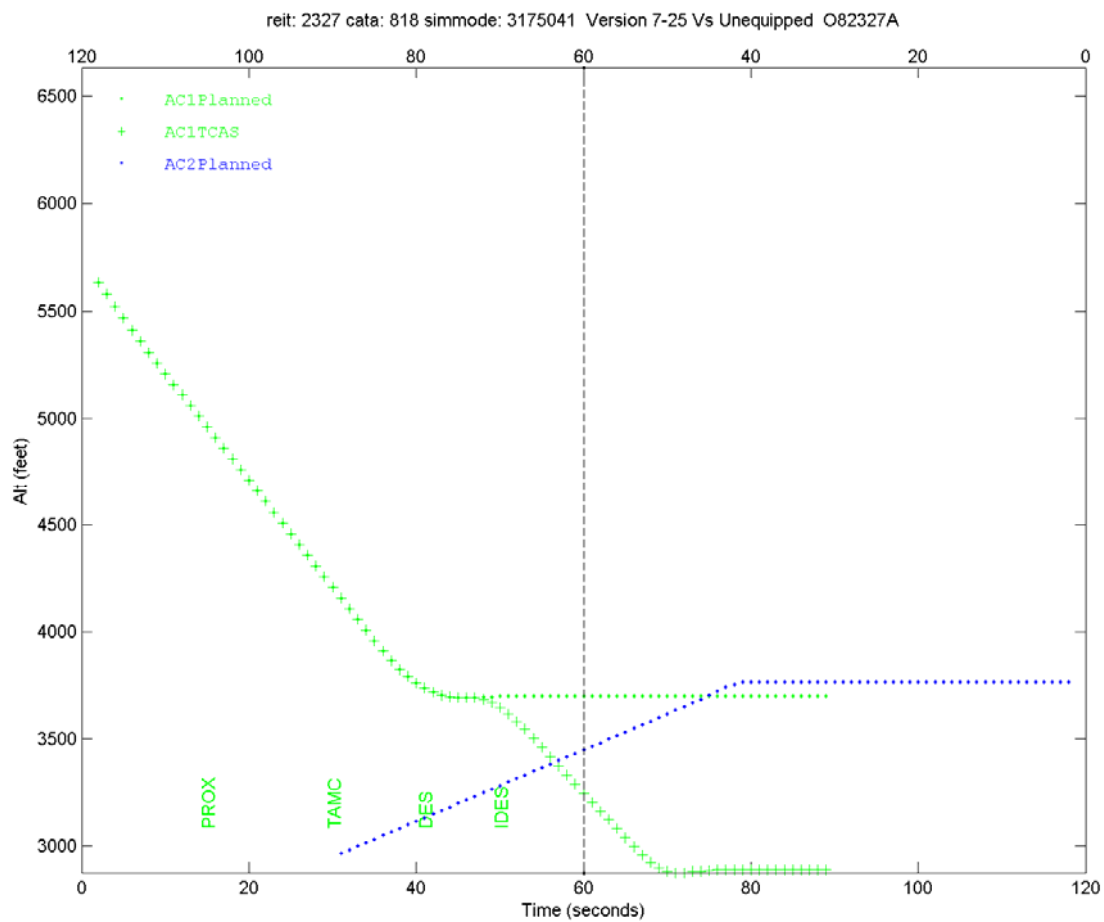
Descending vertical chase caused by response to initial RA.
NMAC caused by CP112E.

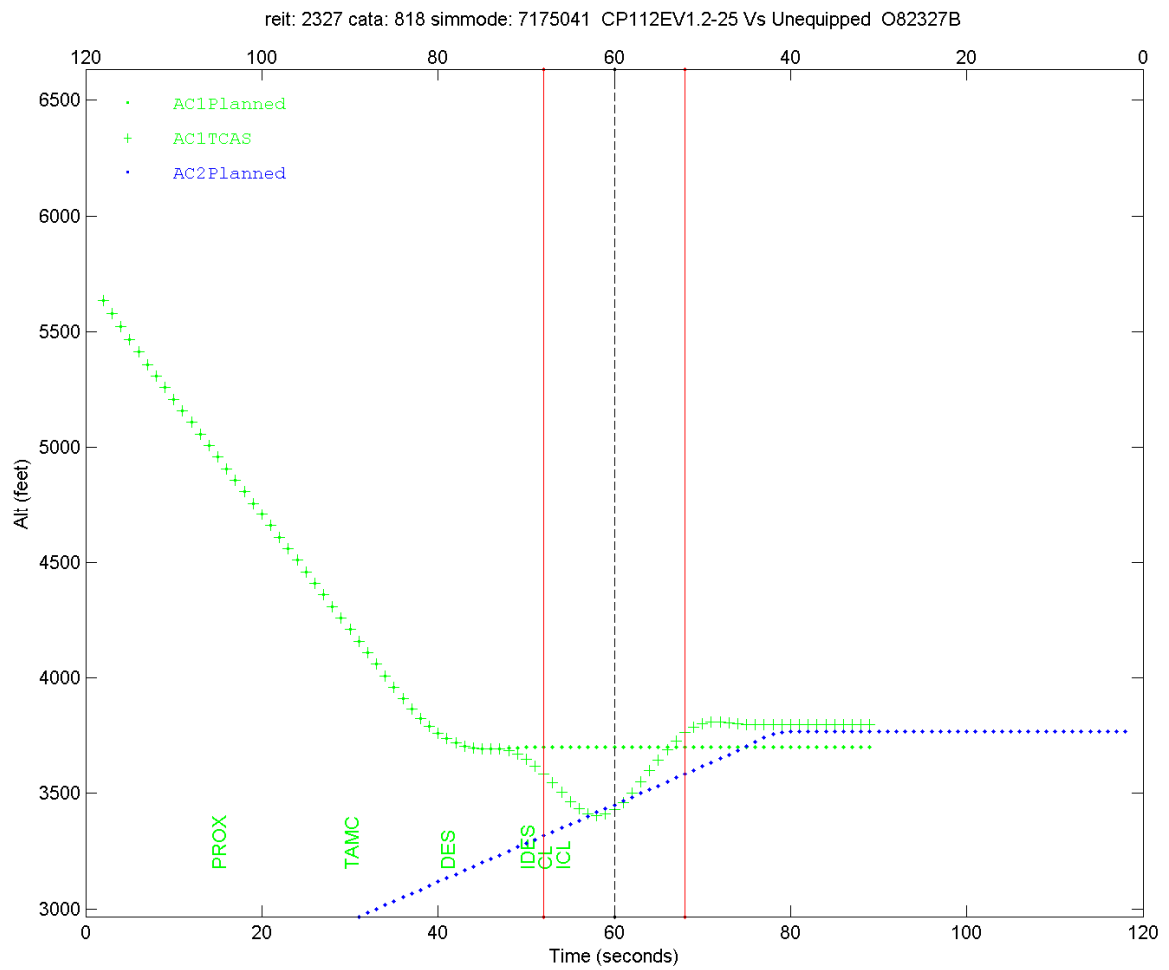
SIMULATION RESULTS FOR V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER 082327
 LOGIC THRESHOLDS SL = 4 ZTHR = 600 TAUR = 20 TAUV = 20 ALIM = 300
 PLANNED ENCOUNTER. SEP = 250.0 AC1 RATES(-3000.0,0.0) AC2 RATES(0.0,-1000.0)
 AC1 ACCEL 0.15g @ CPA -25 AC2 ACCEL -0.25g @ CPA -20 AC1 CPA ALT 3700

