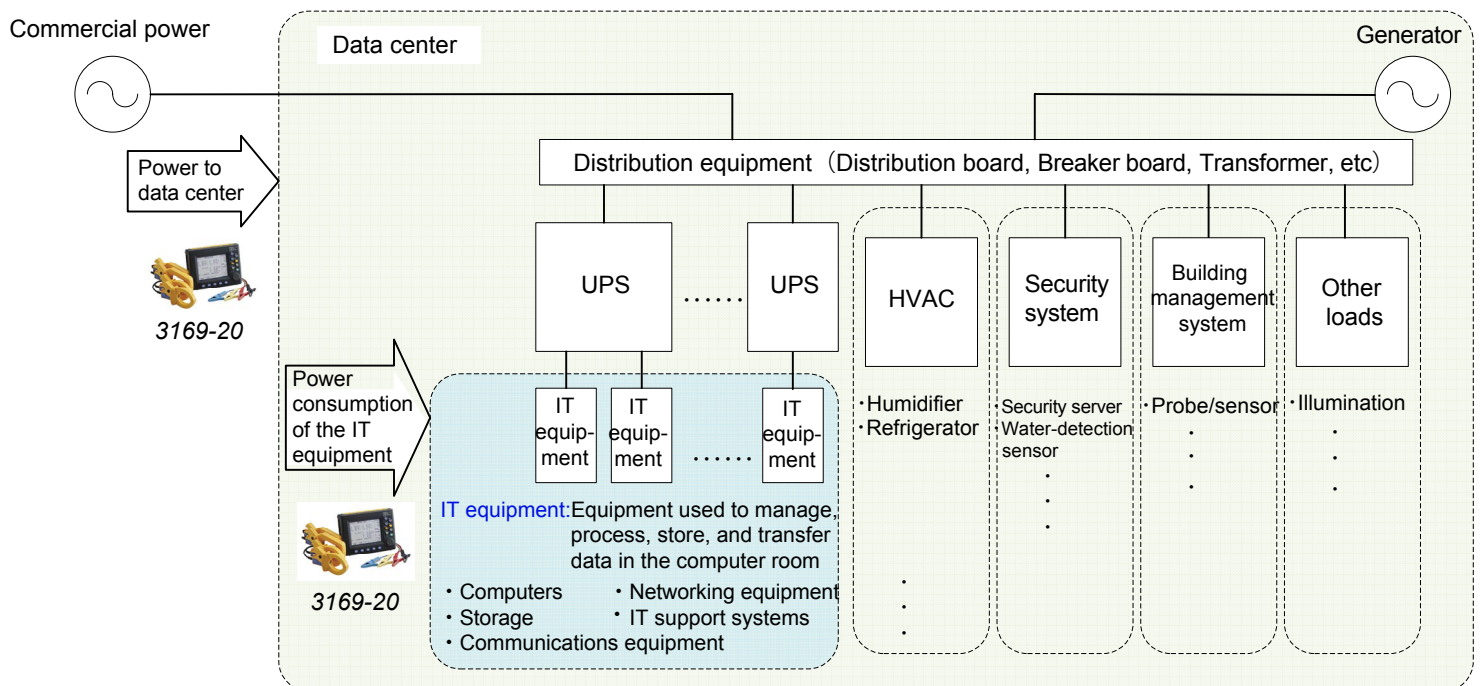


Evaluate Data Center Infrastructure Efficiency and Power Usage Effectiveness

Calculate the data center infrastructure efficiency (DCiE) and power usage effectiveness (PUE), which are green grid data center power efficiency indices effective in evaluating the energy usage efficiency of infrastructure equipment supporting the information technology (IT) equipment of data centers.

- Measure with a higher accuracy of $\pm 2\%$ (at 45 Hz to 66 Hz) using the 3169-20 Clamp On Power HiTester and a HIOKI clamp-on sensor.
- Measure power with a resolution of 0.01% of the full scale or more.
- Measure power with a resolution of 0.1 W in the 150 V range and current range of 50 A or less with a single phase load.
- Measure with a current crest factor of 3 (except for the range of 500 A to 1 kA for full-scale input)
- The bandwidth is 3 kHz at 60 Hz fundamental and 2.5 kHz at 50 Hz fundamental (fundamental waveforms up to the 50th order).
- Measure for one year with a data acquisition interval of 15 minutes (using a HIOKI PC card [128 MB or more]).



1. Measure the power consumption (W) of all equipment in the data center and the power consumption (W) of the IT equipment.

Note: Measure the power consumption of the IT equipment and of all equipment under the same conditions; for example, at the same time of the day and for the same period of time.

2. Calculate the DCiE and PUE.

$PUE = (\text{The power consumption of all equipment} / \text{The power consumption of the IT equipment})$

$DCiE = 1/PUE \times 100\% = (\text{The power consumption of the IT equipment} / \text{the power consumption of all equipment}) \times 100\%$

Products used

Power meter : CLAMP ON POWER HiTESTER 3169-20

Current sensor : (Depends on measured current, please select a suitable one.)

CLAMP ON SENSOR rated current 500A AC 9661

CLAMP ON SENSOR rated current 100A AC 9660

CLAMP ON SENSOR rated current 5A AC 9694

CLAMP ON SENSOR rated current 1000A AC 9669