
	EIFS 2013:1	2014-03-12
	Reference: TJO	1 (13)
	Comment:	Unipower PQSecure

## EIFS 2013:1

Measure name: Kvänum Önum  
 Meter serial no: 22103238  
 Period start: 2009-01-01 00:00:00  
 Period end: 2009-10-31 23:59:57  
 Nominal voltage: 21000V  
 Version: 2.0  
 Comment:


### Summary

Unbalance	Passed
Voltage variations	Passed
THD	Passed
Individual harmonics	Passed
Voltage dips	Failed
Voltage swells	Passed
RVC	Passed

	EIFS 2013: 1	2014-03-12
	Reference: TJO	2 (13)
	Comment:	Unipower PQSecure

## Table of contents

<i>1. Voltage Unbalance</i> .....	<i>3</i>
<i>2. Voltage Variation</i> .....	<i>5</i>
<i>3. THD analysis</i> .....	<i>7</i>
<i>4. Individual harmonic analysis</i> .....	<i>9</i>
<i>5. Voltage dips</i> .....	<i>10</i>
<i>6. Voltage swells</i> .....	<i>11</i>
<i>7. Rapid Voltage Changes</i> .....	<i>12</i>

	EIFS 2013:1	2014-03-12
	Reference: TJO	3 (13)
	Comment:	Unipower PQSecure

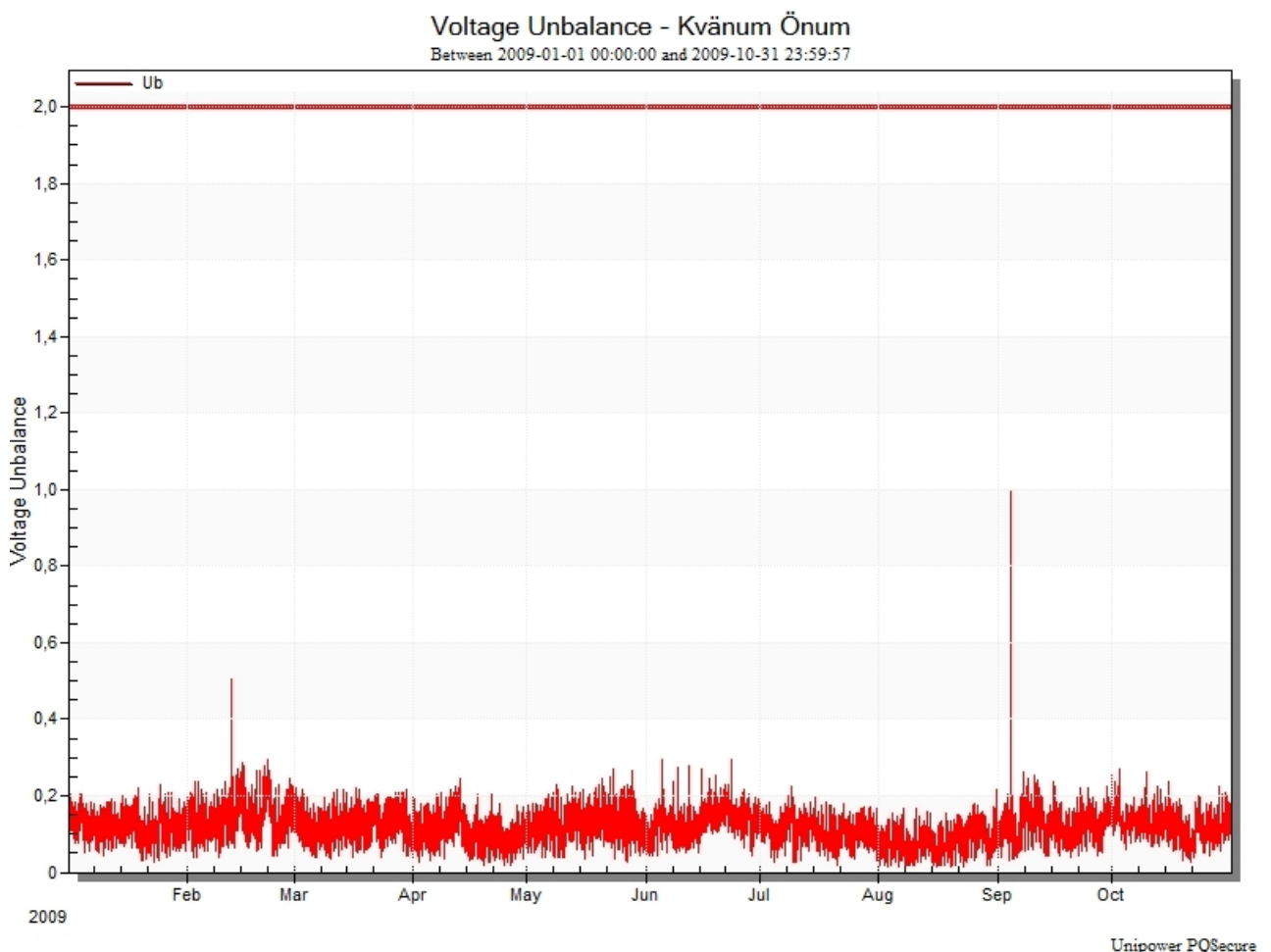
## 1. Voltage Unbalance

During each period of one week, all of the 10 minute mean rms values of the negative phase sequence component of the supply voltage shall be within the range of 0 to 2% of the positive phase sequence component.