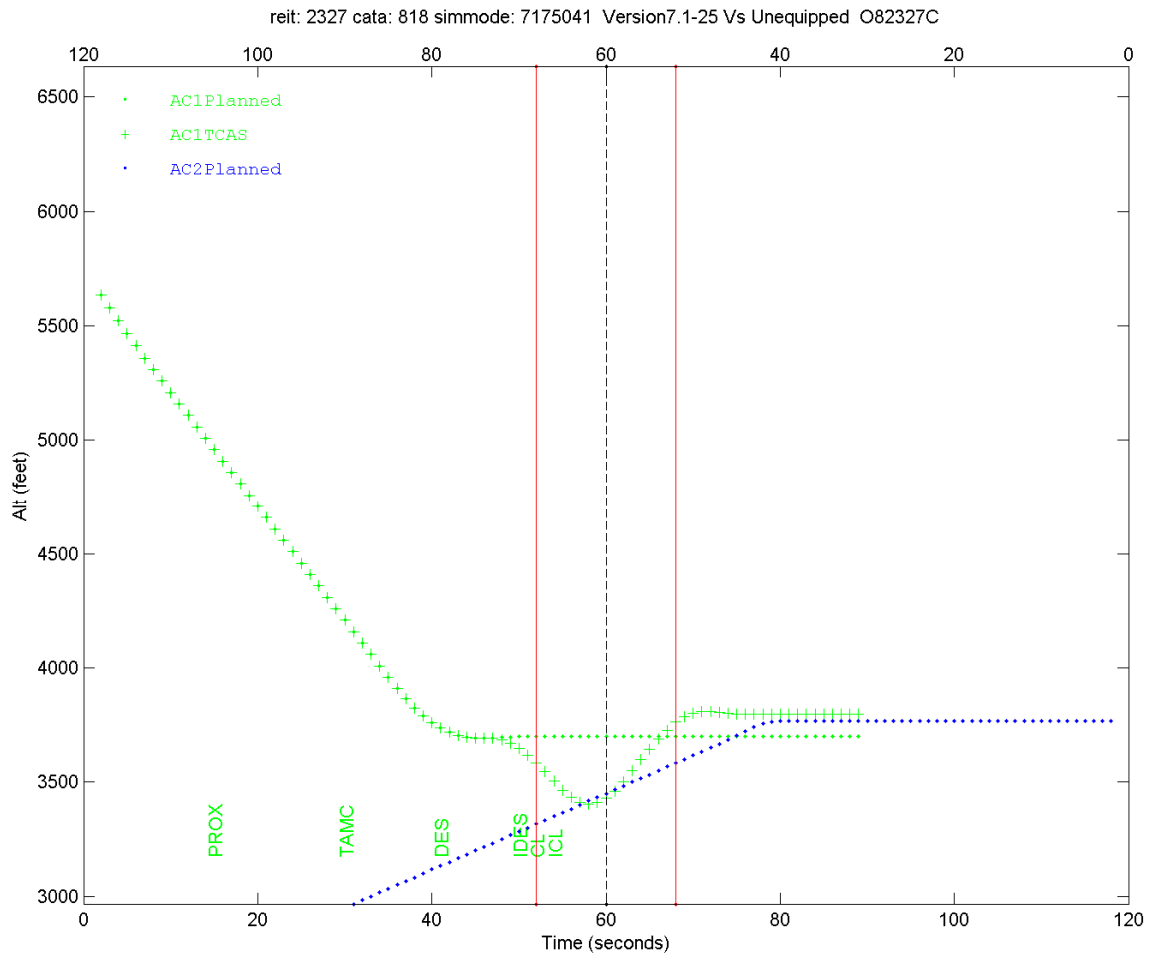
2327 V7 25 FT VS UNEQUIPPED 8 -202.89 CROSSING_ENC
 1 TCAS AC 3175041 TA :30 |PVMD| DES @41 [NX]| IDES @50

2327 CP112EV1.2 25 FT VS UNEQUIPPED 8 -0.21 CROSSING_ENC
 CPT_REV 1 OWN_FOLLOW TRUE TTOFOLLOW 8.07 REV_AVOID 02 TIME_REV_AVOID 0.0
 1 TCAS AC*REV*7175041 TA :30 |PVMD| DES @41 [NX]| IDES @50 | CL @52 | ICL @54

2327 V7.1 25 FT VS UNEQUIPPED 8 -0.21 CROSSING_ENC
 1 TCAS AC*REV*7175041 TA :30 |PVMD| DES @41 [NX]| IDES @50 | CL @52 | ICL @54







Change 7.1 TCAS vs Unequipped Representative NMAC 05

Encounter Class : 8

Reit Number : 7803

NMAC Characterization

Number of encounters in group	1	
AC1 TCAS equipped	yes	
Vertical tracker	100	
Planned separation	-250	ft
AC1 rates :	-5000	fpm
AC2 rates :	5000	fpm
AC1 acceleration :	0.25	g
AC2 acceleration :	0.15	g
AC1 acceleration time :	CPA – 25	sec
AC2 acceleration time :	CPA – 25	sec
Encounters with reversed RAs	0	%
Vertical chase	yes	

Comments

Climbing vertical chase caused by response to RA. Marginal NMAC caused by CP115. CP112E-only had reversal that barely resolved NMAC.

