

## **Instructions**

**Step 1**

**Step 2**

**Step 3**

**Step 4**

**Step 5**

**Step 6**

**Step 7**

**Step 7**

**Step 8**

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Enter data in all green cells on the "Data Entry" worksheet. Cell G1 with the BA name. Cells R11 through

For identified events in column C of the "Data Entry" worksheet, collect data and complete one FRS Form 2. Detailed Instructions for utilizing the "Adjustments" are located on the "Adjustments" worksheet below the

PasteSpecial/Values data from FRS Form 2 "Form 1 Summary Data" worksheet into "BA Form 2 Event Data"

Enter FERC Form 714 data from the most recent completed Form 714 in the worksheet "Form 714 Data" in cell R19. Your current year's Frequency Response Obligation will be calculated in cell R20 of the "Data Entry" worksheet.

a) If a Fixed Bias was selected, cell R27 will calculate the minimum Bias (least negative) allowed based on the average Fixed Bias setting when frequency is lower than 59.964 Hz or higher than 60.036 Hz and entered in cell D13.  
b) If a Fixed Bias was selected, cell R28 will calculate the minimum (in absolute terms) Bias allowed based on the average Fixed Bias setting when frequency is lower than 59.964 Hz or higher than 60.036 Hz and entered in cell D13.  
c) If a Fixed Bias was selected, cell R29 will calculate the maximum Bias (in absolute terms) allowed based on the average Fixed Bias setting when frequency is lower than 59.964 Hz or higher than 60.036 Hz and entered in cell D13.  
d) If R29 was more negative than the value in R27, you may choose a Bias setting that is between R29 and R27. This value will appear in cell R33.

a) If a Variable Bias was selected, cell R27 will indicate "not applicable" where there is no maximum or minimum Bias setting.  
b) If a Variable Bias was selected, enter "Variable" in cell R31.

c) If a Variable Bias was selected, cell R30 will calculate the minimum Bias (in absolute terms) allowed based on the average Variable Bias setting when frequency is lower than 59.964 Hz or higher than 60.036 Hz and entered in cell D13.

d) If the "average annual Variable Bias Setting" in cell D14 on the "Variable Bias Supplemental Info" worksheet is greater than the minimum Bias Setting in cell D14 on the "Variable Bias Supplemental Info" worksheet will turn red. The average minimum Bias Setting is calculated from those year's Form 1s for this evaluation.

e) Depending on when the Implementation date is each year for the annual Bias Setting, the ERO may be completed by the ERO before each year's FRS Form 1 is published.

f) The comparison to the FBS minimum will be from two previous year's analysis prior to the current year and the current year. For example, if it is Feb 1, 2013 and you are calculating your 2012 FBS time weighted average, the minimum FBS will be the Peak Demand/Peak Gen reported in June of 2011 for 2010 data. Enter each field in green using the appropriate values.

Two FRMs are calculated. One for the BA Bias Setting and one for meeting R1 of the standard.

The FRM for the BA Bias Setting will use all selected events and all SEFRD values will use the delta frequency values.

The FRM for the BA compliance to R1 will limit the delta frequency to no greater than those listed in Table 1 (ERCOT +/-0.700 Hz and HQ +/-1.500 Hz.)

Save this workbook using the following file name format: NYISO\_YYYY\_FRS\_Form\_1.9.xlsx. (where NYISO is the NYISO ID and YYYY is the year.)

Send completed Form 1 and each Form 2 to NERC.

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et for your exact file name.

Item	Quantity	Unit	Description
1	1	EA	...
2	1	EA	...
3	1	EA	...
4	1	EA	...
5	1	EA	...
6	1	EA	...
7	1	EA	...
8	1	EA	...
9	1	EA	...
10	1	EA	...
11	1	EA	...
12	1	EA	...
13	1	EA	...
14	1	EA	...
15	1	EA	...
16	1	EA	...
17	1	EA	...
18	1	EA	...
19	1	EA	...
20	1	EA	...
21	1	EA	...
22	1	EA	...
23	1	EA	...
24	1	EA	...
25	1	EA	...
26	1	EA	...
27	1	EA	...
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29	1	EA	...
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31	1	EA	...
32	1	EA	...
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95	1	EA	...
96	1	EA	...
97	1	EA	...
98	1	EA	...
99	1	EA	...
100	1	EA	...

1. Material description  
 2. Material quantity  
 3. Material unit  
 4. Material description

Item	Quantity	Unit	Description
1	1	EA	...
2	1	EA	...
3	1	EA	...
4	1	EA	...
5	1	EA	...
6	1	EA	...
7	1	EA	...
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96	1	EA	...
97	1	EA	...
98	1	EA	...
99	1	EA	...
100	1	EA	...

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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Report 714 Data (in MW)  
Part II Schedule 3

Column (b) Month	Column (j) Peak Demand
January	
February	
March	
April	
May	
June	
July	
August	
September	
October	
November	
December	
Average	#DIV/0!
Maximum	0

Peak Demand: (Your BA from Form 714, column j of Part II - Schedule 3)

Event Number	Balancing Authority MyBA		JOU Dynamic Schedules		Non conforming Load	
	Date/Time (t-0) (Central Prevailing)	DelFreq	Value A Adjustment	Value B Adjustment	Value A Adjustment	Value B Adjustment
1			0.0	0.0	0.0	0.0
2			0.0	0.0	0.0	0.0
3			0.0	0.0	0.0	0.0
4			0.0	0.0	0.0	0.0
5			0.0	0.0	0.0	0.0
6			0.0	0.0	0.0	0.0
7			0.0	0.0	0.0	0.0
8			0.0	0.0	0.0	0.0
9			0.0	0.0	0.0	0.0
10			0.0	0.0	0.0	0.0
11			0.0	0.0	0.0	0.0
12			0.0	0.0	0.0	0.0
13			0.0	0.0	0.0	0.0
14			0.0	0.0	0.0	0.0
15			0.0	0.0	0.0	0.0
16			0.0	0.0	0.0	0.0
17			0.0	0.0	0.0	0.0
18			0.0	0.0	0.0	0.0
19			0.0	0.0	0.0	0.0
20			0.0	0.0	0.0	0.0
21			0.0	0.0	0.0	0.0
22			0.0	0.0	0.0	0.0
23			0.0	0.0	0.0	0.0
24			0.0	0.0	0.0	0.0
25			0.0	0.0	0.0	0.0
26			0.0	0.0	0.0	0.0
27			0.0	0.0	0.0	0.0
28			0.0	0.0	0.0	0.0
29			0.0	0.0	0.0	0.0
30			0.0	0.0	0.0	0.0
31			0.0	0.0	0.0	0.0
32			0.0	0.0	0.0	0.0
33			0.0	0.0	0.0	0.0
34			0.0	0.0	0.0	0.0
35			0.0	0.0	0.0	0.0
36			0.0	0.0	0.0	0.0
37			0.0	0.0	0.0	0.0
38			0.0	0.0	0.0	0.0
39			0.0	0.0	0.0	0.0
40			0.0	0.0	0.0	0.0
41			0.0	0.0	0.0	0.0
42			0.0	0.0	0.0	0.0



**Sign Convention for scan data collected in Form 2**

**Imports: MWs are -  
Exports: MWs are +**

**Loads in MW as -**

### **Instructions for utilizing Adjustments:**

- 1) Balancing Authorities making adjustments must retain evidence to verify:
  - Adjustment values are determined from scan-cycle data using Value A
  - Adjustments are necessary to improve accuracy of calculations compared to Value A. Said differently, unless an adjustment compensates for significant error, no adjustment for one or more of the five types is made for one event.
  - Adjustments are included consistently for all events that are contingent during the event, which is only utilized for the events that you are contingent during the event.
  - Adjustments are included consistently for all events (e.g. if adjustment is made for one event, it must be made for all events during that event).
- 2) Dynamic Schedules:
  - Values use schedule sign convention.
  - Adjustments should include only dynamic schedules accounting for the event.
- 3) Nonconforming Loads:
  - Values must be negative numbers.
- 4) Pumped Hydro:
  - Values for pumping must be negative values.
  - Values for generating must be positive values.
- 5) Rampling Units:
  - Values are positive values.
- 6) Transferred Frequency Response:
  - This value is the amount agreed upon between the entities expressing the response (e.g. if an entity agrees to provide 20 MW/0.1 Hz to another entity, the value is entered in the data column of Form 2 and the receiving entity should enter - 20. The value is entered as a positive value for the entity providing the response and a negative value for the entity receiving the response).
  - Values for the entity receiving the response must be entered as a negative value.
  - Values for the entity delivering the response must be entered as a positive value.
  - Values between entities must sum to zero.
- 7) Contingent Balancing Authority Adjustment:
  - Data for Value A is the pre-contingency scan rate generation (+MW)
  - Data for Value B is usually 0 MW, but may be the demand (-MW value)



**Load MW as -  
Generation MW as +**

**Enter Gen MW as +**

**The transactional  
amount in  
MW Receiver enters -  
Deliverer enters +  
on Form 2 Data sheet**

**Generatio  
(If demand occ  
loss, enter MW**

Verify:

Use A and Value B averaging periods. Scan-cycle data must be available if adjustments are made. Compared to using Net Actual Interchange solely.

If a known error, it should not be made. However, as noted in the next item, once a decision to include an event, the entity must calculate adjustments for that (those) type(s) for all events except for the Contingent BA Ad at event.

Adjustments for nonconforming load are made for one event, the load must be included for all events, etc.).

For joint-owned units. Other dynamic schedules should be ignored.

Adjusted in MW/0.1 Hz. Form 2 will adjust this amount for the frequency deviation experienced.

When a frequency event with a deviation of 50 mHz occurs, the delivering entity should enter +20 in the spreadsheet will adjust the SEFRD for each entity by the 10 for this event.)

Negative number.

Positive number.

For values) from the contingent unit(s).

Values) that remains on the system that was "netted" out by the now offline generation.



n MW as +  
:urs due to gen  
as - at value B)

justment

Month	Minimum FBS* for month	Maximum FBS* for month	Time weighted ** average FBS* for month	Time weighted ** minimum average FBS* for month
January				
February				
March				
April				
May				
June				
July				
August				
September				
October				
November				
December				

1899 Average Annual

\* Frequency Bias Setting (FBS)

\*\* Based on the one minute values used in BAL 001 when frequency is greater than 60.036 Hz

Balancing Authority: MyBA

1898 Reporting period FRS Form 1 data	
0.00	1898 Reporting period: Balancing Authority FRM MW/0.1 Hz, enter from FRS F
1.00%	1898 Reporting period: Interconnection Minimum Fixed Frequency Bias Setting
	1898 Reporting period: Your BA's Annual Peak Demand or Peak Gen for Gen c
0.00	Your BA's lowest absolute Fixed Frequency Bias Setting based on BA Peak De
0.00	Your BA's lowest absolute Fixed Frequency Bias Setting based on 100% of FR
0.00	1899 Minimum, lowest absolute, conditional average Frequency Bias Setting M
	1898 Minimum, lowest absolute, conditional average Frequency Bias Setting M

l Bias MW/0.1 Hz

or less than 59.964 Hz.

Form 1 for that year's FRM. If not know enter zero.

| % of Peak Demand or Peak Generation (Set by ERO)

only BAs from your BA Form 714.

emand (Peak Generation for Generation only BA) MW/0.1 Hz.

M.

W/0.1 Hz.

W/0.1 Hz.



