

## RESOLUTION 517 (REV.WRC-19)

**Introduction of digitally modulated emissions in the high-frequency bands  
between 3 200 kHz and 26 100 kHz allocated to the broadcasting service**

The World Radiocommunication Conference (Sharm el-Sheikh, 2019),

*considering*

- a) that digital techniques are being introduced into many existing services;
- b) that digital techniques allow more effective utilization of the frequency spectrum than double-sideband (DSB) techniques;
- c) that digital techniques enable reception quality to be improved;
- d) the relevant parts of Appendix **11** concerning the digital system specification in the high-frequency (HF) broadcasting services;
- e) that the ITU Radiocommunication Sector (ITU-R), in its Recommendation ITU-R BS.1514, has recommended system characteristics for digital sound broadcasts in the broadcasting frequency bands below 30 MHz;
- f) that digital modulation techniques are expected to provide the means to achieve the optimum balance between sound quality, circuit reliability and bandwidth;
- g) that digitally modulated emissions can, in general, provide more efficient coverage than amplitude-modulated transmissions by using fewer simultaneous frequencies and less power;
- h) that it may be economically attractive, using current technology, to convert modern conventional DSB broadcasting systems to digital operation in accordance with *considering d)*;
- i) that some DSB transmitters have been used with digital modulation techniques without transmitter modifications;
- j) that ITU-R is carrying out further studies on the development of broadcasting using digitally modulated emissions in the frequency bands allocated to the broadcasting service below 30 MHz;
- k) that a long period could be needed for the introduction of digital broadcasting, taking into account the cost impact of replacement of transmitters and receivers,

*resolves*

- 1 that the early introduction of digitally modulated emissions as recommended by ITU-R in the HF bands between 3 200 kHz and 26 100 kHz allocated to the broadcasting service is to be encouraged;
- 2 that digitally modulated emissions shall comply with the characteristics specified in the relevant parts of Appendix **11**;

## RES517-2

3 that whenever an administration replaces a DSB emission by an emission using digital modulation techniques, it shall ensure that the level of interference is not greater than that caused by the original DSB emission, and shall use the RF protection values specified in Resolution **543 (Rev.WRC-19)**;

4 that the continued use of DSB emissions may be reviewed by a future competent world radiocommunication conference (WRCs) based on administrations' experience with the introduction of digital HF broadcasting services,

*instructs the Director of the Radiocommunication Bureau*

to compile and provide to the future competent WRC referred to in *resolves* 4 the latest available complete statistics on the worldwide distribution of digital HF broadcasting receivers and transmitters,

*invites the ITU Radiocommunication Sector*

to continue its studies on digital techniques in HF broadcasting with a view to assisting in the development of this technology for future use,

*invites administrations*

to encourage the inclusion in all new HF broadcasting transmitters put into service after 1 January 2004 of the capability to offer digital modulation,

*further invites administrations*

1 to assist the Director of the Radiocommunication Bureau by providing the relevant statistical data and to participate in ITU-R studies on matters relating to the development and introduction of digitally modulated emissions in the HF bands between 3 200 kHz and 26 100 kHz allocated to the broadcasting service;

2 to bring to the notice of transmitter and receiver manufacturers the recent results of relevant ITU-R studies on spectrum-efficient modulation techniques suitable for use at HF as well as the information referred to in *considering d) and e)*, and encourage the availability of affordable low-cost digital receivers.