

ABSTRACT

Network planning of cellular network systems that providing data services, absolutely different with providing voice services. This is happen due to data characteristics is different with voice characteristics. Data services are mostly having asymmetric data rate with usually need higher data rate requirement in downstream than the upstream. Another characteristics of data are data transmission are bursty in nature and latency can be tolerated up to second. In this final project give attention in cellular network planning to provide various of mobile data applications such as internet access based on HTTP, WAP, and FTP using 3rd generation technology, that is CDMA20001x EV-DO. 1xEV-DO standard is designed only to provide data services with peak data rate up to 2.4 Mbps and mean throughput up to 1.2 Mbps. The planning will be done for traffic estimation until in 2010th and will take Bandung City as case study. Bandung consist of urban area with wide's are 35.29 km² and sub urban with wide's are 134.4 km².

The result of planning data services using 1xEV-DO technology are offered traffic active user in 2010th happen in 14.00 busy hour with amount of data up to 2,239,113.02 kbit, that are contributed by 574 HTTP user, 339 WAP user, and 124 FTP user. But in this planning is not capacity/traffic limited but this is coverage limited, with amount of cell requirement to cover urban area is 11.41 cell and 3.98 cell to cover sub urban area with forward link as limitation. Number of cell that are mapped in Bandung city map are not appropriate with amount of cell that are got from coverage analysis. This is happen due to geographic of urban and sub urban are asymmetric so to cover Bandung City it need additional sector for about 28.57 % in urban area and 25 % in sub urban area. The impact of sector adding is wide of non QOS area to be 7,4 % from Bandung wide (166.69 km²).

Due to system that is used is based on CDMA, which have reuse factor 1, so it need to separate between sector/cell with PN Offset planning that able to avoid PN Offset aliasing. The result of PN Offset Planning is recommended to use pilot increment of 3 with cluster configuration of 27 for urban area and cluster configuration of 12 for sub urban area in this planning.