PasteSpecial/Values the data copied from FRS Form 2 for each event

Event Number	Date/Time (Central Prevailing)	DelFreq	Date	A Point Time	FPointA Hz	A Value Hz
1	12/30/1899 0:00	0.000				
2	12/30/1899 0:00	0.000				
3	12/30/1899 0:00	0.000				
4	12/30/1899 0:00	0.000				
5	12/30/1899 0:00	0.000				
6	12/30/1899 0:00	0.000				
7	12/30/1899 0:00	0.000				
8	12/30/1899 0:00	0.000				
9	12/30/1899 0:00	0.000				
10	12/30/1899 0:00	0.000				
11	12/30/1899 0:00	0.000				
12	12/30/1899 0:00	0.000				
13	12/30/1899 0:00	0.000				
14	12/30/1899 0:00	0.000				
15	12/30/1899 0:00	0.000				
16	12/30/1899 0:00	0.000				
17	12/30/1899 0:00	0.000				
18	12/30/1899 0:00	0.000				
19	12/30/1899 0:00	0.000				
20	12/30/1899 0:00	0.000				
21	12/30/1899 0:00	0.000				
22	12/30/1899 0:00	0.000				
23	12/30/1899 0:00	0.000				
24	12/30/1899 0:00	0.000				
25	12/30/1899 0:00	0.000				
26	12/30/1899 0:00	0.000				
27	12/30/1899 0:00	0.000				
28	12/30/1899 0:00	0.000				
29	12/30/1899 0:00	0.000				
30	12/30/1899 0:00	0.000				
31	12/30/1899 0:00	0.000				
32	12/30/1899 0:00	0.000				
33	12/30/1899 0:00	0.000				
34	12/30/1899 0:00	0.000				
35	12/30/1899 0:00	0.000				
36	12/30/1899 0:00	0.000				
37	12/30/1899 0:00	0.000				
38	12/30/1899 0:00	0.000				
39	12/30/1899 0:00	0.000				
40	12/30/1899 0:00	0.000				
41	12/30/1899 0:00	0.000				
42	12/30/1899 0:00	0.000				







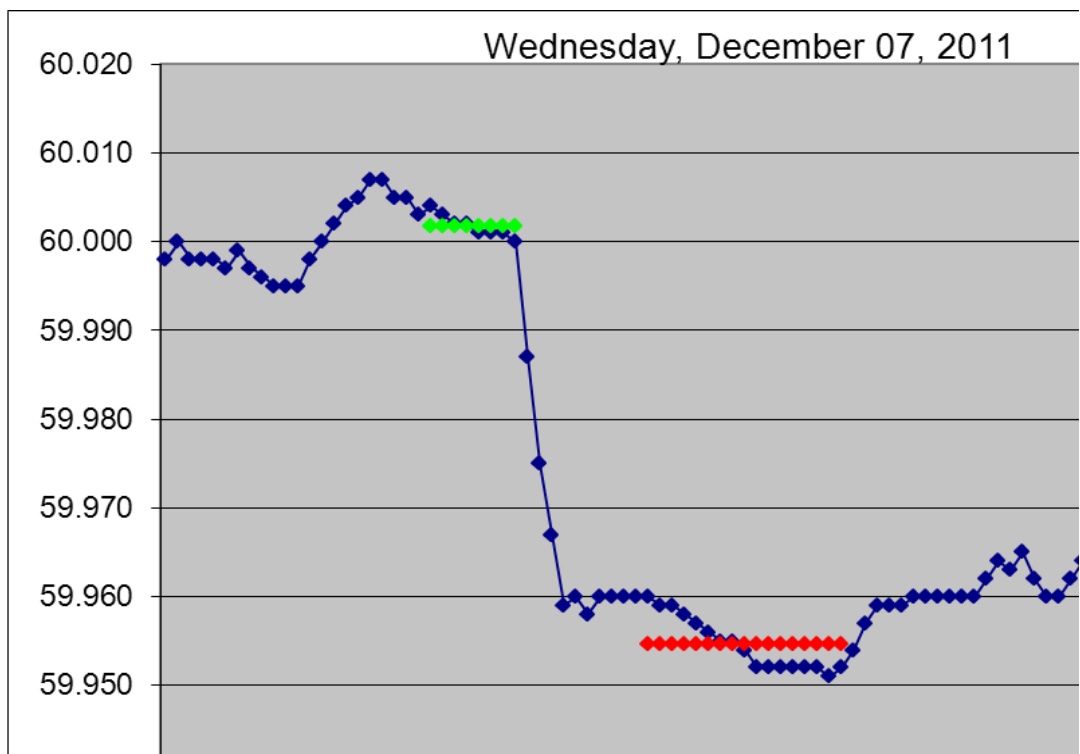
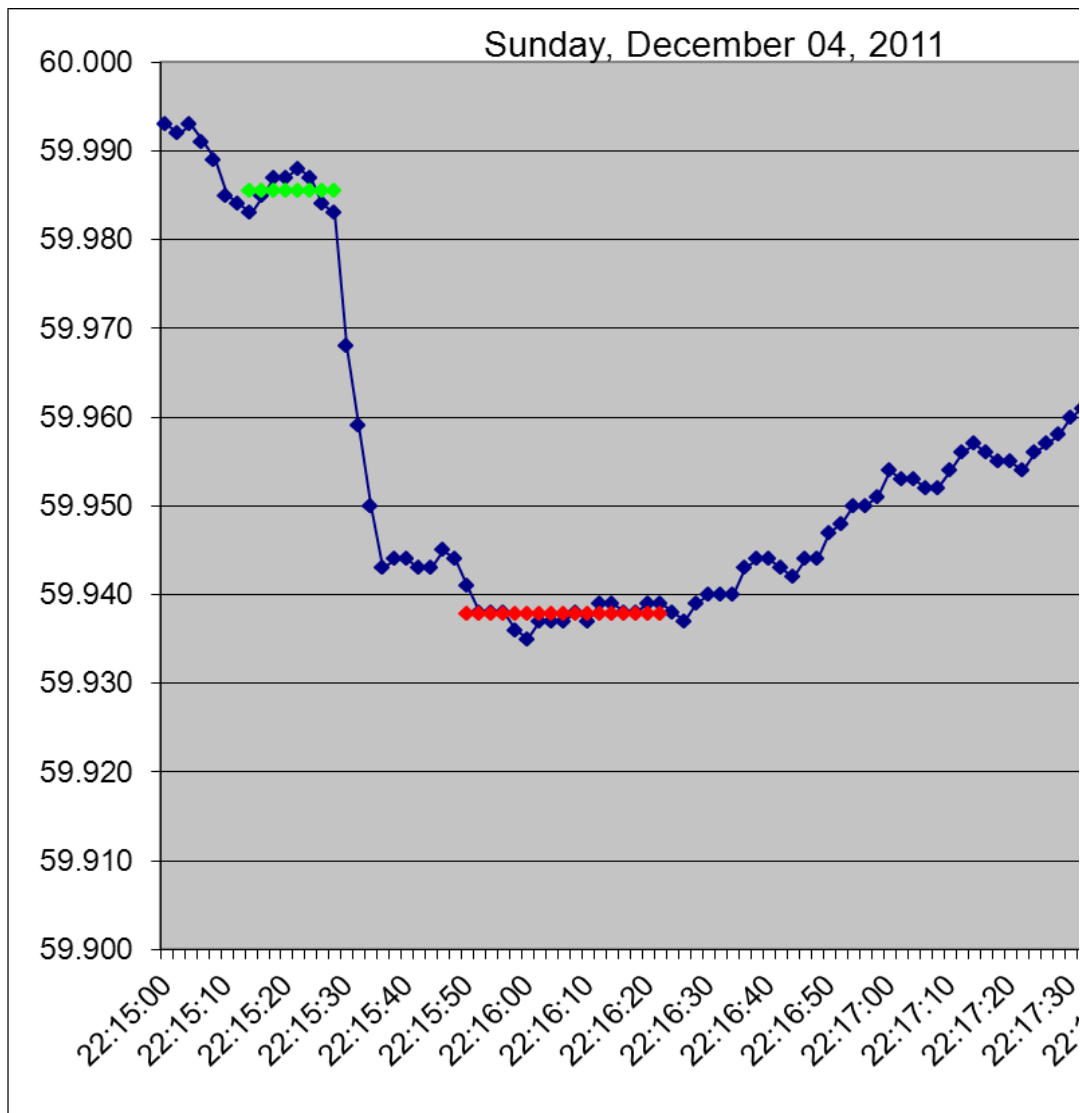


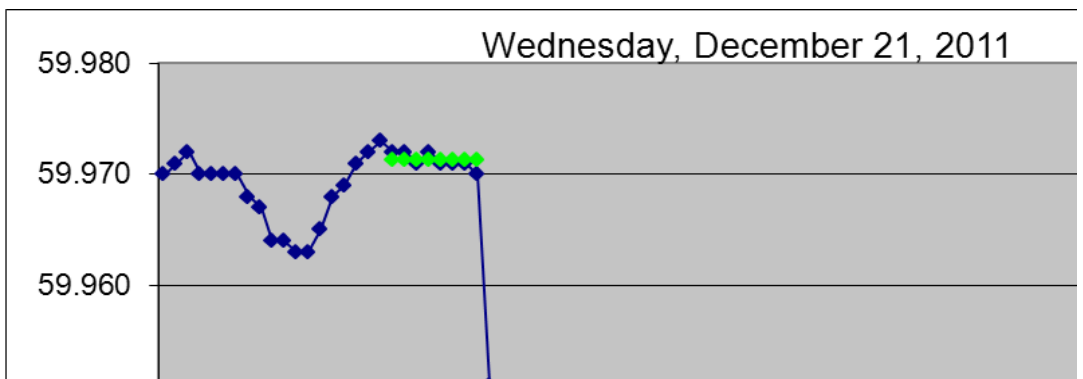
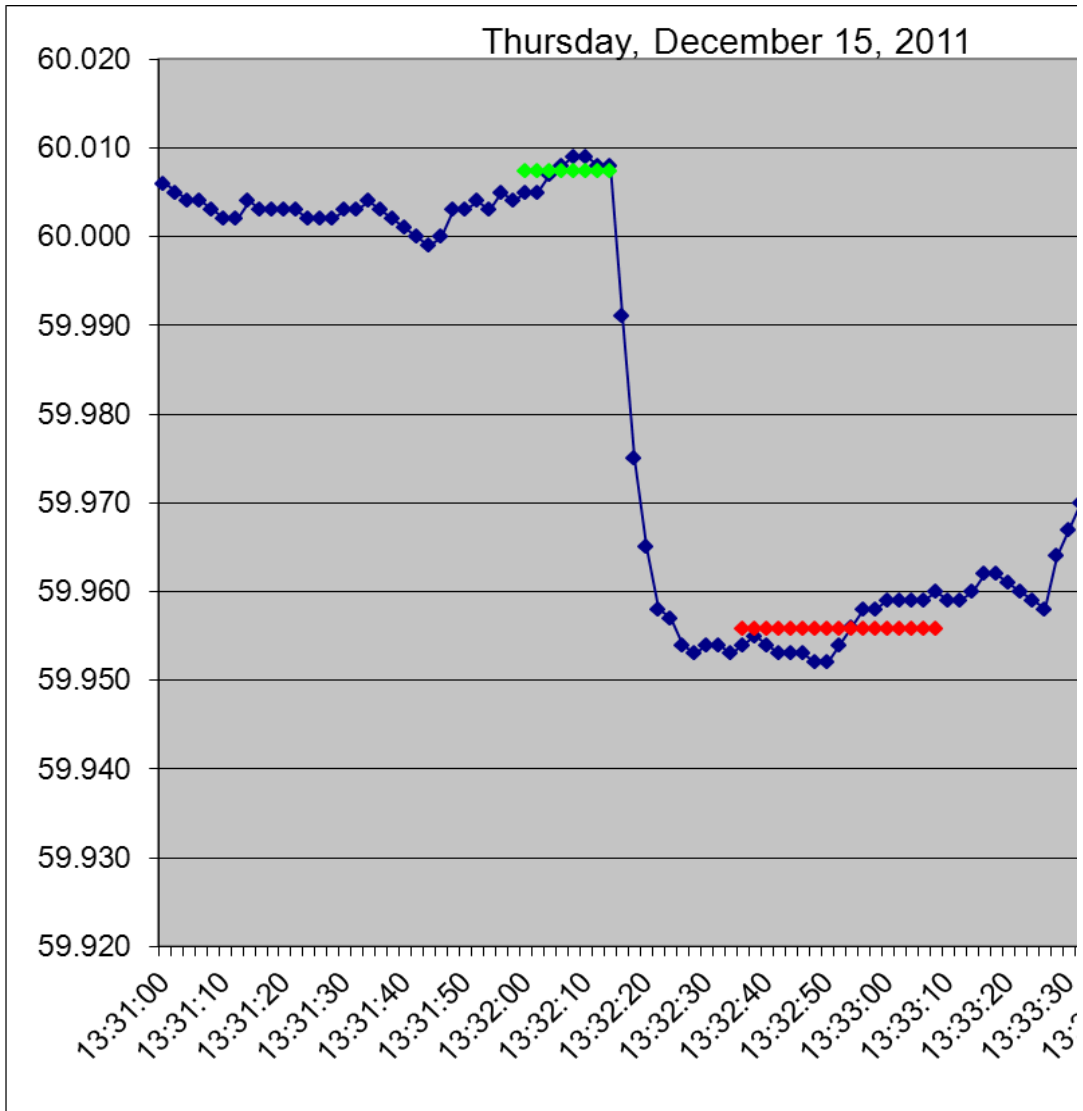
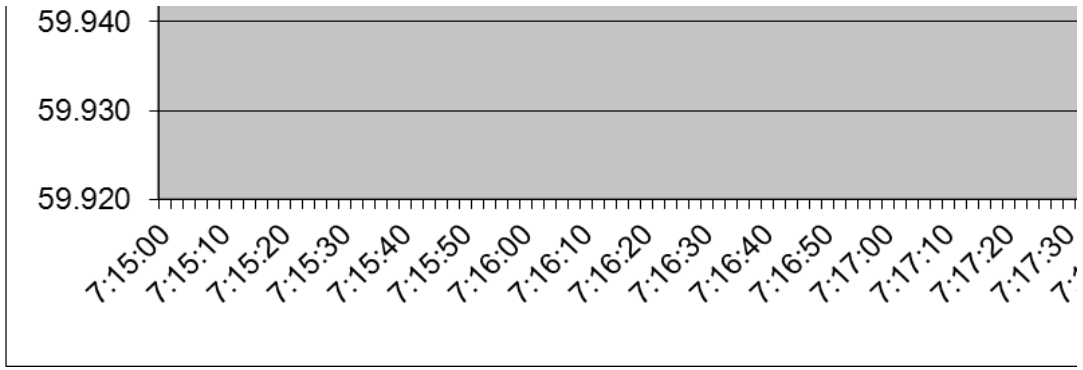


