

Balancing Authority ACE Limit Proof-of-Concept Field Trial Project 2010-14

Eastern Interconnection Update Discussion
May 31, 2011

DISCUSSION STARTING AT 2:30 PM EDT

Bob Klueber – Midwest ISO

Balancing Authority Reliability-based Control Standard Drafting Team
(BARCSDT)

Balancing Authority ACE Limit Proof-of-Concept Field Trial

Eastern Interconnection Field Trial Participation

Participation reflects approximately 67% of the projected 2010 peak load for the Eastern Interconnection

Eastern Interconnection Balancing Authority Participants	2010 Frequency Bias	Region	Reliability Coordinator	Start Date
American Electric Power (CSWS)	-103.4	SPP	SPP	September 1, 2005
Associated Electric Cooperative, Inc. (AECI)	-45	SERC	TVA	April 1, 2010
Duke Energy Carolinas (DUK)	-196	SERC	VACS	April 1, 2009
East Kentucky Power Cooperative (EKPC)	-42.73	SERC	TVA	July 6, 2005
Entergy (EES)	-227.1	SERC	ICTE	July 6, 2005
EON-US (LGEE)	-74	SERC	TVA	April 1, 2008
Independent Electricity System Operator (IESO)	-245.8	NPCC	IESO	March 1, 2008
Manitoba Hydro (MHEB)	-43.3	MRO	MISO	July 6, 2005
Midwest Independent Transmission System Operator (MISO)	-1038.6	MRO, RFC, SERC	MISO	January 6, 2009
PJM Interconnection (PJM)	-1358	RFC	PJM	August 1, 2005
Santee Cooper (SC)	-61.52	SERC	VACS	March 1, 2006
Southern Company (SOCO)	-445	SERC	SOCO	October 15, 2005
Tennessee Valley Authority (TVA)	-317.6	SERC	TVA	October 1, 2005

Balancing Authority ACE Limit Proof-of-Concept Field Trial

The Balancing Authority ACE Limit (BAAL) shall not be exceeded for more than 30 consecutive clock-minutes*

	Longest exceedance of the Balancing Authority ACE Limit since starting operation under the Field Trial		April 2011 Performance under Field Trial	
	Max MinCtLow	Max MinCtHigh	Max MinCtLow	Max MinCtHigh
BA01	26	16	4	6
BA02	17	17	5	5
BA03	19	19	14	7
BA04	10	20	9	9
BA05	16	22	10	7
BA06	28	22	18	14
BA07	15	23	6	7
BA08	20	24	6	8
BA09	28	26	10	18
BA10	21	31	7	9
BA11	14	32	4	5
BA12	29	40	10	16
BA13	28	43	6	13

MinCtLow = Count of consecutive clock-minutes BAAL_{Low} was exceeded

MinCtHigh = Count of consecutive clock-minutes BAAL_{High} was exceeded

*BAAL being exceeded for more than 30 consecutive clock-minutes would be a violation under the proposed BAL-007 standard.

Frequency Statistics

Eastern Interconnection

Year	Month	Total Minutes FTL_Low at 59.98 Hz SF	Total Minutes FTL_Low at 60 Hz SF	Total FTL_Low Minutes	Percentage Low During TEC	FTL_Low Events	FTL_Low Max Duration	Total Minutes FTL_High at 60.02 Hz SF	Total Minutes FTL_High at 60 Hz SF	Total FTL_High Minutes	Percentage High During TEC	FTL_High Events	FTL_High Max Duration	Total FTL_Low and FTL_High Minutes at 60 Hz SF	Total FTL_Low and FTL_High Minutes
2005	7	28	30	58	48.28%	32	5	0	16	16	0.00%	11	3	46	74
2005	8	47	91	138	34.06%	56	10	0	35	35	0.00%	21	5	126	173
2005	9	32	39	71	45.07%	33	8	0	39	39	0.00%	21	7	78	110
2005	10	42	48	90	46.67%	43	11	0	33	33	0.00%	23	5	81	123
2005	11	65	43	108	60.19%	58	6	0	35	35	0.00%	22	7	78	143
2005	12	37	36	73	50.68%	41	7	0	27	27	0.00%	19	3	63	100
2006	1	42	33	75	56.00%	43	6	0	61	61	0.00%	27	5	94	136
2006	2	0	64	64	0.00%	39	6	2	43	45	4.44E-02	24	4	107	109
2006	3	28	51	79	35.44%	50	4	17	37	54	31.48%	33	8	88	133
2006	4	19	86	105	18.10%	58	5	0	76	76	0.00%	46	8	162	181
2006	5	52	67	119	43.70%	54	8	0	72	72	0.00%	39	5	139	191
2006	6	45	34	79	56.96%	41	5	0	59	59	0.00%	24	10	93	138
2006	7	31	40	71	43.66%	34	9	0	50	50	0.00%	29	4	90	121
2006	8	16	85	101	15.84%	49	5	0	58	58	0.00%	26	8	143	159
2006	9	19	60	79	24.05%	39	6	0	53	53	0.00%	33	4	113	132
2006	10	53	42	95	55.79%	51	6	0	54	54	0.00%	28	8	96	149
2006	11	56	35	91	61.54%	47	5	1	36	37	2.70%	22	3	71	128
2006	12	34	18	52	65.38%	34	4	0	54	54	0.00%	29	6	72	106
2007	1	59	29	88	67.05%	44	7	0	55	55	0.00%	31	7	84	143
2007	2	17	31	48	35.42%	33	3	0	39	39	0.00%	21	4	70	87
2007	3	75	83	158	47.47%	76	15	0	78	78	0.00%	38	8	161	236
2007	4	36	41	77	46.75%	45	5	0	58	58	0.00%	31	4	99	135
2007	5	70	46	116	60.34%	64	5	0	95	95	0.00%	49	7	141	211
2007	6	62	30	92	67.39%	47	6	0	51	51	0.00%	25	7	81	143
2007	7	47	20	67	70.15%	33	6	0	39	39	0.00%	20	4	59	106
2007	8	37	25	62	59.68%	31	6	1	55	56	1.79E-02	32	5	80	118
2007	9	20	75	95	21.05%	41	8	0	27	27	0.00%	16	5	102	122
2007	10	57	65	122	46.72%	73	5	1	56	57	1.75E-02	36	5	121	179
2007	11	74	21	95	77.89%	60	4	0	34	34	0.00%	24	5	55	129
2007	12	37	22	59	62.71%	38	6	0	61	61	0.00%	38	4	83	120
2008	1	0	75	75	0.00%	34	8	0	48	48	0.00%	24	4	123	123
2008	2	18	71	89	20.22%	46	8	0	51	51	0.00%	24	8	122	140
2008	3	37	65	102	36.27%	55	6	0	40	40	0.00%	34	2	106	142
2008	4	41	65	106	38.68%	60	5	0	59	59	0.00%	33	6	124	165
2008	5	67	39	106	63.21%	63	4	0	40	40	0.00%	20	5	79	146
2008	6	40	21	61	65.57%	34	5	0	35	35	0.00%	19	5	56	96
2008	7	42	17	59	71.19%	29	7	0	17	17	0.00%	12	3	34	76
2008	8	41	19	60	68.33%	35	5	0	29	29	0.00%	17	6	48	89
2008	9	25	44	69	36.23%	39	4	0	55	55	0.00%	21	11	99	124
2008	10	35	33	68	51.47%	38	5	0	27	27	0.00%	19	3	60	95
2008	11	13	9	22	59.09%	13	5	0	13	13	0.00%	9	4	22	35
2008	12	16	34	50	32.00%	35	4	0	11	11	0.00%	8	3	45	61
2009	1	2	26	28	7.14E-02	16	4	0	19	19	0.00%	9	3	45	47
2009	2	0	34	34	0.00%	18	4	0	18	18	0.00%	11	6	52	52
2009	3	0	41	41	0.00%	23	5	0	25	25	0.00%	11	9	66	66
2009	4	0	59	59	0.00%	37	5	0	27	27	0.00%	20	3	86	86
2009	5	8	35	43	18.60%	31	4	0	27	27	0.00%	15	8	62	70
2009	6	30	28	58	51.72%	28	5	0	25	25	0.00%	16	3	53	83
2009	7	14	22	36	38.89%	22	3	0	28	28	0.00%	16	6	50	64
2009	8	16	10	26	61.54%	20	2	0	13	13	0.00%	10	2	23	39
2009	9	11	22	33	33.33%	21	3	0	20	20	0.00%	14	4	42	53
2009	10	44	45	89	49.44%	44	6	0	18	18	0.00%	10	3	63	107
2009	11	30	19	49	61.22%	33	3	0	34	34	0.00%	21	4	53	83
2009	12	11	23	34	32.35%	20	5	0	22	22	0.00%	15	3	45	56
2010	1	36	26	62	58.06%	35	6	0	16	16	0.00%	9	3	42	78
2010	2	23	16	39	58.97%	24	3	0	26	26	0.00%	16	2	42	65
2010	3	38	71	109	34.86%	65	6	0	40	40	0.00%	22	6	111	149
2010	4	63	38	101	62.38%	65	5	0	54	54	0.00%	34	6	92	155
2010	5	72	30	102	70.59%	60	6	0	40	40	0.00%	29	4	70	142
2010	6	10	28	38	26.32%	27	2	0	10	10	0.00%	9	2	38	48
2010	7	8	19	27	29.63%	17	4	0	30	30	0.00%	13	5	49	57
2010	8	16	29	45	35.56%	24	4	0	17	17	0.00%	11	3	46	62
2010	9	0	56	56	0.00%	31	4	0	22	22	0.00%	11	4	78	78
2010	10	1	60	61	1.64E-02	40	5	0	19	19	0.00%	15	4	79	80
2010	11	0	59	59	0.00%	44	3	5	26	31	16.13%	20	3	85	90
2010	12	8	12	20	40.00%	18	2	3	30	33	9.09E-02	20	5	42	53
2011	1	5	30	35	14.29%	25	3	0	9	9	0.00%	6	4	39	44
2011	2	1	21	22	4.55E-02	18	2	0	22	22	0.00%	15	3	43	44
2011	3	1	42	43	2.33E-02	31	3	0	19	19	0.00%	10	7	61	62
2011	4	0	61	61	0.00%	38	6	0	32	32	0.00%	18	4	93	93

