



INTERNATIONAL TELECOMMUNICATION UNION

**ITU-T**

TELECOMMUNICATION  
STANDARDIZATION SECTOR  
OF ITU

**J.27**

**(ex CMTT.661)**

**(06/90)**

**TELEVISION AND SOUND TRANSMISSION**

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**SIGNALS FOR THE ALIGNMENT OF  
INTERNATIONAL SOUND-PROGRAMME  
CONNECTIONS**

**ITU-T Recommendation J.27**

(Formerly Recommendation ITU-R CMTT.661)

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## FOREWORD

The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the International Telecommunication Union. The ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Conference (WTSC), which meets every four years, established the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

ITU-T Recommendation J.27 (formerly Recommendation ITU-R CMTT.661) was elaborated by the former ITU-R Study Group CMTT. See Note 1 below.

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## NOTES

1 As a consequence of a reform process within the International Telecommunication Union (ITU), the CCITT ceased to exist as of 28 February 1993. In its place, the ITU Telecommunication Standardization Sector (ITU-T) was created as of 1 March 1993. Similarly, in this reform process, the CCIR and the IFRB have been replaced by the Radiocommunication Sector (ITU-R).

Conforming to a joint decision by the World Telecommunication Standardization Conference (Helsinki, March 1993) and the Radiocommunication Assembly (Geneva, November 1993), the ITU-R Study Group CMTT was transferred to ITU-T as Study Group 9, except for the satellite news gathering (SNG) study area which was transferred to ITU-R Study Group 4.

2 In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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**Recommendation J.27<sup>1)</sup>**

**SIGNALS FOR THE ALIGNMENT OF INTERNATIONAL SOUND-PROGRAMME CONNECTIONS**

*(1986; revised 1990)*

The CCIR,

CONSIDERING

- (a) that Recommendation 645 defines three test signals to be used on international sound-programme connections;
- (b) that no level information can be derived from a single-level test signal concerning its relationship to the levels defined in Recommendation 645;
- (c) that many impairments in international programme exchanges can be traced to misinterpretations of the single-level test signals;
- (d) that the test signals in Recommendation 645 could be used to align sound-programme commentary connections on the switched telephone network which cannot accommodate high level sinusoidal test signals,

UNANIMOUSLY RECOMMENDS

that international sound-programme connections should be identified and aligned using the definitions in § 1, the test signal format in § 2 and the measurement methods in § 3 of this Recommendation.

**1. Definitions**

1.1 *Source identification*

An announcement should be used to identify the originating point of the test signals and should be preferably as short as possible. It is suggested that such an announcement contain at least the following information:

- name of originating organization,
- location,
- country.

The sound-programme signal should be controlled by the sending broadcaster so that the amplitudes of the peaks only rarely exceed the peak amplitude of the permitted maximum (sine-wave test) signal.

1.2 *Test signal and level definitions*

1.2.1 *Alignment signal (AS)*

Sine-wave signal at 1 kHz<sup>2)</sup> at a level of 0 dBm<sub>0s</sub>, which is used to align the international sound-programme connection.

1.2.2 *Measurement signal (MS)*

Sine-wave signal at 1 kHz<sup>2)</sup> at a level 12 dB below the alignment signal level, which should be used for long-term measurements and measurements at all frequencies.

1.2.3 *Permitted maximum signal (PMS)*

Sine-wave signal at 1 kHz<sup>2)</sup>, 9 dB above the alignment signal level, equivalent to the permitted maximum programme-signal level.

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<sup>1)</sup> Formerly Recommendation ITU-R CMTT.661.

<sup>2)</sup> This frequency is nominal, and 1020 Hz recommended by CCITT Recommendation O.33 may be used.

## 2. Test signal format

2.1 A three-level sinusoidal test signal at a reference frequency of 1 kHz<sup>3)</sup> should be used to check the alignment of international sound-programme connections. These three levels should be combined with the source identification and be repeated cyclically as specified in the format shown in Fig. 1 for monophonic and stereophonic connections.

