

ABSTRAK

Perkembangan teknologi komunikasi di Indonesia mengalami perkembangan yang cukup pesat. Meningkatnya kebutuhan masyarakat akan telekomunikasi membuat operator seluler terus meningkatkan layanan. Untuk peningkatan kapasitas jaringan bisa dilakukan dengan penambahan perangkat ditower telekomunikasi. Penambahan perangkat ditower telekomunikasi membawa akibat berupa bertambahnya beban yang harus dipikul oleh tower telekomunikasi tersebut.

Pengecekan stabilitas tower BTS tipe SST kaki 4 dengan tinggi 72m mengacu pada standar EIA/TIA-222-G dan menggunakan program MS Tower V6. Pengecekan meliputi beberapa hal yaitu : rasio tegangan yang terjadi di elemen tower, goyangan tower, puntiran tower, pergeseran tower, dan reaksi tumpuan yang terjadi. Apabila penambahan perangkat di tower telekomunikasi masih dalam batas kapasitas tower tersebut, penambahan perangkat tidak menjadi masalah. Apabila salah satu dari kriteria di atas ada yang terlewati walau kriteria yang lain aman, struktur tower dianggap tidak aman dan harus dilakukan perhitungan ulang.

Hasil analisis saat tower diberi penambahan beban antenna didapatkan bahwa menara tidak memenuhi 1 syarat batas karena rasio tegangan melebihi standar yaitu senilai 1,212 (>1). Sehingga perlu diberi perkuatan pada bagian kaki tower dengan menggunakan profil L60x60x6. Dari hasil perkuatan pada bagian kaki tower didapatkan nilai stress ratio < 1 dengan nilai 0,938 dan nilai sway $< 0,5$ yaitu senilai 0,2303, maka tower tersebut sudah memenuhi syarat.

Kata Kunci: Tower, SST, MSTower, EIA/TIA-222-G

ABSTRACT

The development of communication technology in Indonesia has grown quite rapidly. The increasing needs of the community for telecommunications make cellular operators continue to improve services. To increase network capacity can be done by adding devices on telecommunication towers. The addition of devices on telecommunication towers brings consequences in the form of increased loads that must be carried by the telecommunication tower.

The stability check of a 4-foot SST-type BTS tower with a height of 72m refers to the EIA/TIA-222-G standard and uses the MS Tower V6 program. The check includes several things, namely: the stress ratio that occurs in the tower element, tower sway, tower torsion, tower shift, and the reaction of the support that occurs. If the addition of devices in the telecommunication tower is still within the capacity limit of the tower, the addition of devices is not a problem. If one of the above criteria is passed even though the other criteria are safe, the tower structure is considered unsafe and must be recalculated.

The results of the analysis when the tower was given an additional antenna load found that the tower did not meet 1 limit condition because the stress ratio exceeded the standard, which was 1.212 (>1). So it needs to be strengthened at the leg of the tower using the L60x60x6 profile. From the results of reinforcement at the leg of the tower, it was found that the stress ratio value < 1 with a value of 0,938 and the sway value $< 0,5$, which is worth 0.2303, so the tower has met the requirements.

Keywords: Tower, SST, MSTower, EIA/TIA-222-G