

Signaling System No. 5

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CCITT5^[1] was a multi-frequency (MF) telephone signalling system in use from the 1970s for International Direct Distance Dialing (IDDD). It was sometimes nicknamed "Atlantic Code" because the first IDD connections between Europe and North America used it.

Signalling Systems for telephone traffic are often designed to fit in with the media over which their channels are transmitted. C5 was designed for Inter-Continental traffic where many transmission paths were lengthy terrestrial, often submarine cable, and geostationary satellite links. Trunks using satellite links also had Echo Suppressors connected at their end points. C5 was specifically designed to work within those links.

Based on the Bell System MF signalling system known by CCITT as Regional System R1, it had six frequencies: 700, 900, 1100, 1300, 1500 & 1700 Hz. The first five frequencies were used in a two-out-of-five code to represent decimal numbers (phone numbers), and the last frequency in combination with one of the others represented the beginning or end of a sequence of digits.

Where 700 Hz = A, 900 Hz = B, 1100 Hz = C, 1300 Hz = D, 1500 Hz = E, 1700 Hz = F

- A&B = 1, the digit 1
- A&C = 2, the digit 2
- B&C = 3, the digit 3
- A&D = 4, the digit 4
- B&D = 5, the digit 5
- C&D = 6, the digit 6
- A&E = 7, the digit 7
- B&E = 8, the digit 8
- C&E = 9, the digit 9
- D&E = 10, the digit 0
- A&F = 11, Code 11 or a prefix to reach any International operator in the country
- B&F = 12, Code 12 or a prefix to reach an Individual International operator in the country
- C&F = 13, Code 13 the Keying Prefix (KP1) where the following digits do not contain a country code (Terminal working)
- D&F = 14, Code 14 the Keying Prefix (KP2) where the following digits do contain a country code (Transit working)
- E&F = 15, Code 15 the Keying Finish (KF or End-of-keying) code instructing the register not to wait for any more digits

The 2 out of 6 frequency code was used to pass digits forward between Registers in traditional International Switching Centres. Each digit took 55 ms with a 55 ms Inter-digital pause (IDP) and the sequence was sent 'en-bloc' to ensure that Echo Suppressors would not switch out the forward path as the links tended often to be satellite channels. The first digit was a keying Prefix (a KP) to indicate Terminal or Transit working and the last digit was the digit 15 or Keying Finish (KF).

In addition, for line signaling a 2 frequency (2VF) code using compelled sequences of 2400 Hz and 2600 Hz rather than continuous SF tone was used to seize the line at the beginning of a call over that trunk and clear it at the end of the call - long after the valuable register had sent 15 or KF and dissociated from the call. This Line signalling element was 2VF to introduce the possibility of more meanings and tone-off idle in order that hundreds of channels in transmission media would not be transmitting standing tones simultaneously.

References

- ¹ ITU-T Recommendation Q.140-Q.180 (<http://www.itu.int/rec/T-REC-Q.140-Q.180/en>) - Specifications of Signalling System No. 5

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