

ABSTRACT

Nowadays, satellite technology has developed swiftly and many services could be passed through by it. The services are , for example, *mobile-satellite service* (MSS) and *meteorological-satellite* (MetSat) *service*. MSS is a radiocommunication service between user terminals, earth stations, and space stations used by this service. MSS enables us to reach areas which can not be covered by land-mobile service because of the MSS' vast coverage of service area. While MetSat is an earth exploration-satellite service for meteorological purposes. Both of the services operate in specific frequency bands allocated by International Telecommunication Union (ITU).

With limited allocated-frequency band and expensive cost of frequency licence, an efficiency of using the allocated-frequency is urgently needed, one of the methods is frequency sharing. Frequency sharing is a common use of the same portion of the radio frequency spectrum by two or more users or services where a probability of interference exists.

In this final assignment, a frequency sharing analysis is made between MSS (uplink) and MetSat in the 1675 – 1710 MHz band. The analysis process is started by calculating the interference level and link budget for the terrestrial link scenario as for space link, estimation of required-(C/I) and system's (C/I) is made for all the possible interference cases.

The outcome of this final assignment are the calculation of average separation distance for LEO-MSS is 18 km and for GSO-MSS is 31 km. In addition for the worst cases (low elevation angles), the average separation distance is up to 48 and 66 km. Meanwhile for the space link scenario, (C/I) of all the possible interference cases can not be greater than the required-(C/I). From the results above, we can conclude that the method of frequency sharing between MSS and MetSat in the 1690 – 1710 MHz can not be applied.