W. AND ASSOCIATES
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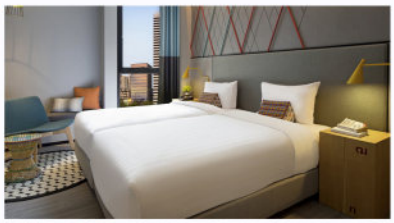
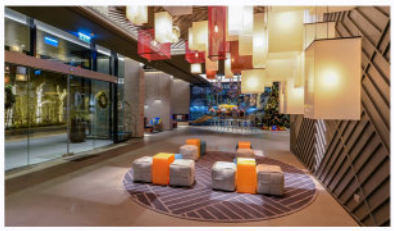
e·news

Issue 02.2019

COMPLETED PROJECTS

IBIS STYLES BANGKOK SUKHUMVIT PHRA KHANONG



IBIS STYLES BANGKOK SUKHUMVIT PHRA KHANONG

Location: @Sukhumvit Road, Bangkok, Thailand
Owner: Apollo Estate Company Limited.
Project Summary: 25-Storeys Hotel Building with 255 units in total, Construction area of 16,870 sq.m.

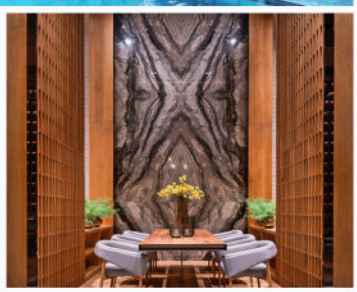
W&A Responsibility:
- Mechanical, Electrical and Plumbing System Design
- Civil and Structural Design

Project Information

Design Economy Hotels
Situated 300 m. from BTS Phra Khanong station, Ibis Styles Bangkok Sukhumvit Phra Khanong is conveniently near BITEC Bangkok International Trade and Exhibition Centre, Jim Thompson factory outlet, a community mall and a main shopping district. Connecting rooms are available for families. The Hotel is perfectly suited for leisure and busines.

THE BASE GARDEN RAMA 9



THE BASE GARDEN RAMA 9

Location: @Rama IX Road, Bangkok, Thailand
Owner: Sansiri Public Company Limited.
Project Summary:
36-Storey High-rise Condominium with 639 units and Retail 1 unit. Construction area is estimated at 35,000 sq.m.

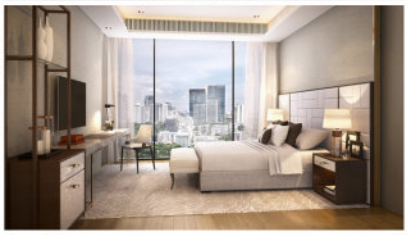
W&A Responsibility:
- Mechanical, Electrical and Plumbing System Design

Project Information

GARDEN OF CREATION
In the creativity of an expansive green space that takes you beyond mere relaxation, you will discover a multitude of new perspectives through nature of true inspiration to you.

Make new things happen simply by changing the way you think
Breathe in the freshest air to the fullest in an expansive garden created out of a new concept. Through the integration of green spaces, the area can be truly utilized and is perfect for relaxation, taking a walk in or contemplation resulting in some of your best ever ideas.

SINDHORN TONSON



SINDHORN TONSON

Location: @Sarasin Road, Lumpini, Bangkok
Owner: Siam Sindhorn Co., Ltd.
Project Summary:
17-Storey Building, 3-Underground Basements, 59 units with Construction area of 17,320 sq.m.

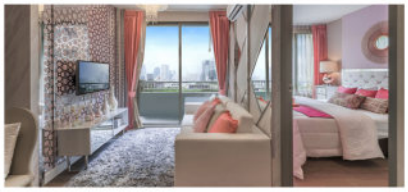
W&A Responsibility:
- Construction Management (MEP)

Project Information

Exclusive privacy in an incomparable location, surrounded by the finest details for superior living.

- The Central Park Vista
- Superlative Privacy
- First-Class Features
- Exceptional Facilities

METRO LUXE RATCHADA



METRO LUXE RATCHADA

Location: @Indramara 47, Ratchadapisek Road, Bangkok
Owner: Property Perfect Public Co., Ltd.
Project Summary:
8-Storey Low-rise Condominium, 4 Buildings with 535 units. Construction area of 48,000 sq.m.

