

# TEST DATA OF UMCS30F-48-E

Regulated DC Power Supply  
July 22, 2024

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Design Manager

Prepared by : Kyosuke Kurata  
Design Engineer

**COSEL CO.,LTD.**

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<div>1.Graph</div> <div><div><div><div><div></div></div><div>Input Volt. 115V</div></div><div><div><div></div></div><div>Input Volt. 230V</div></div><div><div><div></div></div><div>Input Volt. 264V</div></div></div><div><div><div><div></div><div>0.6</div></div><div><div></div><div>0.4</div></div><div><div></div><div>0.2</div></div><div><div></div><div>0</div></div></div><div><div>0</div><div>0.2</div><div>0.4</div><div>0.6</div><div>0.8</div></div><div>Input Current [A]</div><div>Load Current [A]</div></div></div> <div>2.Values</div> <div><table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Input Current [A]</th></tr><tr><th>Input Volt. 115[V]</th><th>Input Volt. 230[V]</th><th>Input Volt. 264[V]</th></tr><tr><td>0.00</td><td>0.012</td><td>0.017</td><td>0.021</td></tr><tr><td>0.13</td><td>0.149</td><td>0.096</td><td>0.087</td></tr><tr><td>0.26</td><td>0.252</td><td>0.160</td><td>0.146</td></tr><tr><td>0.39</td><td>0.353</td><td>0.220</td><td>0.198</td></tr><tr><td>0.52</td><td>0.448</td><td>0.276</td><td>0.252</td></tr><tr><td>0.65</td><td>0.549</td><td>0.336</td><td>0.305</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table></div>		Load Current [A]	Input Current [A]			Input Volt. 115[V]	Input Volt. 230[V]	Input Volt. 264[V]	0.00	0.012	0.017	0.021	0.13	0.149	0.096	0.087	0.26	0.252	0.160	0.146	0.39	0.353	0.220	0.198	0.52	0.448	0.276	0.252	0.65	0.549	0.336	0.305	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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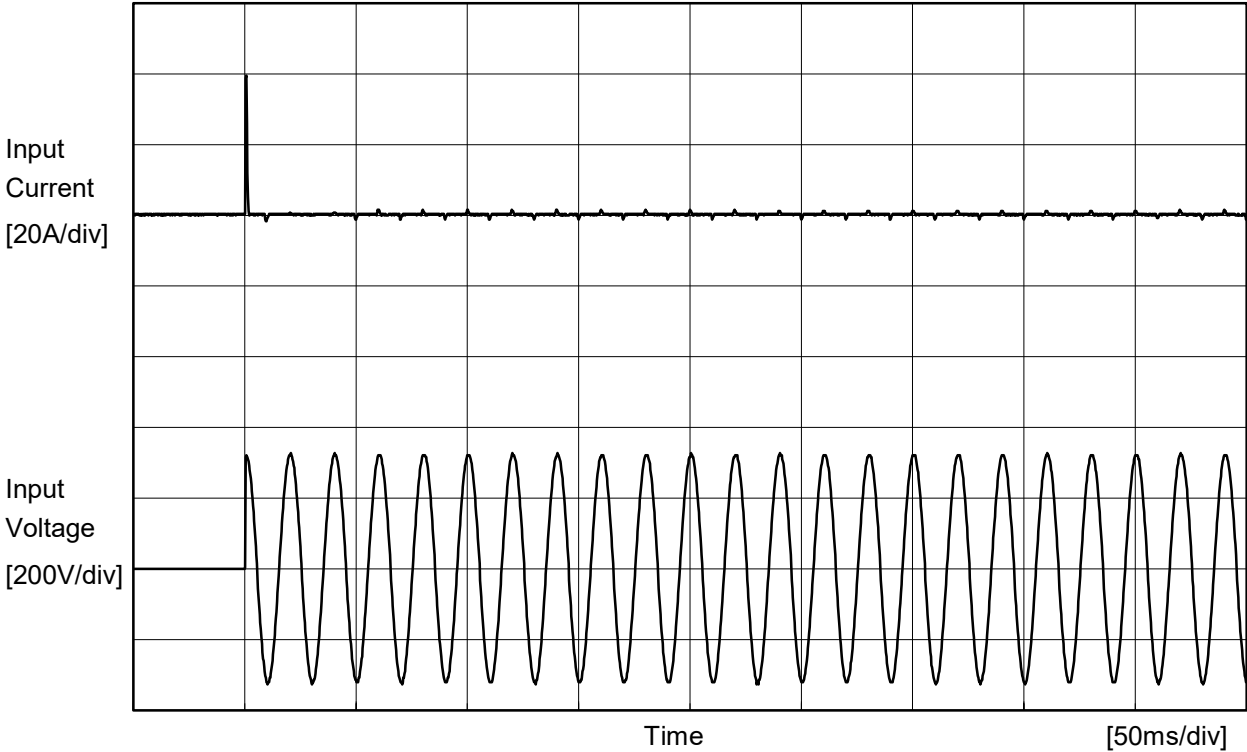
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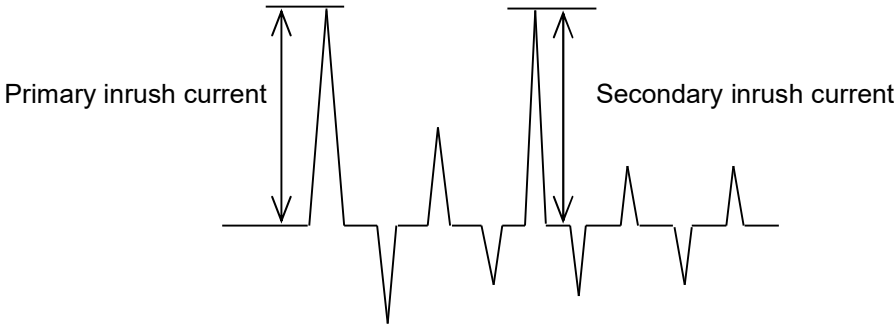


