

Thesis Title	Study and Analysis of Satellite Signal in Ku-band
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ABSTRACT

This thesis presents the studies of the down link satellite signal characteristic from Thaicom 1 and Thaicom 2, both transmissions are in Ku-band with different polarization. Thaicom 1 transmits in horizontal polarization while Thaicom 2 transmits in vertical polarization. The data are analyzed in two cases, the first is analyzed by the amplitude scintillation characteristics. The results of the scintillation phenomena in Ku-band is effected by troposphere and frequently occurred about 9:00 to 17:00 LT. and the period time that occurred maximum from 13:00 to 15:00 LT., because the varying depend of atmosphere temperature. In summer season, especially May and April will occur amplitude scintillation in day time more than the other season and in the rainy season, this phenomena will decrease in day time because of the temperature lower than the summer season, but the occurrence number of amplitude scintillation will increase in the evening and night, because of amplitude scintillation due to rainfall in the same time. And the second is analyzed by the receiving signal attenuation with respect to rain rate and compare with attenuation level through one year of signal that record continuously on strip chart with CCIR and CETUC model. The result of the attenuation levels of receiving signal from Ku-band are varied due to rain rate. If the rain rate about 100 mm./hr. then the received signal level decrease about 3.3 dB/km. A comparison between the measured values obtained from one-year measurement and predicted by CCIR and CETUC method, it can see that the CCIR method predicted no good relation while the CETUC method predicted good relation. The largest value of path attenuation by rainfall of is about 22 dB at the yearly cumulative percentage of time is less than 0.001% and the yearly cumulative percentage of time 0.01% the attenuation signal level decrease about 15.4 dB at rain rate about 102 mm./hr.