W&A Responsibility:
- Project/ Construction Management

Project Information

URBAN PARADISE
LUXURY LIVING IN THE CITY CENTRE

Live your luxury lifestyle near MRT Huai Khwang and Sutthisan stations. Luxe Living for passionate people. In the comfort of the central business district, characterized by modern design. Green landscape Concept Green area throughout the project, equipped with Fitness Center, Swimming pool, Jogging Trail & Sauna.

UNDERCONSTRUCTION PROJECTS

THE PARKLAND PHETKASEM 56

THE PARKLAND PHETKASEM 56

Location: @Phetkasem Road, Bangkok, Thailand
Owner: Narai Property Company Limited.
Project Summary: The Condominium at Petchkasem.
Building A : 32-Storey, 573 units
Building B : 31-Storey, 727 units
Building C : 29-Storey, 749 units
Construction area is estimated at 132,263 sq.m.

W&A Responsibility:
- Mechanical, Electrical and Plumbing System Design

Project Information

THE PARKLAND PHETKASEM 56 : "NEVER BEFORE NO MORE AGAIN"
Under the idea of "It's My World" With a truly understanding about every lifestyle of urban living, our project offers the Double Sky Lounge that gathers every modern facilities all in one place, just to be a definite answer for all new lifestyle. Here, your convenience is our priority.

THE UNICORN PHAYATHAI

PHAYATHAI COMPLEX

Location: @PhayaThai Road, Rajthevee, Bangkok
Owner: U City Public Company Limited
Project Summary: 51-Storey Building Hotel, Office and Residential Building with 2 Basements and Car Park. Construction area of 120,400 sq.m.

W&A Responsibility:
- Project / Construction Management

Project Information

5-STAR BEST MIX USE PROJECT by U City Public Co., Ltd.

NEW PROJECT

CENTRAL VILLAGE : BANGKOK OUTLET EXPERIENCE

CENTRAL VILLAGE : BANGKOK OUTLET EXPERIENCE

Location: @Bang Phli, Samut Prakan, Thailand
Owner: Central Pattana Punlic Company Limited.
Project Summary: Shopping Complexes comprise of Retail Spaces, Anchors, Cenimas, F&B and Etc. with Construction area est. 40,000 sq.m.

W&A Responsibility:
- Civil and Structural Design

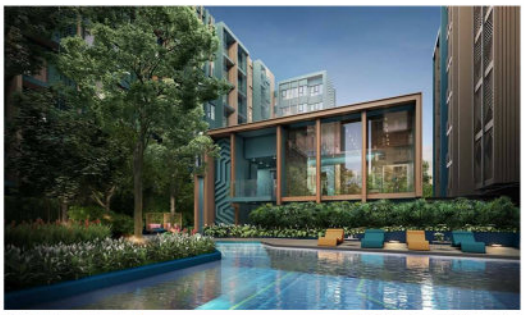
Project Information

Central Village under concept "Bangkok Outlet Experience" The First International Luxury Outlet in Thailand & The shopping paradise in Southeast Asia.

- Over 235 Boutique Stores
- A Full Range of shops and Facility services
  - Restaurants
  - Supermarket
  - Hotel
  - Playground
  - Shuttle Bus Service
  - VIP Lounge
- Next to Suvarnabhumi International Airport only 45 minutes from Bangkok CBD
- Very Convenient with Shuttle Bus Service from Suvarnabhumi International Airport / BTS Udomsuk / Central World
- Enjoy Shopping Experience with Natural Environment and Thai Modern Architecture
- A Must Visit Shopping Destination to Complete your Trip

NEW PROJECT

THE BASE SUKHUMVIT 50



THE BASE SUKHUMVIT 50

Location: @Sukhumvit 50 Road, Phra khanong, Bangkok
Owner: Sansiri Public Company Limited.
Project Summary: Low - rise condominium with 2 Residential Buildings (8-Storey) and Clubhouse 1 Building (2-Storey) with 415 unit in total. Construction area of 22,275 sq.m.

W&A Responsibility:
- Mechanical, Electrical and Plumbing System Design
- Civil and Structural Design

Project Information

MY BASE DISCOVER THE UNEXPECTED

Discover the new excitement - with a difference Distinctive and individualistic on one of the most convenient locations.
THE BASE SUKHUMVIT 50 Where life is marvellous in all its dimensions.