Model		UMCS30F-48-E	
Item		Inrush Current	Temperature 25°C Testing Circuitry Figure A
Object		+48V0.65A	



Input Voltage            230 V  
Frequency                50 Hz  
Load                        100 %

Primary inrush current    39.4 A  
Secondary inrush current  1.4 A





LOREL		Temperature 25°C Testing Circuitry Figure C
Model	UMCS30F-48-E	
Item	Leakage Current	
Object	+48V0.65A	

## 1.Results

[μA]

Standards	Testing Circuitry	Measuring Method	Input Volt.			Note
			115 [V]	230 [V]	264 [V]	
IEC60601-1	Figure C-1	Both phases	1.54	3.95	4.57	Operation
		One of phases	2.59	6.23	7.16	Stand by
IEC62368-1	Figure C-2	Both phases	1.00	3.58	4.26	Operation
		One of phases	2.05	5.90	6.84	Stand by
	Figure C-3	Both phases	1.00	3.57	4.21	Operation
		One of phases	1.98	5.82	4.21	Stand by

The value for "One of phases" is the reference value only.

## 2.Condition

Leakage current value is concluded after measuring both phases of AC input and by choosing the larger one.



Model		UMCS30F-48-E	Temperature 25°C Testing Circuitry Figure A																															
Item		Line Regulation																																
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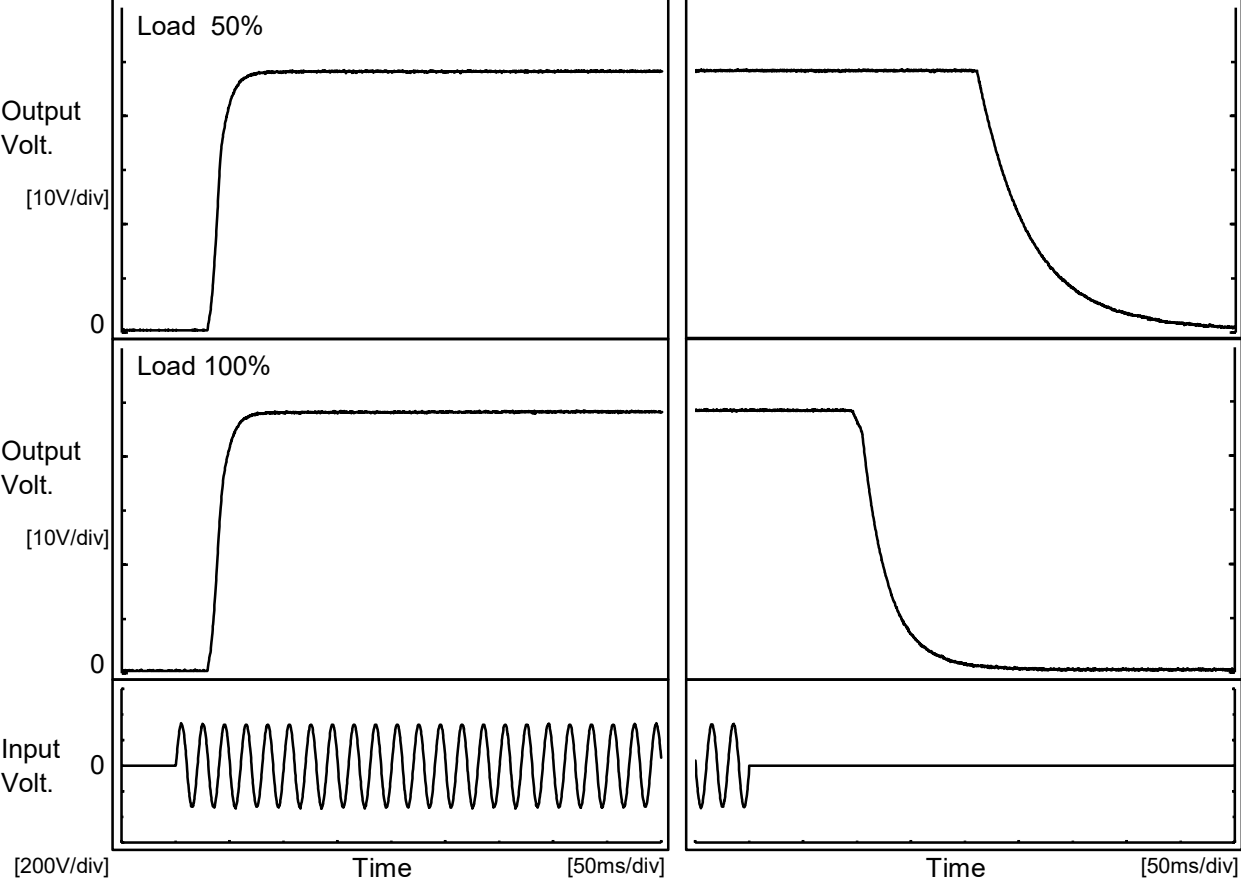
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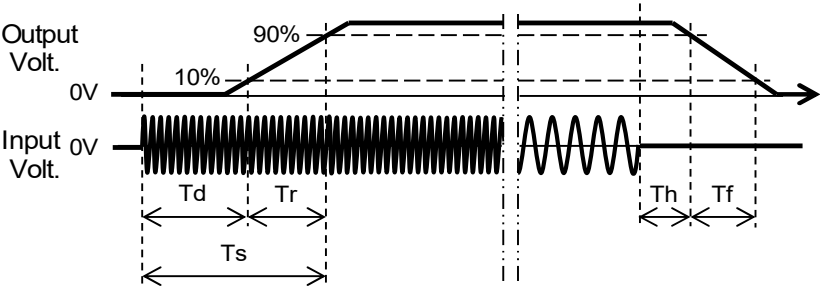
Model		UMCS30F-48-E
Item		Rise and Fall Time
Object		+48V0.65A
Temperature		25°C
Testing Circuitry		Figure A

