

In this document, the parameters that have been set to comply with the standard under certification are stated:

1. Operation field:

Test No.	V (%Un)	F(Hz)	Time (min)	Disconnection (Yes/No)
Test 1	115%	51,50	60,00	NO
Test 2	115%	47,50	60,00	NO
Test 3	85%	51,50	60,00	NO
Test 4	85%	47,50	60,00	NO

2. ROCOF

Initial Freq. (Hz)	Final Freq. (Hz)	Gradient required (Hz/s)	Disconnection (Yes/No)
47,5	51,5	2,00	NO
51,5	47,5	2,00	NO

3. P vs F (Overfrequency)

- P vs OF: 50,2Hz-s=2%(100%/Hz)
- P vs OF: 50,5Hz-s=2%(100%/Hz)
- P vs OF: 50,2Hz-s=12% (16,67%/Hz)
- P vs OF: 50,5Hz-s=12% (16,67%/Hz)

4. P vs F (Underfrequency)

US2F2 Test point N°	F (Hz)	Maximum $\Delta P/P_{max}$ allowed (%Pn)
1	49,80	--
2	49,60	--
3	49,40	0% - 1%
4	49,20	0% - 3%
5	49,00	0% - 5%
6	48,80	0% - 0,4%
7	48,60	0% - 0,8%
8	48,40	0%-1,2%

5. Reconnection and power gradients

- Reconnection
 - Under Voltage Ulimit=86%Un Time set= 70 sec
 - Over Voltage Ulimit=114%Un Time set= 70 sec
 - Over Frequency Flimit=50,05 Hz Time set= 70s
 - Under Frequency Flimit=49,0 Hz Time set= 70 s
- Power gradients

Fault	Expected gradient (%Pn/s)	Expected gradient (%Pn/)
OV	0,17	10,00
UV	0,17	10,00
OF	0,17	10,00
UF	0,17	10,00

6. Active power control/ Power gradients

- Active power control

P setting (%Pmax)	PF required (pu)
100,00% ±5%	1,00
90,00% ±5%	1,00
80,00% ±5%	1,00
70,00% ±5%	1,00
60,00% ±5%	1,00
50,00% ±5%	1,00
40,00% ±5%	1,00
30,00% ±5%	1,00
20,00% ±5%	1,00
10,00% ±5%	1,00
0,00% ±5%	1,00

- Power gradients

Expected gradient (%Pmax/s)	Expected gradient (% Pn/min)
1,50%	90,00%
-1,50%	-90,00%
1,67%	100%
-1,67%	-100%

7. FRT

Fault type	Load	Voltage Level desired (%)	Time (ms)	K factor
3P	100%	< 5%	≥ 318	0,00
3P	20%	< 5%	≥ 318	0,00
2P (Δ)	100%	< 5%	≥ 406	0,00
2P (Y)	100%	< 5%	≥ 406	0,00
2P (Δ)	20%	< 5%	≥ 406	0,00
2P (Y)	20%	< 5%	≥ 406	0,00
3P	100%	25%	≥ 1156	2,00
3P	20%	25%	≥ 1156	2,00
2P (Δ)	100%	25%	≥ 1332	2,00
2P (Y)	100%	25%	≥ 1332	2,00
2P (Δ)	20%	25%	≥ 1332	2,00
2P (Y)	20%	25%	≥ 1332	2,00
3P	100%	50%	≥ 2162	2,00
3P	20%	50%	≥ 2162	2,00
2P (Δ)	100%	50%	≥ 2444	2,00
2P (Y)	100%	50%	≥ 2444	2,00
2P (Δ)	20%	50%	≥ 2444	2,00
2P (Y)	20%	50%	≥ 2444	2,00
3P	100%	75%	≥ 2833	2,00
3P	20%	75%	≥ 2833	2,00
3P	100%	75%	≥ 2833	2,00
2P (Δ)	20%	75%	≥ 2833	2,00
2P (Y)	20%	75%	≥ 2833	2,00
2P (Δ) (*)	20%	75%	≥ 2833	2,00
2P (Y) (*)	20%	75%	≥ 2833	2,00
2P (Δ) (**)	20%	75%	≥ 2833	2,00

2P (Y) (**)	20%	75%	≥ 2833	2,00
3P	P>10%	75%	≥ 2833	4,00
2P (Δ)	P>10%	75%	≥ 3000	4,00
2P (Y)	P>10%	75%	≥ 3000	4,00
3P	100%	>110%	≥ 60000	0,00
3P	20%	>110%	≥ 5000	0,00
2P (Y)	100%	>110%	≥ 5000	0,00
2P (Y)	20%	>110%	≥ 5000	0,00

Fault type	Load	Voltage Level desired (%)	Time measured (ms)
3P	0%	< 5%	≥ 318
2P (Δ)	0%	< 5%	≥ 406
2P (Y)	0%	< 5%	≥ 406
3P	0%	25%	≥ 1156
2P (Δ)	0%	25%	≥ 1332
2P (Y)	0%	25%	≥ 1332
3P	0%	50%	≥ 2162
2P (Δ)	0%	50%	≥ 2444
2P (Y)	0%	50%	≥ 2444
3P	0%	75%	≥ 2833
2P (Δ)	0%	75%	≥ 2833
2P (Y)	0%	75%	≥ 2833
2P (Y)	0%	75%	≥ 3000
2P (Δ)	0%	75%	≥ 3000
2P (Y)	0%	75%	≥ 3000
3P	0%	80%	≥ 3000
3P	0%	80%	≥ 3000
3P	0%	80%	≥ 3000
2P (Y)	0%	>110%	≥ 5000