SIMULATION RESULTS FOR V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER I87803
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = -250.0 AC1 RATES(-5000.0,0.0) AC2 RATES(0.0,5000.0)
 AC1 ACCEL 0.25g @ CPA -25 AC2 ACCEL 0.15g @ CPA -25 AC1 CPA ALT 7500

 7803 V7 100 FT VS UNEQUIPPED 8 107.14 CROSSING_ENC

1 TCAS AC 3171031 TA :19 |TAUR| LD1 @34 [NX]| DDES @44 | CL @45 | ICL @53

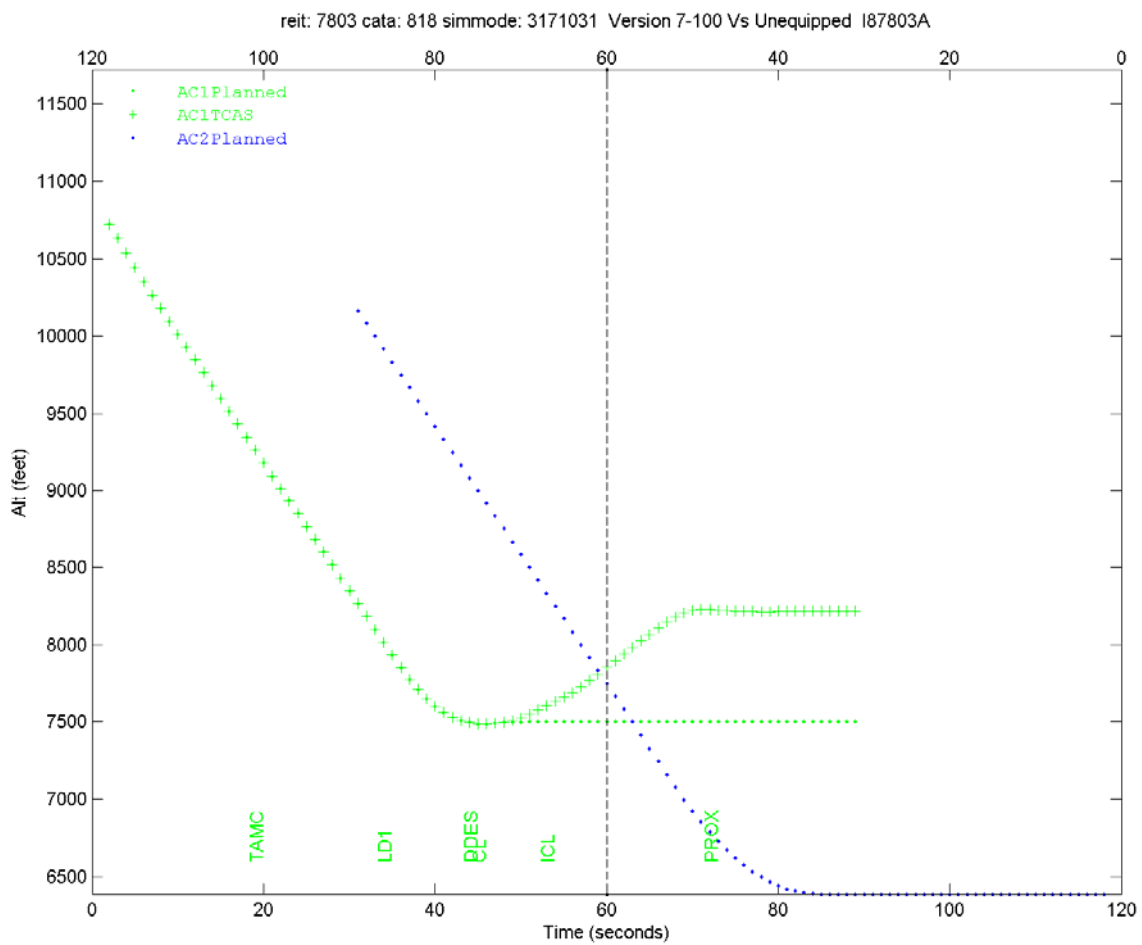
 7803 CP112EV1.2 100 FT VS UNEQUIPPED 8 107.14 CROSSING_ENC

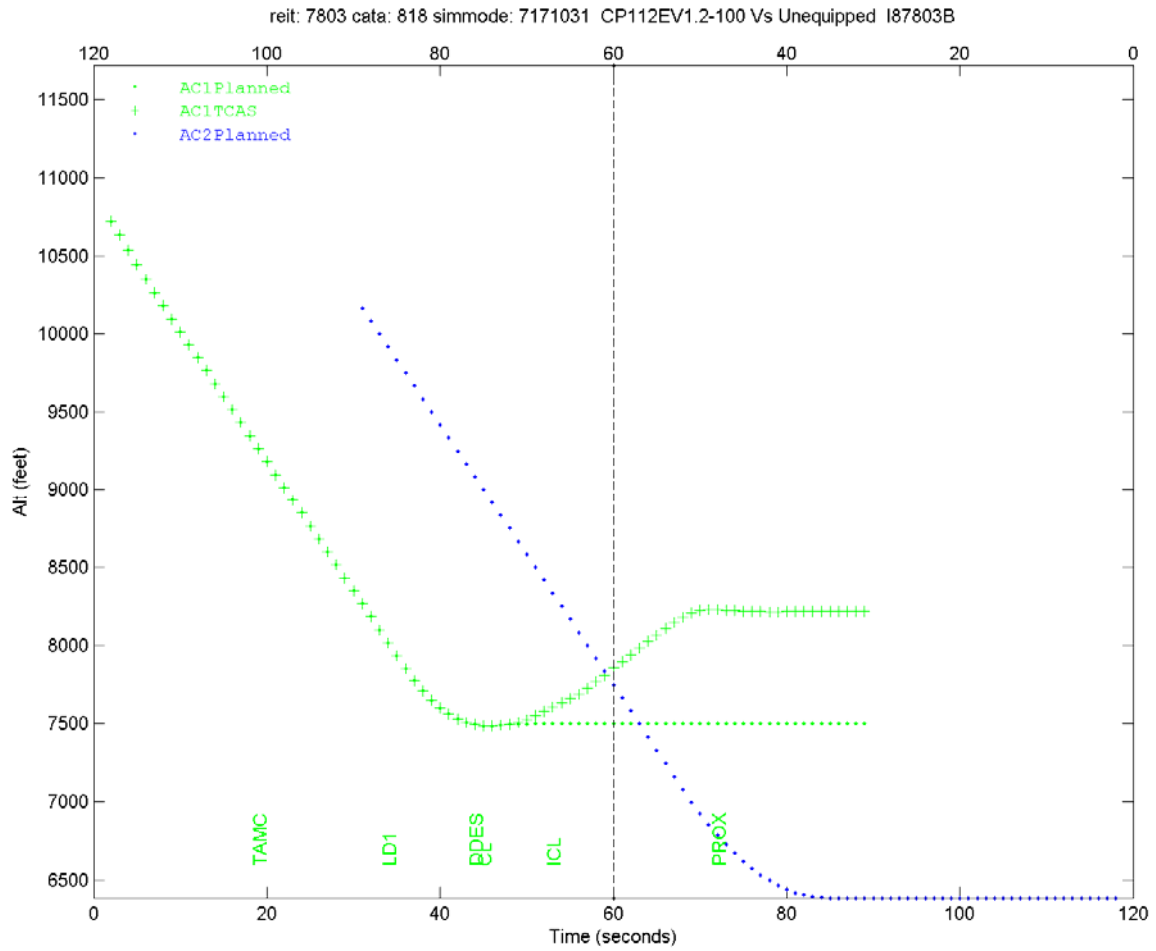
CPT_REV 0 OWN_FOLLOW TRUE TTOFOLLOW 13.37 REV_AVOID 02 TIME_REV_AVOID 0.0