1.Graph



2.Values

		[ms]				
Load	Time	Td	Tr	Ts	Th	Tf
50 %		33.0	19.3	52.3	215.8	109.3
100 %		33.0	20.0	53.0	105.0	53.5

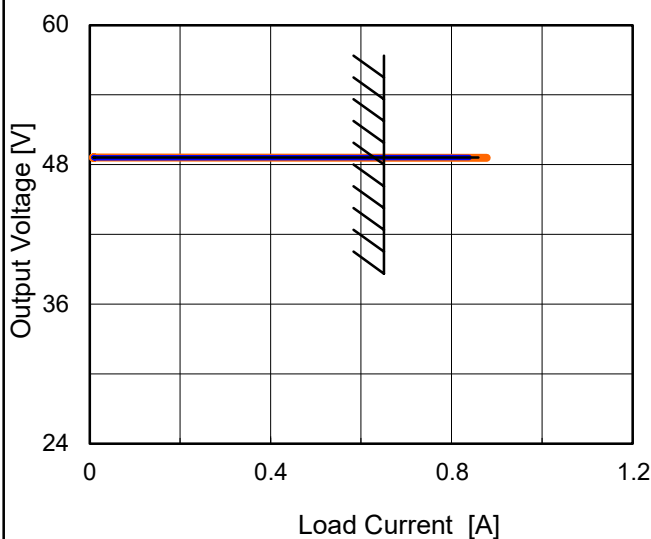




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<div>This duration covers from Shut-off of input voltage to the moment when output voltage descends to the rated range of voltage accuracy.</div>																																			



<div>ModelUMCS30F-48-E</div> <div>ItemInstantaneous Interruption Compensation</div> <div>Object+48V0.65A</div>		<div>Temperature25°C</div> <div>Testing CircuitryFigure A</div>																																																			
<div>1.Graph<div><div><div>—△—</div><div>Input Volt. 115V</div></div><div><div>---□---</div><div>Input Volt. 230V</div></div><div><div>-·-○-·-</div><div>Input Volt. 264V</div></div></div><div><div><div>Instantaneous Compensation Time [ms]</div><div><div><div>1000</div><div>100</div><div>10</div><div>1</div></div><div><div>00.20.40.60.8</div></div></div><div><div>Load Current [A]</div></div></div></div></div>		<div>2.Values</div> <table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Time [ms]</th></tr><tr><th>Input Volt. 115[V]</th><th>Input Volt. 230[V]</th><th>Input Volt. 264[V]</th></tr><tr><td>0.00</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.13</td><td>125</td><td>539</td><td>719</td></tr><tr><td>0.26</td><td>60</td><td>266</td><td>357</td></tr><tr><td>0.39</td><td>39</td><td>178</td><td>239</td></tr><tr><td>0.52</td><td>27</td><td>128</td><td>173</td></tr><tr><td>0.65</td><td>17</td><td>96</td><td>132</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table>	Load Current [A]	Time [ms]			Input Volt. 115[V]	Input Volt. 230[V]	Input Volt. 264[V]	0.00	-	-	-	0.13	125	539	719	0.26	60	266	357	0.39	39	178	239	0.52	27	128	173	0.65	17	96	132	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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Model	UMCS30F-48-E																																																																	
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		Testing Circuitry	Figure A																																																															
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<div><div><div></div>Input Volt. 115V</div><div><div></div>Input Volt. 230V</div><div><div></div>Input Volt. 264V</div></div>  <p>Note: Slanted line shows the range of the rated load current.</p> <p>Overcurrent protection is Hiccup mode.</p>		<table><tr><th rowspan="2">Output Voltage [V]</th><th colspan="3">Load Current [A]</th></tr><tr><th>Input Volt. 115[V]</th><th>Input Volt. 230[V]</th><th>Input Volt. 264[V]</th></tr><tr><td>48</td><td>0.86</td><td>0.84</td><td>0.88</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table>		Output Voltage [V]	Load Current [A]			Input Volt. 115[V]	Input Volt. 230[V]	Input Volt. 264[V]	48	0.86	0.84	0.88	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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Model	UMCS30F-48-E		
Item	Ambient Temperature Drift	Testing Circuitry    Figure A	
Object	+48V0.65A		
1.Values		Load 100%	
Ambient Temperature[°C]	Output Voltage [V]		
	Input Volt. 115V	Input Volt. 230V	Input Volt. 264V
-20	48.363	48.365	48.366
25	48.553	48.554	48.555
45	48.638	48.639	48.640
Item	Minimum Input Voltage for Regulated Output Voltage	Testing Circuitry    Figure A	
Object	+48V0.65A		
1.Values			
Ambient Temperature[°C]	Input Voltage [V]		
	Load 50%	Load 100%	
-20	35	69	
25	35	69	
45	36	70	
Item	Overvoltage Protection	Testing Circuitry    Figure A	
Object	+48V0.65A		
1.Values		Load 0%	
Ambient Temperature[°C]	Operating Point [V]		
	Input Volt. 115V	Input Volt. 264V	
-20	63.49	62.80	
25	62.50	61.86	
45	62.79	62.85	