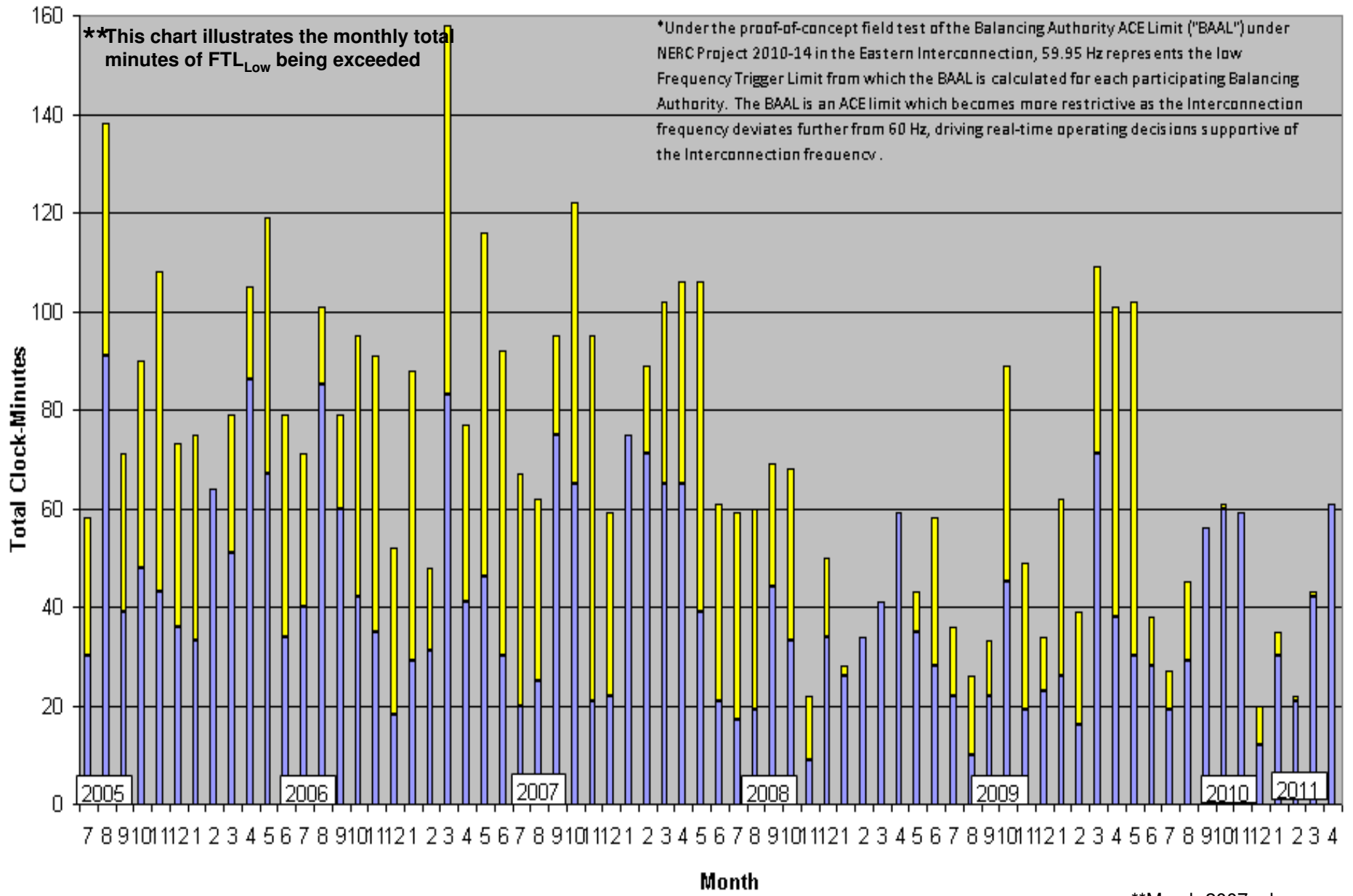
Frequency Statistics

Eastern Interconnection

Year	Month	Total Minutes FTL_Low at 59.98 Hz SF	Total Minutes FTL_Low at 60 Hz SF	Year	Month	Total Minutes FTL_Low at 59.98 Hz SF	Total Minutes FTL_Low at 60 Hz SF	Total FTL_Low Minutes	Percentage Low During TEC	FTL_Low Events	FTL_Low Max Duration	FTL_High Events	FTL_High Max Duration	Total FTL_Low and FTL_High Minutes at 60 Hz SF	Total FTL_Low and FTL_High Minutes
2005	7	28	30									11	3	46	74
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2005	9	32	39									21	7	78	110
2005	10	42	48									23	5	81	123
2005	11	65	43									22	7	78	143
2005	12	37	36	2008	1	0	75	75	0.00%	34	8	19	3	63	100
2006	1	42	33	2008	2	18	71	89	20.22%	46	8	27	5	94	136
2006	2	0	64	2008	3	37	65	102	36.27%	55	6	24	4	107	109
2006	3	28	51	2008	4	41	65	106	38.68%	60	5	33	8	88	133
2006	4	19	86	2008	5	67	39	106	63.21%	63	4	46	8	162	181
2006	5	52	67	2008	6	40	21	61	65.57%	34	5	39	5	139	191
2006	6	45	34	2008	7	42	17	59	71.19%	29	7	24	10	93	138
2006	7	31	40	2008	8	41	19	60	68.33%	35	5	29	4	90	121
2006	8	16	85	2008	9	25	44	69	36.23%	39	4	26	8	143	159
2006	9	19	60	2008	10	35	33	68	51.47%	38	5	33	4	113	132
2006	10	53	42	2008	11	13	9	22	59.09%	13	5	28	8	96	149
2006	11	56	35	2008	12	16	34	50	32.00%	35	4	22	3	71	128
2006	12	34	18	2009	1	2	26	28	7.14%	16	4	29	6	72	106
2007	1	59	29	2009	2	0	34	34	0.00%	18	4	31	7	84	143
2007	2	17	31	2009	3	0	41	41	0.00%	23	5	21	4	70	87
2007	3	75	83	2009	4	0	59	59	0.00%	37	5	38	8	161	236
2007	4	36	41	2009	5	8	35	43	18.60%	31	4	31	4	99	135
2007	5	70	46	2009	6	30	28	58	51.72%	28	5	49	7	141	211
2007	6	62	30	2009	7	14	22	36	38.89%	22	3	25	7	81	143
2007	7	47	20	2009	8	16	10	26	61.54%	20	2	20	4	59	106
2007	8	37	25	2009	9	11	22	33	33.33%	21	3	32	5	80	118
2007	9	20	75	2009	10	44	45	89	49.44%	44	6	16	5	102	122
2007	10	57	65	2009	11	30	19	49	61.22%	33	3	36	5	121	179
2007	11	74	21	2009	12	11	23	34	32.35%	20	5	24	5	55	129
2007	12	37	22	2010	1	36	26	62	58.06%	35	6	38	4	83	120
2008	1	0	75	2010	2	23	16	39	58.97%	24	3	24	4	123	123
2008	2	18	71	2010	3	38	71	109	34.86%	65	6	24	8	122	140
2008	3	37	65	2010	4	63	38	101	62.38%	65	5	34	2	106	142
2008	4	41	65	2010	5	72	30	102	70.59%	60	6	33	6	124	165
2008	5	67	39	2010	6	10	28	38	26.32%	27	2	20	5	79	146
2008	6	40	21	2010	7	8	19	27	29.63%	17	4	19	5	56	96
2008	7	42	17	2010	8	16	29	45	35.56%	24	4	12	3	34	76
2008	8	41	19	2010	9	0	56	56	0.00%	31	4	17	6	48	89
2008	9	25	44	2010	10	1	60	61	1.64%	40	5	21	11	99	124
2008	10	35	33	2010	11	0	59	59	0.00%	44	3	19	3	60	95
2008	11	13	9	2010	12	11	23	34	32.35%	20	5	9	4	22	35
2008	12	16	34	2011	1	5	30	35	14.29%	25	3	8	3	45	61
2009	1	2	26	2011	2	1	21	22	4.55%	18	2	9	3	45	47
2009	2	0	34	2011	3	1	42	43	2.33%	31	3	9	6	45	47
2009	3	0	41	2011	4	0	61	61	0.00%	38	6	11	3	52	52
2009	4	0	59									11	9	66	66
2009	5	8	35									20	3	86	86
2009	6	30	28									15	8	62	70
2009	7	14	22									16	3	53	83
2009	8	16	10									16	6	50	64
2009	9	11	22									10	2	23	39
2009	10	44	45									14	4	42	53
2009	11	30	19									10	3	63	107
2009	12	11	23									21	4	53	83
2010	1	36	26									15	3	45	56
2010	2	23	16									9	3	42	78
2010	3	38	71									16	2	42	65
2010	4	63	38									22	6	111	149
2010	5	72	30									34	6	92	155
2010	6	10	28									29	4	70	142
2010	7	8	19									9	2	38	48
2010	8	16	29									13	5	49	57
2010	9	0	56									11	3	46	62
2010	10	1	60									11	4	78	78
2010	11	0	59									15	4	79	80
2010	12	8	12									20	3	85	90
2011	1	5	30									20	5	42	53
2011	2	1	21									6	4	39	44
2011	3	1	42									15	3	43	44
2011	4	0	61									10	7	61	62
2011	4	0	61									18	4	93	93

Total Clock-Minutes of Frequency below 59.95 Hz*

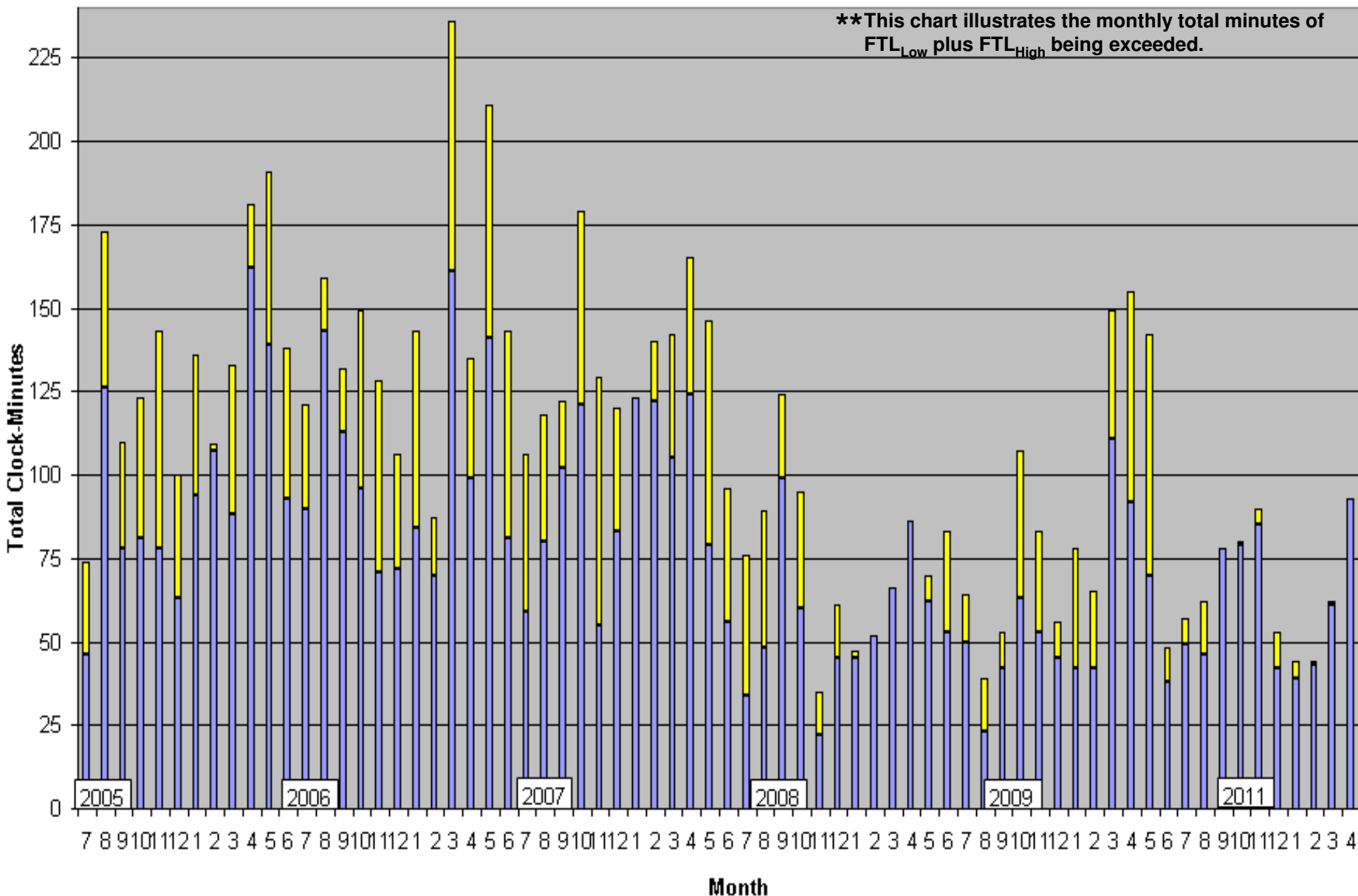
Eastern Interconnection



■ Total Minutes at 60 Hz ■ Addition Minutes During Time-Error Corrections

**March 2007- change to the new Daylight Saving Time.

Total Clock-Minutes less than 59.95 Hz or greater than 60.05 Hz Eastern Interconnection