Norm: Max: 2%, during 100 % of time.

	Time within limit	Max value	Min value	95% value	Result
Ub	100%	1%	0,01%	0,19%	Passed

Included 39 flagged value(s) in the result

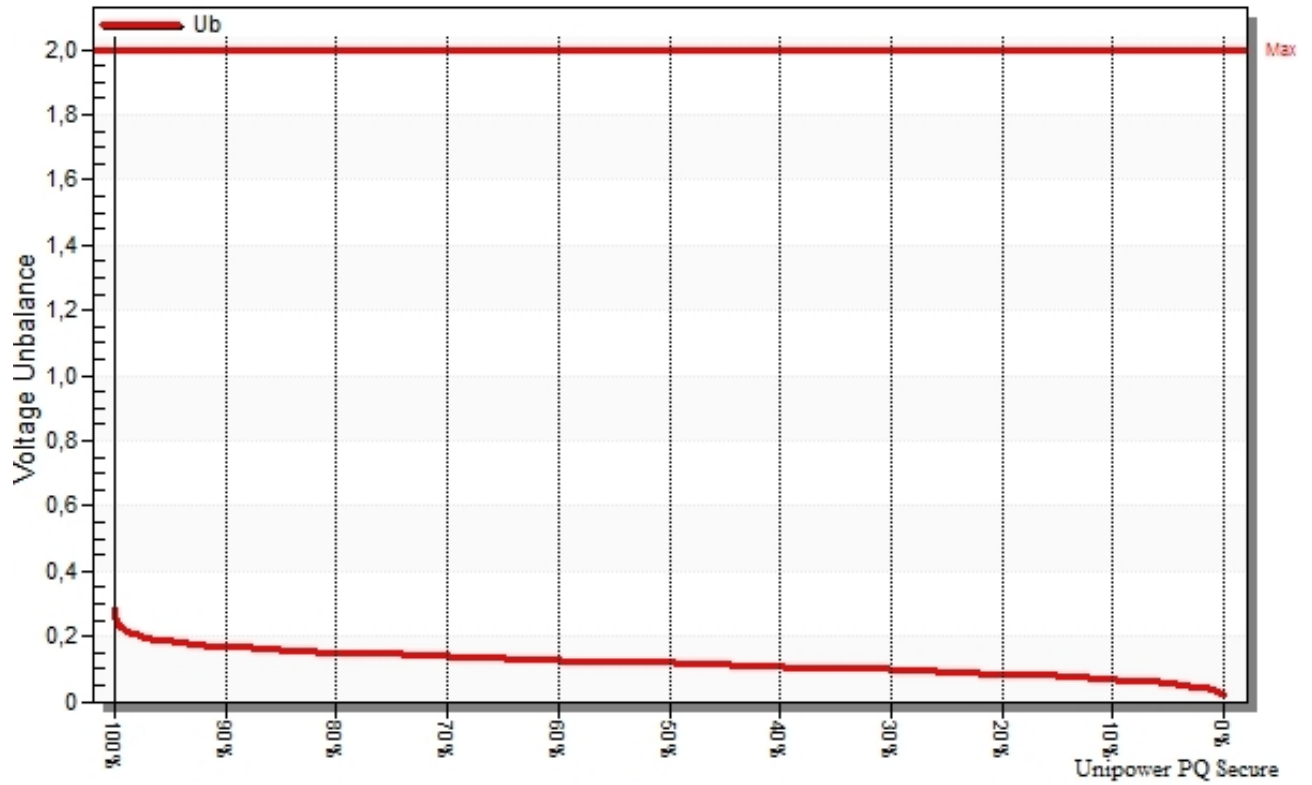





EIFS 2013:1	2014-03-12
Reference: TJO	4 (13)
Comment:	Unipower PQSecure

### Voltage Unbalance - Kvänum Önum

Between 2009-01-01 00:00:00 and 2009-10-31 23:59:57



	EIFS 2013:1	2014-03-12
	Reference: TJO	5 (13)
	Comment:	Unipower PQSecure