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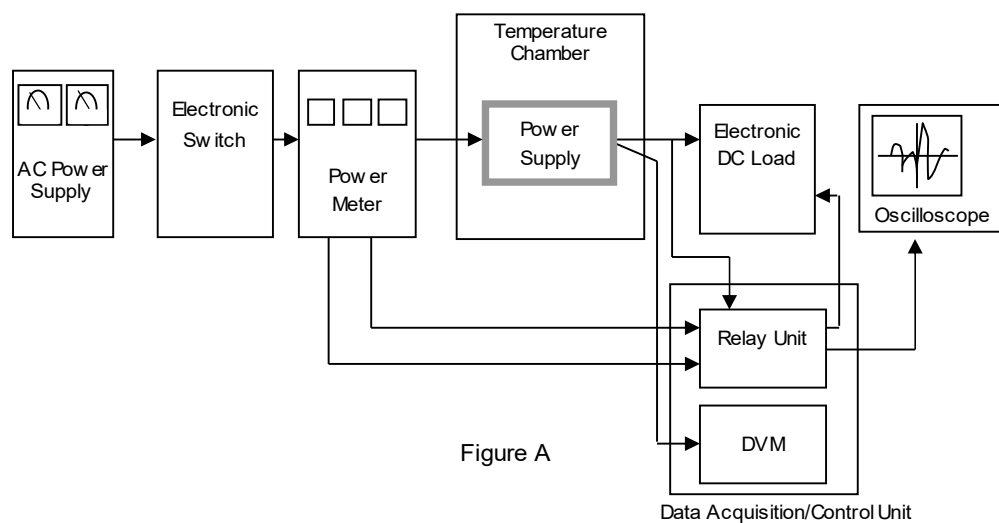


