- Aerospace telemetry dates from the 1930s, with the development of the balloon-borne radiosonde, a device that automatically measures such meteorological data as temperature, barometric pressure, and humidity and that sends the information to an Earth station by radio. Aerospace telemetry for rockets and satellites was inaugurated with the Soviet satellite Sputnik, launched in 1957, and systems...

- A telemetry system ordinarily must handle more than one channel of information (*e.g.,* routine measurements from an orbiting satellite, or flow rate and reservoir levels in a water-distribution network). These data-measurement channels are brought together by a process known as multiplexing, which combines the channels into one composite signal for transmission over the communications link. Multiplexing may be based on either a time division or a frequency division. Intime division, channels are combined one after another in time sequence; in frequency division, each channel is assigned on an individually allocated, discrete frequency band, and these bands are then combined for simultaneous transmission. Finally, data may be handled within the telemetry system in a continuous (analog) or discrete (digital) way. The latter systems are relatively more complex because it is necessary to convert analog signals to digital form, a process known asencoding, for a purely digital

- elemetry is a “technology that
- allows the remote measurement andreporting of information of interest to the
- system designer or operator”.
- Information,in this case, is data that is organized as aresult of processing or manipulation, whichadds to the knowledge of the receiver. TheGreek root tele means remote and metronmeans to measure. Other sources define
- telemetry as “the science of the use of
- the
- telemeter” 14, and further define
- telemeter
- as “an
- instrument for determining distanceof an object, such as the distance target in
- gunnery”.
- One early example of this scienceexisted in Italy in t he early 17th century. AnItalian astronomer named Porro used a quick measurement technique called tachymetry todetermine distances. Porro used an opticalmethod with fixed stadia hairs in a focalplane and a variable length graduatedhorizontal base at a remote location wherethe distance was observed. Telemetry canalso be considered as the science of transmission of inaccessible data

TDP

Aerospace telemetry further definestelemetry as the science of “transmission of information from air and space vehicles to accessible locations”. This definition extended the conventional notion fortelemetry. For example, although receivingstations are generally located on Earth, theymay also be located within air and spacevehicles remote from the vehicles containingthe transmitting stations.

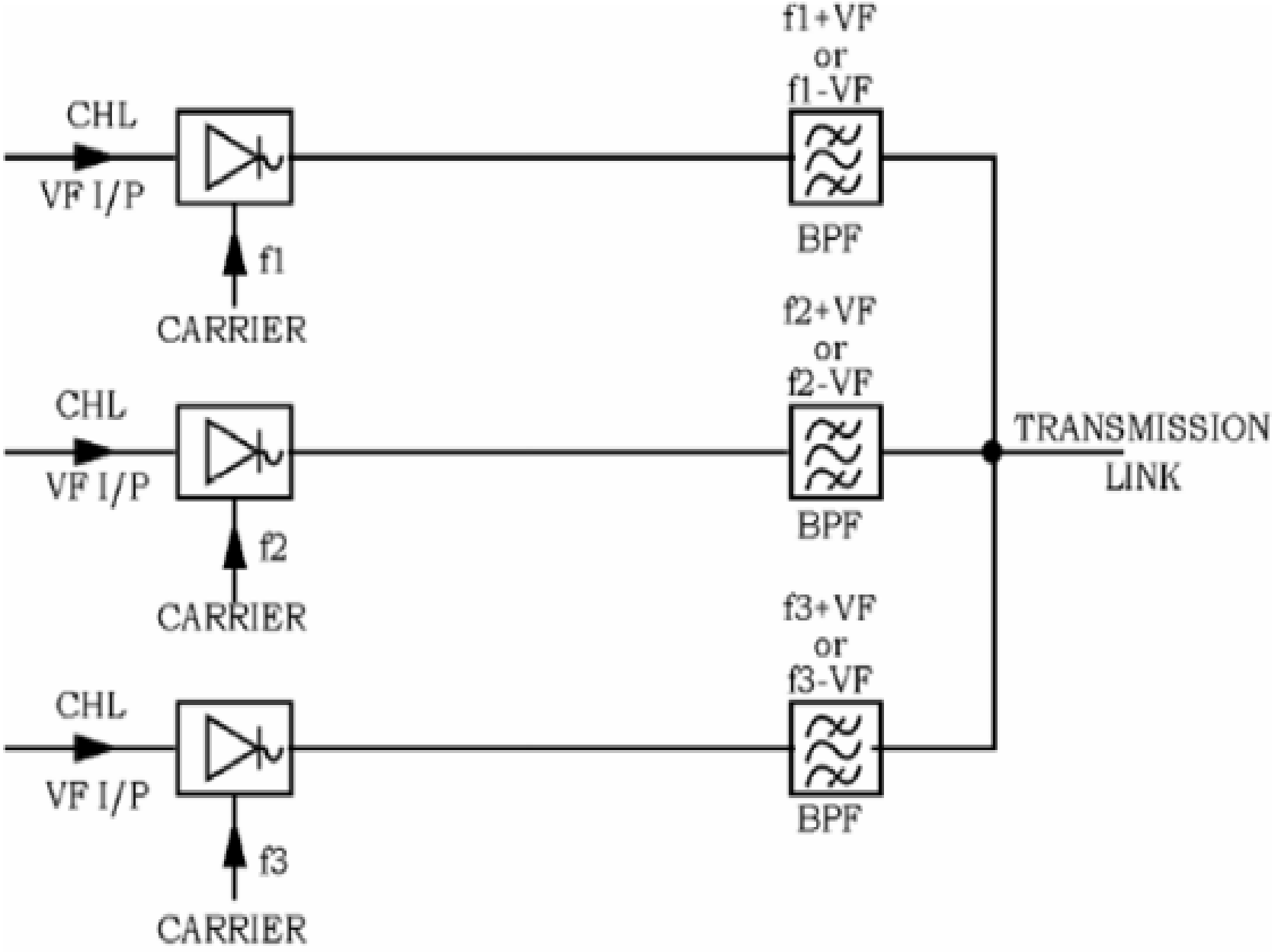
MULTIPLEXING TECHNIQUES

There are basically two types of multiplexing techniques

- i. Frequency Division Multiplexing (FDM)
- ii Time Division Multiplexing (TDM)

Frequency Division Multiplexing Techniques (FDM)

- The FDM techniques is the process of translating individual speech circuits (300- 3400 Hz) into pre-assigned frequency slots within the bandwidth of the transmission medium. The frequency translation is done by amplitude modulation of the audio frequency with an appropriate carrier frequency. At the output of the modulator a filter network is connected to select either a lower or an upper side band. Since the intelligence is carried in either side band, single side band suppressed carrier mode of AM is used. This results in substantial saving of bandwidth mid also permits the use of low power amplifiers. Please refer Fig. 1.
- FDM techniques usually find their application in analogue transmission systems. An analogue transmission system is one which is used for transmitting continuously varying signals.


f1+VF
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