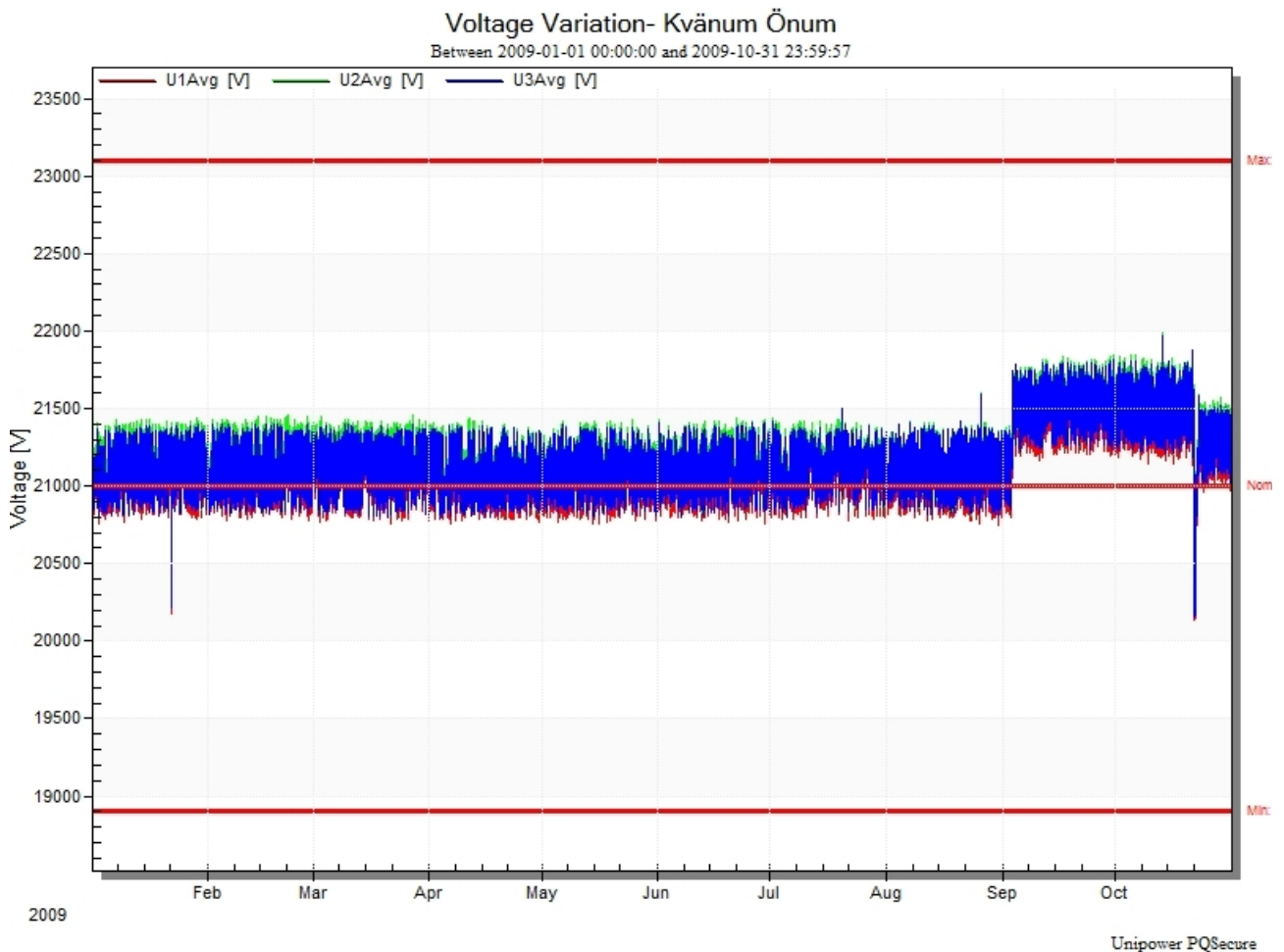
## 2. Voltage Variation

During each period of one week, all of the 10 minutes mean rms values of the supply voltage shall be within the range of  $U_{nom} \pm 10\%$ .

Norm: Max: 23100V, Min: 18900V, during 100 % of time.

	Time within limit	Max value	Min value	95% value	Result
U1Avg	100%	21920,19V	20140,47V	21522,9V	Passed
U2Avg	100%	21995,19V	20183,04V	21595,87V	Passed
U3Avg	100%	21966,81V	20160,74V	21573,57V	Passed