DISCOVER THE UPRISING DESIGN

Here, you can discover hidden functions and design features that are stealthily hidden under the "camouflage" concept, including private alcoves, while escaping the norms with offbeat colours, such as Smoky Orange and Green Mint, to imbue "Op Art" creative patterns reflecting the individualistic lifestyle of the owner.

ORB INTERNATIONAL SCHOOL

ORB INTERNATIONAL SCHOOL

Location: @Bangna-Trad Km. 14 Road, Samutprakarn
Owner: Keystone Estate Company Limited.
Project Summary:
6 Buildings, 1 Football Field and 408 Outdoor Parking Lots with Construction area of 40,499 sq.m.

W&A Responsibility:
- Construction Management

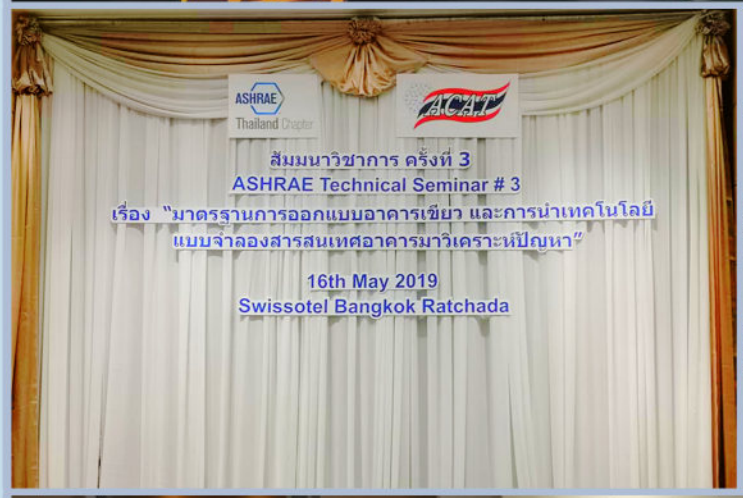
Project Information

ORB International School is a new all-through school for Bangkok that promises to be a "School Of The Future"

ORB has been designed as an ecosystem of buildings and spaces that are both interconnected and interdependent. Our loops blend with the natural landscape creating opportunities for students and teachers to make powerful connections that enhance learning. Our lake is a signature feature of the campus. Not only does it provide a tranquil and scenic aesthetic, it is also a rich resource for teaching and learning.

ACTIVITIES

ASHRAE Technical Seminar #3



16th May 2019,

Mr. Wichai Laksanakorn, Co-Founder and Chairman of W. AND ASSOCIATES group actively participated ASHRAE Technical Seminar #3 on the topic " Green building design standards in various ways and the introduction of building information technology to analyze problems, " at Swissotel Le Concorde, which received overwhelming response from both interested engineers and architects.

ACTIVITIES

SPORTS DAY
W. AND ASSOCIATES
2019

On June 22, 2019, W. AND ASSOCIATES GROUP organized the annual sport bonding activities at Sports Science Centre, Sports Authority of Thailand supported by its own large number of staff who participated and enjoyed with this event.







