

Performance Assessment of GSO Satellites before and after Enhancing the Pointing Effect

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Abstract : The paper presents the effect of the orbit inclination on the pointing error of the satellite antenna and consequently on its footprint on earth for a typical Ku- band payload system. The performance assessment is examined both theoretically and by means of practical measurements, taking also into account all additional sources of pointing errors, such as East-West station keeping, orbit eccentricity and actual attitude control performance. An implementation and computation of the sinusoidal biases in satellite roll and pitch used to compensate the pointing error of the satellite antenna coverage is studied and evaluated before and after the pointing corrections performed. A method for evaluation of the performance of the implemented biases has been introduced through measuring satellite received level from a tracking 11m and fixed 4.8m transmitting antenna before and after the implementation of the pointing corrections.

Keywords : satellite, inclined orbit, pointing errors, coverage optimization

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