Included 39 flagged value(s) in the result

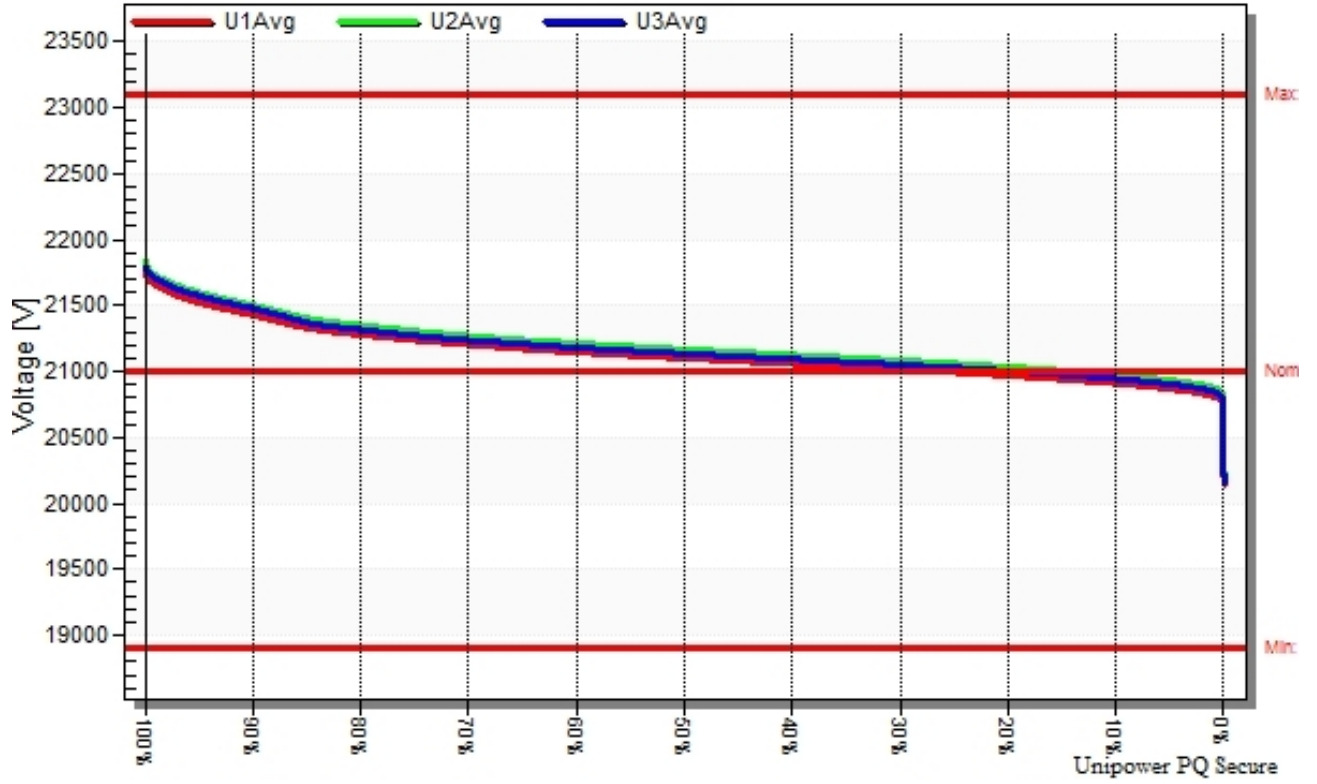





EIFS 2013:1	2014-03-12
Reference: TJO	6 (13)
Comment:	Unipower PQSecure

### Voltage Variation- Kvänum Önum

Between 2009-01-01 00:00:00 and 2009-10-31 23:59:57



	EIFS 2013:1	2014-03-12
	Reference: TJO	7 (13)
	Comment:	Unipower PQSecure

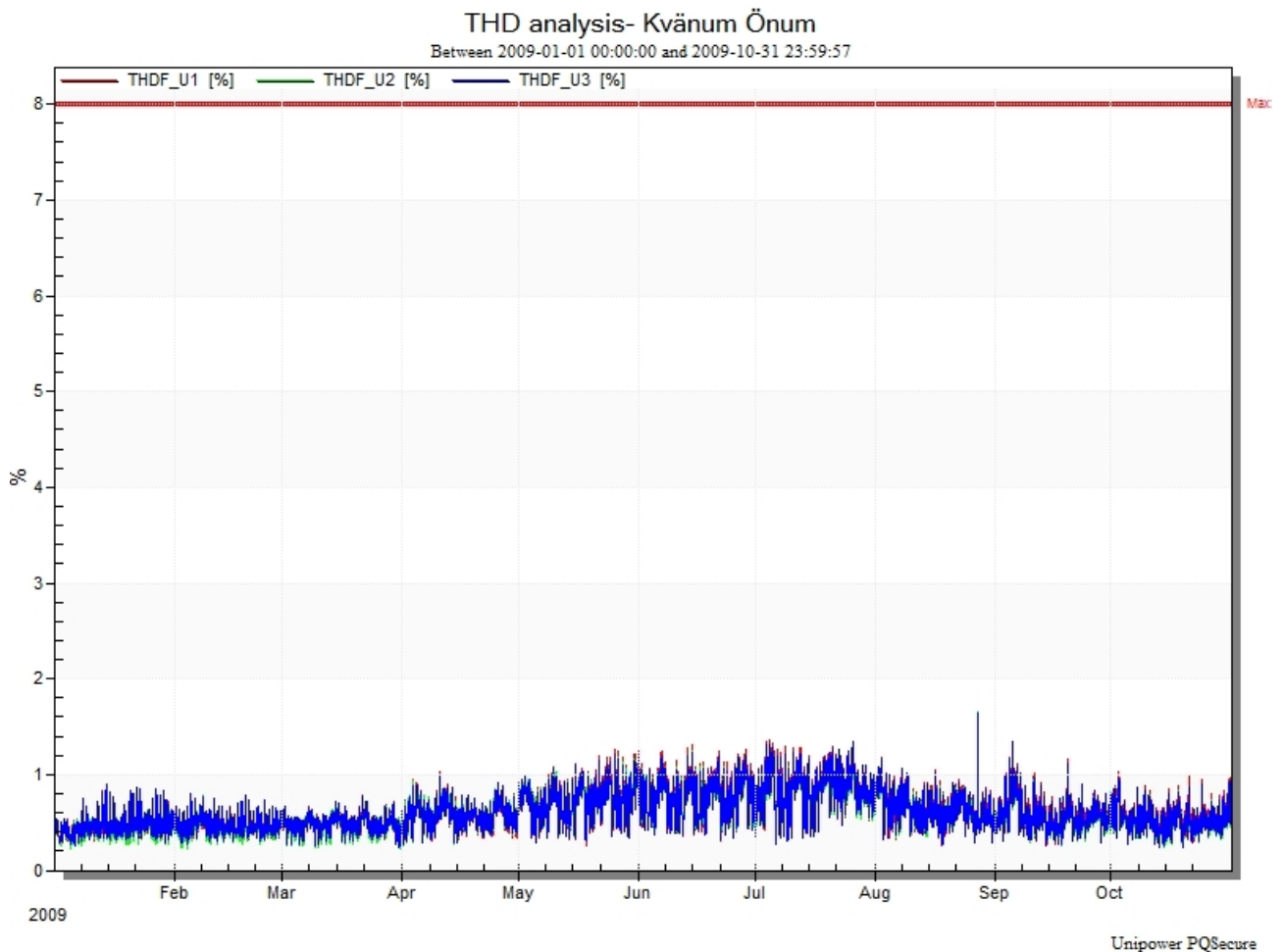
### 3. THD analysis

In any period of one week the THD (Total Harmonic Distortion) of the supply voltage shall be less than or equal to 8%.

Norm: Max: 8%, during 100 % of time.

	Time within limit	Max value	Min value	95% value	Result
THDF U1	100%	1,62%	0,24%	1,01%	Passed
