


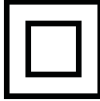
REGULATORY REQUIREMENTS RELATED TO NATIONAL DIFFERENCES

No.	Items	Requirements																																														
1	Nominal Voltages and Frequency	<p>a) Nominal Voltage Nominal voltage for low voltage supply in Malaysia is 230/400V (+10%, -6%) in accordance with MS IEC 60038 with details as per the following table: -</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2"></th> <th rowspan="2">Nominal Voltage (V)</th> <th colspan="2">Percentage of Variations (%)</th> <th colspan="2">Voltage Variations (V)</th> </tr> <tr> <th>+</th> <th>-</th> <th>Min.</th> <th>Max.</th> </tr> </thead> <tbody> <tr> <td colspan="6">Until 31/12/2007</td> </tr> <tr> <td>Single Phase</td> <td>240</td> <td>5</td> <td>10</td> <td>226</td> <td>252</td> </tr> <tr> <td>Three Phase</td> <td>415</td> <td>5</td> <td>10</td> <td>373.5</td> <td>436</td> </tr> <tr> <td colspan="6">Commencing on 1/1/2008</td> </tr> <tr> <td>Single Phase</td> <td>230</td> <td>10</td> <td>6</td> <td>216</td> <td>253</td> </tr> <tr> <td>Three Phase</td> <td>400</td> <td>10</td> <td>6</td> <td>376</td> <td>440</td> </tr> </tbody> </table> <p>b) Nominal Frequency Nominal frequency for low voltage supply voltage in Malaysia is allowed to fluctuate at $\pm 1\%$ from 50Hz.</p>		Nominal Voltage (V)	Percentage of Variations (%)		Voltage Variations (V)		+	-	Min.	Max.	Until 31/12/2007						Single Phase	240	5	10	226	252	Three Phase	415	5	10	373.5	436	Commencing on 1/1/2008						Single Phase	230	10	6	216	253	Three Phase	400	10	6	376	440
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2	Voltages and Frequency Marking for Regulated Equipment	<p>In line with (a) above, the electrical equipment to be used in Malaysia shall be designed to operate at the country's nominal voltage and frequency as follows: -</p> <p>a) Voltage Single-phase equipment shall be rated / marked at 230V or 240V. If the equipment is rated with multiple or a range of voltages, voltage range of 230V (+10%,-6%) shall be included.</p> <p>Three-phase equipment shall be rated/marked at 400V or 415V. If the equipment is rated with multiple or a range of voltages, voltage range of 400V (+10%,-6%) shall be included.</p> <p>b) Frequency Product shall be rated / marked at 50Hz and testing shall be conducted at 50Hz ($\pm 1\%$). If the product is marked with 50/60Hz or 50-60Hz then testing shall be conducted either at 50Hz or 60Hz, whichever is more unfavourable.</p>																																														

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3	Testing Voltage and Frequency on Electrical Equipment	<p>Type Test Report for Equipment</p> <p>The test shall be conducted by the Conformity Assessment Body (CAB) at voltage variations as in the table below:</p> <table border="1" style="margin-left: 40px;"> <tbody> <tr> <td style="padding: 2px;">Single Phase</td> <td style="padding: 2px;">240V ± 6%</td> <td style="padding: 2px;">(225.6 – 254.4) V</td> </tr> <tr> <td style="padding: 2px;">Three Phase</td> <td style="padding: 2px;">415V ± 6%</td> <td style="padding: 2px;">(390.1 – 439.9) V</td> </tr> <tr> <td style="padding: 2px;">Single Phase</td> <td style="padding: 2px;">230V ± 10%</td> <td style="padding: 2px;">(207 – 253) V</td> </tr> <tr> <td style="padding: 2px;">Three Phase</td> <td style="padding: 2px;">400V ± 10%</td> <td style="padding: 2px;">(360 – 440) V</td> </tr> </tbody> </table> <p>a) Voltage</p> <p><u>Single-phase equipment</u></p> <p>Testing shall be conducted based on 230V(+10%,-10%) or 240V(+6%,-6%) and other relevant voltages, whenever the equipment is marked with multiple or a range of voltages.</p> <p><u>Three-phase equipment</u></p> <p>Testing shall be conducted based on 400V(+10%,-10%) or 415V(+6%,-6%), and other relevant voltages, whenever the equipment is marked with multiple or a range of voltages.</p> <p>b) Frequency</p> <p>Testing shall be conducted either at 50Hz or 60Hz, whichever is more unfavourable.</p>	Single Phase	240V ± 6%	(225.6 – 254.4) V	Three Phase	415V ± 6%	(390.1 – 439.9) V	Single Phase	230V ± 10%	(207 – 253) V	Three Phase	400V ± 10%	(360 – 440) V
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4	Power supply cord and main plug requirements	<p>Appliances shall be fitted with a suitable and appropriately approved power supply cord and mains plug. Both are regulated equipment and must be approved by the regulatory body before it can be used with the appliances.</p> <p>a) The Power Supply Cord shall be certified to:-</p> <ul style="list-style-type: none"> • MS2112-5 or BS EN 50525-2-11 or IEC 60227-5 (PVC insulated - flexible cables/cords);or • or MS 2127-4 or IEC 60245-1 & IEC 60245-4 (Rubber insulated - flexible cables/cords) <p>b) The mains Plug to be used in Malaysia shall be as follows:</p> <ul style="list-style-type: none"> • 13A fused plug complying with MS 589-1 or BS 1363:PT.1; • 15A plugs complying with MS 1577; • 2.5A, 250V, flat non-rewireable two-pole plug with cord for the connection of class II equipment comply with MS 1578 or BS EN 50075. 												

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5	Class I and Class II Equipment	<p>Only the following symbols for Class I and Class II are allowed to be used in Malaysia.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Class I</p> </div> <div style="text-align: center;">  <p>Class II</p> </div> </div> <p>Class 0 and Class 01 appliances as defined in MS IEC 60335 series or IEC 60335 series are NOT ALLOWED to be used in Malaysia.</p>
6	Suspension System for Electric Ceiling Fans	Electric ceiling fans must be provided with a special wire as a secondary suspension system. The test method used to check that the secondary suspension system of the electric ceiling fan has adequate mechanical strength is in accordance with MS 1597: Part 2-80 or IEC 60335-2-80 with modification for ceiling fan only.
7	Requirement for LED Luminaires	To meet the requirements of the LED Photobiological Safety Class of Exempt Group according to standard MS IEC 62471 or IEC 62471.