■ Total Minutes at 60 Hz
 ■ Addition Minutes During Time-Error Corrections

**March 2007- change to the new Daylight Saving Time.

Date	Time	TimeZone	FreqError	ActualFreq	SchedFreq	MinCtLow	MinCtHigh	ACPS1
04/01/11	14:12	CDT	-0.0165	59.9835	60	11	0	-3352.4
04/01/11	14:13	CDT	-0.0082	59.9918	60	12	0	-1536.6
04/01/11	14:14	CDT	-0.0075	59.9925	60	13	0	-1323.0
04/01/11	14:15	CDT	-0.0181	59.9819	60	14	0	-3488.7
04/01/11	14:16	CDT	-0.0271	59.9729	60	15	0	-5371.7
04/01/11	14:17	CDT	-0.0182	59.9818	60	16	0	-3364.9
04/01/11	14:18	CDT	-0.0089	59.9911	60	17	0	-1493.1
04/01/11	14:19	CDT	-0.0068	59.9932	60	18	0	-1034.0
04/28/11	0:49	EST	0.0140	60.0140	60	0	11	-1529.4
04/28/11	0:50	EST	0.0170	60.0170	60	0	12	-1841.0
04/28/11	0:51	EST	0.0260	60.0260	60	0	13	-2904.6
04/28/11	0:52	EST	0.0230	60.0230	60	0	14	-2564.7
04/28/11	0:53	EST	0.0340	60.0340	60	0	15	-3926.3
04/28/11	0:54	EST	0.0410	60.0410	60	0	16	-4535.7
04/28/11	0:55	EST	0.0320	60.0320	60	0	17	-3015.1
04/28/11	0:56	EST	0.0210	60.0210	60	0	18	-1650.3
04/28/11	22:39	EST	0.0308	60.0308	60	0	11	-932.2
04/28/11	22:40	EST	0.0310	60.0310	60	0	12	-625.2
04/28/11	22:41	EST	0.0240	60.0240	60	0	13	-621.9
04/28/11	22:42	EST	0.0393	60.0393	60	0	14	-1422.8
04/28/11	22:43	EST	0.0373	60.0373	60	0	15	-1084.3
04/28/11	22:44	EST	0.0258	60.0258	60	0	16	-1003.8

All durations of the BAAL being exceeded for more than 15 consecutive clock-minutes noted on left.

Periods of the FTL being exceeded for 3 consecutive clock minutes or more:

PrevailingTime	PTimeZone	FreqError	ActualFreq	SchedFreq
4/5/11 6:01	EDT	-0.0559	59.9441	60
4/5/11 6:02	EDT	-0.0776	59.9224	60
4/5/11 6:03	EDT	-0.0747	59.9253	60
4/5/11 22:59	EDT	0.0533	60.0533	60
4/5/11 23:00	EDT	0.0679	60.0679	60
4/5/11 23:01	EDT	0.0565	60.0565	60
4/7/11 6:01	EDT	-0.0545	59.9455	60
4/7/11 6:02	EDT	-0.0542	59.9458	60
4/7/11 6:03	EDT	-0.0533	59.9467	60
4/7/11 6:04	EDT	-0.0513	59.9487	60
4/7/11 6:05	EDT	-0.0539	59.9461	60
4/7/11 6:06	EDT	-0.0518	59.9482	60
4/9/11 0:17	EDT	-0.0511	59.9489	60
4/9/11 0:18	EDT	-0.0527	59.9473	60
4/9/11 0:19	EDT	-0.0548	59.9452	60
4/9/11 0:20	EDT	-0.058	59.942	60
4/9/11 0:21	EDT	-0.0529	59.9471	60
4/12/11 22:51	EDT	0.0515	60.0515	60
4/12/11 22:52	EDT	0.0626	60.0626	60
4/12/11 22:53	EDT	0.0543	60.0543	60
4/12/11 22:54	EDT	0.0554	60.0554	60
4/27/11 17:37	EDT	-0.0961	59.9039	60
4/27/11 17:38	EDT	-0.0881	59.9119	60
4/27/11 17:39	EDT	-0.0623	59.9377	60
4/29/11 8:26	EDT	0.0554	60.0554	60
4/29/11 8:27	EDT	0.0613	60.0613	60
4/29/11 8:28	EDT	0.0532	60.0532	60