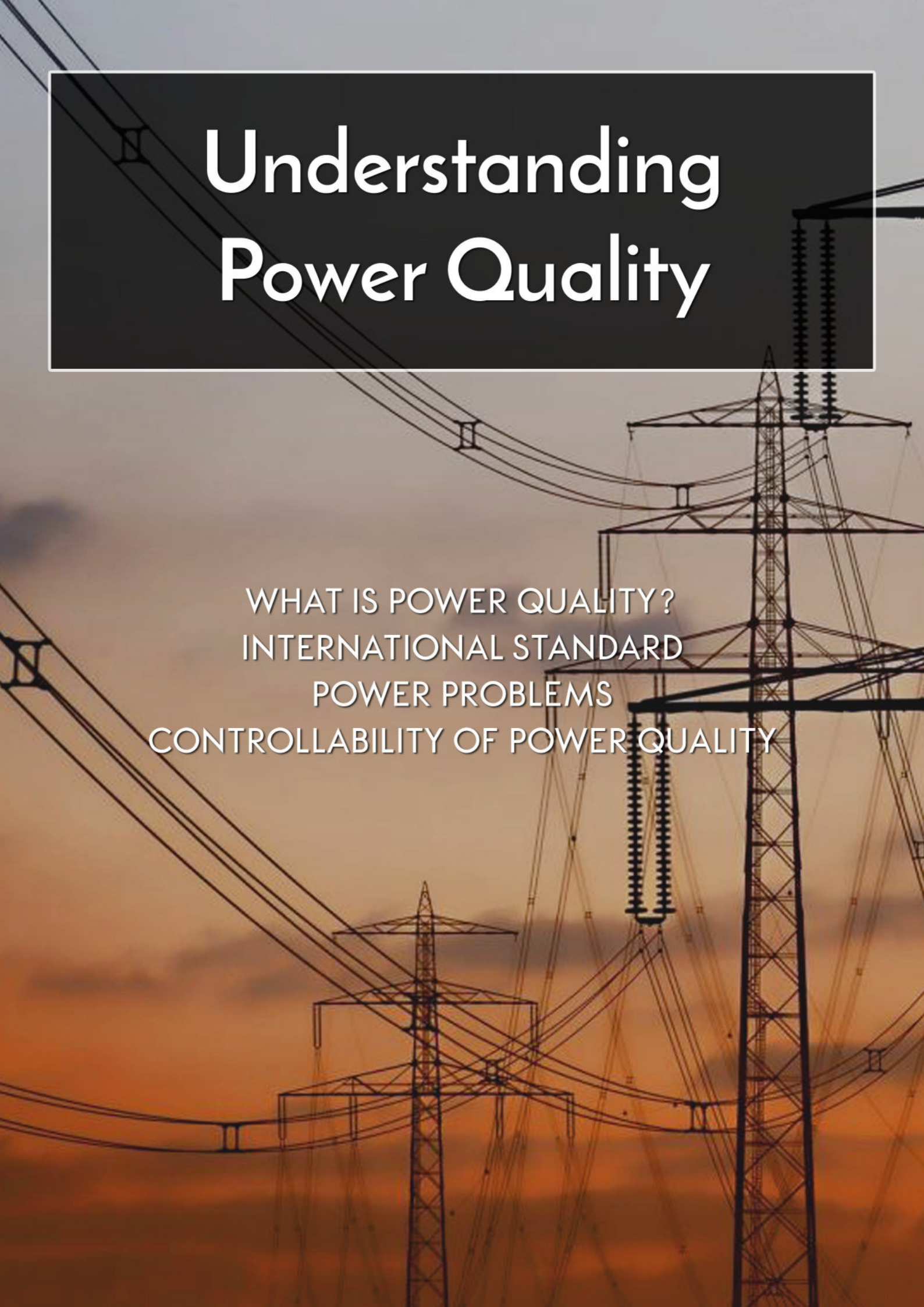








Understanding Power Quality



WHAT IS POWER QUALITY?
INTERNATIONAL STANDARD
POWER PROBLEMS
CONTROLLABILITY OF POWER QUALITY

What is Power Quality?

Power quality is simply the electric power that drives an electrical device and the device's ability to function properly. Good power quality can be defined as a steady supply voltage that stays within the prescribed range, steady frequency close to the rated value, and smooth voltage curve waveform which resembling a sine wave. The voltage quality characterizes the conformity of important criteria of electric power supply for the operation of equipment with the voltage properties assured by the supply network operator. In this context, it must be observed that the consumers also meet the requirements set up by the supply network operator as well.

International Standard

EN 50160 (Voltage characteristics of electricity supplied by public electricity networks) describes the requirements placed on the main characteristics of the low-voltage supply voltage for connection to the public grids.

Continuous Phenomena are deviations from the nominal value that occur continuously over time. Such phenomena occur mainly due to load patterns, changes of load or nonlinear loads:

- System Frequency
- Slow Voltage Changes
- Flicker / Fast Voltage Changes
- Voltage Unbalance
- Harmonics

Voltage Events are sudden and significant deviations from normal or desired wave shape. Voltage events typically occur due to unpredictable events such as faults, or to external causes such as weather conditions, third party actions:

- Voltage Dips / Swells
- Voltage Interruptions
- Transient Overvoltage
- Harmonics

In many European countries, this standard serves as a guideline or reference for parameter adaptation to the characteristics of national power systems in order to create national standards. The establishment of such standards is normally performed on the basis of the experience gained by local initiatives from the implementation of monitoring systems for power quality which allow the appropriate voltage parameters to be determined. Table 1 shows a more detailed subdivision with appropriate level and guidance values.

