

ABSTRACT

The Transition from analog broadcasting technology to digital is inevitable. Radio frequency occupancy, an unrenewable natural resource, must be used efficiently, thus analog television broadcasting should be converted to digital broadcasting. DVB-T2 system have the capability to transmit up to 8 channel simultaneously on one common bandwidth. One of the important process which made this possible is multiplexing, a process of combining several sub-channel into one common channel.

STDM is a modification of basic TDM, where the main difference is on its way of using its bandwidth. On its basic form, TDM allocates fixed sized time-slot for each channel on round-robin fashion, while on STDM, the timeslot size varies depending on each canal's bit-rate on a specific periode. This final project provided the application to compare both of these 2 TDM methode when they're given a simulated traffic which has been deliberately designed so it can mimic actual MPEG-2 traffic.

Analysis were done by observing a remodeling basic principles of TDM and STDM, which the outputs then be compared. Model and application on this final project has been been made with Simulinktm , Specifically SimEvents block library sets. Meanwhile on the application, entity has been simulated as MPEG-2 video frame. The frame rate is assigned on a fixed 30 fps. Every frame is given attributes which assigned as its payload size which itself refer to each of its own compression (I, B, P) The payload size of each frame are generated randomly with lognormal distribution, based on the preceding research about MPEG-2 traffic.

The result of the analysis is a comparison between 2 simulated TDM method. Its parameters are cell-loss, throughput, and utilization. After running 20 times of simulation for each scheme the result shows that STDM generaly have less cell-loss, more throughput, and better bandwidth utilization compared to TDM.

Keywords : *Digital Television Broadcasting , Time-Division Multiplexing, Simulink, MPEG-2 TS.*