

ABSTRAK

Pada komunikasi seluler khususnya jaringan WCDMA yang dibahas penulis, interferensi merupakan faktor pembatas yang cukup berpengaruh dalam kapasitas sel suatu sistem selular. Dalam pelaksanaannya sumber dari interferensi terbagi menjadi dua yakni *Internal Interference* dan *External Interference*. Pada *internal interference* sumber gangguan dapat berasal dari masalah sistem internal tersendiri seperti contohnya masalah instalasi yang tidak standar. Sedangkan pada *external interference* sumber dari interferensinya dapat berasal dari *base station* yang lain yang beroperasi pada pita frekuensi yang sama serta dapat pula disebabkan oleh adanya energi bocor yang berasal dari sistem non selular (*repeater*) yang mempengaruhi pita frekuensi sistem selular tersebut.

Dari studi literatur yang dilakukan penulis, masalah yang sudah dibahas diantaranya adalah *Base Station to Base Station interference of WCDMA*, penulis Settapong Malisuwan Ph.D dari Department of Electrical Engineering Chulachomkhalo Royal Military Academy, Thailand. Dan acuan lain nya yaitu Penanganan interferensi pada jaringan WCDMA yang disebabkan oleh *external interference* yang mengakibatkan penurunan QOS (*Quality of Service*) ditulis oleh Gilang Donny Karunia, e-proceeding of Applied Science. Universitas Telkom 2015 [2]. Atas dasar tersebut penulis memutuskan untuk melakukan Analisa terhadap Prediksi Lokasi Repeater Ilegal Menggunakan Metode *Localization Positioning* Berdasarkan Nilai Level *Received Total Wideband Power* (RTWP) Dalam Penanganan *External Interference* pada Jaringan WCDMA. Karena hal tersebut menarik dalam proses penanganan interferensi yang disebabkan oleh repeater ilegal dengan memprediksi jarak sumber interferensi.

Dari hasil data percobaan didapatkan jarak sumber interferensi dari NodeB terdapat sejauh 457 meter, memiliki nilai error 6.5 % atau selisih 28 meter dari jarak aktual.

Kata Kunci : *Interference, RTWP, QOS, Repeater, WCDMA, Localization Positioning*

ABSTRACT

In cellular communication, especially WCDMA network, which is discussed by the author, interference is a limiting factor that is quite influential in the cell capacity of a cellular system. In its implementation the source of interference is divided into two namely Internal Interference and External Interference. On the internal interference source the interference can originate from internal system problems, such as non-standard installation problems. Whereas the external interference source of the interference can originate from other base stations operating in the same frequency band and can also be caused by the presence of leaky energy originating from the non-cellular system (repeater) that affects the cellular system's frequency band.

From the literature study conducted by the author, the problems that have been discussed include the interference of WCDMA Base Station to Base Station, the author of Settapong Malisuwan Ph.D from Chulachomkhalo Department of Electrical Engineering Royal Military Academy, Thailand. And another reference is interference handling on WCDMA networks caused by external interference which results in a decrease in QOS (Quality of Service) written by Gilang Donny Karunia, e-proceeding of Applied Science. Telkom University 2015 [2]. On this basis the author decided to analyze the Prediction of Illegal Repeater Locations using the Localization Positioning Method Based on the Received Total Wideband Power (RTWP) Level Value in External Interference Handling on the WCDMA Network. Because this is interesting in the process of handling interference caused by illegal repeaters by predicting the distance of the source of interference.

From the results of the experimental data, the distance of the interference source from the NodeB is as far as 457 meters, has an error value of 6.5% or a difference of 28 meters from the actual distance.

Keywords : *Interference, RTWP, QOS, Repeater, WCDMA, Localization Positioning*