04/07/2011 ending 06:06 EDT

6-minute duration below FTL_{Low}

EI Clock-Minute Average Frequency

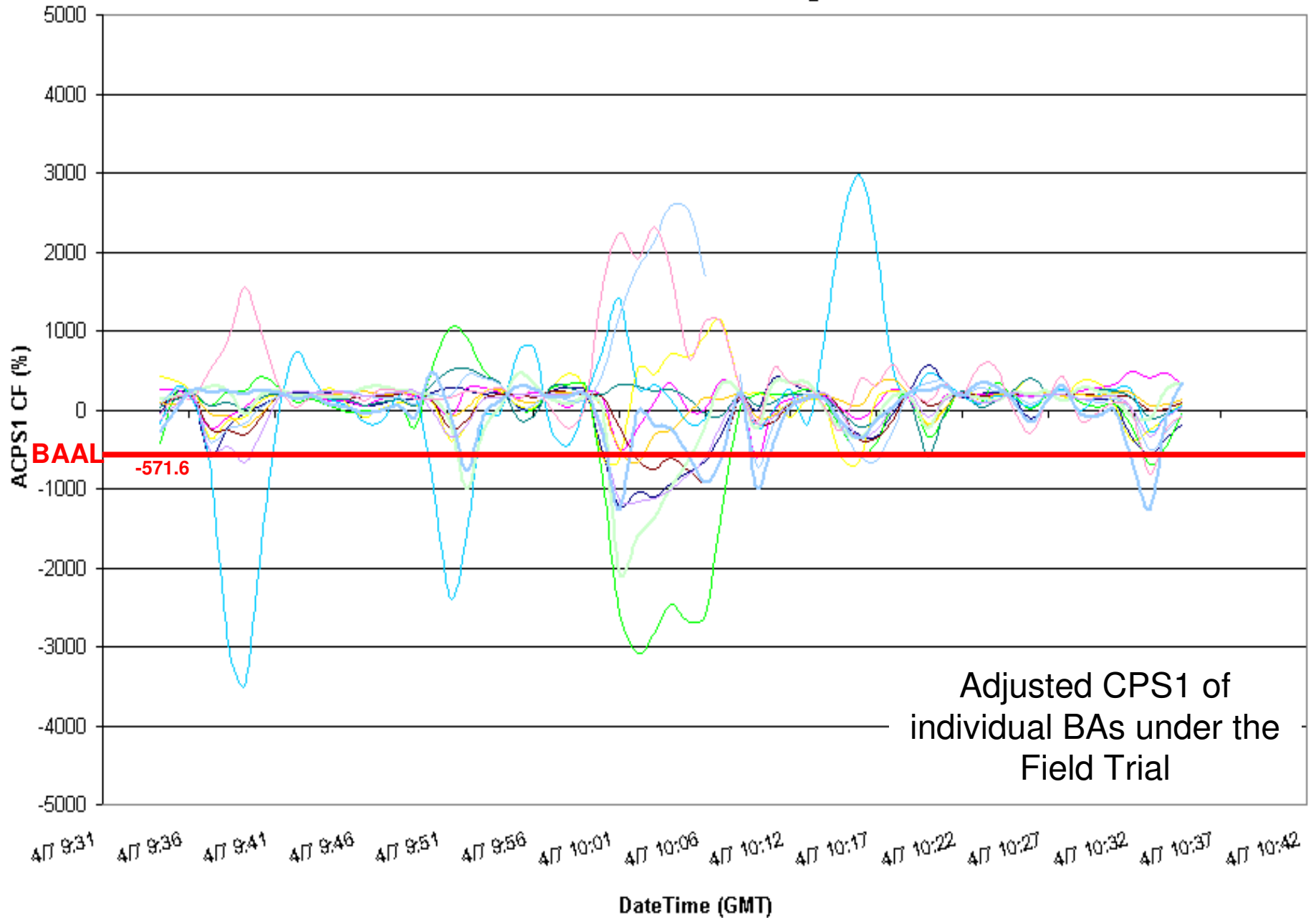


Clock-minute Actual Frequency of Participants

04/07/2011 ending 06:06 EDT

6-minute duration below FTL_{Low}

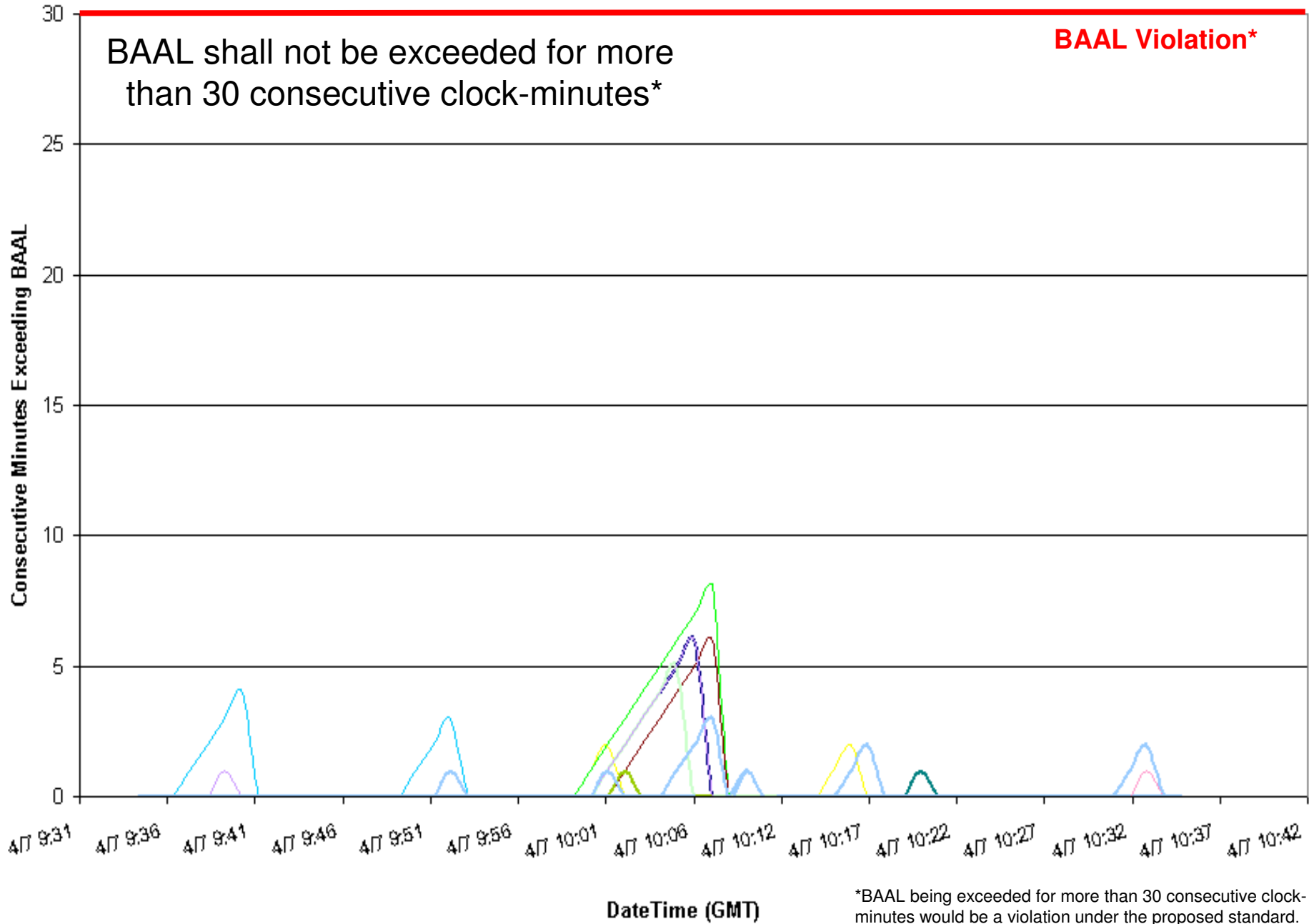
ACPS1 Clock-Minute Averages



04/07/2011 ending 06:06 EDT

6-minute duration below FTL_{Low}

Consecutive Minutes Exceeding BAAL

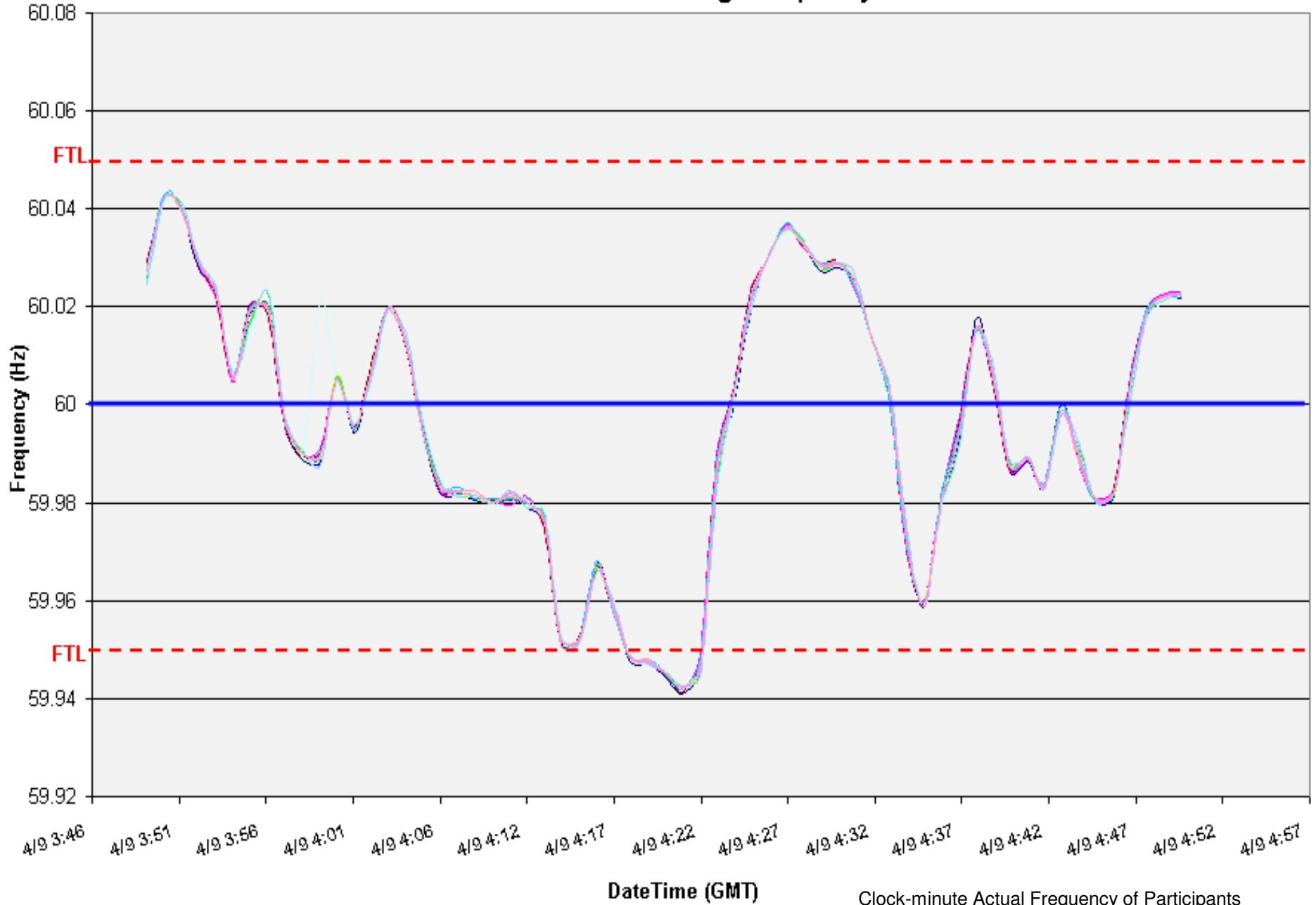


*BAAL being exceeded for more than 30 consecutive clock-minutes would be a violation under the proposed standard.