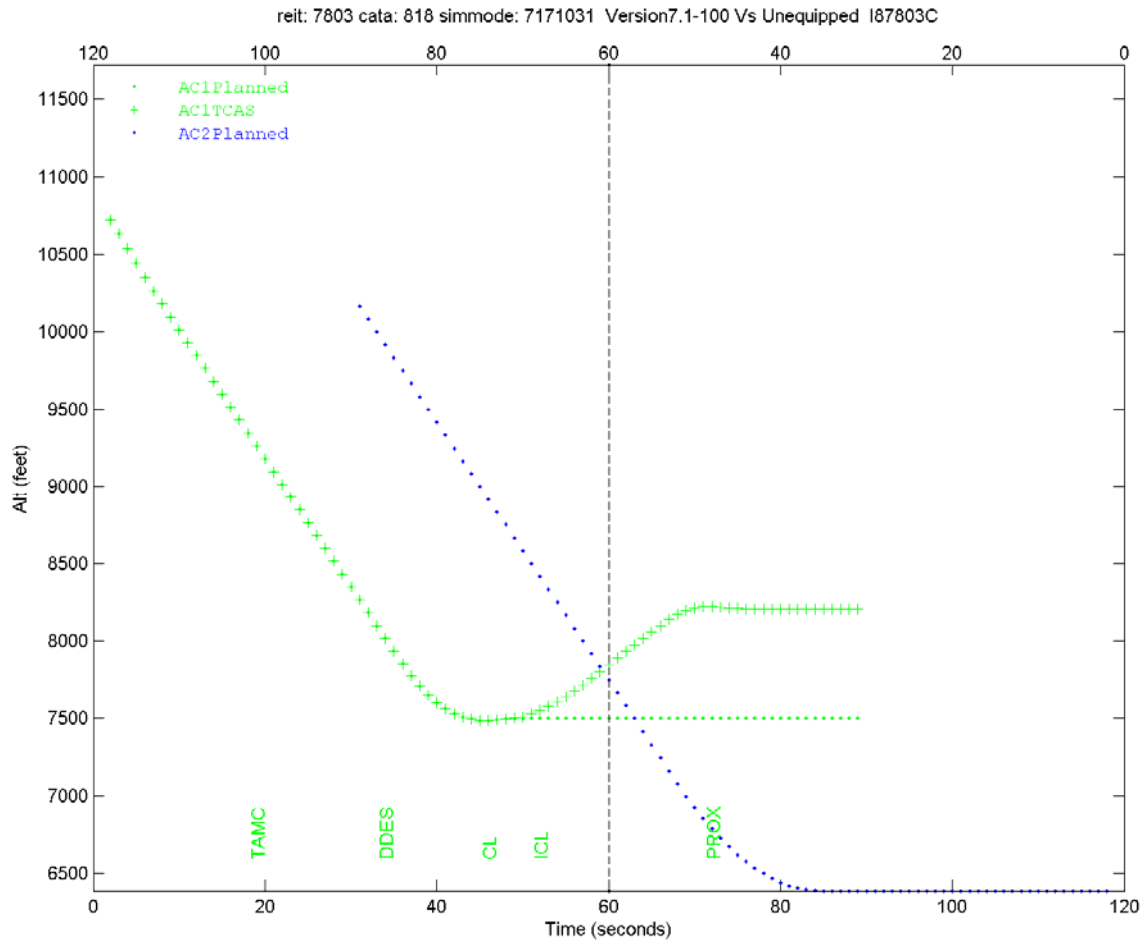
1 TCAS AC 7171031 TA :19 |TAUR| LD1 @34 [NX]| DDES @44 | CL @45 | ICL @53

 7803 V7.1 100 FT VS UNEQUIPPED 8 98.81 CROSSING_ENC

1 TCAS AC 7171031 TA :19 |TAUR| DDES @34 [NX]| CL @46 | ICL @52







Change 7.1 TCAS vs Unequipped Representative NMAC 06

Encounter Class : 9

Reit Number : 4998

NMAC Characterization

Number of encounters in group	1		
AC1 TCAS equipped		no	
Vertical tracker	100		
Planned separation		500	ft
AC1 rates :		3000	fpm
AC2 rates :		5000	fpm
AC1 acceleration :		-0.05	g
AC2 acceleration :		-0.25	g
AC1 acceleration time :	CPA – 25	sec	
AC2 acceleration time :	CPA – 30	sec	
Encounters with reversed RAs	100	%	
Vertical chase		yes	

Comments

Pre-existing climbing vertical chase.
CP112E reversal caused NMAC.

