ii) measurements and indications on digital transmission systems including digital line systems, digital circuits and digital multiplexers.

Figure 1/O.ax and Figure 2/O.ax illustrate the range of test and measurement capabilities applicable to primary PCM multiplexers, in the send and receive directions respectively.

Figure 3/O.ax and Figure 4/O.ax illustrate the range of test and measurement capabilities applicable to digital transmission systems.

The figures indicate the relevant O-Series Recommendations to be applied for each test and measurement parameter, and also show the connection interface for the test instrument.

For example:

To measure quantizing distortion on a primary PCM multiplexer.

Figure 1/O.ax shows that instruments conforming to Recommendations O.131 and O.132 can be employed, connected to the audio input interface of the send encoder.

Figure 2/O.ax shows that similar instruments are connected to the audio output interface of the receive decoder to complete the measurement path.

3.Application of measuring equipment for use on analogue transmission systems

Under study.

Draft Recommendation O.ax(0.1)

# SCOPE AND APPLICATION OF 0-SERIES RECOMMENDATIONS

## 1.Scope of O-Series Recommendations

The CCITT makes various Recommendations covering:

a) essential specification clauses for telecommunications equipments, and

b) operational matters e.g. procedures for bringing circuits into service and routine checks of performance.

The character of the tests for checking compliance with these two categories of Recommendation are essentially different, and this often leads to a different choice of test equipment.

Category a) tests will normally be more comprehensive. Their purpose (often based upon measurements of sample or prototype equipments) is to certify compliance with design objectives and they may therefore be a precursor to equipment being accepted for installation in an administration's network. Such tests are unlikely to be employed routinely and in general CCITT does not produce Recommendations for test equipment intended specifically for this purpose.

Category b) tests, however, are used systematically and repetitively and their widespread application may necessitate additional considerations, in particular the need for;

1) conformity of results when tests may be performed using test equipment supplied by more than one manufacturer, and;

2) a common measurement technique to ensure compatibility when a test requires test equipment at both ends of an international circuit.

It is primarily for these circumstances that CCITT issues the O-Series Recommendations.

The above remarks apply equally to analogue and digital techniques.

## 2.Application of measuring equipment for use on digital transmission systems

This section is presented as an aid to selecting and applying specifications in the O-Series of Recommendations concerning tests and measuring equipment for use on primary PCM and data multiplexers and digital transmission systems.

Applications are divided into two categories:

i) measurements and indications on primary PCM multiplexers;