04/09/2011 ending 00:21 EDT

5-minute duration below FTL_{Low}

EI Clock-Minute Average Frequency

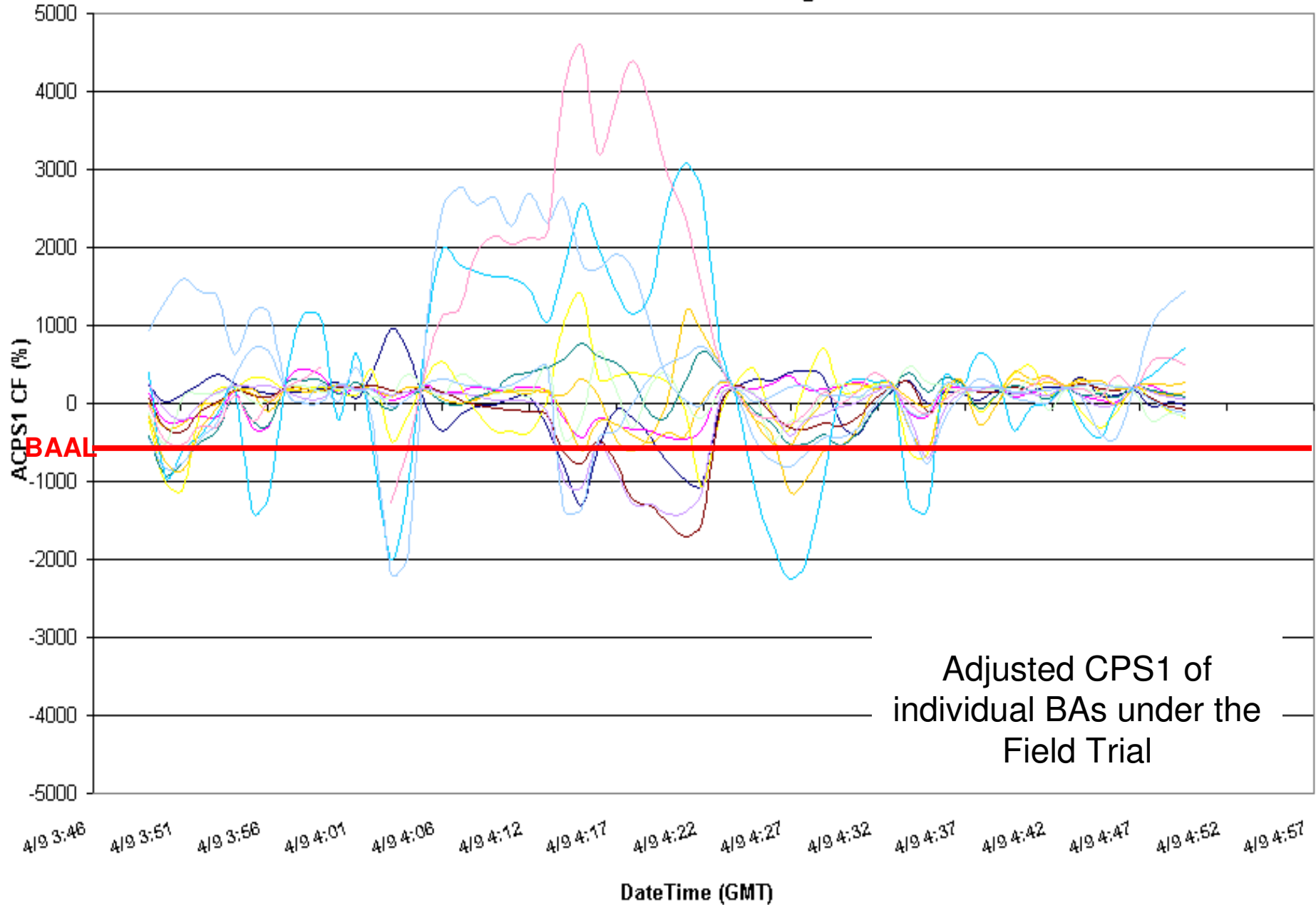


Clock-minute Actual Frequency of Participants

04/09/2011 ending 00:21 EDT

5-minute duration below FTL_{Low}

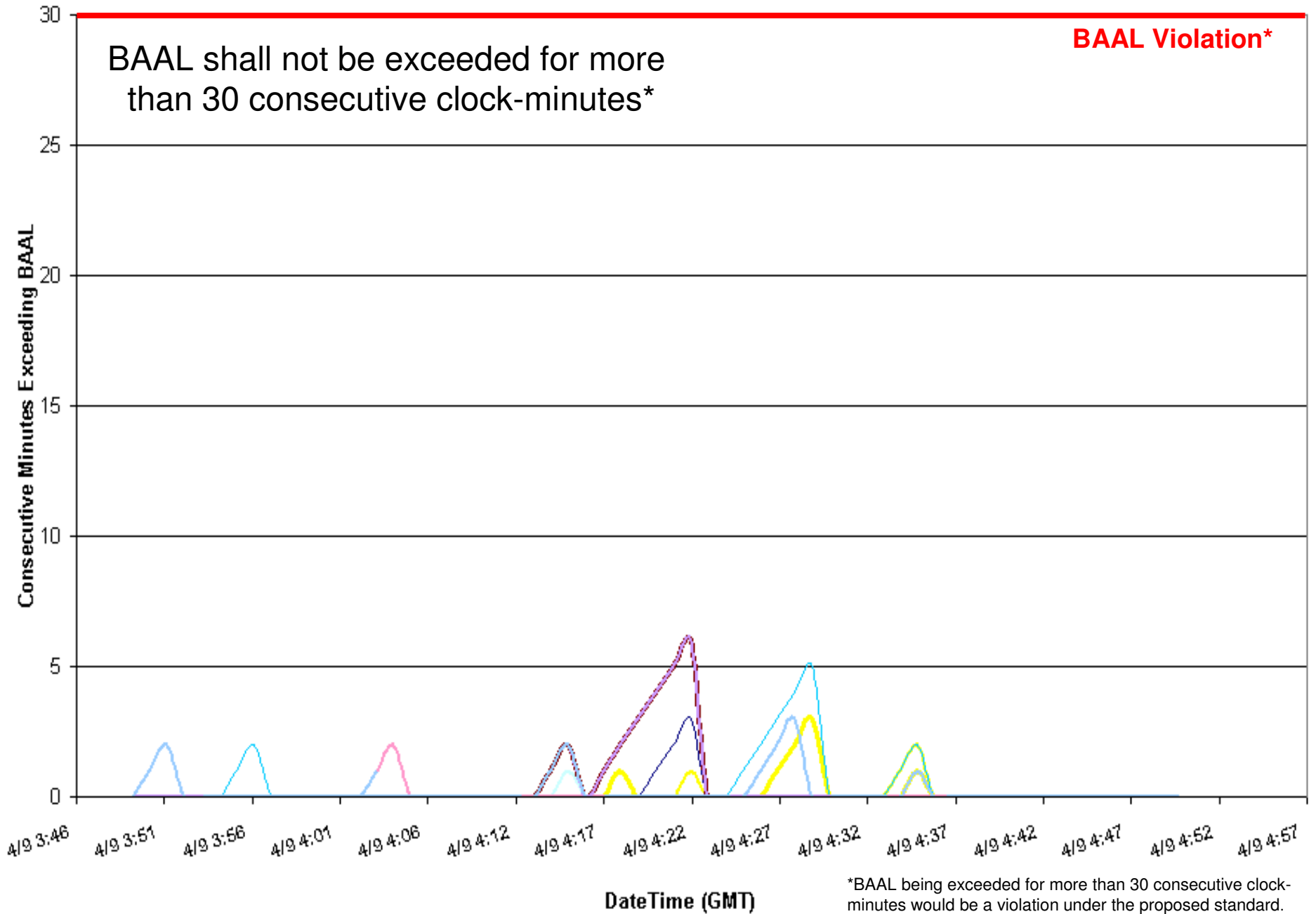
ACPS1 Clock-Minute Averages



Adjusted CPS1 of individual BAs under the Field Trial

04/09/2011 ending 00:21 EDT
5-minute duration below FTL_{Low}

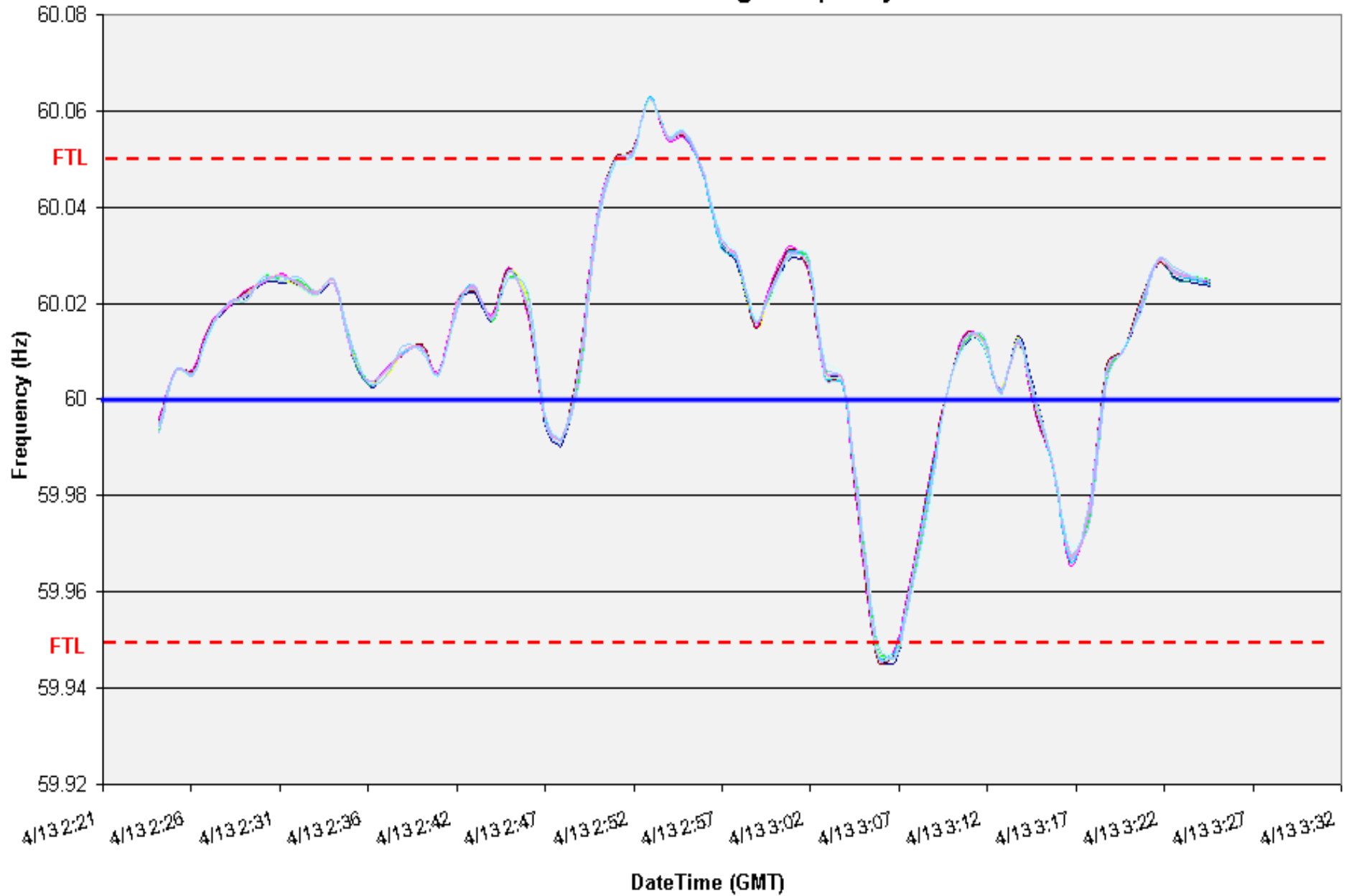
Consecutive Minutes Exceeding BAAL



04/12/2011 ending 22:54 EDT

