CITY LIGHT
SWITCHGEARS L.L.C.

Power Quality Analysis

Sl. No.	Power Quality Disturbance	Definition	Effects
1	**Transients**	Transients or surges are defined as a transient wave of Current, Potential or Power in an electric circuit.	• Loss (or corruption) of data • Physical damage of Electronic equipments like PCB Cards, SMPS and UPS • System halts
2	**Interruption**	Interruption is complete loss of supply voltage or load current, depending on its duration.	• Equipment damage • Ruination of product • The cost associated with downtime, cleanup, and restart.
3	**Sag /Swell**	Sag is a reduction of AC voltage at a given frequency for the duration of 0.5 cycles to 1 minute's time. Swell is the reverse form of sag, having an increase in AC voltage for duration of 0.5 cycles to 1 minute's time.	• Equipment damage • Data corruption • Errors in industrial processing • Data errors Flickering of lights • Degradation of electrical contacts • Semiconductor damage in electronics • Insulation degradation.
4	**Harmonics**	Harmonics are sinusoidal voltages or currents having frequencies that are integer multiples of the frequency at which the supply system is designed to operate (termed the fundamental frequency; usually 50 Hz or 60 Hz)	• Overheating of rotating equipment, transformers, and current-carrying conductors • Premature failure or operation of protective devices (such as fuses) Harmonic resonance Blinking of Incandescent Lights • Transformer Saturation • Capacitor Failure Harmonic Resonance • Circuit Breakers Tripping Inductive Heating and Overload • Computer Malfunction or Lockup - Voltage Distortion
5	**Voltage Fluctuations**	Voltage fluctuations are systematic variations of the voltage envelope or a series of random voltage changes	• Flickering of incandescent lamps. • System halts
6	**Frequency Fluctuations**	**The power system frequency is directly related to the rotational speed of the generators on the system. At any instant, the frequency depends on the balance between the load and the capacity of the available generation. When this dynamic balance changes, small changes in frequency occur**	• Synchronous equipment Failure • No effect on IT equipment

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