THDF U2	100%	1,65%	0,22%	0,96%	Passed
THDF U3	100%	1,64%	0,24%	0,98%	Passed

Included 39 flagged value(s) in the result

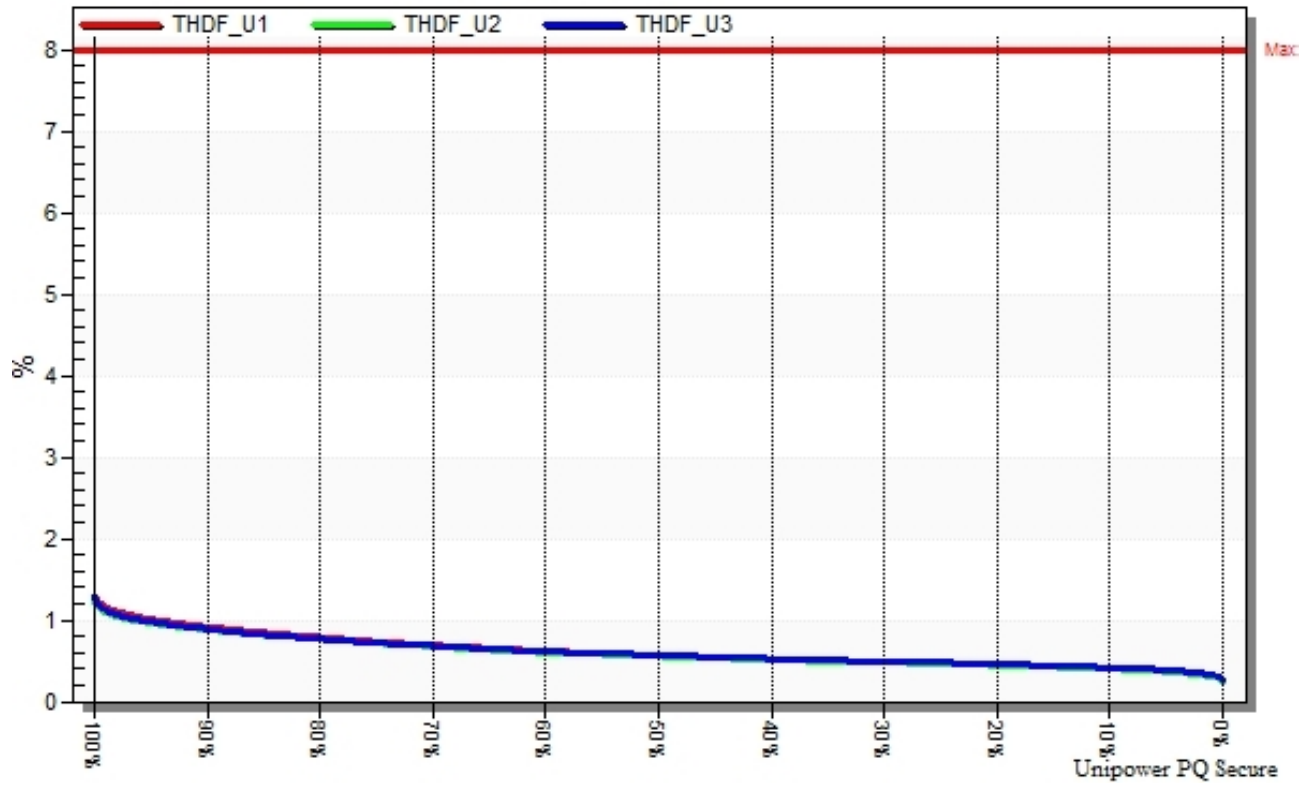





EIFS 2013:1	2014-03-12
Reference: TJO	8 (13)
Comment:	Unipower PQSecure

### THD analysis- Kvänum Önum

Between 2009-01-01 00:00:00 and 2009-10-31 23:59:57





	EIFS 2013: 1	2014-03-12
	Reference: TJO	9 (13)
	Comment:	Unipower PQSecure

#### 4. Individual harmonic analysis

During each period of one week, all of the 10 minute mean rms values of each individual harmonic voltage shall be less than or equal to the value given in the table. Resonances may cause higher voltages for an individual harmonic.