SIMULATION RESULTS FOR V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER J94998
 LOGIC THRESHOLDS SL = 5 ZTHR = 600 TAUR = 25 TAUV = 25 ALIM = 350
 PLANNED ENCOUNTER. SEP = 500.0 AC1 RATES(3000.0,0.0) AC2 RATES(5000.0,0.0)
 AC1 ACCEL -0.05g @ CPA -25 AC2 ACCEL -0.25g @ CPA -30 AC1 CPA ALT 7500

 4998 UNEQUIPPED VS V7 100 FT 9 699.22 CROSSING_ENC

2 TCAS AC 3271013 TA :19 |TAUR| CL @34 [NX]| DDES @57

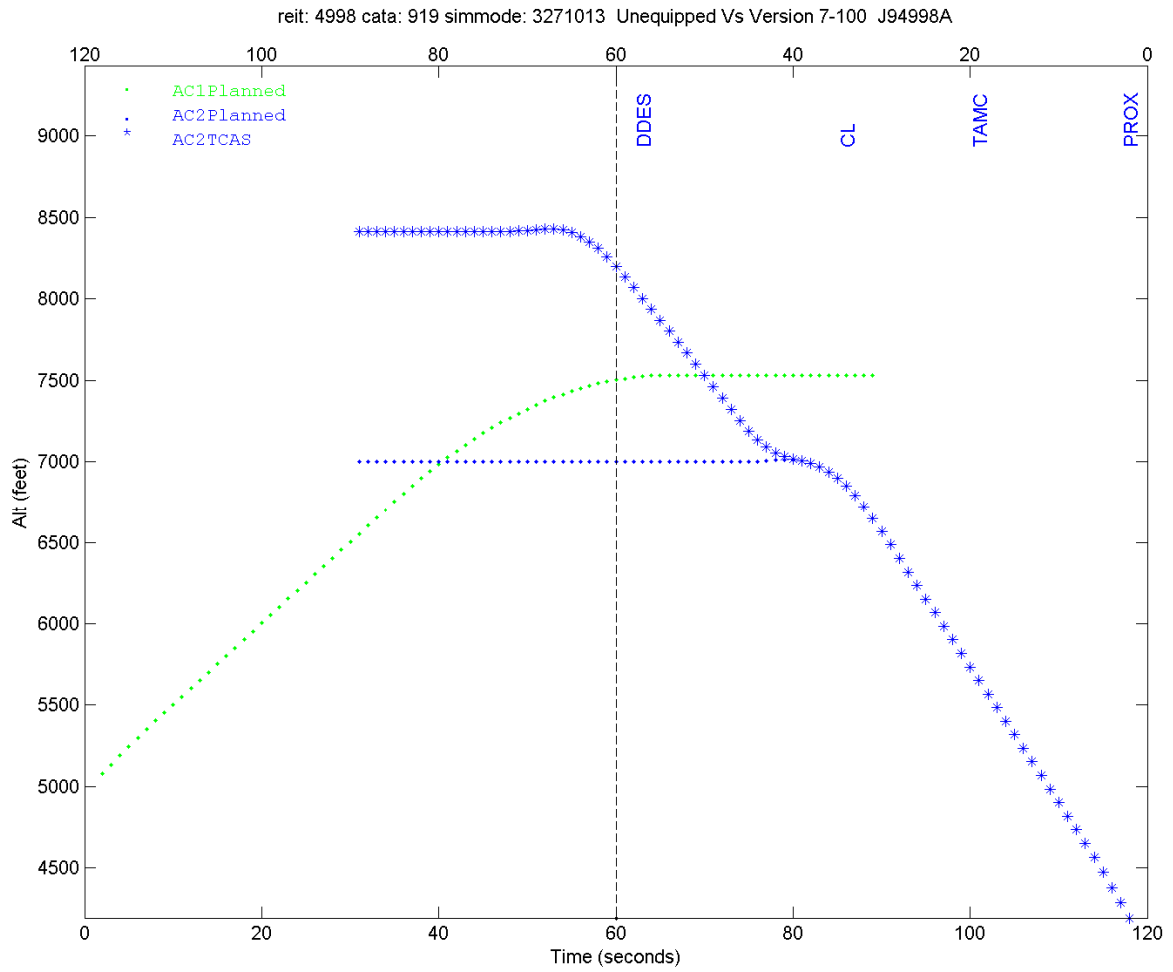
 4998 UNEQUIPPED VS CP112EV1.2 100 FT 9 -24.66 CROSSING_ENC

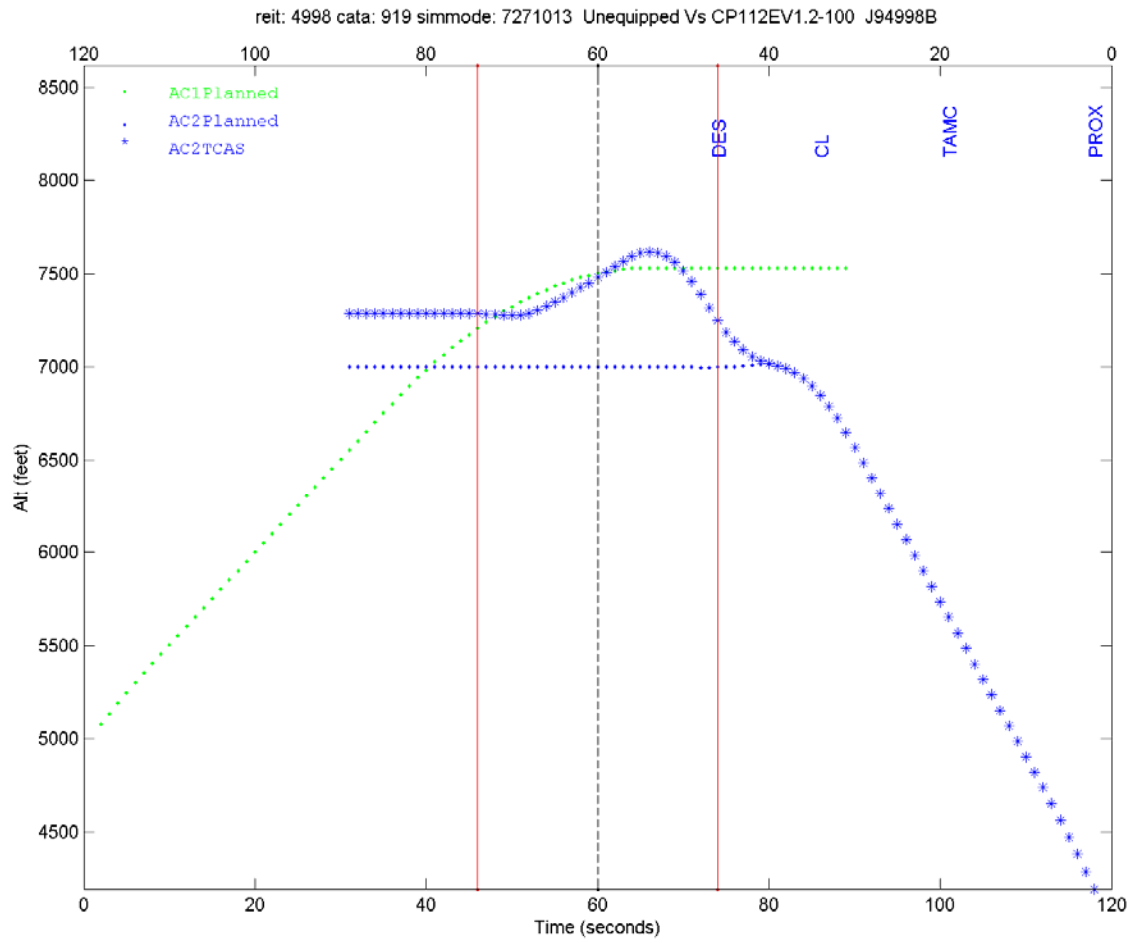
CPT_REV 1 OWN_FOLLOW TRUE TTOFOLLOW 10.15 REV_AVOID 02 TIME_REV_AVOID 0.0

