

## RECOMMENDATION ITU-R F.347\*

**CLASSIFICATION OF MULTI-CHANNEL RADIOTELEGRAPH SYSTEMS  
FOR LONG-RANGE CIRCUITS OPERATING AT FREQUENCIES  
BELOW ABOUT 30 MHz AND THE DESIGNATION OF THE CHANNELS IN THESE SYSTEMS**

(1956-1959-1963)

The ITU Radiocommunication Assembly,

*considering*

- a) that there exists a large number of long-range multi-channel radiotelegraph systems using frequencies below about 30 MHz and that it is desirable to classify them in categories;
- b) that the lack of uniformity in the arrangement and designation of the channels in these systems, may give rise to certain difficulties when one transmitting station has to work with several receiving stations;
- c) that the increasing use of multi-channel telegraph systems makes it desirable to adopt a uniform designation of channels in such systems,

*recommends*

1. that the systems should be classified and the different categories designated by letters, as follows:
  - 1.1 *Time-division multiplex systems*: capital letter T (for example, synchronous systems, such as Baudot, RCA and TOR multiplex and double-current cable code);
  - 1.2 *Frequency-division multiplex systems*
    - 1.2.1 Systems with *constant* frequency arrangements of significant conditions: capital letter U (for example: voice-frequency multiplex with frequency-shift);
    - 1.2.2 Systems with *variable* frequency arrangements of significant conditions: capital letter V (for example: four-frequency diplex);
  - 1.3 *Multi-channel systems using a combination of these processes*

<ol style="list-style-type: none"> <li>1.3.1 Frequency-division systems, with constant frequency arrangement, combined with a time-division multiplex system</li> <li>1.3.2 Four-frequency diplex system, combined with a time-division multiplex system</li> </ol>	}	combination of the above-mentioned letters (always beginning with the frequency-division letters U or V);
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2. when a multi-channel telegraph signal is applied to a multi-channel telephone transmitter, the designation of the telephone channel should come first in the sequence and should be in accordance with Recommendation 348;
3. when a multi-channel telegraph signal is applied to an independent-sideband transmitter used solely for telegraphy, the designation of the sideband should come first in the sequence. The letter H should denote the upper sideband, and the letter L the lower sideband;
4. that in time-division systems, the telegraph channels should be designated by capital letters A, B, C, D, etc.; for sub-division, the sub-channels should be designated by A1, A2, A3, A4, B1, B2, B3, B4, etc.;
5. that in frequency-division systems, the telegraph channels should be designated by figures;

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\* Radiocommunication Study Group 9 made editorial amendments to this Recommendation in 2000 in accordance with Resolution ITU-R 44.

6. that in a combination of multi-channel processes, the telegraph channels should be designated by a letter and figure sequence.

*For example:*

when using a frequency-division system with constant frequency arrangement of significant conditions (letter U), and modulating the 3rd channel of this latter system with a time-division multiplex (letter T), channel B of this latter system would be indicated by U3TB;

where channel B of the time-division system is sub-divided and sub-channel 2 is in use, the designation would be U3TB2;

if the above-mentioned system is applied to channel B of an independent-sideband telephone transmitter, the corresponding designation would be BU3TB or BU3TB2;

if the above-mentioned system is applied to the upper sideband of an independent-sideband multi-channel transmitter used solely for telegraphy, the corresponding designation would be HU3TB or HU3TB2;

where additional information is required, the multiplex system may be identified by a number inserted between the letters T and B, and where two sub-channels (quarter-channels) are linked together to form a half-speed sub-channel (half-channel), each quarter-speed sub-channel component may be designated by the use of numbers separated by an oblique stroke. The full designation HU3T4B2/4 would be applicable to the arrangement shown diagrammatically by the arrows on the right of the figure below;

in established communication networks, where the sub-carrier, multiplex system, channel and sub-channel arrangements are mutually known to the station management at each end of the circuit, it shall be permissible to shorten the full designation HU3T4B2/4 above, beginning at the first letter or number which is of major significance for identification purposes. For example, in the given instance 4B2/4 will identify the specific area illustrated by the arrows to the right of Fig. 1.

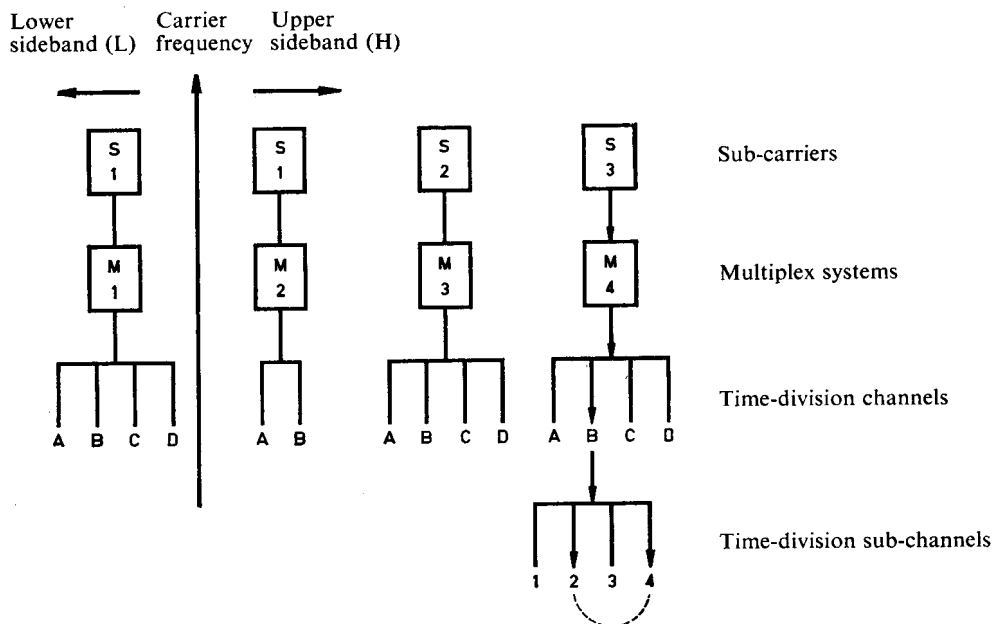


FIGURE 1 – Multi-channel independent-sideband radiotelegraph transmitter

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*Note* – Sub-carriers are numbered sequentially in both upper and lower sidebands, starting with the number 1, adjacent to the carrier (radiated or suppressed).