Harmonic no: limit in % of fundamental

#	Limit	Max U1	95% U1 *	Max U2	95% U2 *	Max U3	95% U3 *	Result
2	2%	0,12	0,00	0,07	0,04	0,11	0,05	Passed
3	5%	0,32	0,19	0,34	0,22	0,20	0,08	Passed
4	1%	0,09	0,03	0,05	0,00	0,11	0,03	Passed
5	6%	1,11	0,77	1,01	0,69	1,08	0,70	Passed
6	0,5%	0,09	0,00	0,07	0,00	0,08	0,02	Passed
7	5%	1,04	0,64	1,12	0,65	1,06	0,69	Passed
8	0,5%	0,03	0,00	0,03	0,00	0,03	0,00	Passed
9	1,5%	0,07	0,02	0,05	0,00	0,03	0,00	Passed
10	0,5%	0,01	0,00	0,02	0,00	0,02	0,00	Passed
11	3,5%	0,54	0,14	0,51	0,15	0,57	0,15	Passed
12	0,5%	0,02	0,00	0,02	0,00	0,02	0,00	Passed
13	3%	0,32	0,13	0,32	0,14	0,23	0,13	Passed
14	0,5%	0,01	0,00	0,02	0,00	0,04	0,00	Passed
15	0,5%	0,06	0,00	0,04	0,00	0,06	0,00	Passed
16	0,5%	0,01	0,00	0,01	0,00	0,01	0,00	Passed
17	2%	0,19	0,09	0,21	0,10	0,16	0,07	Passed
18	0,5%	0,00	0,00	0,00	0,00	0,00	0,00	Passed
19	1,5%	0,26	0,05	0,24	0,05	0,25	0,05	Passed
20	0,5%	0,00	0,00	0,00	0,00	0,00	0,00	Passed
21	0,5%	0,04	0,00	0,02	0,00	0,04	0,00	Passed
22	0,5%	0,00	0,00	0,01	0,00	0,01	0,00	Passed
23	1,5%	0,15	0,05	0,13	0,05	0,17	0,04	Passed
24	0,5%	0,00	0,00	0,01	0,00	0,01	0,00	Passed
25	1,5%	0,12	0,05	0,18	0,08	0,17	0,07	Passed

\* = Informative value

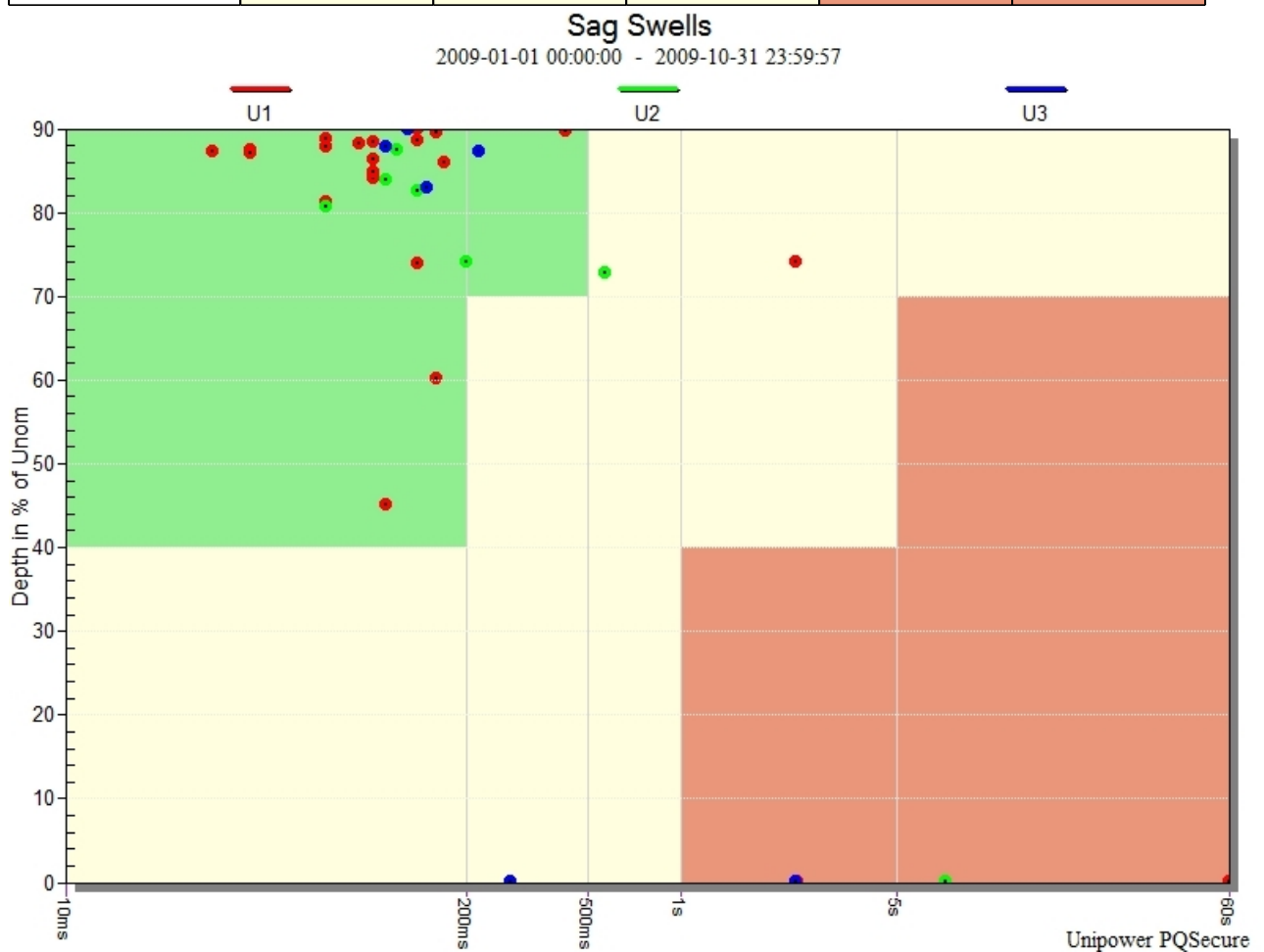
	EIFS 2013:1	2014-03-12
	Reference: TJO	10 (13)
	Comment:	Unipower PQSecure