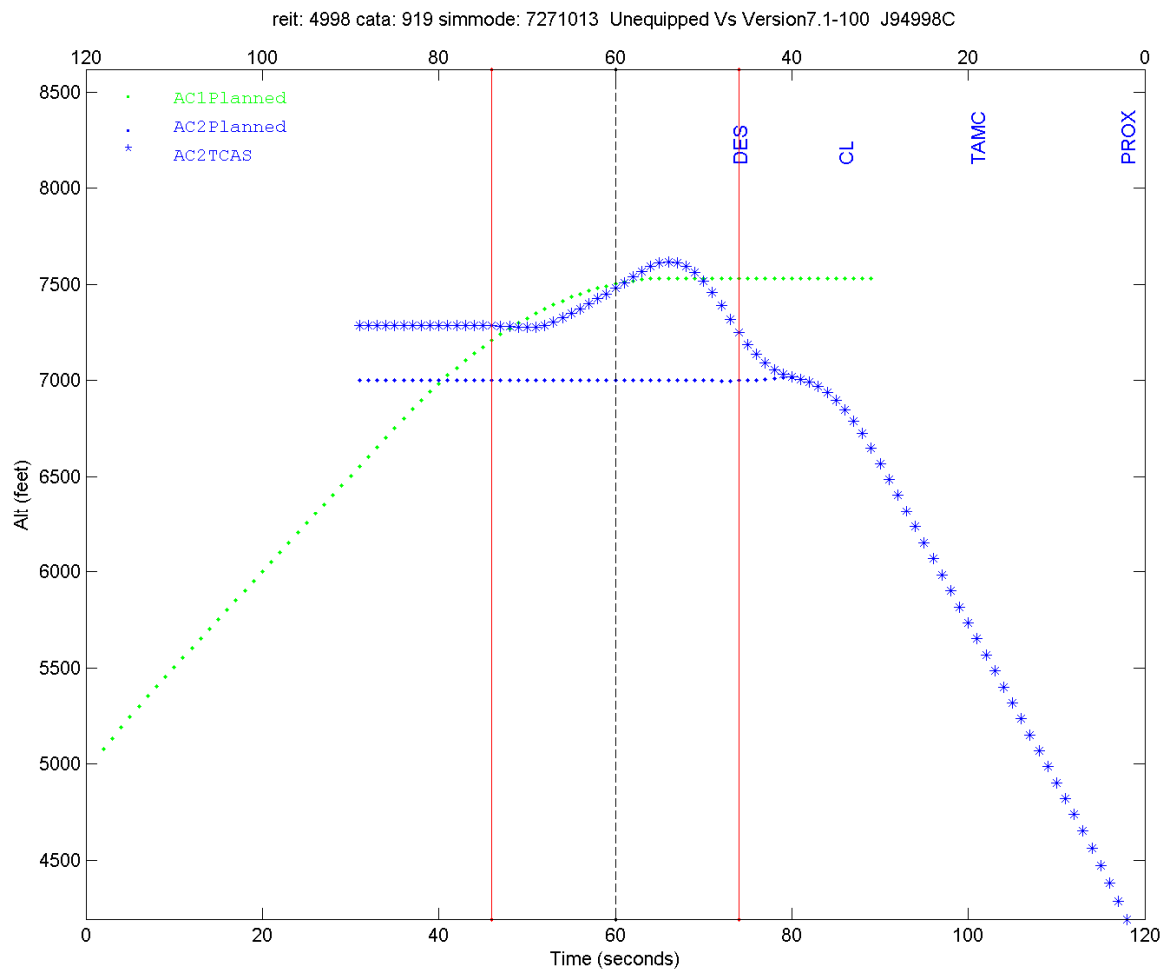
2 TCAS AC*REV*7271013 TA :19 |TAUR| CL @34 [NX]| DES @46

 4998 UNEQUIPPED VS V7.1 100 FT 9 -24.66 CROSSING_ENC

2 TCAS AC*REV*7271013 TA :19 |TAUR| CL @34 [NX]| DES @46







Change 7.1 TCAS vs Unequipped Representative NMAC 07

Encounter Class : 19

Reit Number : 3345

NMAC Characterization

Number of encounters in group	3	
AC1 TCAS equipped	no	
Vertical tracker	25, 100	ft
Planned separation	-250, -500	ft
AC1 rates :	5000	fpm
AC2 rates :	1000, 3000	fpm
AC1 acceleration :	-0.15	g
AC2 acceleration :	-0.05	g
AC1 acceleration time :	CPA – 25	sec
AC2 acceleration time :	CPA – 20	sec
Encounters with reversed RAs	0	%
Vertical chase	no	

Comments

CP115 caused NMAC.