4-minute duration above FTL_{High}

EI Clock-Minute Average Frequency

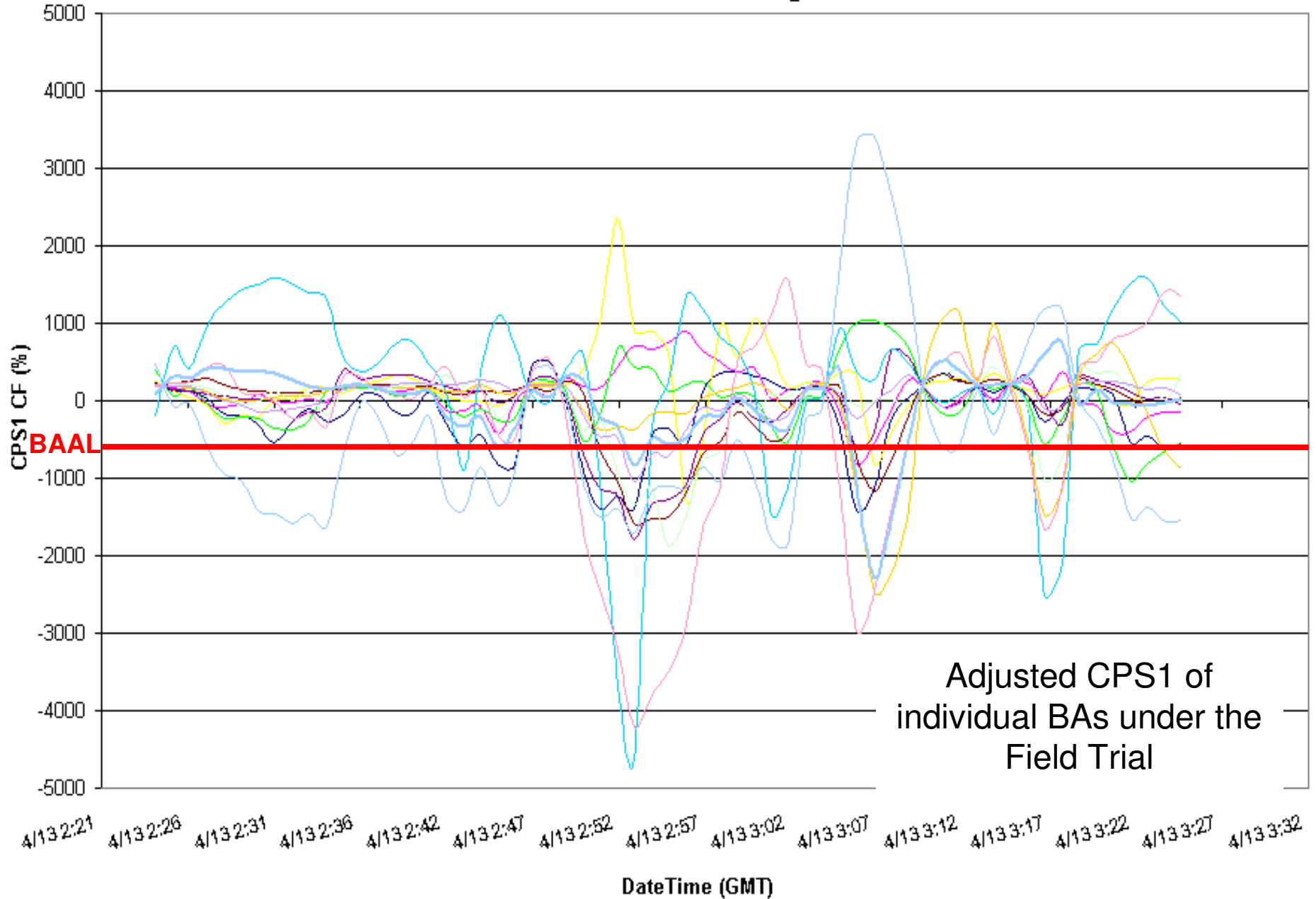


Clock-minute Actual Frequency of Participants

04/12/2011 ending 22:54 EDT

4-minute duration above FTL_{High}

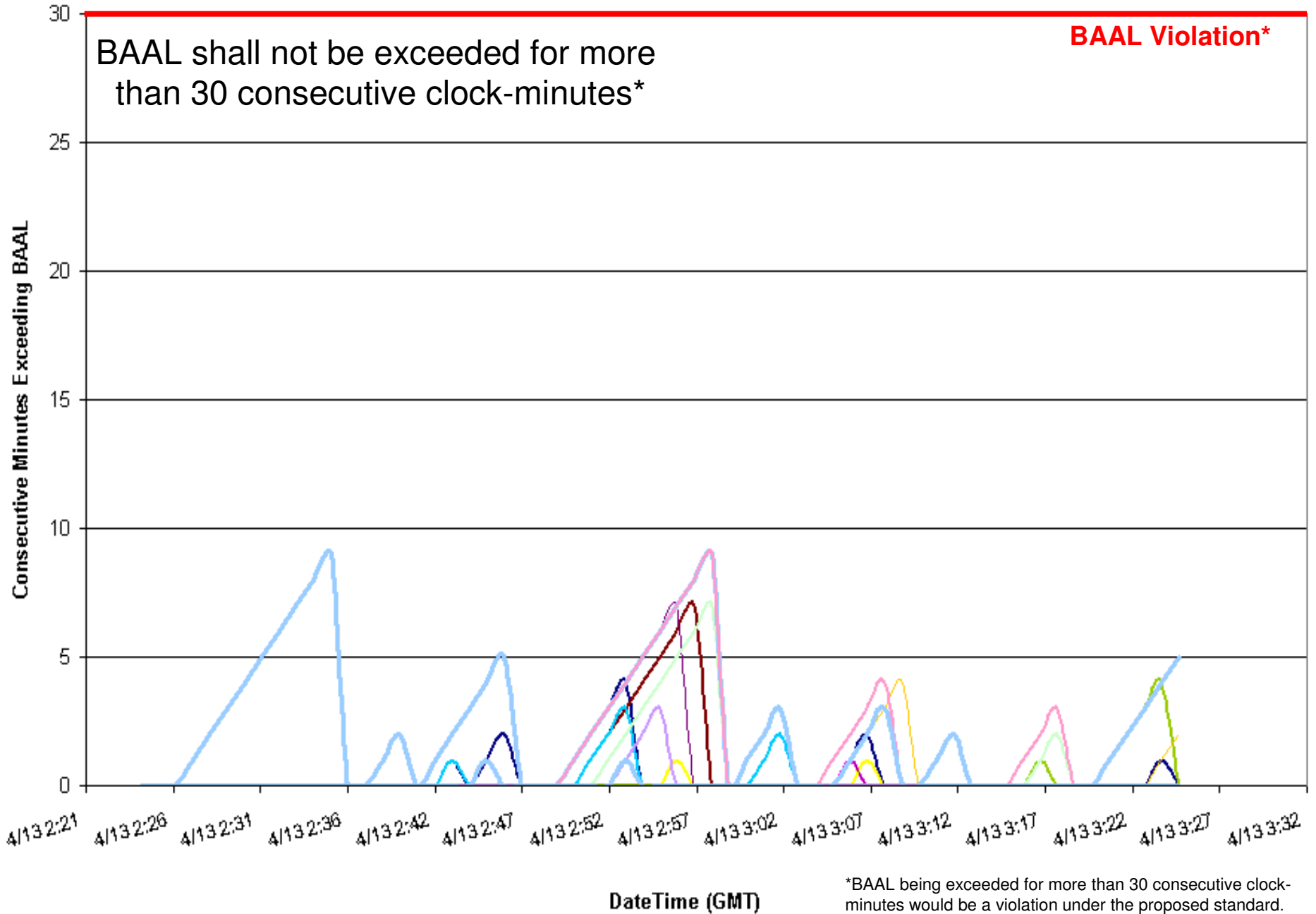
ACPS1 One-Minute Averages



04/12/2011 ending 22:54 EDT

4-minute duration above FTL_{High}

Consecutive Minutes Exceeding BAAL

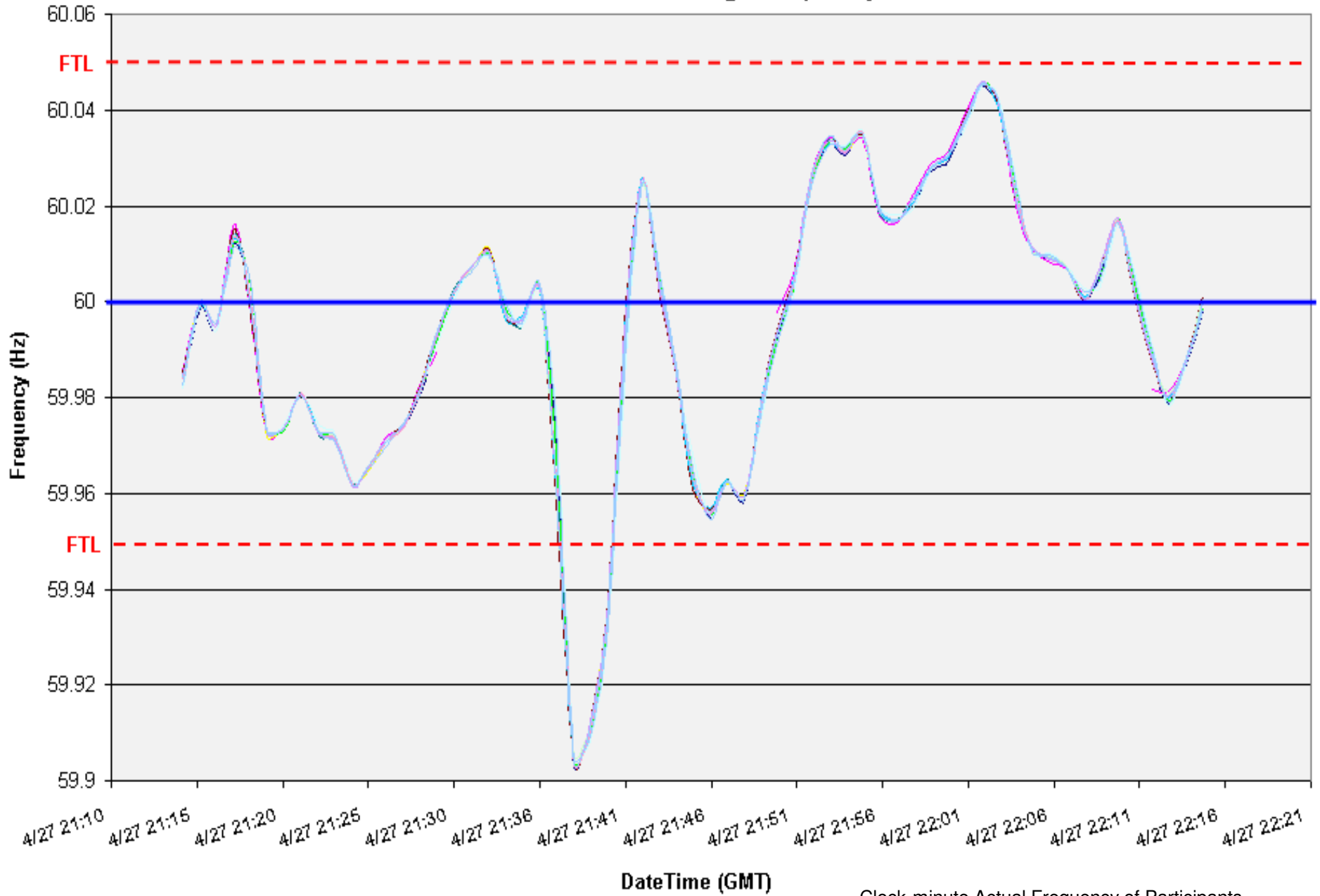


*BAAL being exceeded for more than 30 consecutive clock-minutes would be a violation under the proposed standard.

