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Thesis Title : Analysis and Measurement of Radio Noise Emitted from
Extra High Voltage Transmission Line 230-1200 kV
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Abstract

Thailand power grid for transmission of bulky power is currently boosted with the Extra High Voltage (EHV) transmission line in many part of the country and around the metropolis of Bangkok. The transmission line with EHV level always occure discharging of charge pass high moisture or corona discharges phenomena. The climate in Thailand supports the corona phenomena. The corona cause radio noise. The interference is more evident in AM and TV broadcast band.

The study of corona effects from 500 kV transmission line from Mae Moh to Bangkok, a single circuit transmission line with horizontal and vertical line, indicates that radio interference (RI) occures in the range of 40 - 55 dB above 1 $\mu\text{V/m}$ and television interference (TVI) is generated in the range of 14 - 30 dB above 1 $\mu\text{V/m}$ in fair weather condition. However, when the conductor is wet during the rainy RI will increase 20 dB above 1 $\mu\text{V/m}$. It is also found that the EHV transmission line with vertical line will radiate farther radio noise than the one with horizontal line. Measurement of level of interference at substation resulted in rather high TVI value, meanwhile RI showed little variation.

Several factors found to have contributed to corona phenomena such as windspeed, temperature, pressure, humidity and ground resistance. Moreover, the radio interference from the substation and insulator string will consequently stimulate the radio noise on conductor as well.

The calculation of radio interference level based on all contributed factors and actual field measurement will be useful for designing the transmission system and will be also facilitate the prediction and estimation of radio interference from corona phenomena of the transmission line.