Characteristic	Requirements	Measurement interval	Period under consideration
System frequency	Interconnected grid: 50 Hz + 4 %/–6 % continuously; 50 Hz ± 1 % during ≥ 99.5 % of a year Isolated operation: 50 Hz + 15 %/–6 % continuously; 50 Hz ± 2 % during ≥ 95 % of a week	10 sec average	1 year 1 week
Slow voltage changes	U_{rated} + 10 %/–15 % continuously U_{rated} ± 10 % during ≥ 95 % of a week	10 min average	1 week
Flicker / fast voltage changes	Long-term flicker severity P_{lt} < 1 during ≥ 95 % of a week and ΔU_{10ms} < 2 % U_{rated}	2 h (flickermeter in acc. with IEC 61000-4-15)	1 week
Voltage unbalance	U (negative phase-sequence system) / U (positive phase-sequence system) < 2 % during ≥ 95 % of a week	10 min average	1 week
Harmonics U_{n2} ... U_{n25}	< limit value in acc. with EN 50160 and THD < 8 % during > 95 % of a week	10 min average of each harmonic	1 week
Subharmonics	being discussed		1 week
Signal voltages	< standard characteristic curve = f(f) during ≥ 99 % of a day	3 sec average	1 day
Voltage dips	Number < 10 ... 1,000 / year; thereof > 50 % with t < 1 s and ΔU_{10ms} < 60 % U_{rated}	10 ms r.m.s. value U_{10ms} = 1 ... 90 % U_{rated}	1 year
Short voltage interruptions	Number < 10 ... 1,000 / year; thereof > 70 % with a duration of < 1 s	10 ms r.m.s. value U_{10ms} = 1 ... 1 % U_{rated}	1 year
Long voltage interruptions	Number < 10 ... 50 / year; thereof > 70 % with a duration of < 3 min		1 year
Temporary overvoltage (L-N)	Number < 10 ... 1,000 / year; thereof > 70 % with a duration of < 1 s	10 ms r.m.s. value U_{10ms} = 1 ... 110 % U_{rated}	1 year
Transient overvoltage	< 6 kV; µs ... ms		No data

Table 1: Voltage characteristics of electricity supplied by public grids in accordance with EN 50160

Power Problems

The fault parameters described in EN 50160 affect the operations in such as data centers, office buildings or telecommunication facilities. Table 2 allocates possible causes and consequences to the individual voltage problems.