04/27/2011 ending 17:39 EDT

3-minute duration below FTL_{Low}

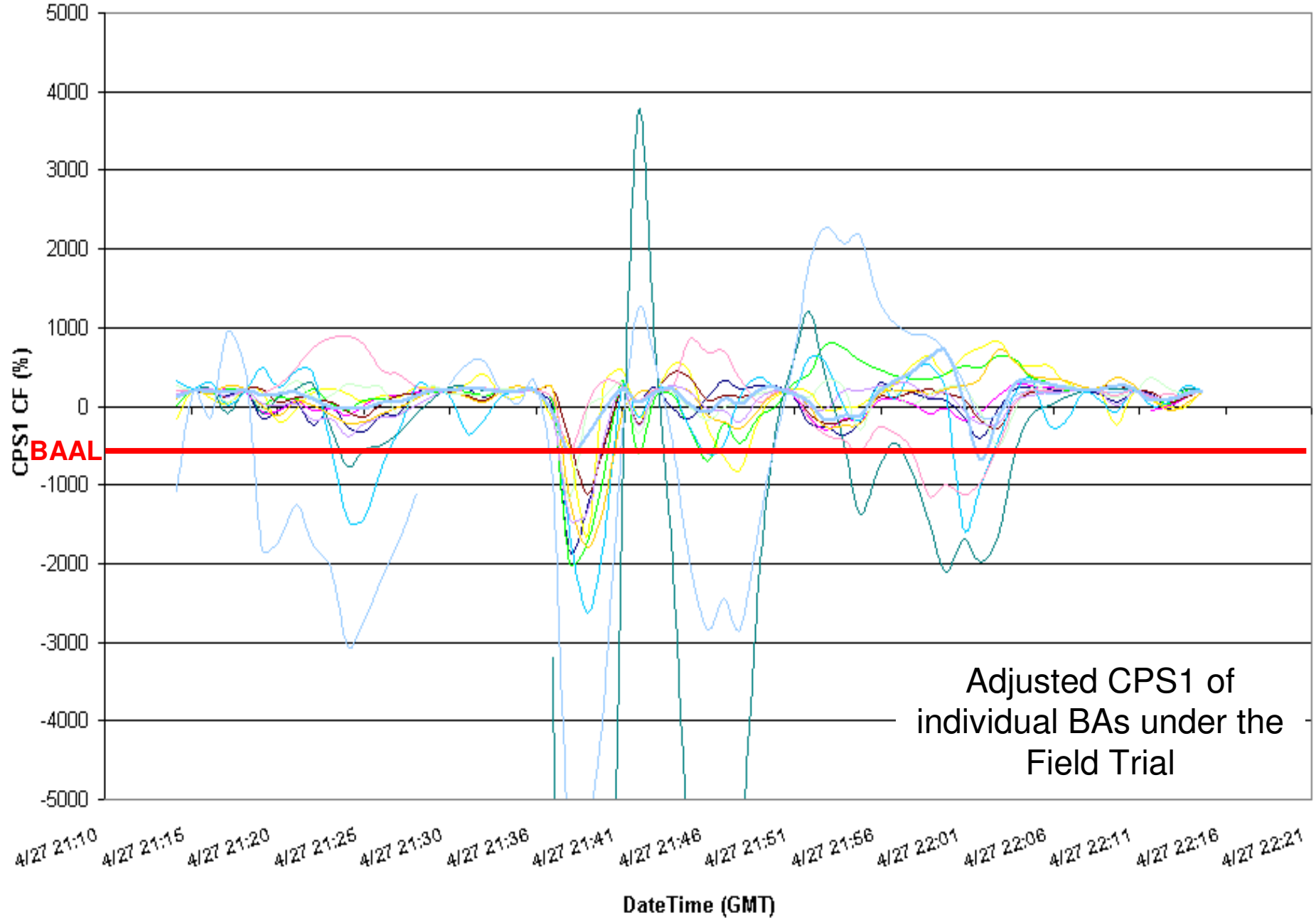
EI Clock-Minute Average Frequency



Clock-minute Actual Frequency of Participants

04/27/2011 ending 17:39 EDT
3-minute duration below FTL_{Low}

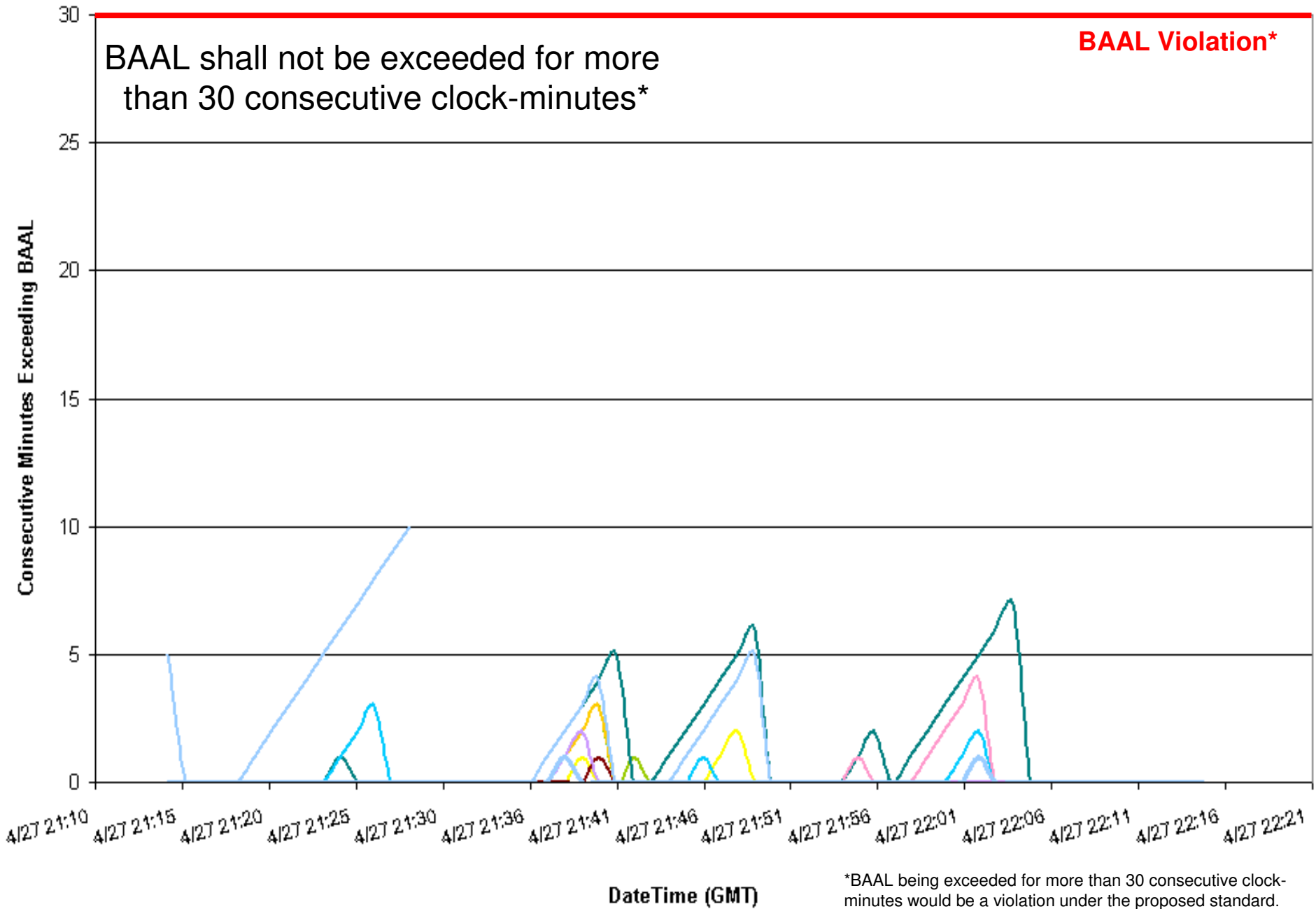
ACPS1 One-Minute Averages



04/27/2011 ending 17:39 EDT

3-minute duration below FTL_{Low}

Consecutive Minutes Exceeding BAAL

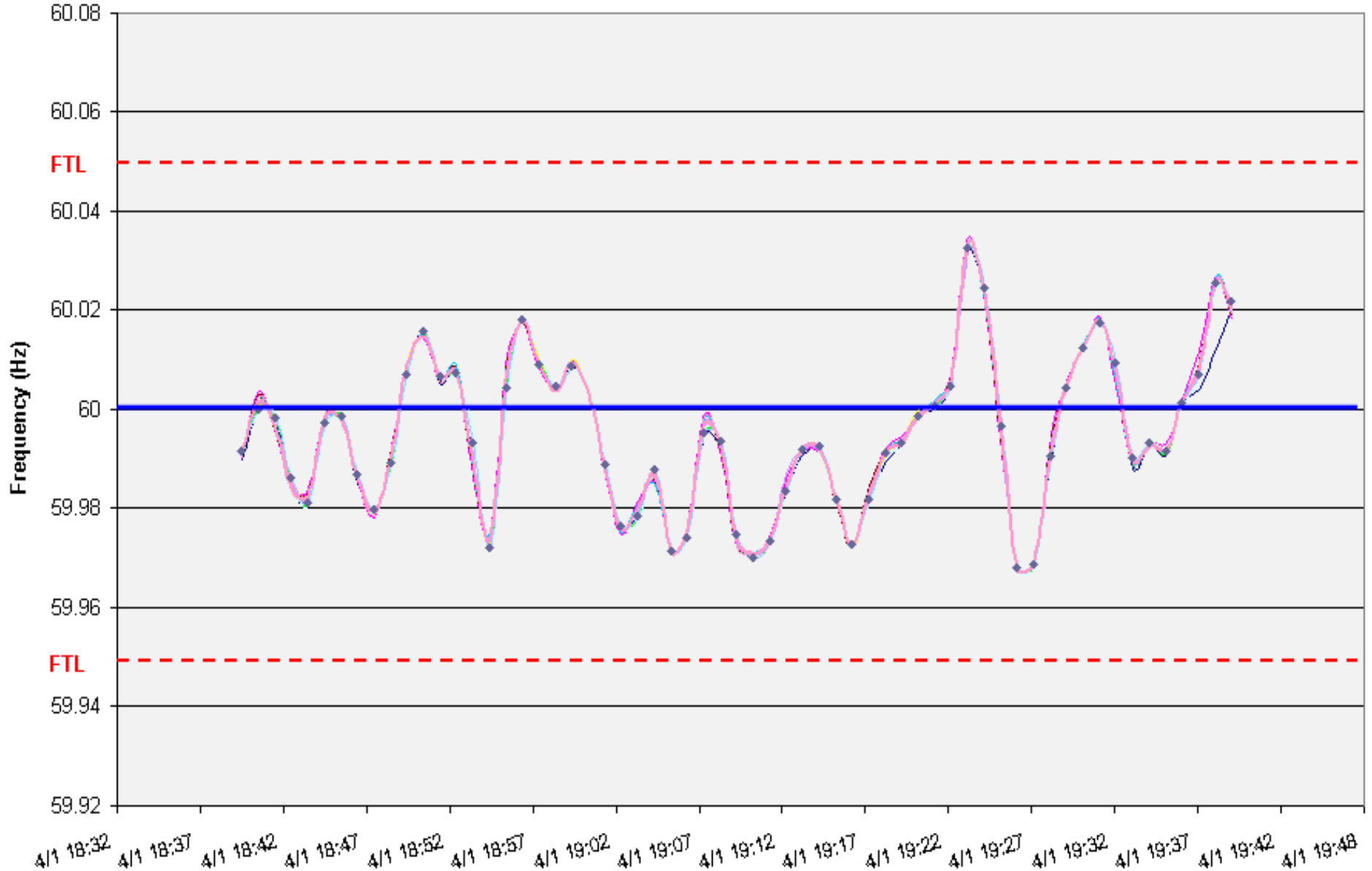


*BAAL being exceeded for more than 30 consecutive clock-minutes would be a violation under the proposed standard.

04/01/2011 ending 14:19 CDT

18-minute duration below BAAL_{Low}

EI Clock-Minute Average Frequency

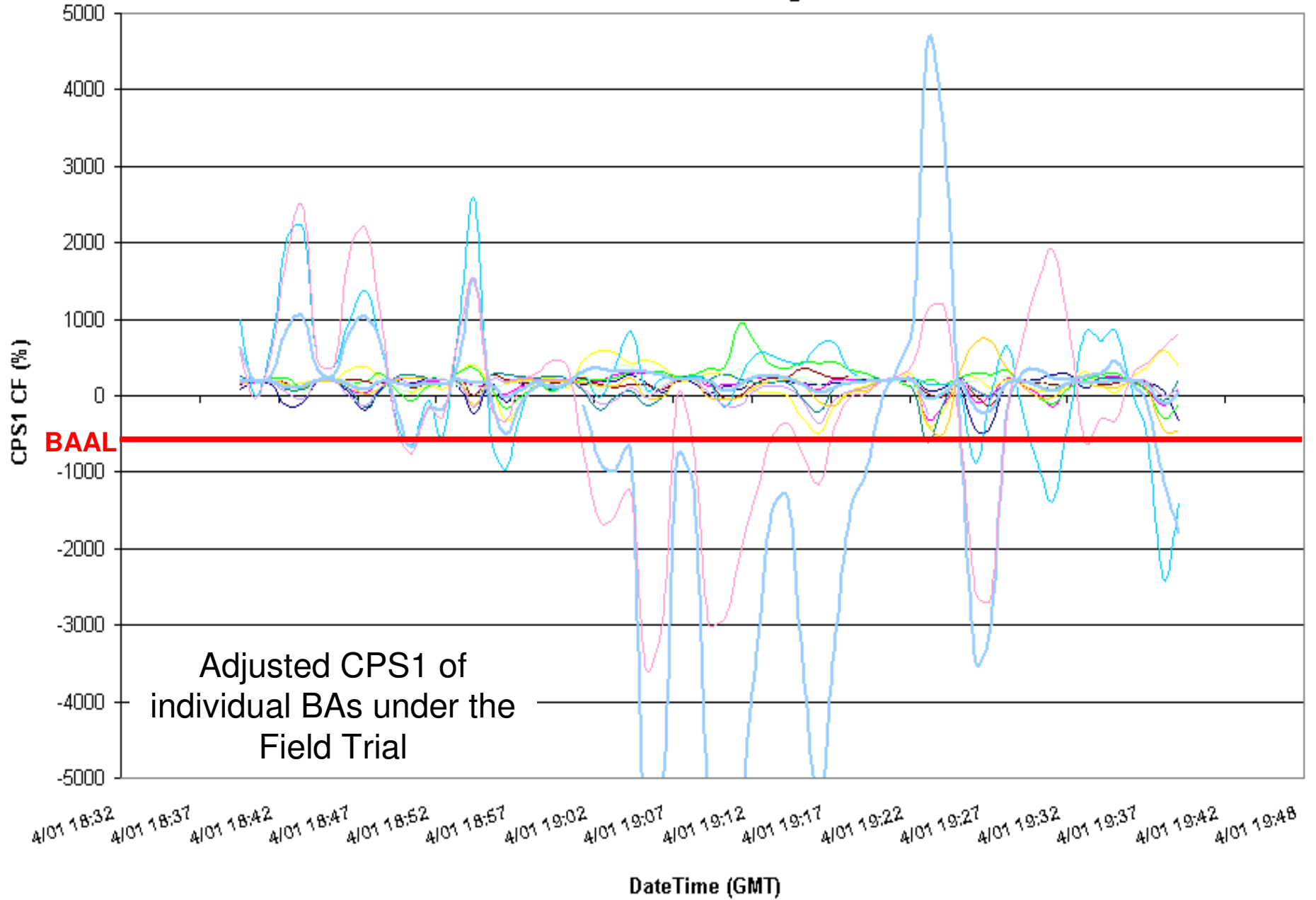


DateTime (GMT)