## 5. Voltage dips

There should be no sags with depth and duration that corresponds to area C in the table below. The supplier of power is obliged to mitigate sags in area B in the table below if the mitigating actions are in reasonable proportion to the problems experienced by the consumers that are affected by the sags.

Område	Antal
A	30
B	3
C	3
Total number of sags:	36

Depth (d) (t)	Duration	10ms < t <= 200ms	200ms < t <= 500ms	500ms < t <= 1s	1s < t <= 5s	5s < t <= 60s
80% <= d < 90%		24	2	0	0	0
70% <= d < 80%		2	0	1	1	0
40% <= d < 70%		2	0	0	0	0
5% <= d < 40%		0	0	0	0	0
0% <= d < 5%		0	1	0	2	1



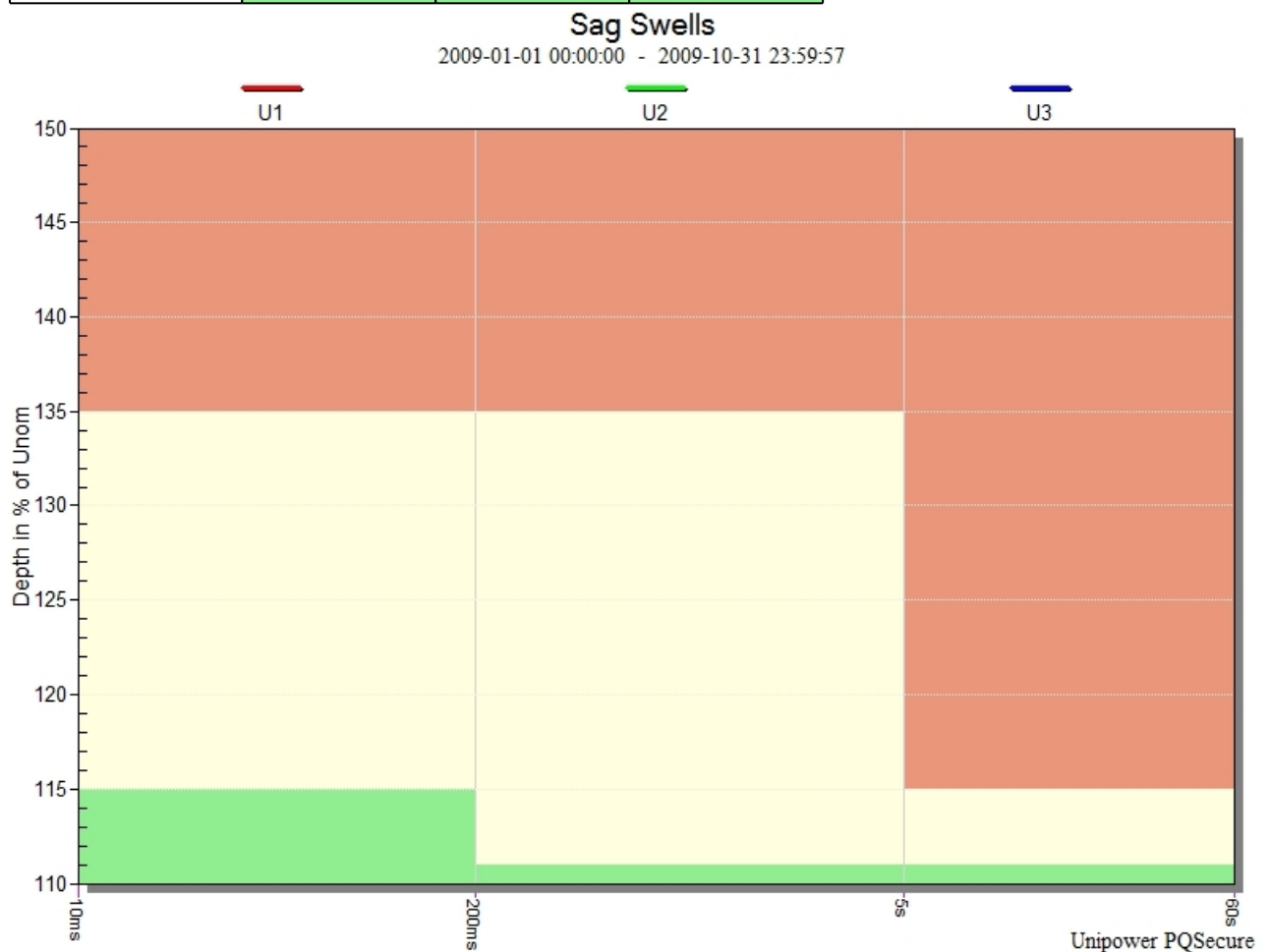
	EIFS 2013:1	2014-03-12
	Reference: TJO	11 (13)
	Comment:	Unipower PQSecure