CP112E had IDES which solved NMAC, CP115 did not have IDES.

SIMULATION RESULTS FOR V7, V7 + CP112EV1.2, and V7.1 ENCOUNTER Z93345
 LOGIC THRESHOLDS SL = 4 ZTHR = 600 TAUR = 20 TAUV = 20 ALIM = 300
 PLANNED ENCOUNTER. SEP = -250.0 AC1 RATES(5000.0,0.0) AC2 RATES(1000.0,0.0)
 AC1 ACCEL -0.15g @ CPA -25 AC2 ACCEL -0.05g @ CPA -20 AC1 CPA ALT 3700

 3345 UNEQUIPPED VS V7 25 FT 19 -182.16 CROSSING_ENC

2 TCAS AC 3275014 TA :30 |TAUR| LC1 @40 [X] | LC5 @43 | DES @44 | IDES @51

 3345 UNEQUIPPED VS CP112EV1.2 25 FT 19 -182.16 CROSSING_ENC

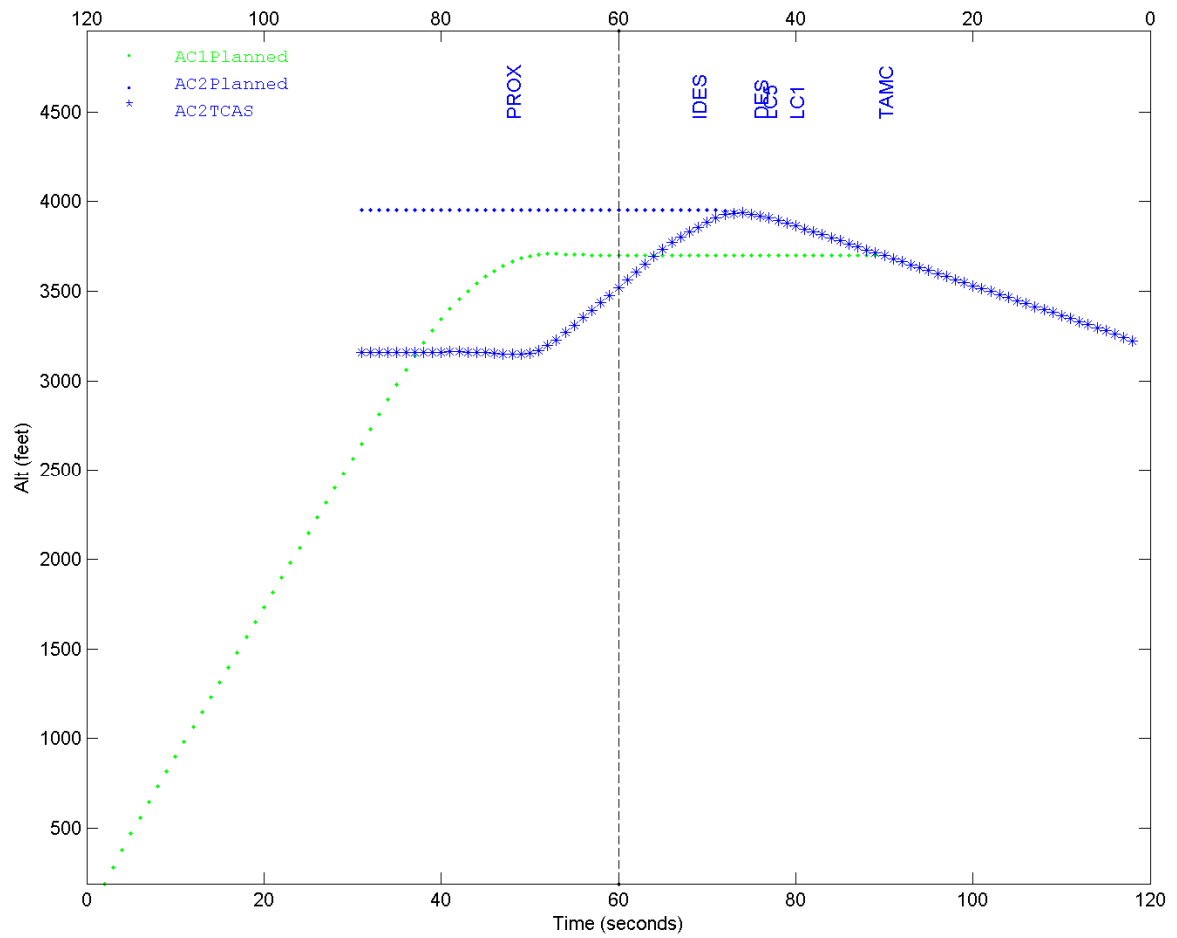
CPT_REV 0 OWN_FOLLOW TRUE TTOFOLLOW 9.60 REV_AVOID 02 TIME_REV_AVOID 0.0

