



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

Q.315

**SPECIFICATIONS OF SIGNALLING SYSTEM R1
LINE SIGNALLING**

PCM LINE SIGNAL SENDER (TRANSMITTER)

ITU-T Recommendation Q.315

(Extract from the *Blue Book*)

NOTES

1 ITU-T Recommendation Q.315 was published in Fascicle VI.4 of the *Blue Book*. This file is an extract from the *Blue Book*. While the presentation and layout of the text might be slightly different from the *Blue Book* version, the contents of the file are identical to the *Blue Book* version and copyright conditions remain unchanged (see below).

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

Recommendation Q.315

2.5 PCM LINE SIGNAL SENDER (TRANSMITTER)

2.5.1 Signalling format

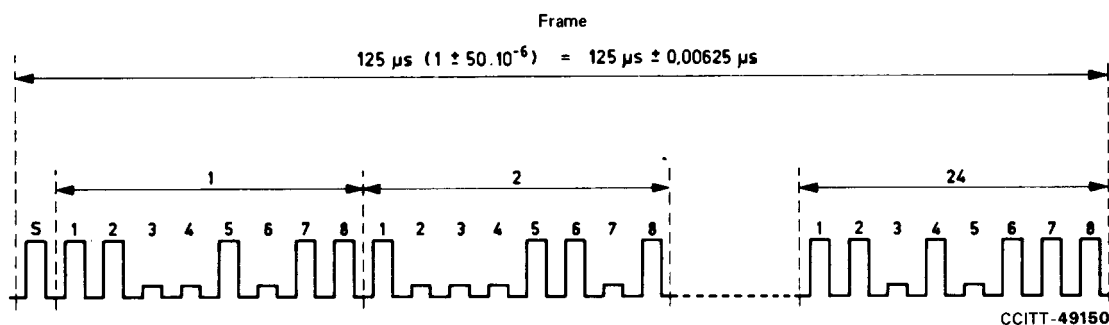
The primary multiplex format is shown in Figure 1/Q.315. Per channel, in-slot signalling is accomplished by utilizing bit No. 8 in each time slot of the designated frames (6, 12, etc.) for signalling purposes. Bit No. 8 of each time slot in the intervening frames (1-5, 7-11, etc.) is used for encoding speech. Two signalling channels per speech channel are provided in the format. The multiframe alignment required for signalling purposes is obtained by subdividing the 8 kbit/s framing pulse stream into two 4 kbit/s streams, one for terminal framing and one for signalling framing (S-bits). The relationship of the framing and multiframing signals to the signalling bits is given in Table 2/Q.315. Since only one line signalling channel is required for System R1, the same signalling information is sent over both signalling channels A and B.

2.5.2 Transmitted signal duration

The transmitted signal durations are given in Table 1/Q.311 of Recommendation Q.311.

2.5.3 Transmitting line split

Since signalling is out-band, no transmitting line split is required.



Sampling frequency	$8000 (1 \pm 50 \times 10^{-6}) \text{ Hz} = 8000 \pm 0.4 \text{ Hz}$
Output bit rate	$1544 (1 \pm 50 \times 10^{-6}) \text{ kbit/s} = 1544 \text{ kbit/s} \pm 77 \text{ bit/s}$
Bits/frame	193
Time slots/frame	24
Signalling	Eighth bit every sixth frame as shown in Table 2/Q.315.

The 8 bits in each time slot are defined in Table 2/Q.315.

The F-bit is time shared between terminal framing and signalling framing (S) as shown in Table 2/Q.315.

FIGURE 1/Q.315
Primary multiplex format

TABLE 2/Q.315

Multiframe structure

Frame number	Frame alignment signal	Multiframe alignment signal (S-bit)	Bit number(s) in each channel time slot		Signalling channel
			For character signal	For signalling	
1	1	-	1 to 8	-	A
2	-	0	1 to 8	-	
3	0	-	1 to 8	-	
4	-	0	1 to 8	-	
5	1	-	1 to 8	-	
6	-	1	1 to 7	8	
7	0	-	1 to 8	-	
8	-	1	1 to 8	-	
9	1	-	1 to 8	-	
10	-	1	1 to 8	-	
11	0	-	1 to 8	-	
12	-	0	1 to 7	8	

Note 1 - The sequence shown is repetitive.

Note 2 - For System R1 the same signalling information is sent on signalling channels A and B.