
MISCELLANEOUS

Photos on Front and Rear Covers

Front Cover

Rogowski Coil Installed at TOKYO SKYTREE

Lightning has been one of the serious problems for insulation design of power apparatus. Recently, highly sophisticated societal systems have been constructed using information and communication technologies (ICTs). These systems, however, are vulnerable to external disturbances such as lightning.

TOKYO SKYTREE, height of which is 634 m, is the tallest free-standing broadcasting tower in the world and it is considered that not a few lightning strikes to TOKYO SKYTREE will occur every year. To protect structures from lightning and evaluate the risk of ICT facilities inside the structures, measurement of the lightning current is essential. The observation of lightning is also useful for understanding the characteristics of natural lightning in detail.

Thus Central Research Institute of Electric Power

Industry (CRIEPI) has collaborated with the University of Tokyo and Tobu Tower SKYTREE Co. LTD., to carry out observation of lightning to TOKYO SKYTREE and installed Rogowski coils on TOKYO SKYTREE at a height of 497 m to measure lightning currents. The shape of the Rogowski coils is a hexagon and the total length is more than 30 m. The lightning current measurement started from March, 2012 and 8 lightning data have been obtained by the end of September, 2012. .

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(The aerial photo of the Tokyo Sky Tree is provided by Obayashi Corporation (main contractor, Tokyo, Japan) with the permission of TOBU TOWER SKYTREE Co., Ltd (owner, Tokyo, Japan) to publish the photo.)

Rear Cover

Numerical Simulation of Partial Discharge (PD) -induced Acoustic Wave Propagation

Acoustic Partial Discharge (PD) detection method is useful tool to locate PD source in oil-filled transformers. We have studied acoustic wave propagation characteristics, to improve the diagnostic technique for electric power transformer. New PD location method was considered with oil-filled transformer internal structure by numerical simulation of acoustic wave propagation using finite element method. The numerical simulation was carried out for an actual transformer model in which a PD source was set between

windings, iron core and a tank. Calculated acoustic signals were examined in time-frequency domain using the wavelet transform analysis. From these results, enhancement of identification precision of PD source location was discussed.

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Journals of IEEJ

A Journal which is edited by the headquarters of the Institute and five transactions which are edited by five technical societies* A to E are monthly published.

Another transaction “IEEJ Transactions on Electrical and Electronic Engineering (TEEE)” is edited in English by the five technical societies and published bimonthly by John Wiley & Sons.

A new English journal “IEEJ Journal of Industry Applications” was launched in July 2012. It is edited by the society D and published bimonthly.



Papers in all kinds of journals published by IEEJ can be browsed at <http://www2.iee.or.jp/ver2/honbu/90-eng/14-magazine/index020.html>

You will be able to directly purchase the full text documents by PDF through the Pay-Per-View System.

Two journals “Electrical Engineering in Japan” and “Electronics and Communications in Japan” are translation of the IEEJ Transactions A, B, C, D and E

from Japanese into English both edited and published by John Wiley & Sons (not all articles).



Right: Electronics and Communications in Japan
<http://www3.interscience.wiley.com/journal/121413813/>

Left: Electrical Engineering in Japan
<http://www3.interscience.wiley.com/journal/35377/>

(*) Five technical societies in IEEJ are as follows:

A: Fundamentals and Materials Society (This magazine is published from EINA Committee under this society.)

B: Power and Energy Society

C: Electronics, Information and Systems Society

D: Industry Applications Society

E: Sensors and Micromachines Society

(please visit <http://www.iee.or.jp/index-eng.html>)

IEEJ Technical Reports

Technical reports listed below were prepared by investigation committees in technical societies A to E in IEEJ and published from the end of September in

2011 to September in 2012. Their extended summaries can be browsed in English on the web site below but the texts of technical reports are described in Japanese.

No.	Title	Pub. date
1234	Insulation Coordination and EMC Technologies for Low-Voltage and Control Circuits at Power Stations and Substations	2011/ 9/30
1235	Technical Report of Studies concerning Contact Line Maintenance considering Environment in Railway	2011/ 9/30
1236	Lightning Accident Case and Protective Measures for Electrical Facilities in Factory	2011/10/25
1237	Control Techniques of Advanced Motors for Next Generation	2011/11/ 1
1238	The subject and future view about diagnosis and renewal of industrial electrical equipments	2011/11/25
1239	Industrial control technology considering energy saving and ecology	2011/11/25
1240	Advanced Scheduling and its Evaluation in Railways	2012/ 1/20
1241	Analyzing Models of Distributed Generations for Grid Interconnection	2012/ 1/25
1242	The Latest Power Semiconductor Switching Circuit Technology Corresponding to Global Environmental Issues	2012/ 1/25
1243	Asset Management for Electric Power Equipment Based on Insulation Diagnosis	2012/ 2/10
1244	Practical Performance Evaluation Techniques of Rotating Machines by Electromagnetic Field Analysis	2012/ 2/20
1245	Degradation Diagnosis Technology based on Characteristics of Insulating Materials in Electric Power Apparatus	2012/ 3/ 5
1246	Environmental Load Reducing Technologies for Power Receiving and Distribution Substations	2012/ 3/ 5
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1251	Technology Trends in Energy Systems of Information Apparatuses in Homes and Offices	2012/ 6/20
1252	High-energy power capacitors, their applied technology and the trends	2012/ 6/20
1253	Frontier of variable speed AC drive technology	2012/ 7/10
1254	Thermal Assisted Nano-Spin Storage Technology	2012/ 7/20
1255	Recent Trend of Power Electronics for Automobiles	2012/ 8/10
1256	Present Condition and Future Trend of Wind Power Technologies	2012/ 8/10
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1258	Application Guide for Insulation Coordination in Non-effectively Grounded Systems and UHV Systems -Technical Explanation of JEC-0102-2010-	2012/ 8/30
1259	Transition of Linear Drive Technology and Usage for Industry Applications	2012/ 8/30
1260	Magnetic technology, medical treatment, bio-magnetics, magnetic measurement, guideline	2012/09/10
1261	Intelligent Control, System Control, Image Processing, Signal Processing, Robotics	2012/09/20
1262	Agent-Based Simulation; Artificial Intelligence; Social Systems	2012/10/05
1263	Fuel Cell, Energy, Network ,Renewable Energy	2012/10/05

Abstracts of the technical reports can be browsed on the web site:

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(where all figures are shown in color.)