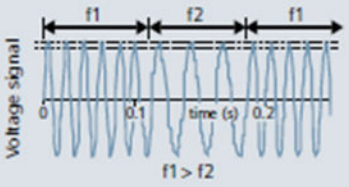
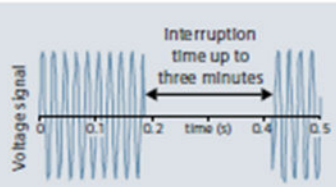
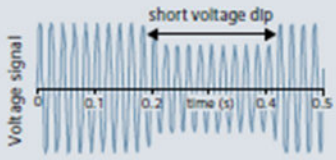
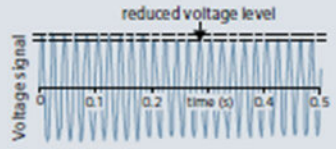
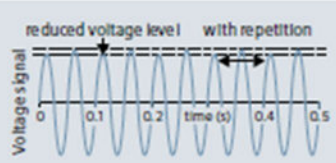
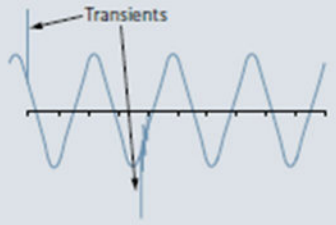
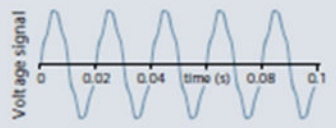
Problem	Description	Cause	Effect
	**Frequency variation:** A frequency variation involves variation in frequency above or below the normally stable utility frequency of 50 or 60 Hz	• Start-up or shutdown of very large item of consumer equipment, e.g. air conditioning equipment • Loading and unloading of generator or small co-generation sites • Unstable frequency power sources	• Maloperation, or even damage to IT equipment • Data loss • System crash
	**Supply interruption:** Planned or accidental total loss of power in a specific area; momentary interruptions lasting from a half second to 3 seconds; temporary interruptions lasting from 3 seconds to 1 minute; long-term interruptions lasting longer than 1 minute	• Switching operations attempting to isolate an electrical problem and maintain power to affected area • Accidents, acts of nature, etc. • Fuses, actions by a protection function, e.g. automatic recloser cycle	• Sensible software process crashes • Loss of computer/controller memory • Hardware failure or damage
	**Voltage dip/sag or swell:** Any short-term (half cycle to 3 seconds) decrease (sag) or increase (swell) in voltage	• Start-up or shutdown of very large item of consumer equipment, e.g. air conditioning equipment • Short circuits (faults) • Underdimensioned power supply • Owing to utility equipment failure or utility switching	• Memory loss, data errors, shrinking display screens • Lighting variations • Motors stalling or stopping and decreased motor life
	**Supply voltage variations:** Variation in the voltage level above or below the nominal voltage under normal operating conditions	• The line voltage amplitude may change due to changing load situations	• Equipment shutdown by tripping due to undervoltage • Overheating and/or damage to equipment due to overvoltage • Reduced efficiency or life of electrical equipment
	**Flicker** Impression of unsteadiness of visual sensation induced by a light stimulus, the luminance or spectral distribution of which fluctuates with time	• Intermittent loads • Motor starting of fans and pumps • Arc furnaces • Welding plants	• Rapid variations in the luminance of lamps causing headaches on people, disturbing their concentration; defective products caused by production shortcomings
	**Transient** A transient is a sudden change in voltage up to several thousand volts. It may be of the impulsive or oscillatory type (also termed impulse, surge, or spike) **Notch:** This is a disturbance of opposite polarity from the waveform	• Utility switching operations, • Starting and stopping heavy equipment and lifts • Static discharge • Strikes of lightning	• Hardware damage • Data loss • Burning of circuit boards and power supply units
	**Noise:** This is an unwanted electrical signal of high frequency from other equipment **Harmonic:** Distortion of the pure sine wave due to non-linear loads on the power supply network	• Noise is caused by electromagnetic interference from appliances, e.g. microwave, radio and TV broadcast signals, or improper earthing • Harmonic distortion is affected by UPS systems, for instance	• Noise interferes with sensitive electronic equipment • Data loss • Harmonic distortion causes motors, transformers, and wiring to overheat • Improper operation of circuit-breakers, relays, or fuses

Table 2: Main problems of power quality

Controllability of Power Quality

A high-power quality is defined by a high degree of compliance with the standard values. The reasons for deficient system voltage quality lie both on the part of the network operators and on the part of the connected customers. The latter are faced with voltage distortions and flicker effects owing to system perturbations from customer installations. Table 3 indicates possible controllability between the supply network operator (supplier) and the consumer on the power quality.

Phenomenon	Limitable by	
	Supplier	Consumer
Frequency fluctuation	Yes	No
Slow voltage changes	Yes	No
Fast voltage changes / flicker	No	Yes
Voltage asymmetry	Partly	Yes
Harmonics and subharmonics	Partly	Yes
Signal voltages	Yes	Yes
Direct currents or direct voltages	No	Yes
Voltage dips and interruptions	No	No
Temporary overvoltage	No Partly	Partly No
Transient overvoltage	No	No

Table 3: Controllability of the system disturbances

References:

- *EN 50160:2010 Voltage characteristics of electricity supplied by public electricity networks*
- *Power Distribution Planning Manual, Volume 1: Planning Principles by Siemens*
- *Application Models for Power Distribution: Data Centers by Siemens*

Please follow next Issue 03.2019 >>

CONTACT US

W.AND ASSOCIATES group

Head Office : 55 Ramkamhaeng 18 (Maen Khian 3)
Huamark, Bangkapi, Bangkok, 10240 THAILAND
Website : www.wasso.co.th

+66(2) 318 8533

+66(2) 718 8398

info@wasso.co.th