

Power, Energy, Environment / Service, Maintenance

TDD measurement as specified in the IEEE519 standard

The power quality analyzer and the bundled PC application software PQ ONE can be used to measure the TDD (Total Demand Distortion) specified in the IEEE519 standard.

TDD(Total Demand Distortion) formula

- TDD is the ratio of the harmonic current to the maximum demand current.

$$TDD_1 = \sqrt{I_2^2 + I_3^2 + \dots + I_{49}^2 + I_{50}^2} / I_L$$

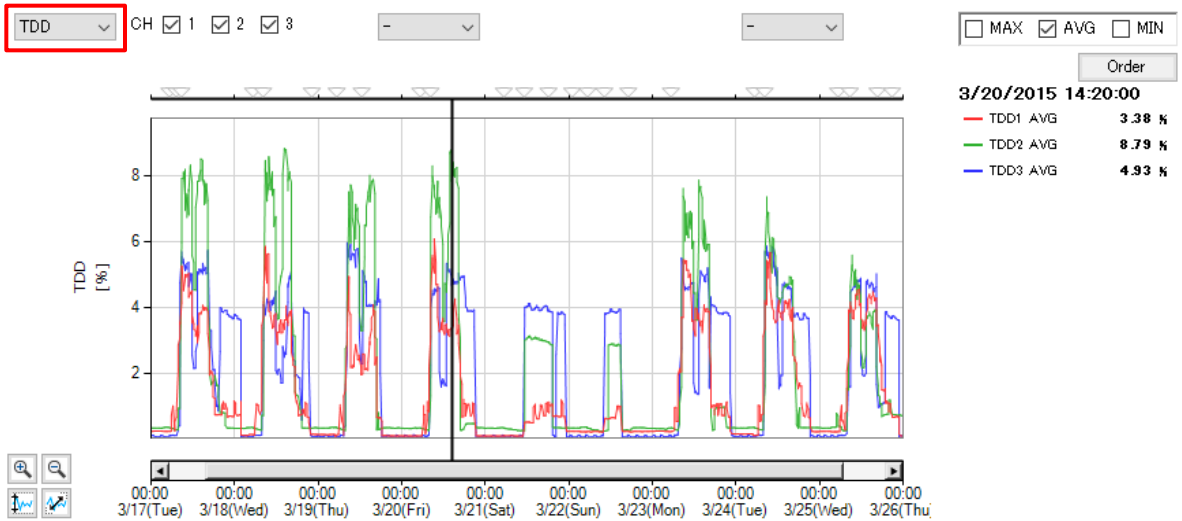
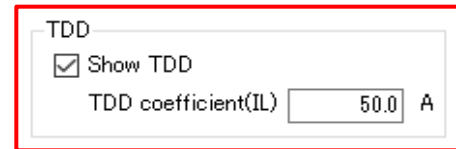
I_n : n-th order of Harmonic current

I_L : Maximum demand current value(Set in PQ ONE)



Measurement method

- Measure with the power quality analyzer at the required period of time.
If you would like to meet the demand time, set the recording interval to 30 mins (or 15 mins)
- Load the measurement data to the PQ ONE.
- You can do the TDD setting from PQ ONE's 「Option」 tab.
- In PQ ONE's 「Trend graph/Harmonics」 tab, choose 「TDD」 from the drop down menu.



- You can check the maximum, minimum and average of the display period in the *Statistics* screen.

	Times	Measured values	Average	Standard deviation	5%	50%	95%
TDD1 AVG [%]	1297	6.09 (3/20/2015 09:40:00.0) 0.09 (3/20/2015 03:00:00.0)	1.44	1.59	0.10	0.69	4.39
TDD2 AVG [%]	1297	8.83 (3/18/2015 14:20:00.1) 0.24 (3/22/2015 10:30:00.0)	2.08	2.59	0.27	0.35	7.79
TDD3 AVG [%]	1297	5.97 (3/19/2015 08:30:00.1) 0.06 (3/21/2015 03:30:00.0)	2.06	2.06	0.06	1.42	5.17

Products Used

- Power Quality Analyzer PQ3198-92 (kit including 600A sensor*4 and an application software)
- Power Quality Analyzer PQ3198-94 (kit including 6000A sensor*4 and an application software)
- Power Quality Analyzer PQ3100-91 (kit including 600A sensor*2 and an application software)
- Power Quality Analyzer PQ3100-92 (kit including 600A sensor*4 and an application software)
- Power Quality Analyzer PQ3100-94 (kit including 6000A sensor*4 and an application software)

Information valid as of May 2020. Specifications are subject to change and revision without notice.