

STATISTICAL TIME DIVISION MULTIPLEXING ARCHITECTURES AND DESIGN

A2

15 mV

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200mV

20mV



0.1 500ns

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13. Simulation of speech activities using Markov Model

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13.0 Abstract

A speech signal can be active or non-active; in one of the two states in any one time, or for a frame of speech. The duration of the both active and non-active parts can varies based upon the modes of speech (monologue and dialogue). The activities or non-activities of the speech can be modelled by using Markov Model, in this scenario a two state model, each activity is modelled by one of the states of the model. In this chapter a two state Markov model design is presented that model can be used for the simulation designs of STDN.

13.1 The design:

The design of the two state Markov model is based on the measured statistics based on monologue speech with VAD hangover settings of four frames, which is the proposed hangover length in the multiplexer design. The two states Markov model state transition block diagram is shown in figure 13.1, generates a pattern of on-off (talkspurts and silences) and can be in one of its two states at any instant time. The switching between on-off states (transition of states) of the model is based on transitional probabilities of the model. Brief description of these states of the model is given as " α " an active state.