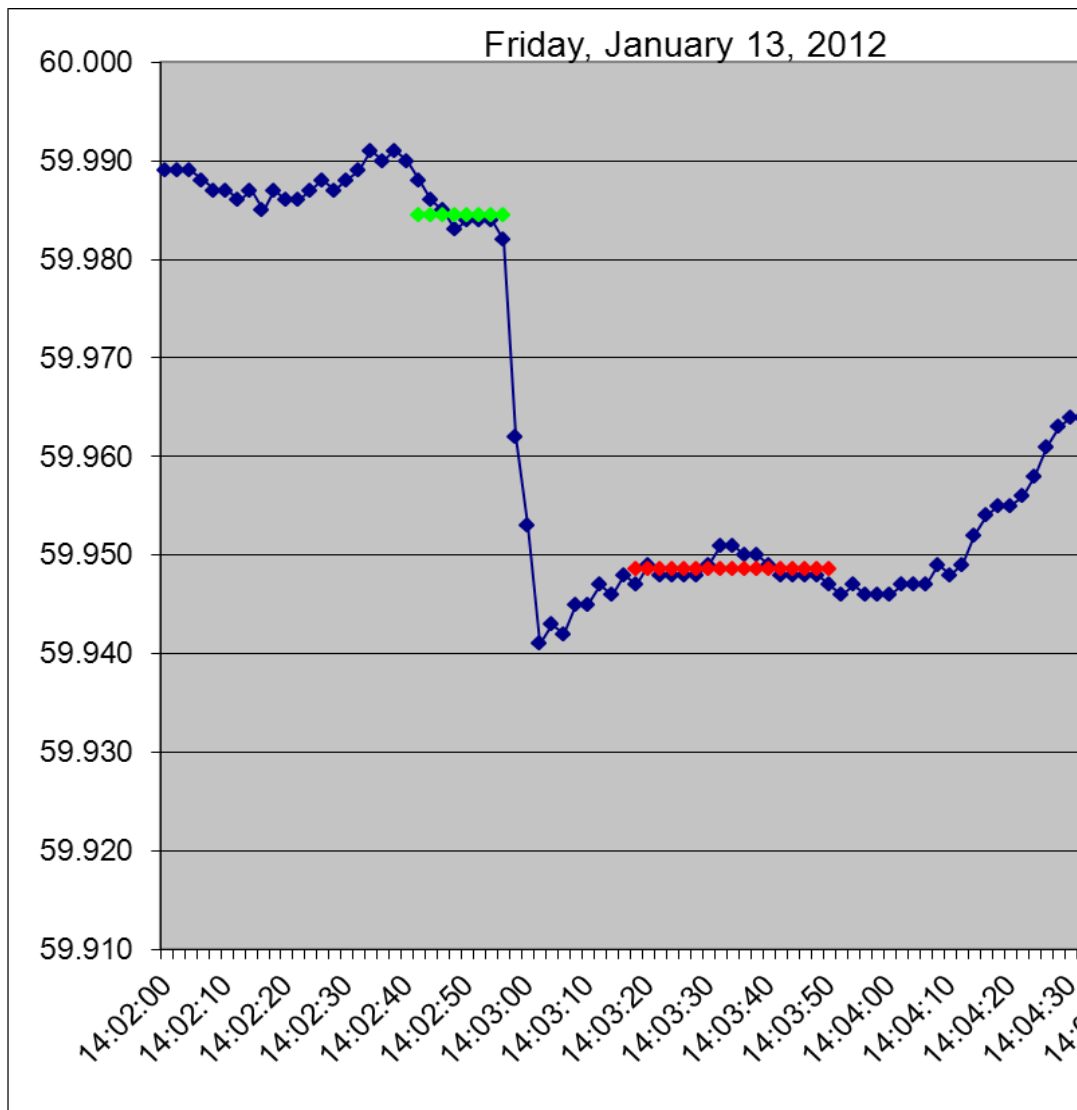
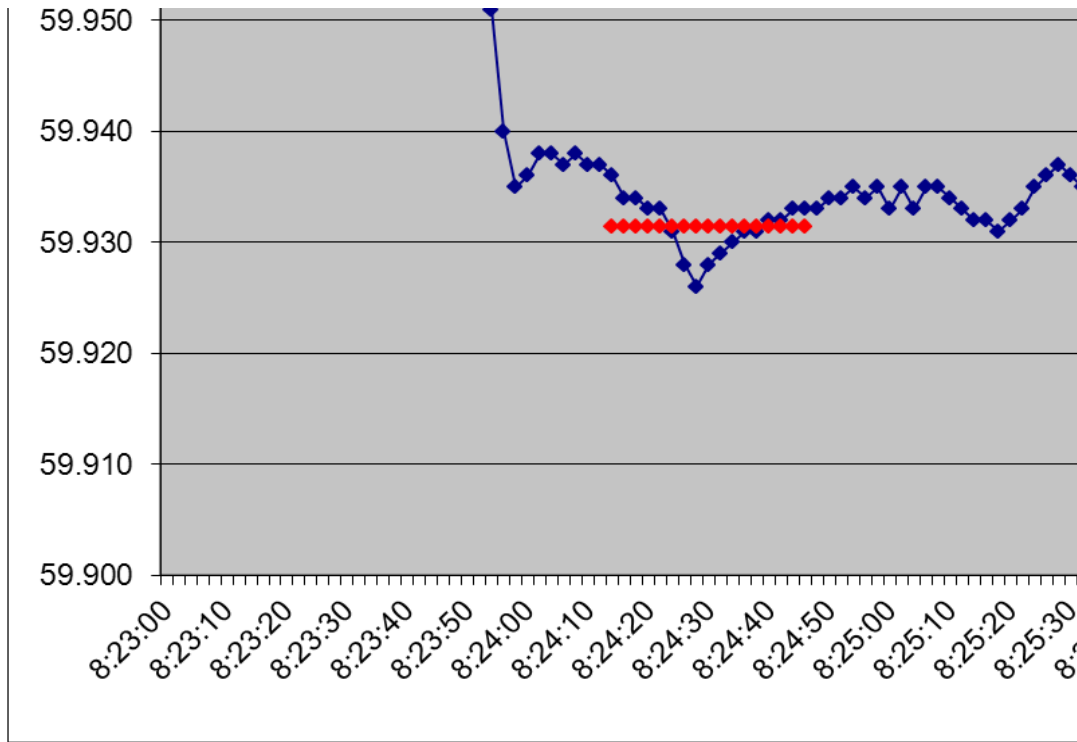


