the AND gates pass through an OR gate thus forming the t.d.m. signal that is transmitted.

The receiver has a timing recovery circuit that synchronises the receiver clock to that of the transmitter. The channel synchronisation circuit, consisting of two shift registers, the decoder and the coincidence circuit, is exactly the same as that described in the transmitter. If the received signal is the same as the transmitted one, these circuits have the same input signal and clock, and consequently they both yield the same output signal. Synchronisation occurs every time the coincidence circuits in both ends are triggered. The N parallel outputs of the second shift register serve as the clock to the corresponding c.v.s.d. demodulators, which have the received t.d.m. signal as common input. Thus demultiplexing is completed and digital–analogue conversion follows.

As has already been mentioned, synchronisation occurs every time that M consecutive bits of the t.d.m. signal coincide with those of the coincidence circuit. This occurs in a random way and depends only on the statistics of the information signal. It is an 'average' frequency equal to $f_0/2^M$. In the time interval between two successive instants of synchronisation, the channel sequence in time is always the same, but the choice of the first channel is random.

The effect of this synchronisation scheme on the information signal carried by each channel is now examined. The clock signal to the c.v.s.d. modulators/demodulators would have a stable frequency f_0/N if a conventional synchronisation

REFLECTION COEFFICIENT OPTIMISATION AT FEED OF PARABOLIC ANTENNA FITTED WITH VERTEX PLATE

Indexing terms: Reflector antennas, Radiation patterns

An expression giving the reflection coefficient at the feed of a parabolic antenna fitted with a vertex plate is minimised. The parameters open to optimisation are the vertex plate radius and its distance from the centre of the antenna. Graphs of the reflection coefficient as a function of frequency for some optimisation frequencies are given and compared with the corresponding graphs obtained from another method and from the case where the vertex plate is missing.

With the advent of satellite communications, the restrictions on the reflection coefficient at the feed of parabolic antennas have become more severe. A successful way of diminishing this parameter at a given frequency has been the adjunction of a circular vertex plate on the antenna axis at a fixed distance from the antenna centre. The well-known analysis of this method is approximate[1] but gives good results at the required