Figure A

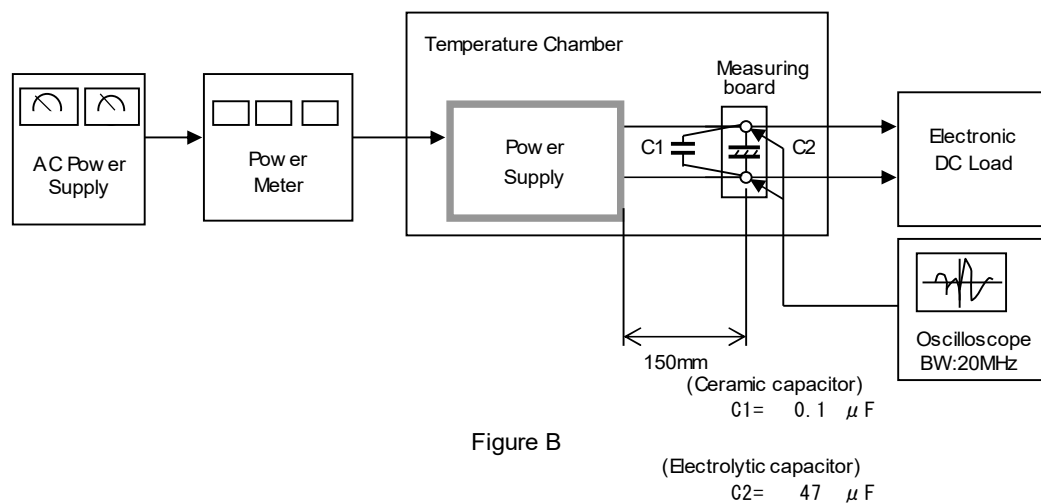


Figure B

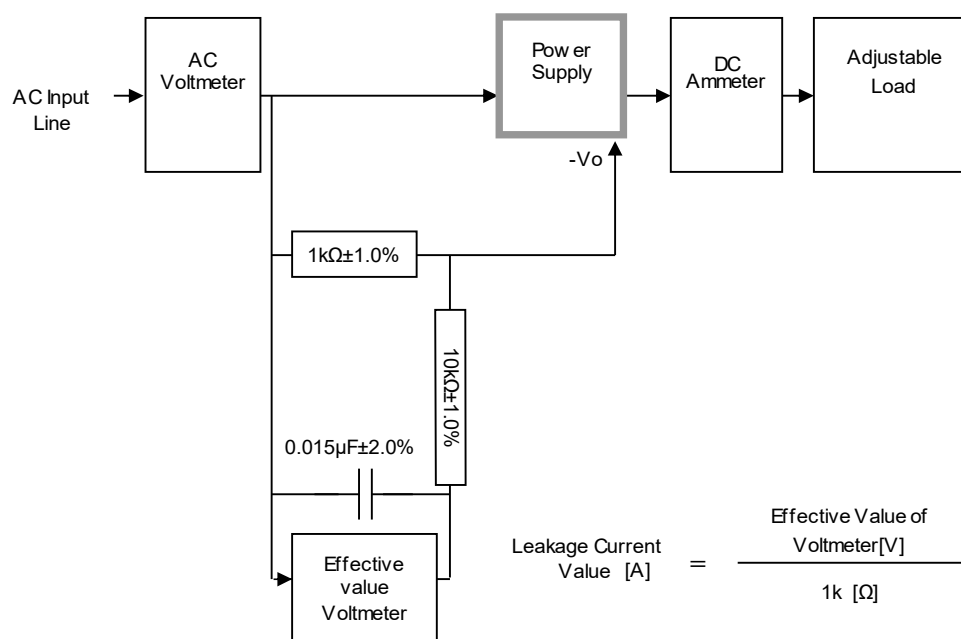


Figure C-1 ( IEC60601-1 )