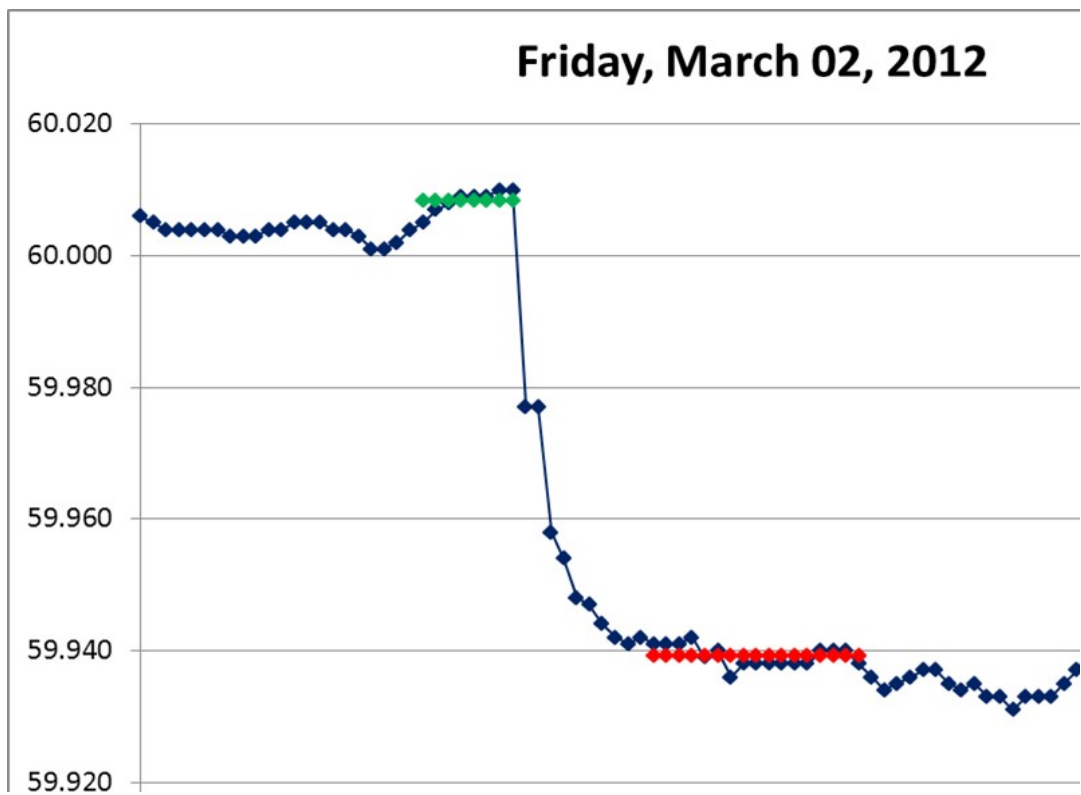
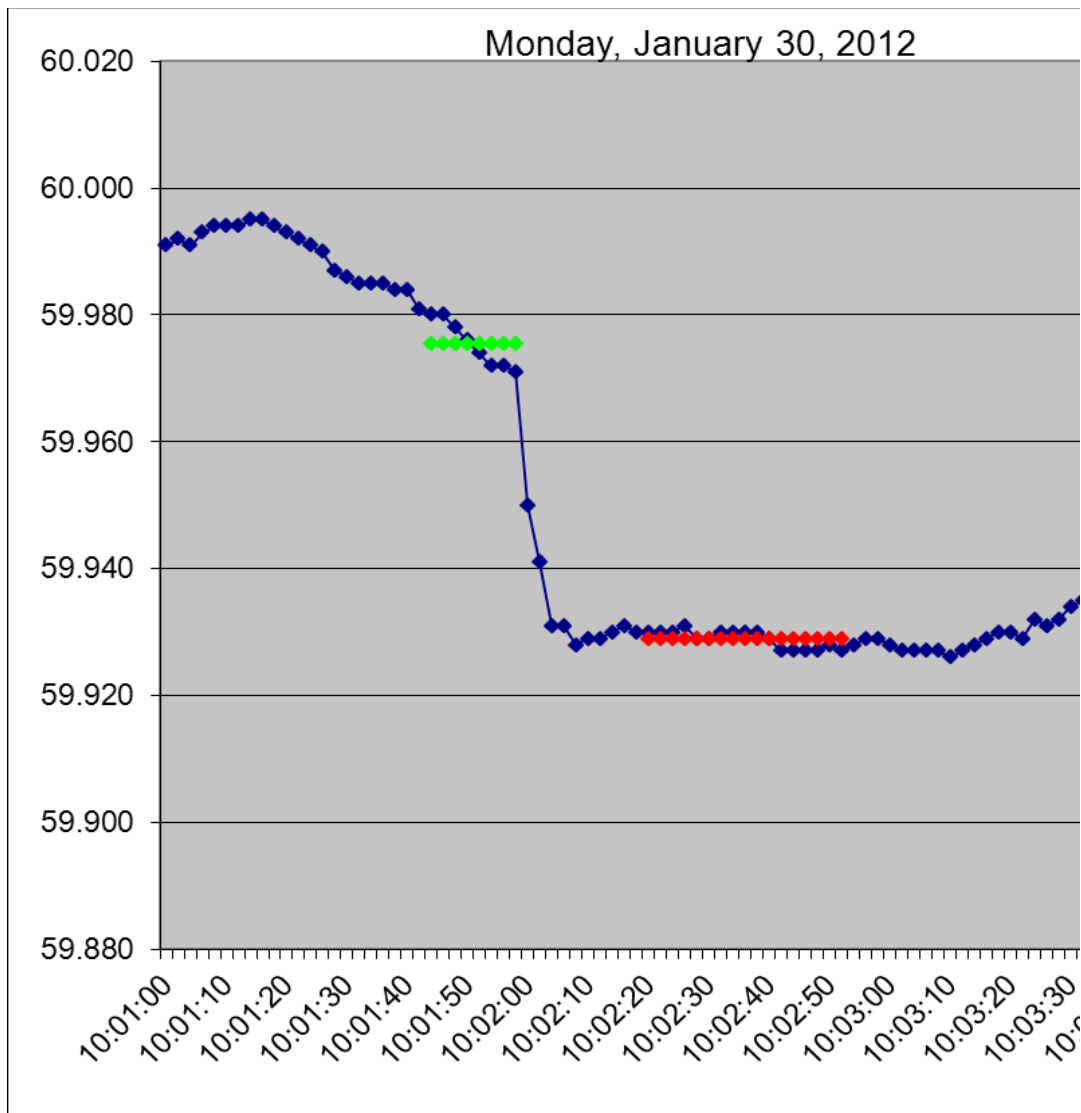
Full name	Abbreviation	Offset	Time zone
Atlantic Daylight Time	ADT	3:00	UTC - 3 hours
Atlantic Standard Time	AST	4:00	UTC - 4 hours
Central Daylight Time	CDT	5:00	UTC - 5 hours
Central Standard Time	CST	6:00	UTC - 6 hours
Eastern Daylight Time	EDT	4:00	UTC - 4 hours
Eastern Standard Time	EST	5:00	UTC - 5 hours
Mountain Daylight Time	MDT	6:00	UTC - 6 hours
Mountain Standard Time	MST	7:00	UTC - 7 hours
Pacific Daylight Time	PDT	7:00	UTC - 7 hours
Pacific Standard Time	PST	8:00	UTC - 8 hours

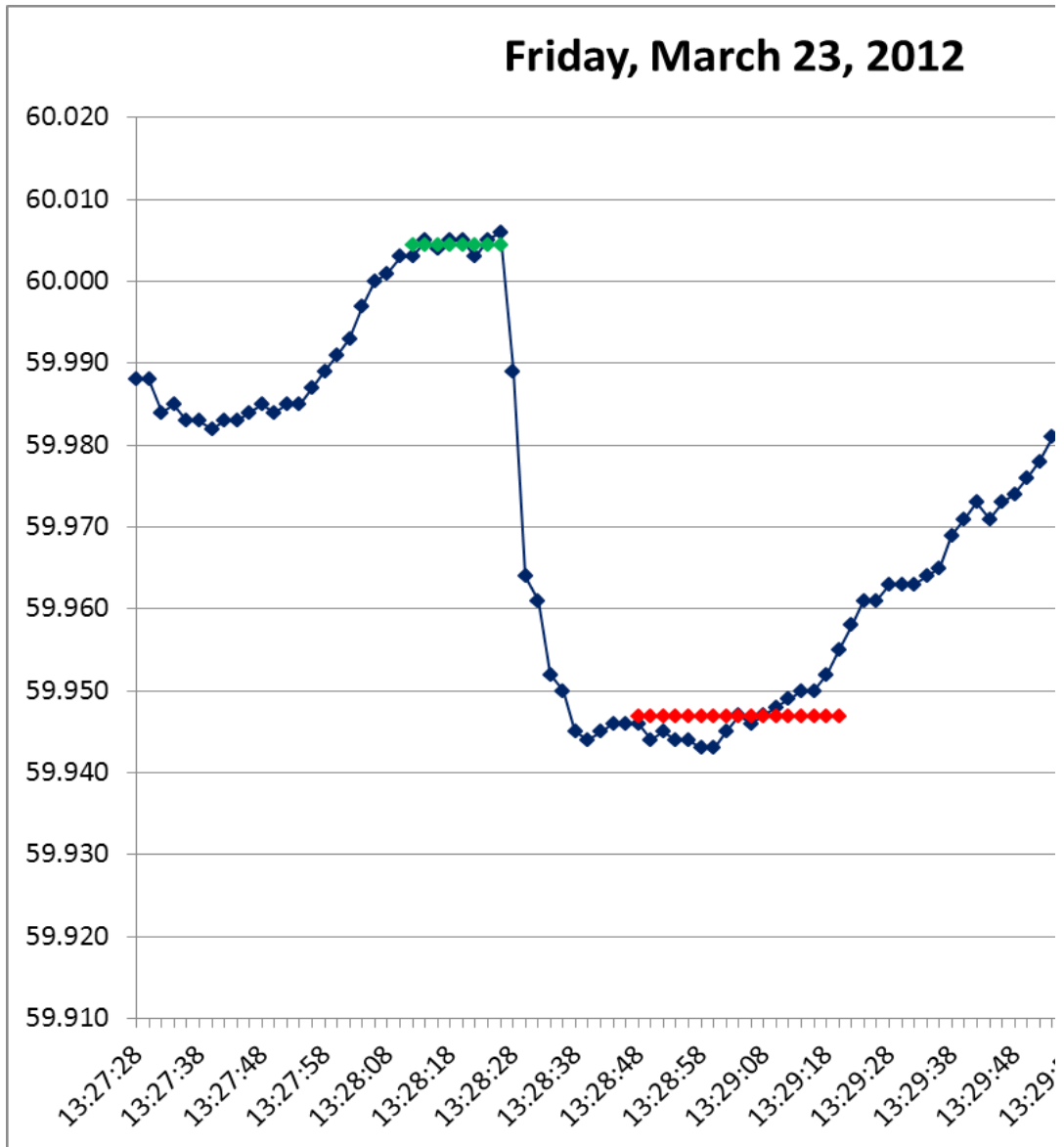
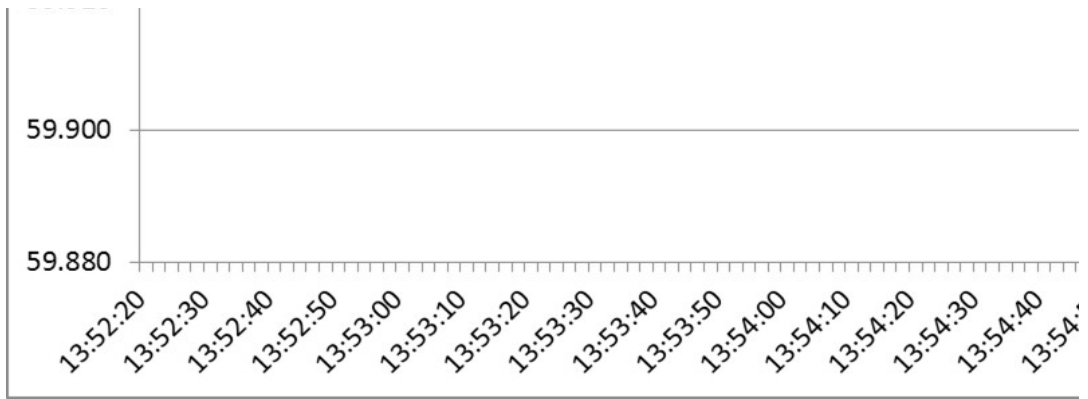