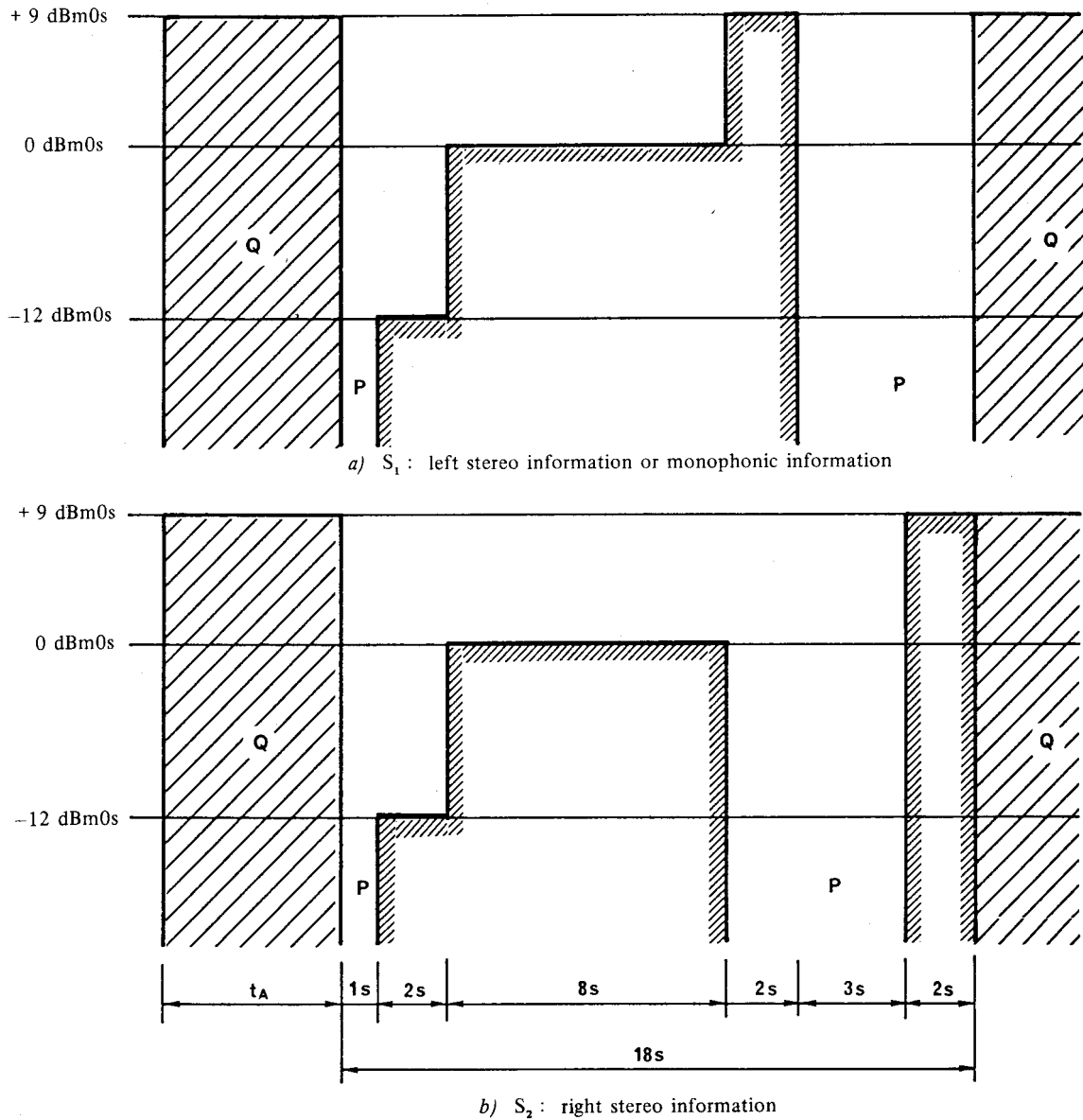


FIGURE 1 – Format for the three-level test signal for sound programme connections

Cycle duration =  $t_A + 18$  s

Q: station announcement

$t_A$ : duration of the station announcement.  
It varies depending on the length of the message

P: signal pauses

d01-sc

<sup>3)</sup> This frequency is nominal, and 1020 Hz recommended by CCITT Recommendation O.33 may be used.

2.2 These test signals should not be connected directly to the switched telephone network as excessive channel loading or crosstalk into other channels may be produced.

2.3 Some organizations may not have automatically generated test levels as defined in § 2.1. In these cases, the alignment level of 0 dBm0s at 1 kHz (see Note) should be used for the alignment of international sound-programme connections.

*Note* – This frequency is nominal, and 1020 Hz recommended by CCITT Recommendation O.33 may be used.

### **3. Measurement methods**

The fundamental concept of the test signals defined in this Recommendation is to provide organizations with accurate and well-defined levels [Thiele, 1984]. These levels are intended to provide rapid identification of level errors as well as to allow operational personnel sufficient time to make the necessary level adjustments at the appropriate points in the international sound-programme connection. Alignment of the connection is made by adjusting the alignment signal to the appropriate point on the programme level meter as defined in Annex I to Recommendation 645. Identification of left and right channels is provided as shown in Fig. 1. Organizations should give consideration to Reports 292 and 820 when establishing measurement procedures.

The three-level test signal defined in § 2.1 makes provision for a brief subjective and/or objective noise measurement in the signal pauses (P) as shown in Fig. 1. These measurement pauses are not intended to replace the maintenance practices defined in the CCITT Series N Recommendations but rather to confirm that there are no gross noise or cross-talk impairments on the circuit.

#### REFERENCES

THIELE, A. N. [September, 1984] Three-level-tone test signal for setting audio levels. AES Australian Convention, Melbourne, Australia.