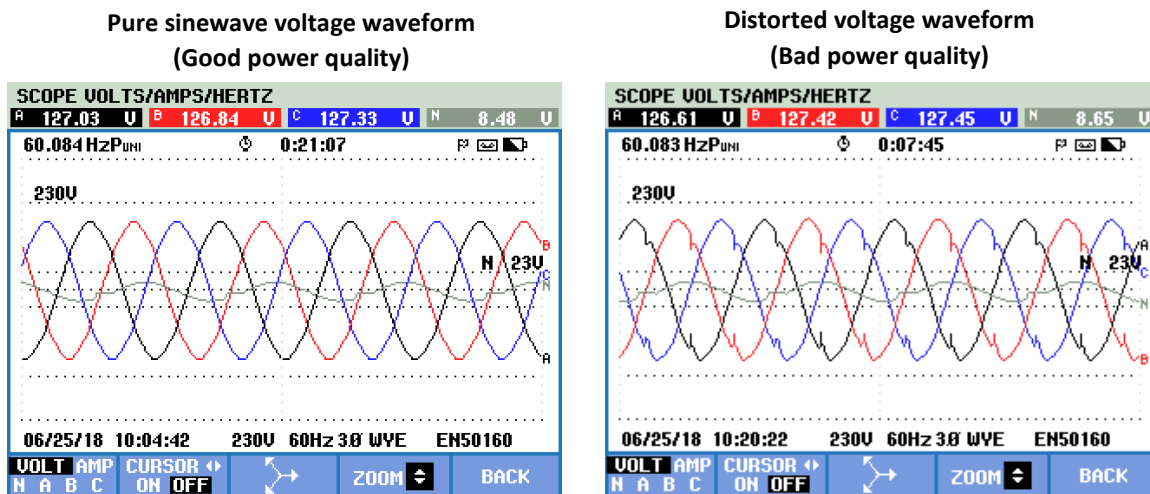


Diesel generator power quality (part 1)

Testing diesel generator sets with a load bank (dummy load) does not tell it all. It is also important to find out if the phase voltage waveform is a pure sine wave or passes the international standard. If the voltage waveform is not a pure sine wave (distorted) this indicates a bad or poor power quality that can harm electrical or electronic loads. Some of the effects of a distorted voltage waveform are:

1. Increase heating of motors, pumps and transformers.
2. Capacitor and semiconductor failure in power supplies, computers, and appliances.
3. Nuisance tripping of circuit breakers.
4. Inaccurate measurement of electrical or electronic meters.
5. Telephone interference.



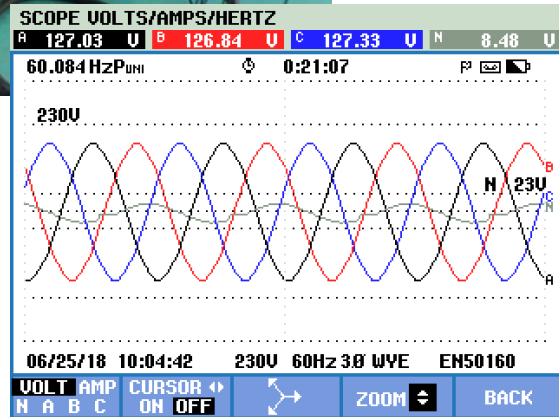
Phase voltage of Powercity generator sets are checked for a pure sine wave output. It is ensured that the generator sets' **Phase Voltage Crest Factor** – the measure of a pure sine wave voltage waveform, is within the value of **1.34** to **1.49** specified by the International Electrotechnical Commission (IEC) for supply voltages. IEC Standard 62301 specifies this value.

IEC Logo





Powercity generator sets are checked for a pure sine wave phase voltage output. Below an example of 3-phase pure sine wave output and crest factor of a 25 KVA Powercity generator set.



Phase A, B and C voltage crest factor at no load.

VOLTS/AMPS/HERTZ				
	A	B	C	N
V pk	183.9	183.7	184.0	13.0
A pk	0.4	0.4	0.4	1.0
CF V	1.44	1.45	1.44	1.55
CF A	2.27	3.20	2.09	2.23

Phase A, B and C voltage crest factor at full linear load.

VOLTS/AMPS/HERTZ				
	A	B	C	N
V pk	182.5	184.7	183.9	12.9
A pk	85.8	84.9	90.6	1.5
CF V	1.45	1.45	1.45	1.55
CF A	1.46	1.48	1.46	2.05