Clock-minute Actual Frequency of Participants

04/01/2011 ending 14:19 CDT
18-minute duration below BAAL_{Low}

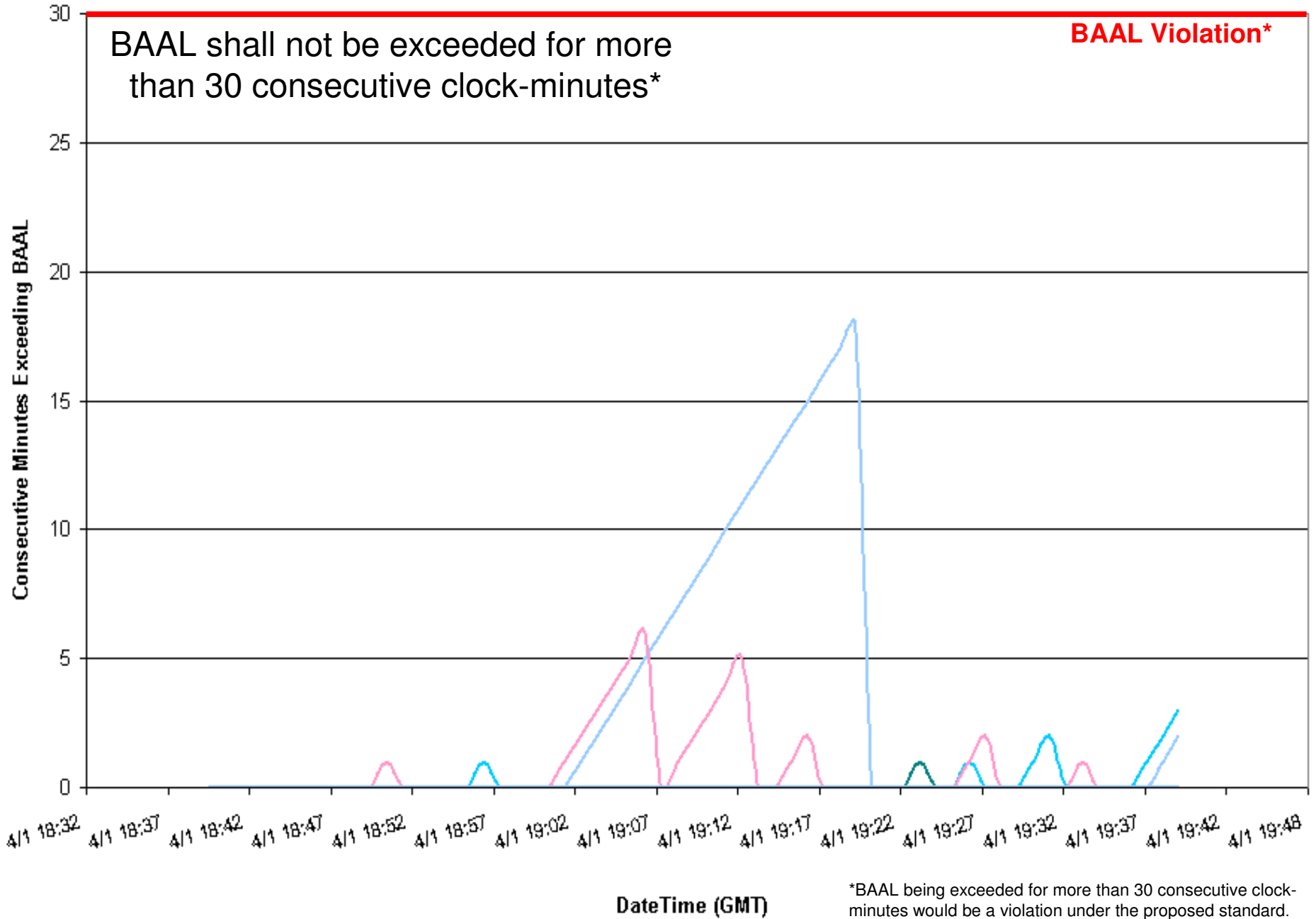
ACPS1 One-Minute Averages



04/01/2011 ending 14:19 CDT

18-minute duration below BAAL_{Low}

Consecutive Minutes Exceeding BAAL



04/28/2011 ending 00:56 EST
18-minute duration above BAAL_{High}

EI Clock-Minute Average Frequency

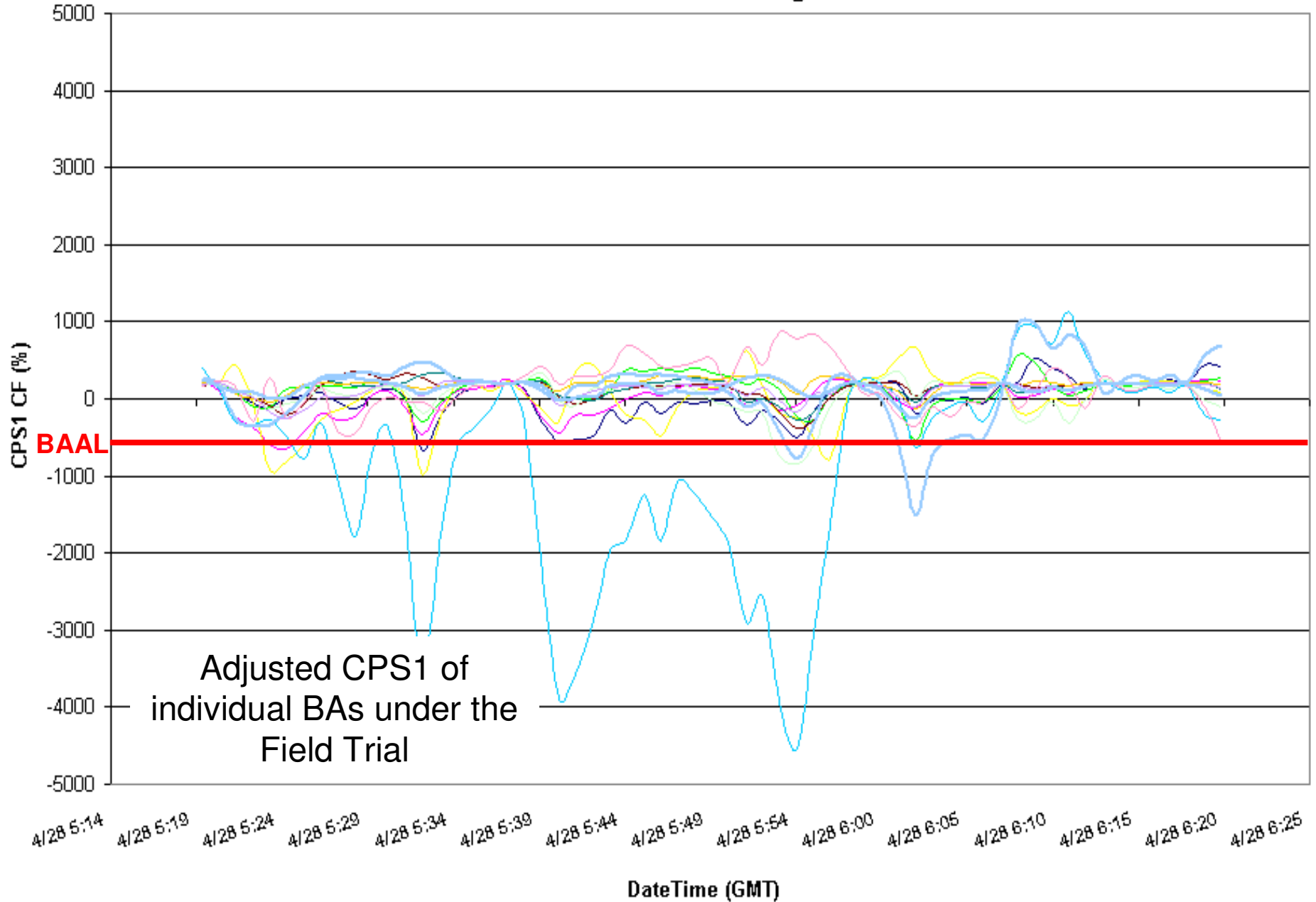


Clock-minute Actual Frequency of Participants

04/28/2011 ending 00:56 EST

18-minute duration above BAAL_{High}

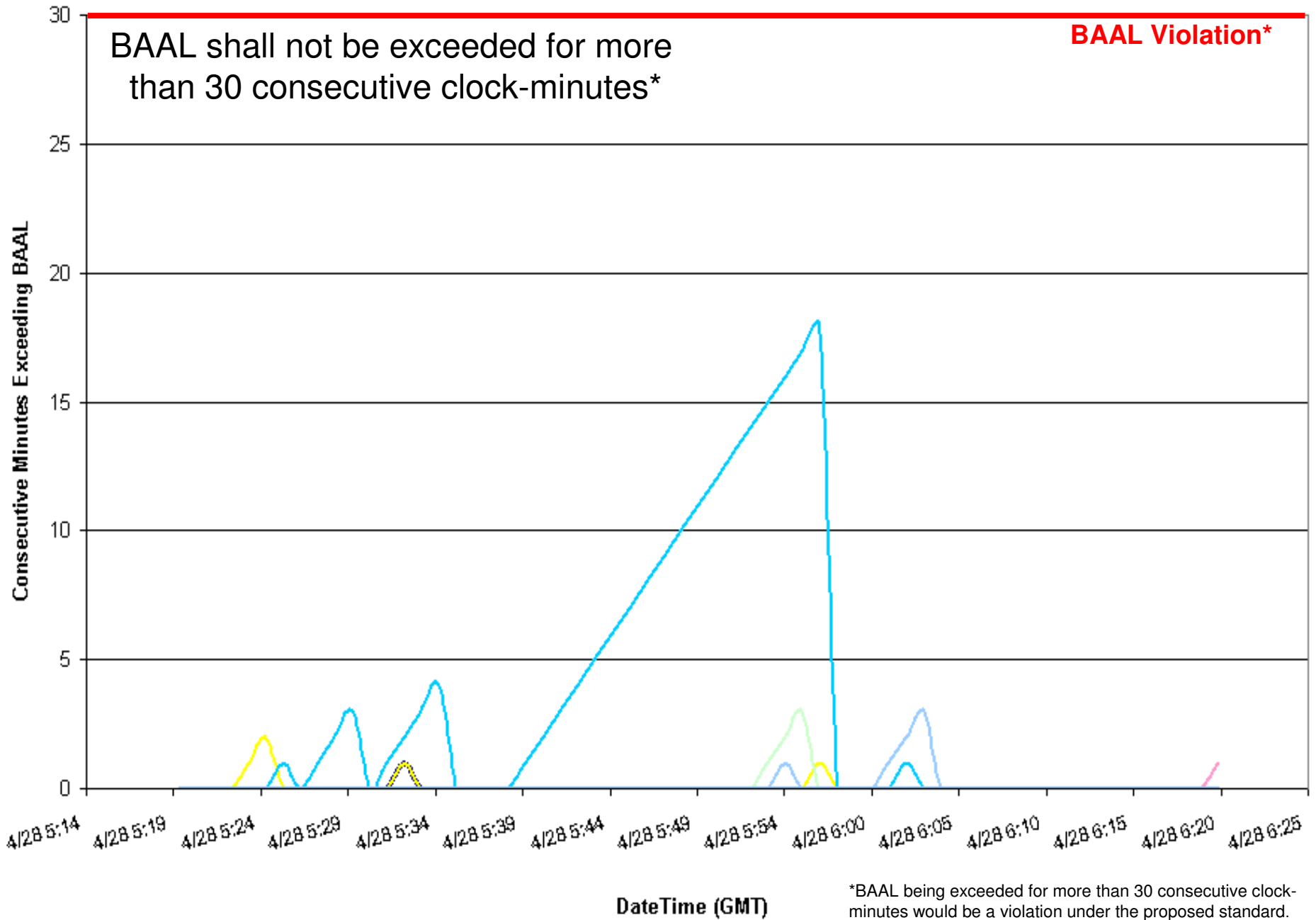
ACPS1 One-Minute Averages



04/28/2011 ending 00:56 EST

18-minute duration above BAAL_{High}

Consecutive Minutes Exceeding BAAL



*BAAL being exceeded for more than 30 consecutive clock-minutes would be a violation under the proposed standard.

Balancing Authority ACE Limit Proof-of-Concept Field Trial

Examples of circumstances when BAAL was exceeded and actions taken if appropriate

Clock-minute of ACE exceeding the BAAL (mm/dd/yy hh:mm)	Clock-minute of ACE returning within the BAAL (mm/dd/yy hh:mm)	TimeZone	Total duration of ACE exceeding the BAAL (minutes)	Event associated with a DCS-Reportable Event? (0=No, 1=Yes)	Event associated with a resource loss other than a DCS-Reportable Event? (0=No, 1=Yes)	Brief explanation of circumstances and notable actions taken if applicable
4/11/11 22:42	4/11/11 22:54	CDT	0:13	0	1	BAAL High 1) Several large sub-areas within the BA had generation at minimum levels, and several other large units were also backed down to minimum. Several other units were offline. 2) Reduced generation limits on other units to either minimum or lower limits to get out of event.
4/13/11 5:26	4/13/11 5:39	EST	0:14	0	1	BAAL Low Large unit tripped - experienced a stat up failure on one of the quick load CT's, started an additional one
4/28/11 0:39	4/28/11 0:56	EST	0:18	0	0	BAAL High A large industrial customer (steel mill) experienced a brief pause in process, causing ACE to exceed BAAL-high. The operator decreased generation to bring ACE within limits.
4/26/11 21:43	4/26/11 21:57	EST	0:15	0	0	BAAL High
4/18/11 4:02	4/18/11 4:11	EST	0:10	0	0	BAAL Low

Balancing Authority ACE Limit Proof-of-Concept Field Trial

Examples of circumstances when BAAL was exceeded and actions taken if appropriate

Clock-minute of ACE exceeding the BAAL (mm/dd/yy hh:mm)	Clock-minute of ACE returning within the BAAL (mm/dd/yy hh:mm)	TimeZone	Total duration of ACE exceeding the BAAL (minutes)	Event associated with a DCS-Reportable Event? (0=No, 1=Yes)	Event associated with a resource loss other than a DCS-Reportable Event? (0=No, 1=Yes)	Brief explanation of circumstances and notable actions taken if applicable
4/1/2011 14:02	4/1/11 14:19	CDT	0:18	0	1	Frequency low and loss of large Jointly Owned Unit Share due to unit tripping. Marketing requested schedule cuts rather than calling on reserves. One RTO refused the cuts due to a short ramp. Another refused because they do not accept BAAL as a reliability issue and will not approve cuts until our RC calls them. RC was contacted and resubmitted cuts were finally approved.
4/10/2011 21:49	4/10/11 22:00	CDT	0:12	0	0	BAAL High
4/11/2011 22:42	4/11/11 22:54	CDT	0:13	0	0	BAAL High
4/14/2011 17:00	4/14/11 17:10	CDT	0:11	0	0	BAAL High
4/16/2011 17:56	4/16/11 18:07	CDT	0:12	0	0	BAAL High
4/19/11 8:12	4/19/11 8:23	CDT	0:12	0	0	BAAL Low
4/21/11 23:44	4/21/11 23:57	CDT	0:14	0	0	BAAL High
4/23/11 7:15	4/23/11 7:28	CDT	0:14	0	0	BAAL Low
4/26/11 16:48	4/26/11 16:58	CDT	0:11	0	0	BAAL High
4/28/11 22:29	4/28/11 22:44	EST	0:16	0	0	BAAL High. A non-conforming load was running with reduced load but with intermittent periods of high load demand. To mitigate the situation, the controller called on the plants to cut generation. Recovery was impacted by the slow response of units to reduce their generation.
4/4/11 22:38	4/4/11 22:48	EST	0:11	0	0	BAAL High
4/14/11 20:46	4/14/11 20:56	EST	0:11	0	0	BAAL High

Balancing Authority ACE Limit Proof-of-Concept Field Trial

Discussion

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