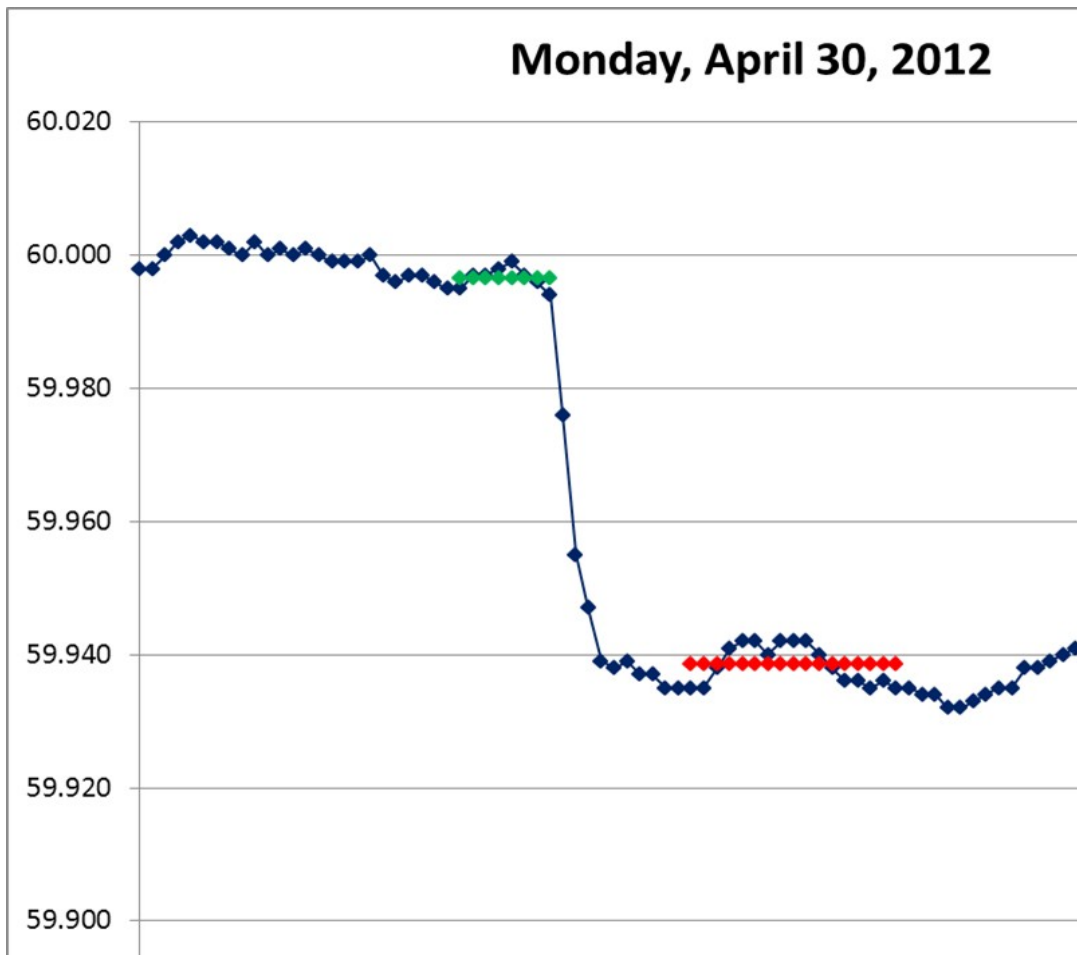
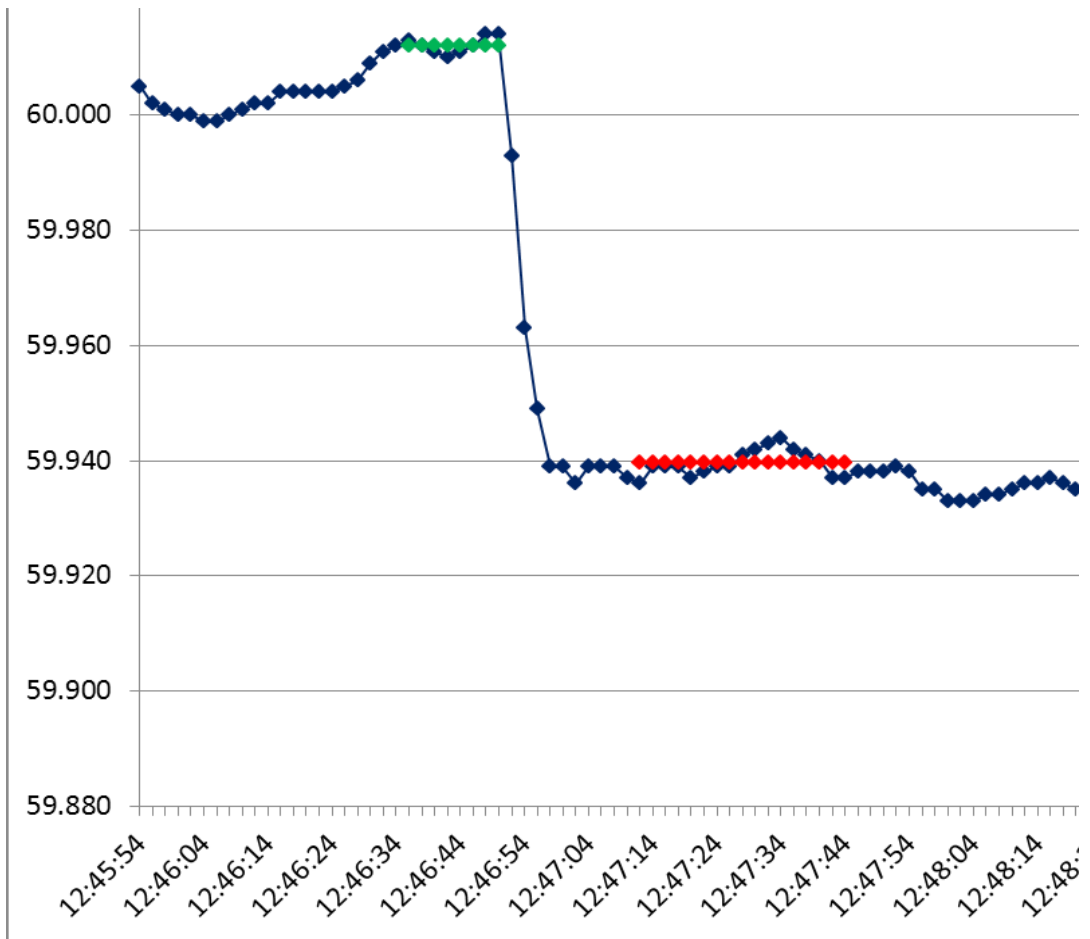


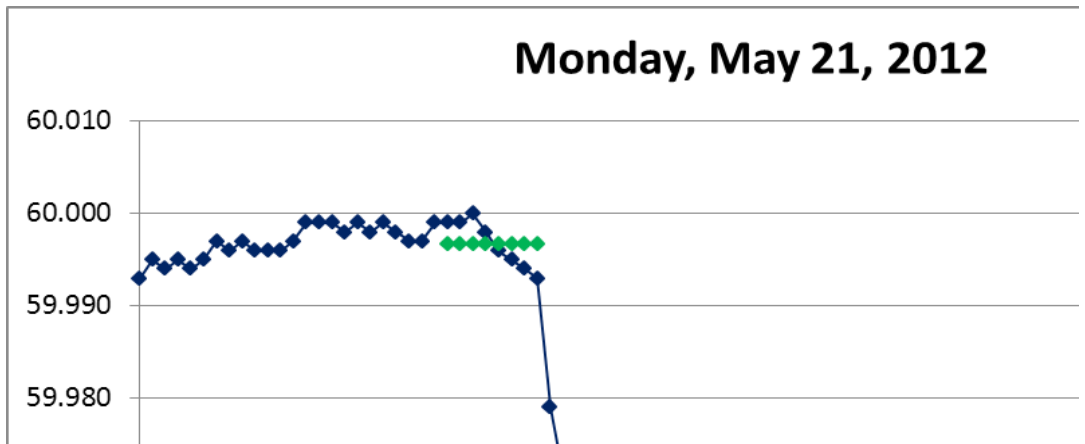
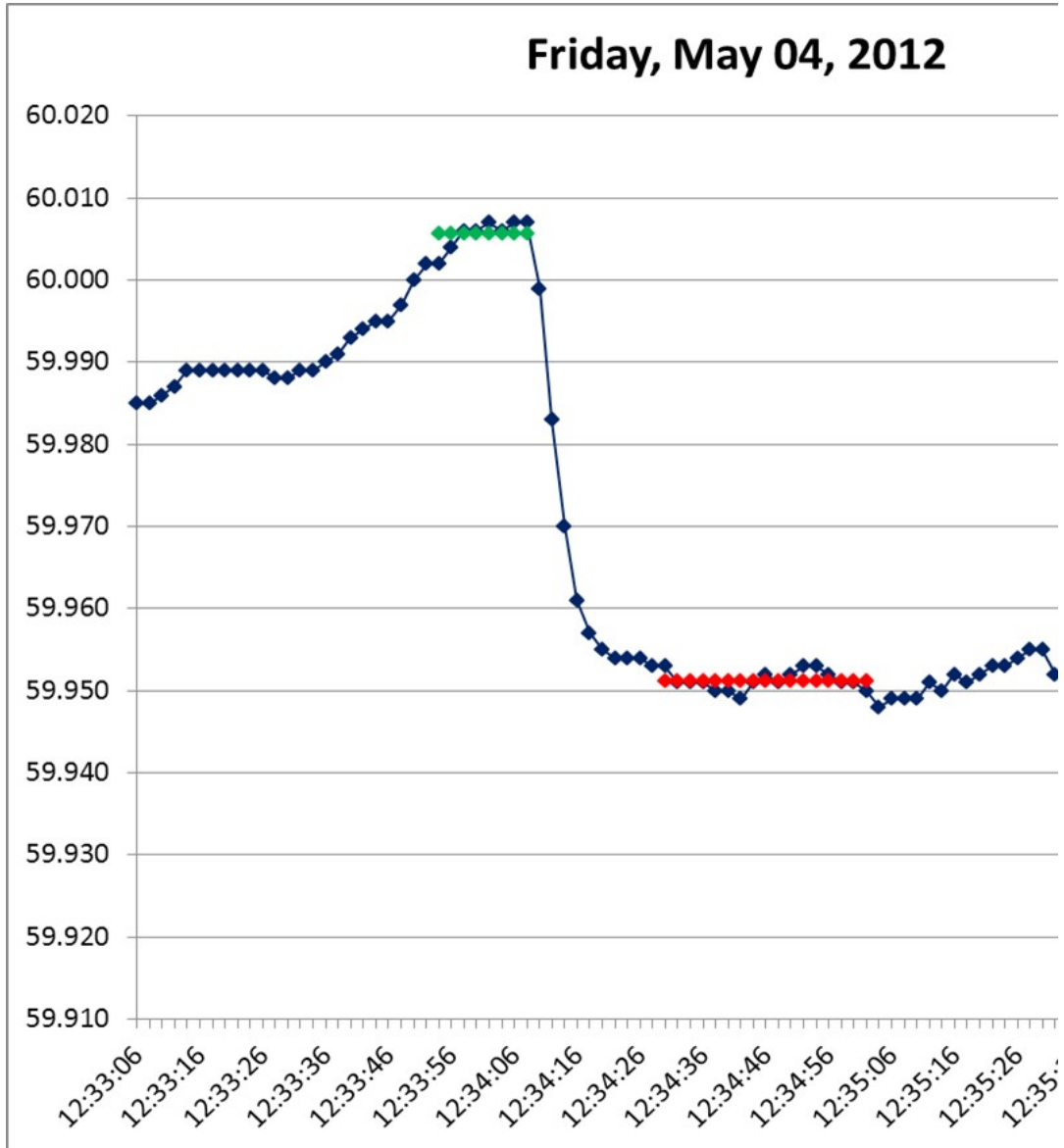
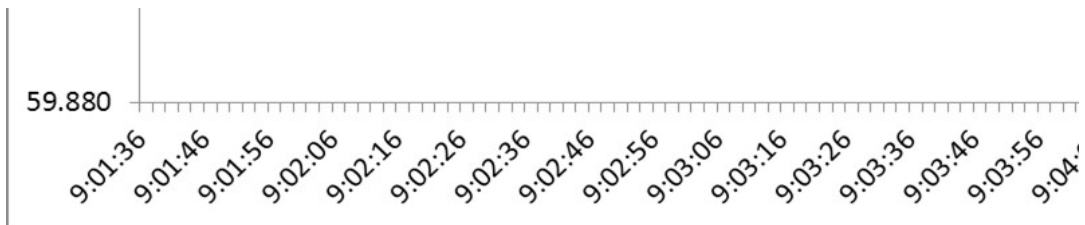