## 6. Voltage swells

There should be no swells with depth and duration that corresponds to area C in the table below. The supplier of power is obliged to mitigate swells in area B in the table below if the mitigating actions are in reasonable proportion to the problems experienced by the consumers that are affected by the swells.

Område	Antal
A	0
B	0
C	0
Total number of swells:	0

Depth (d) (t)	Duration	10ms < t <= 200ms	200ms < t <= 5s	5s < t <= 60s
u >= 135%		0	0	0
115% >= u < 135%		0	0	0
111% <= u < 115%		0	0	0
110% <= u < 111%		0	0	0



	EIFS 2013: 1	2014-03-12
	Reference: TJO	12 (13)
	Comment:	Unipower PQSecure


## 7. Rapid Voltage Changes

The number of rapid voltage changes (Delta Ustationary =3%) added to the number of sags in area A (Sag A) must not exceed 24 per day.

At the same time, the number of rapid voltage changes (Delta Umax =5%) added to the number of sags in area A (Sag A) must not exceed 24 per day.

Summary of RVC analysis: Passed

Date	RVC Delta Ustationary $\geq 3\%$	RVC Delta Umax $\geq 5\%$	Sag A	Result
2009-01-17	0	2	0	Passed
2009-02-06	0	1	0	Passed
2009-02-16	0	2	0	Passed
2009-03-13	0	1	1	Passed
2009-03-24	0	1	1	Passed
2009-04-08	0	2	0	Passed
2009-04-21	0	1	0	Passed
2009-04-23	0	2	0	Passed
2009-05-05	0	2	0	Passed
2009-05-28	0	8	0	Passed
2009-05-31	0	1	0	Passed
2009-06-01	0	1	0	Passed
2009-06-04	0	2	0	Passed
2009-06-06	0	4	0	Passed
2009-06-14	0	3	0	Passed
2009-06-20	0	2	1	Passed
2009-06-22	0	1	0	Passed
2009-06-29	0	1	0	Passed
2009-07-01	0	5	1	Passed
2009-07-03	0	18	4	Passed
2009-07-05	0	2	0	Passed
2009-07-07	0	5	1	Passed
2009-07-08	0	0	2	Passed
2009-07-14	0	1	0	Passed
2009-07-15	0	2	2	Passed
2009-07-18	0	0	3	Passed
2009-07-19	0	0	1	Passed
2009-07-24	0	1	0	Passed
2009-08-04	0	1	0	Passed
2009-08-10	0	6	1	Passed
2009-08-11	0	0	1	Passed
2009-08-12	0	4	1	Passed
2009-08-13	0	10	0	Passed
2009-08-19	0	2	0	Passed
2009-08-21	0	1	0	Passed
2009-08-22	0	2	2	Passed

	EIFS 2013:1	2014-03-12
	Reference: TJO	13 (13)
	Comment:	Unipower PQSecure

Date	RVC Delta Ustationary $\geq 3\%$	RVC Delta Umax $\geq 5\%$	Sag A	Result
2009-08-23	0	2	0	Passed
2009-08-24	0	1	0	Passed
2009-08-28	0	5	0	Passed
2009-08-29	0	1	1	Passed
2009-08-31	0	1	0	Passed
2009-09-02	0	3	0	Passed
2009-09-03	0	1	1	Passed
2009-09-05	0	2	1	Passed
2009-09-07	0	1	1	Passed
2009-09-15	0	3	1	Passed
2009-09-16	0	1	0	Passed
2009-09-18	0	0	1	Passed
2009-09-27	0	1	1	Passed
2009-10-08	0	2	0	Passed
2009-10-09	0	1	0	Passed
2009-10-14	0	0	1	Passed