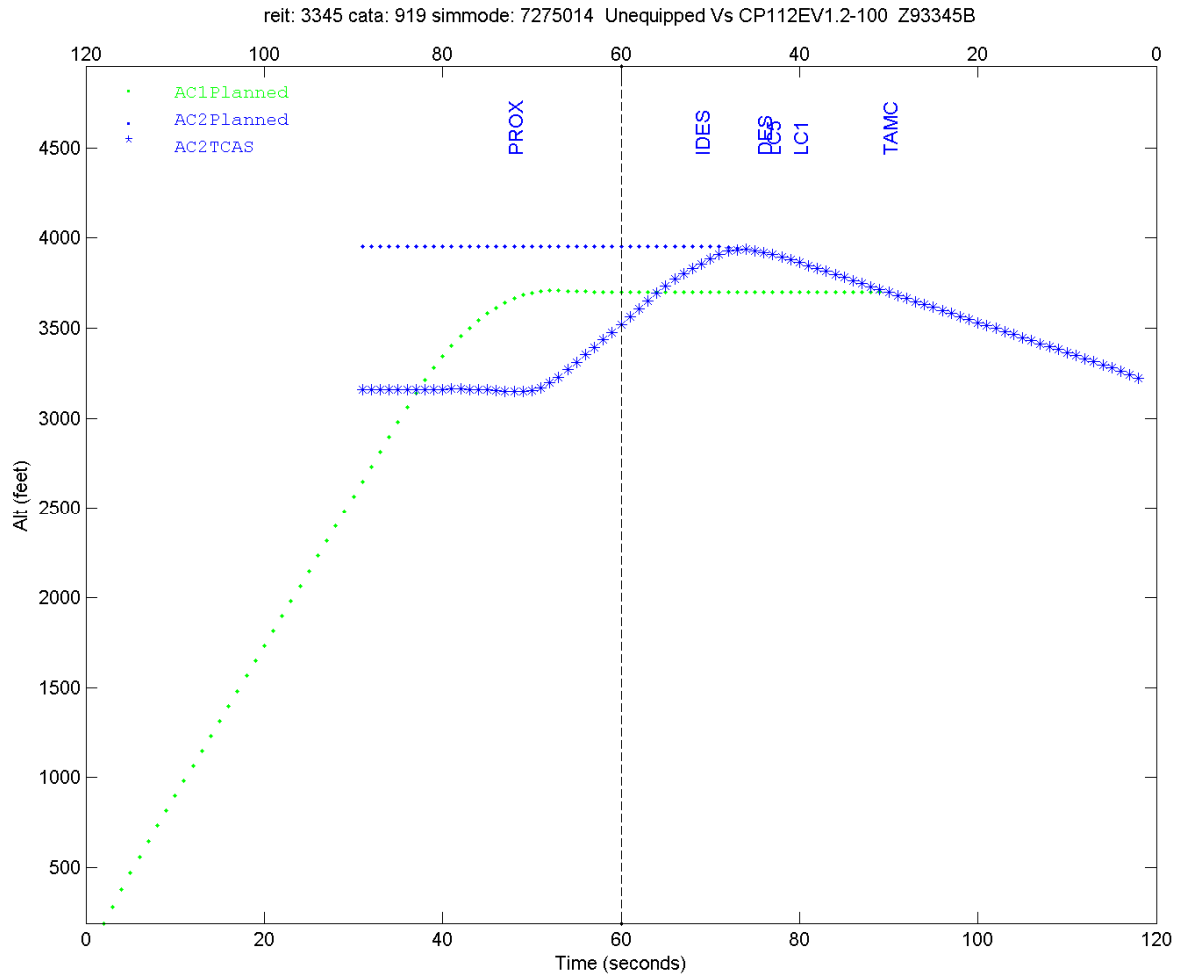
2 TCAS AC 7275014 TA :30 |TAUR| LC1 @40 [X]| LC5 @43 | DES @44 | IDES @51

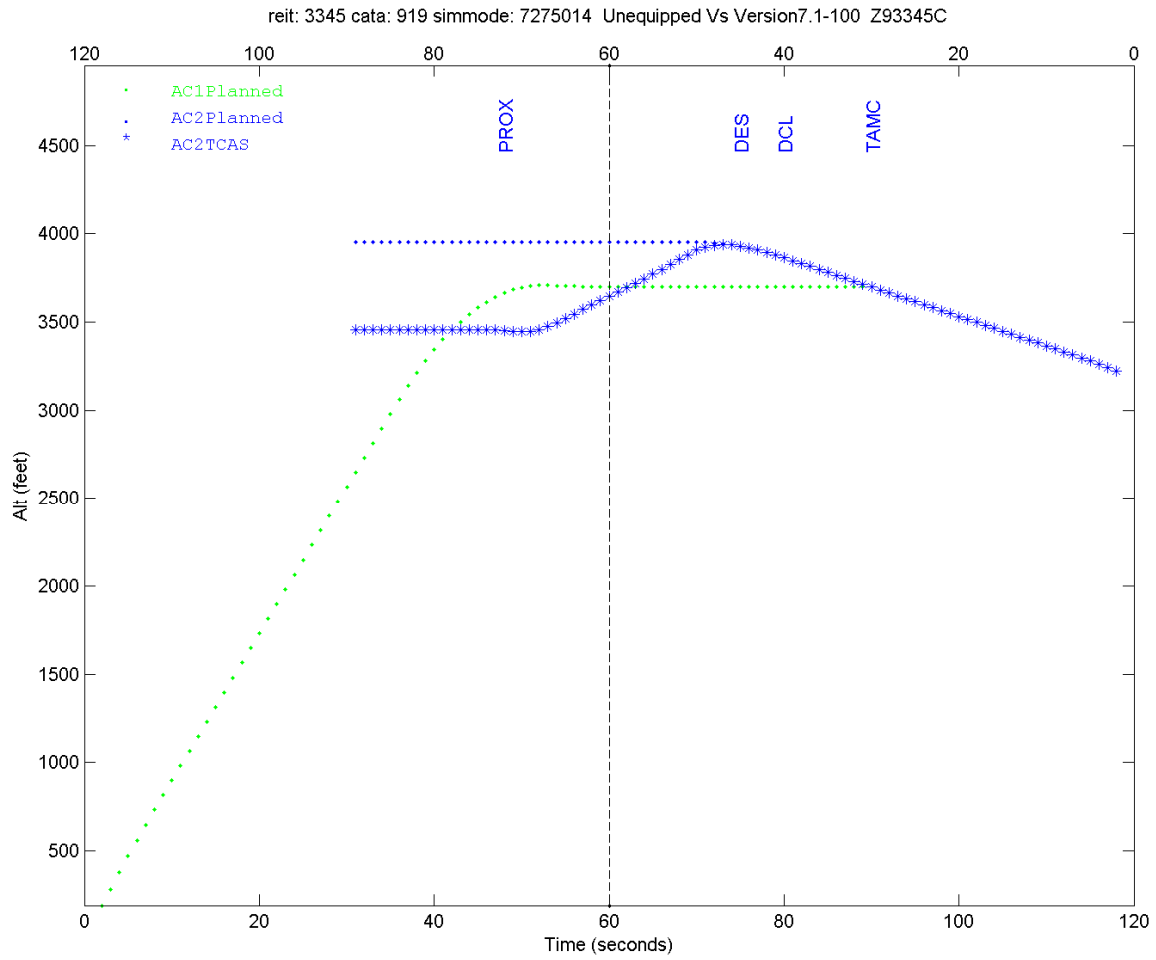
 3345 UNEQUIPPED VS V7.1 25 FT 19 -54.64 CROSSING_ENC

2 TCAS AC 7275014 TA :30 |TAUR| DCL @40 [X] | DES @45

reit: 3345 cata: 919 simmode: 3275014 Unequipped Vs Version 7-100 Z93345A







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