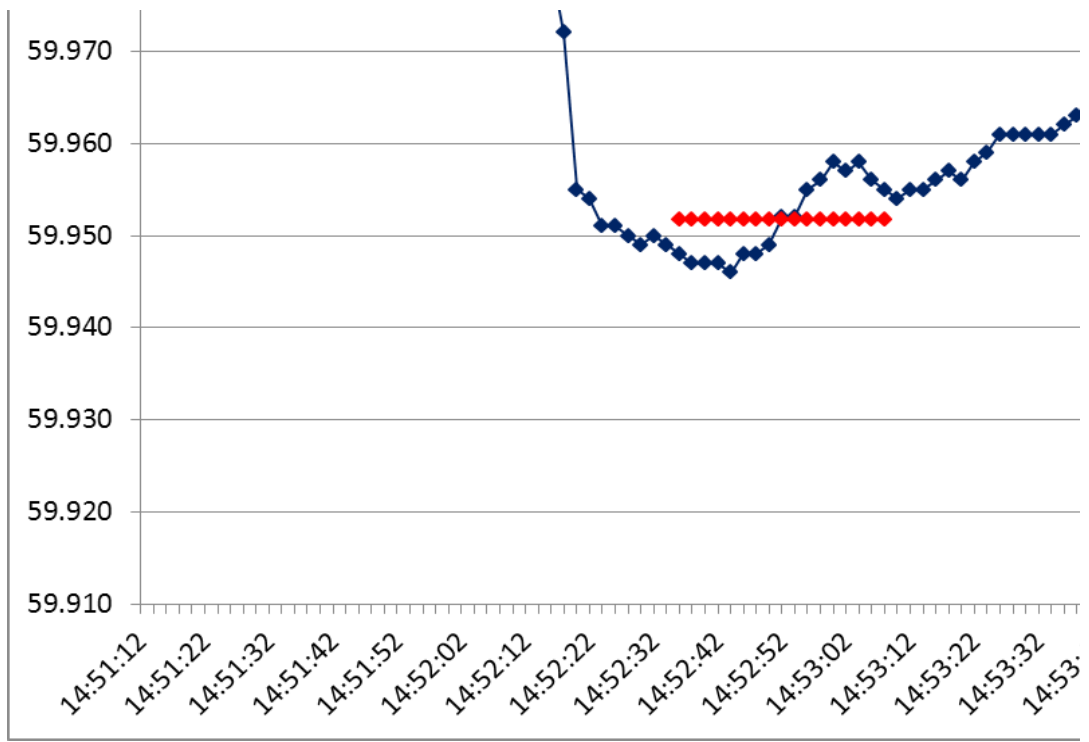




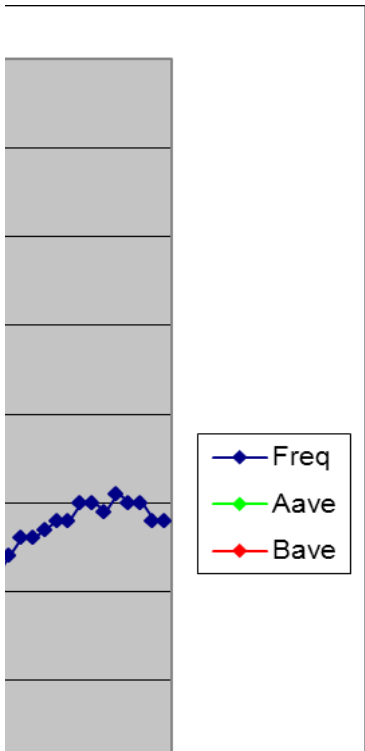
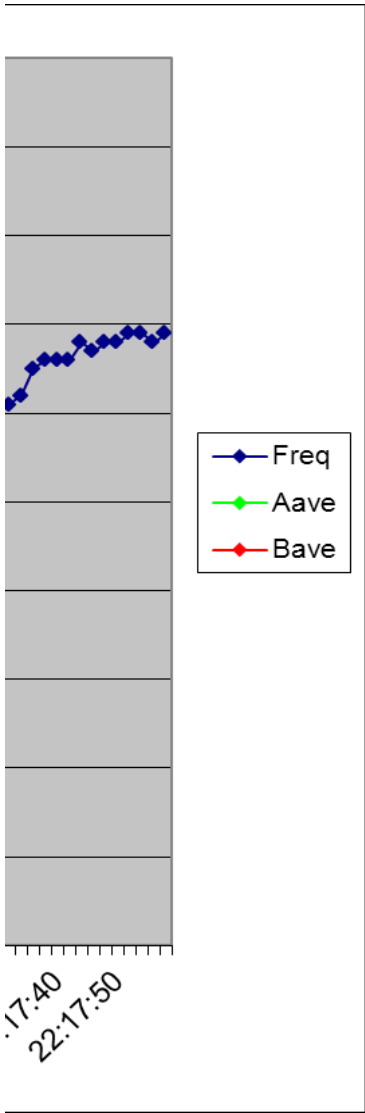


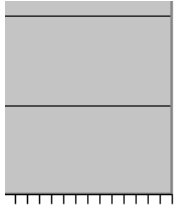




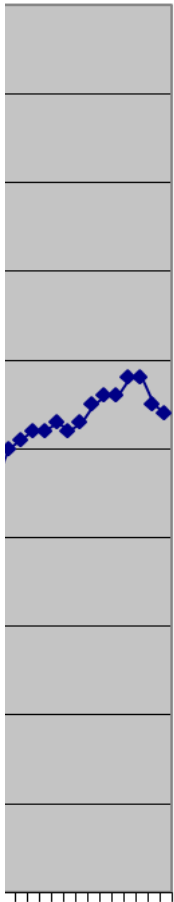




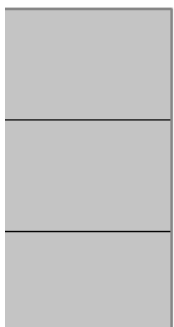


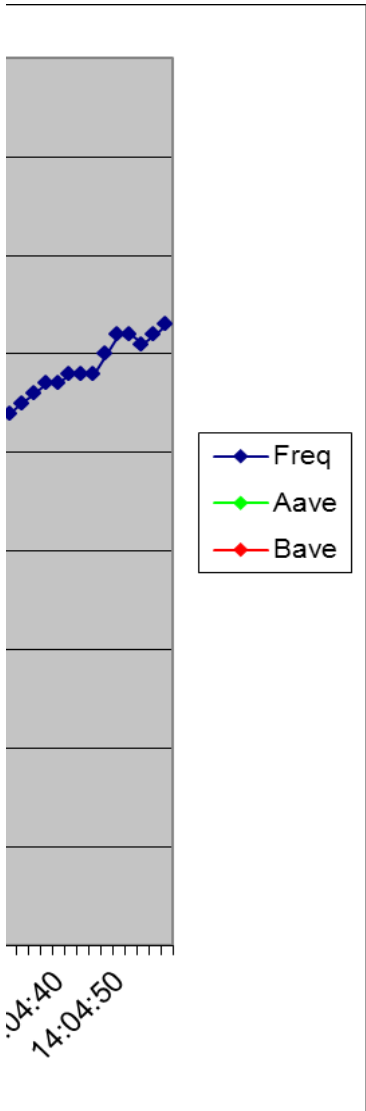
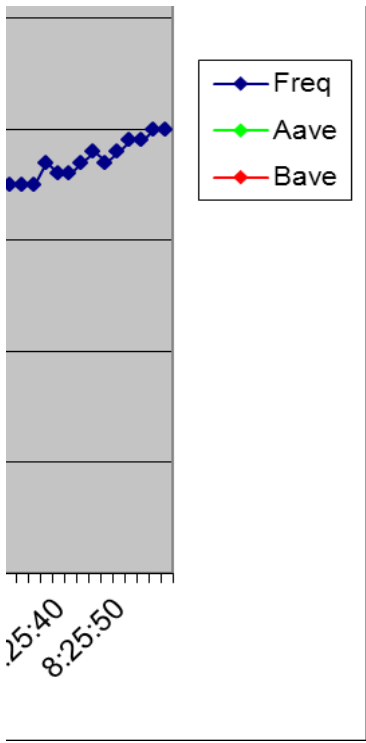


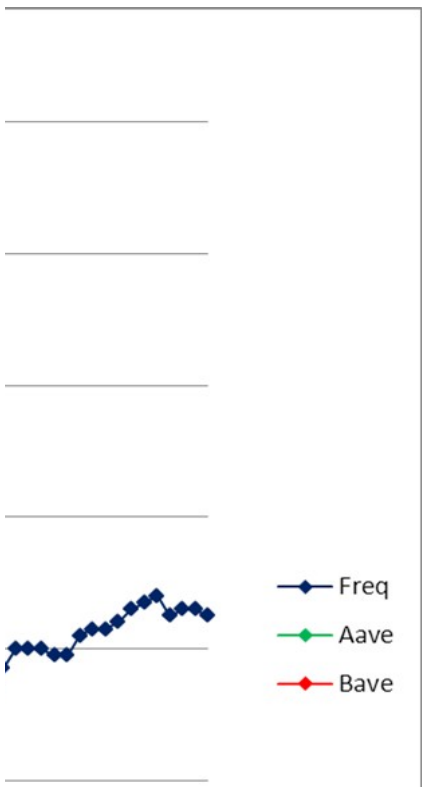
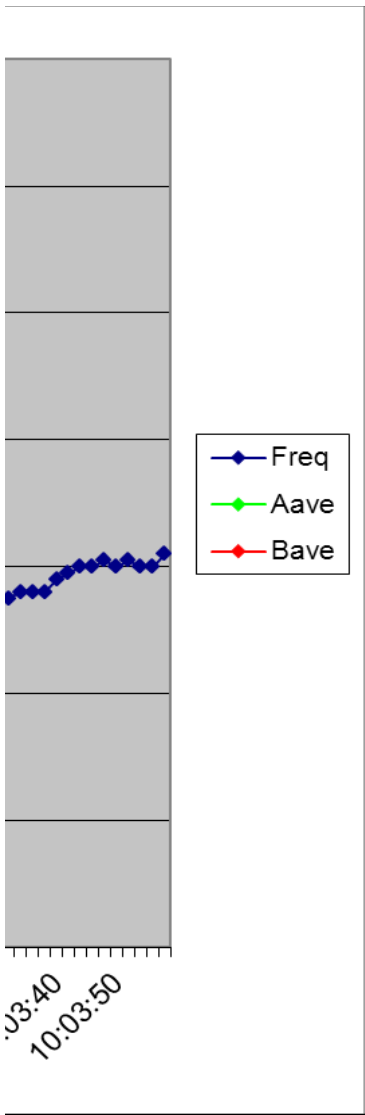
17:40  
7:17:50