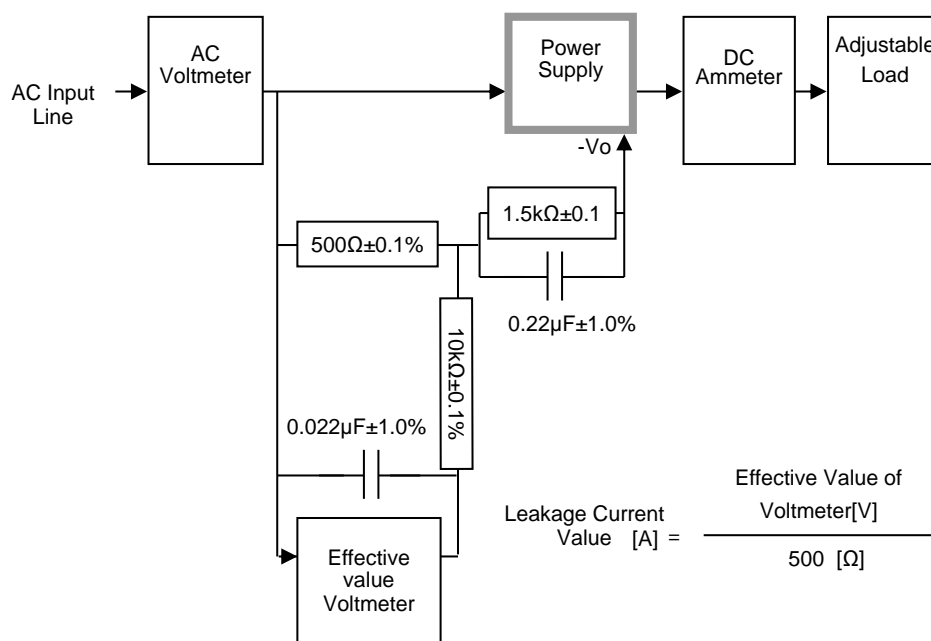


Figure C-2 ( IEC62368-1 refer to IEC60990 Fig.4 )

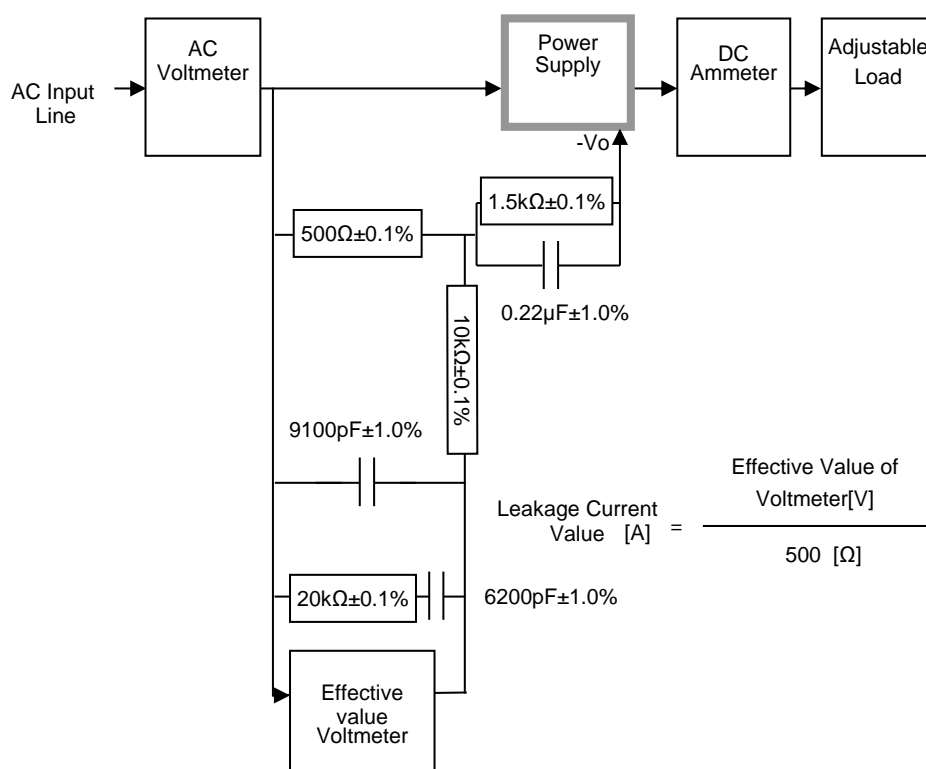


Figure C-3 ( IEC62368-1 refer to IEC60990 Fig.5 )