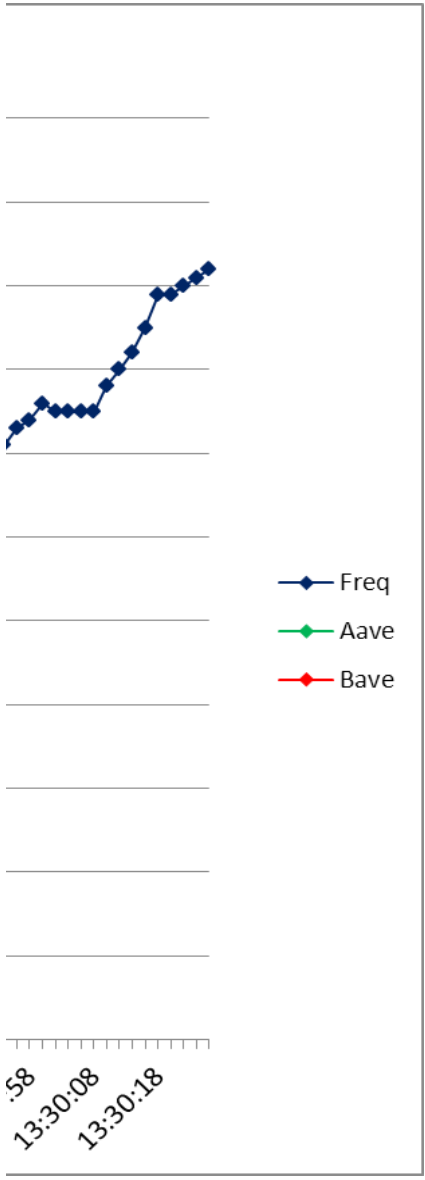
13:33:40  
13:33:50







:50  
13:55:00  
13:55:10



:58  
13:30:08  
13:30:18

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◆ Freq

◆ Aave

◆ Bave

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..24  
12:48:34  
12:48:44

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◆ Freq

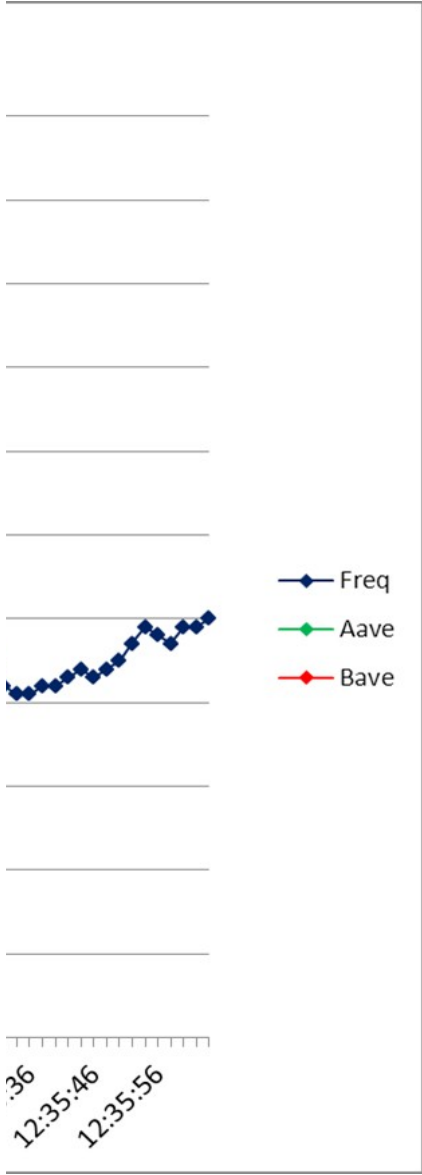
◆ Aave

◆ Bave

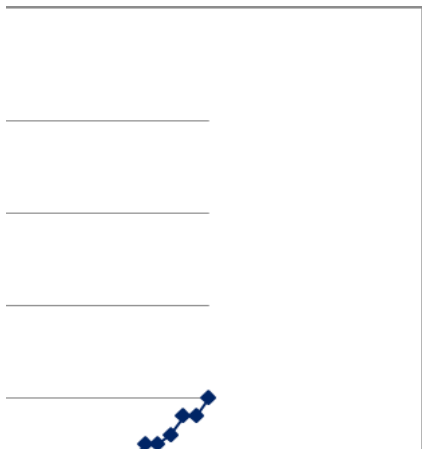
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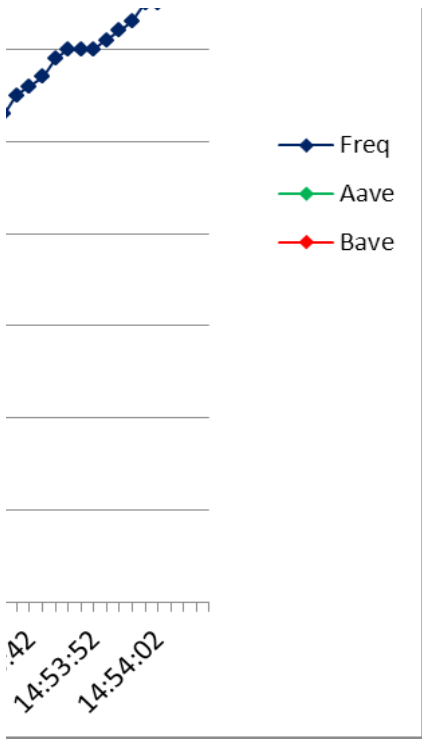
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.06  
9:04:16  
9:04:26

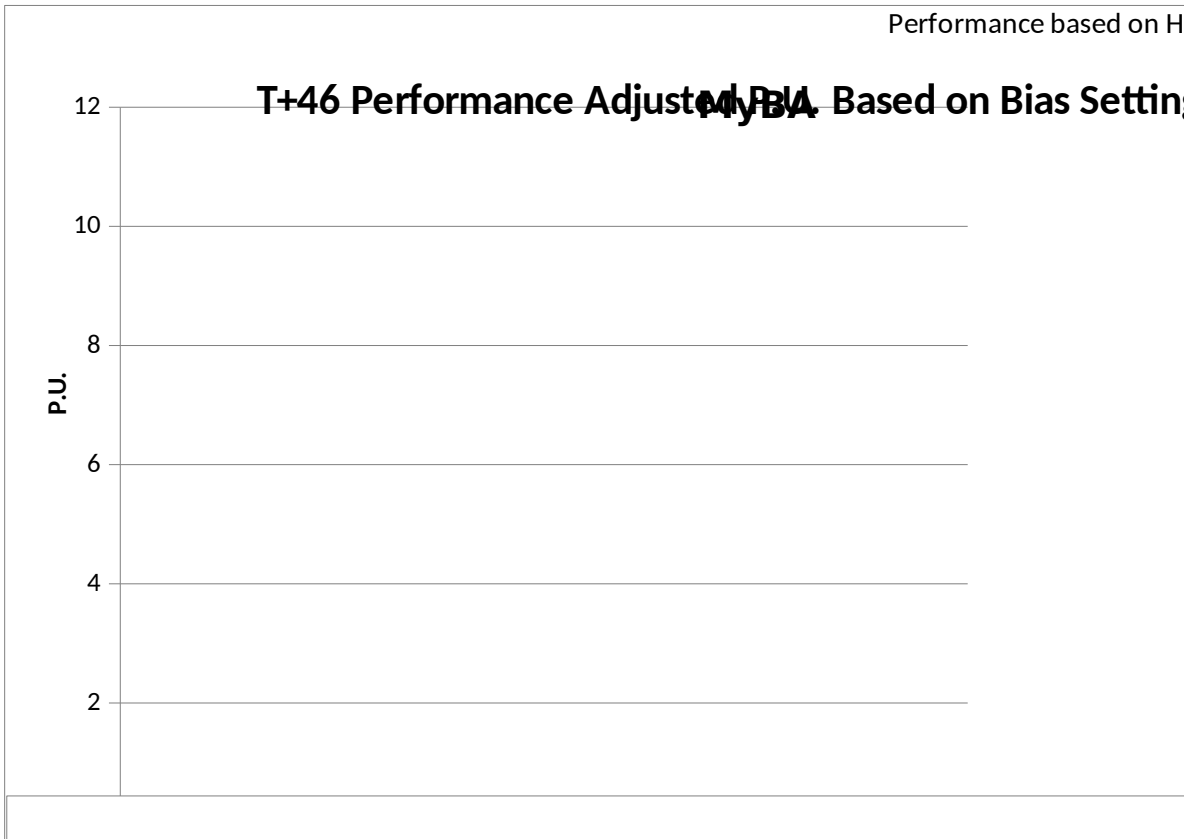
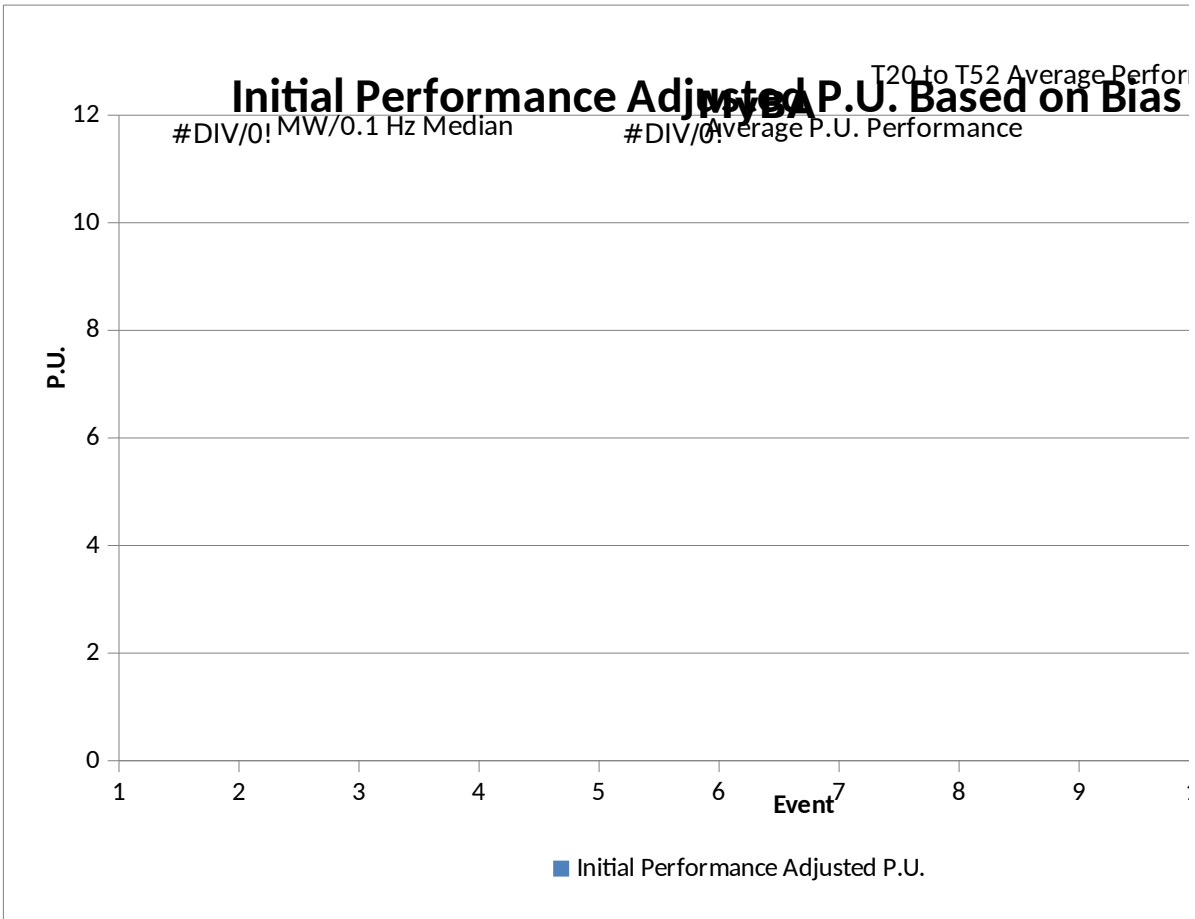


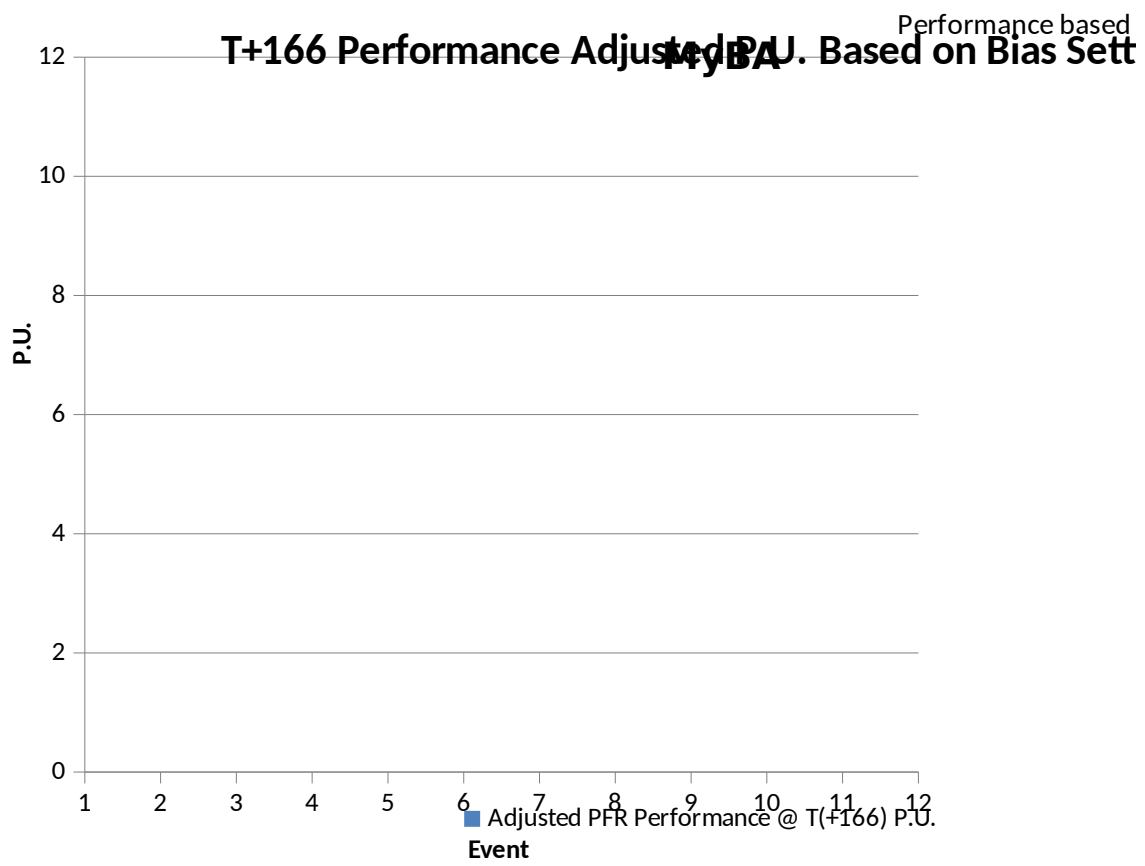
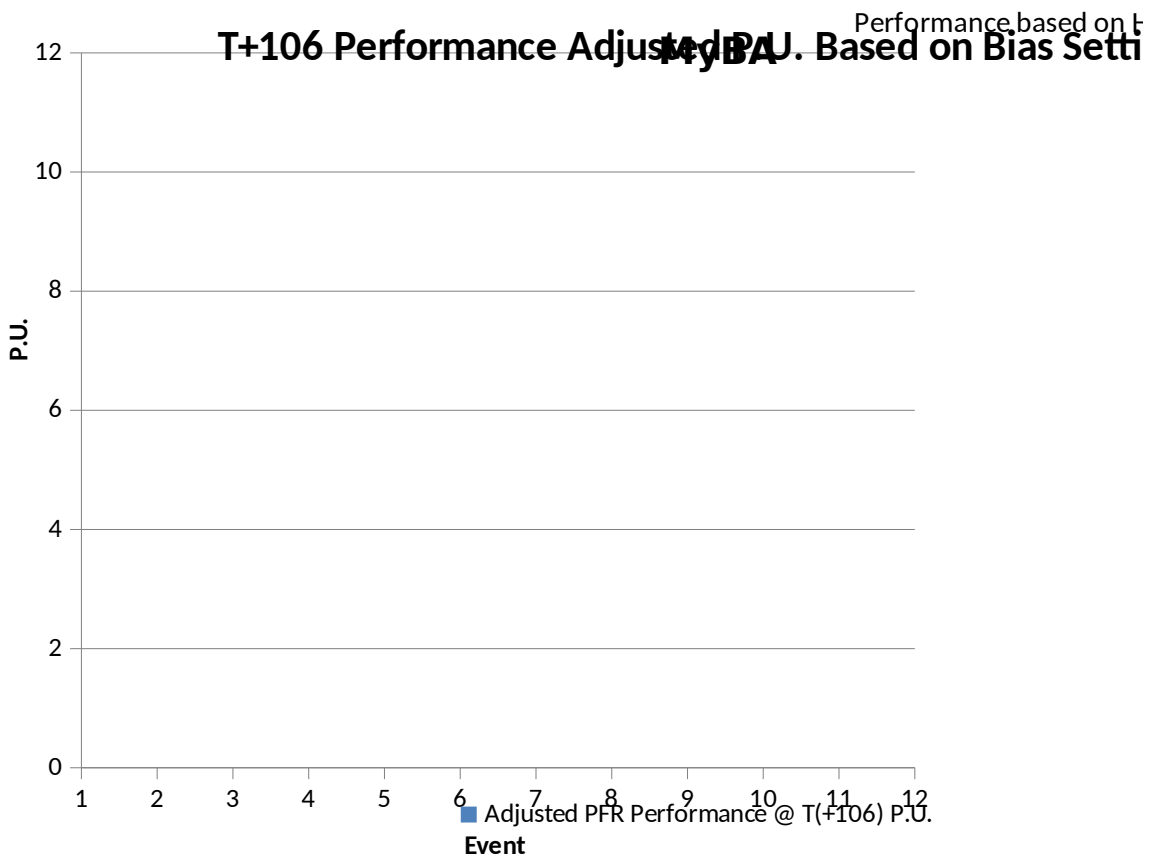
.36  
12:35:46  
12:35:56



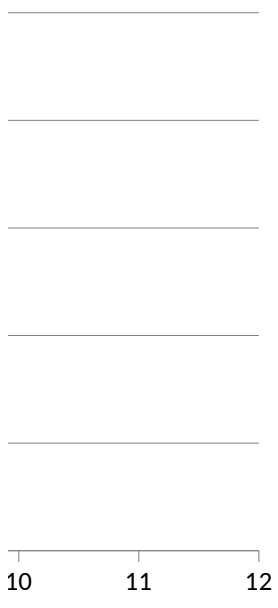




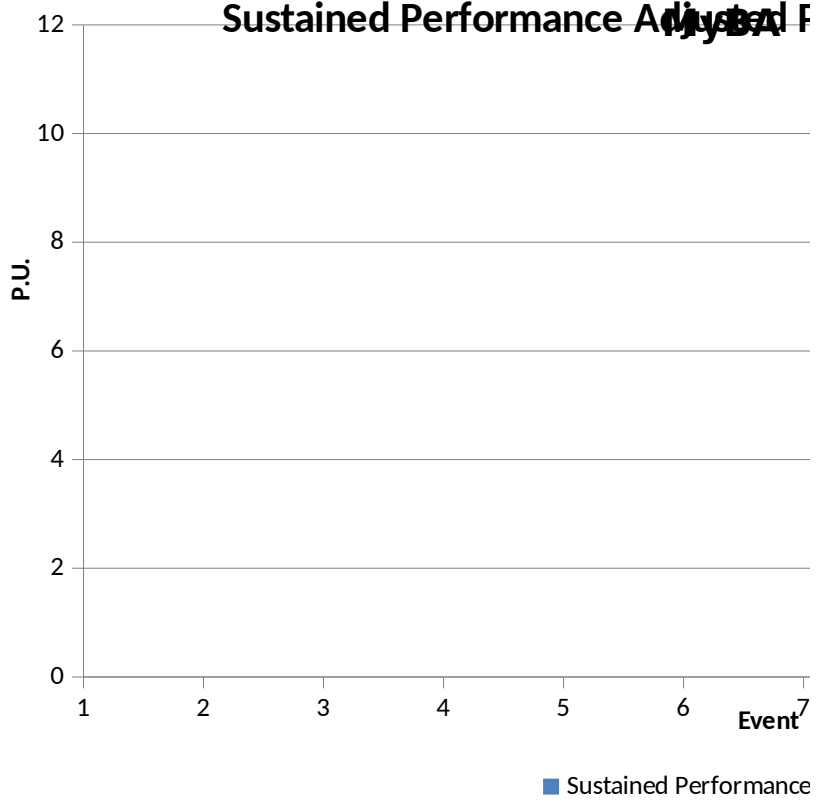




Performance  
**Setting**



**Sustained Performance Adjusted by BA**



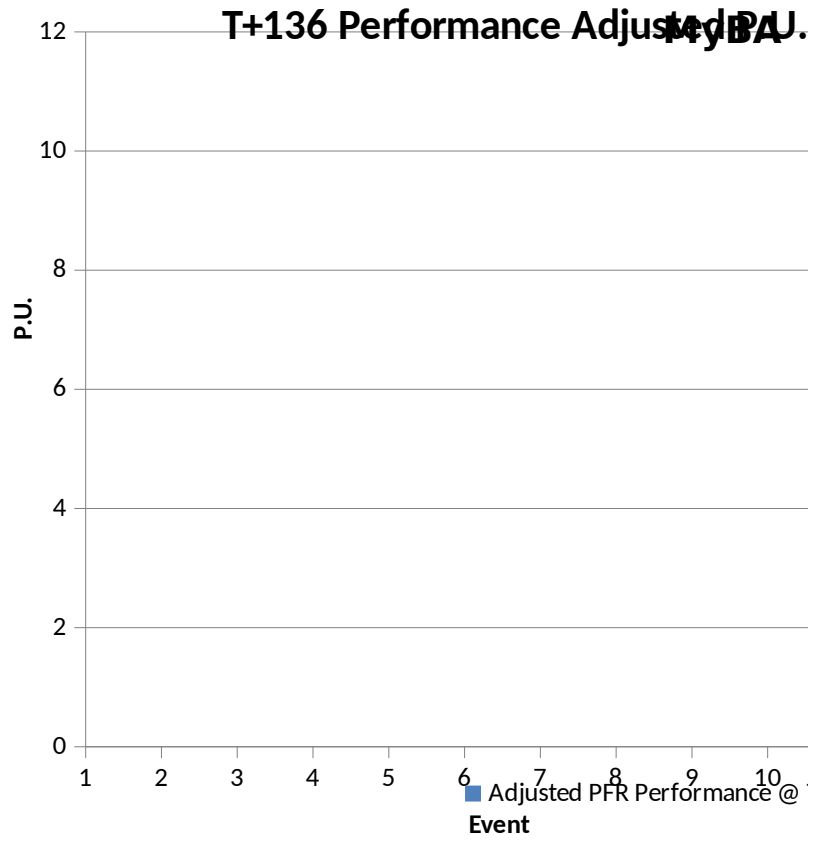
z at T+46

**g**

**T+76 Performance Adjusted by BA**



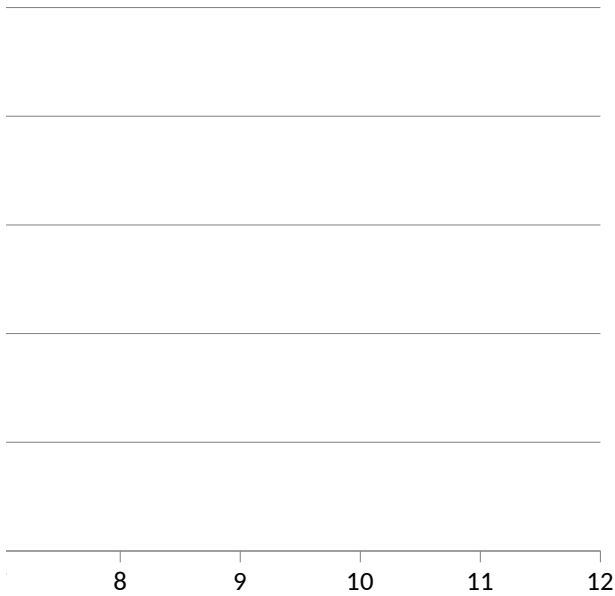
Hz at T+106  
ing



on Hz at T+166  
ing

Event Recovery Period Average Performance

**P.U. Based on Bias Setting**



: P.U.

FRI - NERC Frequency Response

The FRI Report made recommend  
Additional evaluations have been  
These evaluations utilize Intercon  
These evaluations are not part of  
The following time selections are  
Each evaluation is a P.U. measur  
Performance is the "best" perform  
This is intended to account for any

Also included is the measure of P  
The measure (P.U.) here is basec

Some basic observations from thi

- 1) If the P.U. value is close to 1.0
- 2) The average performance of th  
than 0.40 P.U. then they are provi
- 3) If the P.U. value at T+46 is cor
- 4) If the P.U. value at later time ir
- 5) If the P.U. value at T+20 to T+

Performance based on Hz at T+76

**Based on Bias Setting**



Performance based on Hz at T+136

## Based on Bias Setting

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11 12  
T(+136) P.U.

### 3 Initiative

ditions to evaluate Primary Frequency Response at additional time intervals during the event recovery added to both Form 1 and Form 2 to evaluate PFR delivery for these suggested time periods.

nection frequency at specific times during the recovery period and calculates the BA's delivery of PFR BAL-003 and will not impact compliance to R1 of the draft standard.

evaluated: T+46, T+76, T+106, T+136 and T+166.

e based on the BA's Bias setting at each of these times.

iance at the specific time through 10 seconds past each time.

y delay in data in the measurement. This measurement may be changed as experience in this effort ir

FR delivery during the T+20 to T+52 second period, the same as R1 of the standard.

l on the BA Bias setting and not the FRO. This was done to provide comparison to the additional mea:

s data:

), the BA delivered the full amount of PFR equal to its Bias setting.

ne Eastern Interconnection in PFR is about 40% of the total Interconnection Bias setting. If the BA's a  
iding more PFR than the average BA. If the P.U. is less than 40% then they are providing less than av  
sistently less than the P.U. value at T+20 to T+52, then the PFR of the BA is not being sustained.

interval measures is consistently less, then withdrawal of PFR is occurring at a slower rate, but still bein  
52, T+46, or T+76 is consistently greater than 1.0, this indicates that the BA Bias setting is too low.

period.

for each selection.

increases.

surement times.

verage score is greater  
verage PFR.

g withdrawn.